Draft
Environmental Impact Report

SCH# 2022110558

Volume 3

Appendix F

PELICANS JAW HYBRID SOLAR PROJECT

by Pelicans Jaw Solar, LLC *(PP21124)*

Conditional Use Permit No. 3, Map No. 5
General Plan Amendment No. 2, Map No. 5

Kern County
Planning and Natural Resources Department
Bakersfield, California

August 2023

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Kern County
Planning and Natural Resources Department
Bakersfield, California

Technical Assistance by:
Kimley-Horn

August 2023

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Appendices – Volume 3

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Appendix F: Biological Resources Report

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Appendix F

Biological Resources Report

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Biological Resources Report

Pelicans Jaw Hybrid Solar Project

JULY 2023

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Executive Summary

The Pelicans Jaw Hybrid Solar Project (Project) has been determined by Kern County (County) acting as the lead agency, to require preparation of an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA). Pelicans Jaw Solar, LLC proposes to entitle, construct, operate, and maintain the Project, which would consist of up to 500-megawatts (MW) of photovoltaic solar generation and up to 4,000-megawatt hours (MWhr) of battery energy storage. The approximately 3,371-acre Project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5 located approximately two miles to the west.

This Biological Resources Report documents existing conditions of the Project and incorporates the results of species-specific surveys as well as an in-depth review of vegetation communities, soils, the potential for state and federal special status and listed plant and wildlife species, and migratory bird and raptor species. Potential effects to these natural resources and biological species from the Project development have been addressed to the extent feasible. The report also includes a summary of the waters and wetlands under the jurisdiction of the California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB).

The information in this Biological Resources Report will be used to evaluate the effects for the determination of appropriate levels of mitigation for biological resources including waters and wetlands. This will be in compliance with but not limited to, the California Environmental Quality Act (CEQA), the federal Endangered Species Act (ESA), and the California Endangered Species Act (CESA).

Special-Status Plant Species

Vegetation mapping was conducted during the delineation of aquatic resources completed in December 2020 (Dudek 2021b). Nine natural vegetation communities, which are identified in *A Manual of California Vegetation Online* (CNPS 2022) and *The California Natural Community List* (CDFW 2022c), and five land cover types were mapped during field surveys. Approximately 17 acres of the approximately 3,371-acre Project site is comprised of State-designated sensitive plant communities.

The evaluation considered the potential for 12 special-status plant species to occur within the Project site: Earlimart orach (*Atriplex cordulata var. erecticaulis*), Lost Hills, lesser saltscale (*Atriplex coronata var. vallicola*), California jewelflower (*Caulanthus californicus*), recurved larkspur (*Delphinium recurvatum*), Kern mallow (*Eremalche parryi ssp. kernensis*), alkali-sink goldfields (*Lastenia chrysantha*), Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*), Munz's tidy-tips (*Layia munzii*), San Joaquin wollythreads (*Monolopia congdonii*), California alkali grass (*Puccinellia simplex*), and Kings gold (*Tropidocarpum californicum*). Surveys for special status plant species identified two species as present on the Project site: Kern mallow, listed as endangered under the federal Endangered Species Act, and Lost Hills crownscale, a California Rare Plant Rank of 1B by the California Native Plant Society, with no

hammondii), San Joaquin coachwhip (*Masticophis flagellum ruddocki*), burrowing owl (BUOW; *Athene cunicularia*), Swainson's hawk (SWHA; *Buteo swainsoni*), Le Conte's thrasher (*Toxostoma lecontei*), San Joaquin antelope squirrel (*Ammospermophilus nelson*), giant kangaroo rat (*Dipodomys ingens*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), Tulare grasshopper mouse (*Onychomys torridus tularensis*), American badger (AMBA; *Taxidea taxus*), Crotch's bumble bee (*Bombus crotchii*), and San Joaquin kit fox (SJKF; *Vulpes macrotis mutica*).

Four of the thirteen special status wildlife species were identified as being present on the project site, or on adjacent areas potentially affected by construction, operation, and maintenance of the project:

- **Burrowing Owl** – Two BUOW were observed flushed from burrows within the Project site during focused surveys conducted in 2021. Additionally, four images of burrowing owl were captured on game cameras within the Project site during focused surveys conducted in 2022.
- **Swainson's Hawk** – Two potential SWHA nests were observed nest building during March and June 2022 focused surveys. The two nests were observed approximately 500-feet outside of the Project boundary within the 0.5-mile survey buffer.
- **American Badger** – Three AMBA were observed on game cameras captured during focused surveys conducted in 2021 within the Project site. Additionally, numerous potential dens were observed during focused surveys conducted in 2022 within the Project site.
- **San Joaquin Kit Fox** – No direct SJKF observations were observed during blunt-nosed leopard lizard adult and hatchling season surveys in 2021; however, photos of SJKF were captured at two locations during the 2021 surveys. A total of three active dens and seven other known dens were recorded within the Project site during focused surveys and camera studies conducted in 2022. Of 80 total cameras set throughout the Project site during a wildlife camera study, 58 cameras captured images of San Joaquin kit fox activity. The number of San Joaquin kit fox individuals captured on camera is unknown, as some images of the same individuals can be captured at different locations and on different dates.

Waters of the State

A total of approximately 39.68 acres of waters of the state, consisting of 13.61 acres (88,918 LF) of non-wetland waters and 26.27 acres of wetlands potentially regulated by the Regional Water Quality Control Board are present within the Project site. These features are potentially subject to regulation by the RWQCB under the Porter-Cologne Water Quality Control Act. The Project has been designed to avoid wetlands; however, the project is anticipated to require impacts to up to 4 acres of the drainage ditches, potentially subject to the jurisdiction of the RWQCB.

A total of Approximately 61.68 acres of waters of the state, consisting of 59.75 acres (88,934 LF) of man-made drainage ditches with defined bed and bank, and an additional 1.93 acres of riparian habitat potentially regulated by the California Department of Fish and Wildlife pursuant to Sections 1600-1603 of the California Fish and Game Code

Waters of the United States

A total of approximately 39.68 acres, including 13.61 acres (88,918 linear feet) of non-wetland waters and 26.07 acres of wetlands at the Project site were evaluated to determine whether they are potentially subject to regulation by the U.S. Army Corps of Engineers under the federal Clean Water Act (CWA).

In *Sackett v. EPA*, the United States Supreme Court narrowed the scope of "waters of the United States" and therefore the CWA. Under *Sackett*, "the CWA's use of 'waters' encompasses only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes." To qualify as waters of the United States, a water must not only be relatively permanent, but also connected to traditional navigable waters. Finally, "the CWA extends only to those wetlands that are as a practical matter indistinguishable from waters of the United States," meaning that "the wetland has a continuous surface connection with that water, making it difficult to determine where the water ends and the wetland begins."

As a result of the investigations document in the *Agriculture Conversion Technical Study and 10-Year Farming History*, it has been determined that there is no longer a connection between waters at the Project site and a navigable water body. Therefore, the project does not contain Waters of the United States subject to regulation under the CWA.

Wildlife Movement Corridors

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife in general, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges. They can also be small scale movement corridors, such as riparian zones, that provide connectivity and cover to support movement at a local scale.

The Project is not located within a mapped wildlife movement corridor or linkage. Local drainage ditches may be used by local wildlife to travel through the vicinity, these drainage ditches will be effected by the installation of new culverts and improvements of existing culverts to accommodate north-south and east-west connections for access roads, retention basins, and perimeter fencing. wildlife have been observed foraging within the Project site. However, the applicant has integrated the use of wildlife-friendly fencing (perimeter fencing raised approximately 3 to 7 inches from the ground surface) to facilitate continued wildlife movement through the Project site such that impacts on wildlife movement would be less than significant.

Local Policies and Ordinances

As proposed, the Project is not anticipated to conflict with any local goals or policies of the Kern County General

Resources Report includes an analysis of impacts and a total of 17 recommended mitigation measures that will reduce the potential for adverse significant impacts to a less-than-significant impact for the identified listed, sensitive, special status species, and sensitive vegetation communities.

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APN	Assessor's Parcel Number
BESS	Battery Energy Storage System
BMP	Best Management Practice
BSA	Biological Study Area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
kV	Kilovolt
MW	Megawatt
MWhr	Megawatt Hour
O&M	Operations and Maintenance
PG&E	Pacific Gas and Electric
Project	Pelicans Jaw Hybrid Solar Project
PV	Photovoltaic
RWQCB	Regional Water Quality Control Board
SCADA	supervisory control and data acquisition system
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service

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1 Introduction

Dudek has prepared this Biological Resources Report (report) for the proposed Pelicans Jaw Hybrid Solar Project (Project), located in Kern County, California (Figure 1, Project Location). This report describes current site conditions, provides a habitat assessment for special-status species with potential to occur within the Project site, and describes survey methodologies and results of various focused field survey efforts conducted on the Project site from 2020 through 2023. This report is intended to provide information to support the Project's California Environmental Quality Act (CEQA) review process and future regulatory permitting by the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and/or the Regional Water Quality Control Board (RWQCB), as appropriate. Kern County (County) is the Lead Agency (per CEQA Guidelines Section 15062) and has determined that preparation of an Environmental Impact Report (per CEQA Guidelines Section 15161) is necessary for the Project. The scope of the report includes the biological resources identified for consideration in Appendix G of the State CEQA Guidelines:

Special Status Species

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Sensitive Natural Communities and Critical Habitat

b) Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service.

Jurisdictional Aquatic Resources

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Wildlife Movement Corridors

d) Interfere substantially with the movement of any resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors or impede the use of wildlife nursery sites.

Local Policies and Ordinances

The methods used in the development of this Biological Resources Report included a literature review, review of data in regulatory agency files, site reconnaissance, surveys conducted pursuant to a work plan approved by USFWS and CDFW (Attachment A; Dudek 2021a), and Section 1600 of the California Fish and Game Code.

The Land Use, Open Space, and Conservation Elements of the Kern County General Plan (2009) provides direction for future growth in the unincorporated areas of Kern County and identifies the federal, state, and local statutes, ordinances, or policies that govern the conservation of biological resources that must be considered by the County during the decision-making process for any project that could affect biological resources. Each of the applicable goals, policies, and implementation measures that typically apply to discretionary projects were reviewed and considered as part of this Biological Resources Report.

1.1 Project Description

The Project would include up to 500-megawatt (MW) of photovoltaic solar generation and a battery energy storage system (BESS) with a capacity up to 4,000-megawatt hour (MWhr) located on approximately 3,371 acres of private property in unincorporated Kern County, California. The Project would primarily consist of photovoltaic (PV) panels, a single-axis tracker system, inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector substation, generation interconnection (gen-tie) line, access roads, security fence, an operations and maintenance (O&M) facility, and a supervisory control and data acquisition (SCADA) system. The Project would also include a Pacific Gas and Electric (PG&E) switching station that would interconnect with the existing PG&E 230-kilovolt (kV) overhead transmission lines that traverse the Project site. The PG&E switching station would be located on-site, within the Project boundaries.

In accordance with Kern County Fire Department Standard No. 503-507, one 10,000-gallon water tank with a 4-inch National Standard Male connection would be provided for fire department use. The Project would also consist of on-site stormwater retention basins in accordance with Kern County drainage requirements. The existing trenches may also be used for storage in addition to newly constructed retention basins.

1.2 Project Location

The approximately 3,371-acre Project site is located adjacent to the southern border of Kings County with direct access from Interstate 5 (I-5) located approximately 2 miles to the west (Figure 1). The Project site includes all or portions of 26 parcels (Table 1) located within Sections 4, 5, 6, 8, 9, 15, 16, and 22 of Township 25 South, Range 21 East, San Bernardino Base and Meridian (Table 1). The Project site is generally bordered by the Kern and Kings County line to the north, Lost Hills Road to the east, Twisselman Road to the south, and I-5 to the west (Figure 1, Project Location).

Table 1. Assessor's Parcel Numbers (APNs)

Kern County APNs	
044-102-050	044-130-210
044-102-210	044-130-390
044-102-220	044-150-050
044-103-010 (portion of)	044-150-170
044-103-040 (portion of)	044-102-230
044-103-060 (portion of)	044-101-160
044-103-080	044-101-110 (portion of)

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2 Biological Setting

2.1 Climate

The climate of the Project region is typical of the Central Valley of California, with hot dry summers and cool, mild winters (Kottek et al. 2006). Daytime temperatures in the summer are often in the upper 90s (degrees Fahrenheit), and some highs extend into the low 100s (degrees Fahrenheit). Nighttime lows are typically in the 60s (degrees Fahrenheit). In winter, daytime temperatures are usually in low 40s (degrees Fahrenheit). Precipitation averages approximately 12 inches annually and rainfall occurs mostly in the months of December and January (WeatherWx 2022).

2.2 Soils

According to the U.S. Department of Agriculture Natural Resources Conservation Service (USDA 2022), there are five different soil units mapped within the Project site: Nahrub clay (partially drained), Nahrub, partially drained-Lethent complex, Twisselman sandy loam (saline-alkali, moderately wet, 0 to 2% slopes), Twisselman clay (saline-alkali, moderately wet, 0 to 2% slopes), and Houser fine sandy loam (partially drained) (Figure 2, Soils). Most of these soils contain a moderate to high proportion of hydric soils (Natural Resources Conservation Service 2022; Dudek 2022b).

2.3 Topography

The topography is characterized by an overall slope to the east/northeast. Elevations range from approximately 212 feet above mean sea level near the northeastern corner of the Project site to approximately 223 feet above mean sea level at the central portion of the Project site.

2.4 Land Uses

The Project site is located on the western edge of the San Joaquin Valley, where croplands of the valley floor transition to the rangelands of the inner Coast Ranges to the west. Land use within the Project site is currently used for cattle and sheep grazing and has been for the previous 10 years (2012 to 2022). while historically, the site was used for agricultural cultivation (prior to 2012). Croplands and agricultural use are present in all directions of the Project site (Wonderful Orchards – Samsung Solar Facility Previous 10 Year Farming History; Wonderful Orchards 2022).

2.5 Hydrologic Features

regulatory agency for the Central Valley floodways that is responsible for construction, maintenance, and protection of the central valley flood control board system, requires projects built inside or 30 feet from a designed floodway, such as the Kern River, to procure an encroachment permit. An encroachment permit may also be required if a project is within 300 feet of a designated floodway if it is determined that the project could have negative flood control impacts. The Project will need to demonstrate compliance with California Code of Regulations Title 23. Chapter 1, Article 8 standards for development within the 300-foot buffer of the designated floodway. No development within 30 feet of the Kern River Channel is being proposed by the Project.

3 Methods

Dudek conducted a literature review and subsequent focused surveys to determine the presence or potential presence of sensitive biological resources within the Project site. This section describes the literature review and methods of the field survey efforts conducted by Dudek.

3.1 Literature Review

Prior to conducting fieldwork, Dudek reviewed the following literature and natural resources databases to assess the potential for sensitive biological resources to occur within the Project site and immediate vicinity.

- California Natural Diversity Database (CNDDB; CDFW 2022a)
- USFWS IpaC Trust Resources Report (USFWS 2022b)
- California Native Plant Society ("CNPS") Inventory of Rare and Endangered Plants (CNPS 2020)
- Calflora: Information about California Plants for Education, Research and Conservation (Calflora 2022)
- U.S. Geological Survey (National Hydrography Dataset (USGS 2022)
- USFWS National Wetlands Inventory (USFWS 2022)
- U.S. Department of Agriculture, Natural Resources Conservation Service Web Soil Survey (USDA 2022)
- USGS 7.5-minute West Camp, Lone Tree Well, and Lost Hills NW quadrangle maps (USGS 2022)
- 2009 Kern County General Plan – Land Use, Open Space, and Conservation Elements (Kern County 2022)
- Tulare Basin Watershed Partnership – Tulare Basin Riparian & Wildlife Corridor Conservation Report (2022)
- California Department of Fish and Wildlife – Natural Community Conservation Planning (NCCP) (CDFW 2022)
- U.S. Fish and Wildlife Service – Habitat Conservation Plans (USFWS 2022)
- General Rare Plant Survey Guidelines, Revised July 2022 – Ellen A. Cypher (2022)

The CNDDB and CNPS database (Appendix B) queries covered the Lost Hills NW, California U.S. Geological Survey 7.5-minute quadrangle (the quadrangle where Project site is located within) and the eight surrounding quadrangle maps (Antelope Plain, Blackwells Corner, Lost Hills, Semitropic, Lost Hills SE, Hacienda Ranch, Lone Tree Well, and West Camp). Queries of these databases, as well as the USFWS IpaC Trust Resources Report (Appendix B; 2022b), were conducted in November 2022 to provide current information regarding occurrence of biological resources within the Project site.

3.2 Field Surveys

Dudek conducted a suite of focused surveys and assessments to determine the presence or potential presence of sensitive biological resources. After conducting an initial habitat assessment, including vegetation mapping, in March 2021, Dudek conducted surveys for special-status species and other sensitive biological resources from 2021 to 2023. Focused surveys and assessments included 12 special-status plant surveys (Dudek 2022); surveys for burrowing owl, San Joaquin kit fox, American badger, San Joaquin (Nelson's) antelope squirrel, short-nosed kangaroo rat, golden eagle (*Aquila chrysaetos;* Appendix C; Dudek 2022c), Swainson's hawk (Appendix D; Dudek 2022d), tricolored blackbird (*Agelaius tricolor*; Appendix D; Dudek 2022d)), blunt-nosed leopard lizard (Appendix E; Dudek 2022a), western spadefoot (Appendix F; Dudek 2022e), and vernal pool fairy shrimp (*Branchinecta lynchi*; Appendix F; Dudek 2022e); and a delineation of waters of the United States/State. During all surveys, Dudek recorded all species encountered, including all incidental observations of special-status plants and wildlife.

All plant species encountered during the field surveys were identified to subspecies or variety, if possible. Species that could not be identified in the field were brought into the laboratory for further investigation. Latin and common names for plant species with a California Rare Plant Rank ("CRPR"; formerly CNPS List) follow the CNPS Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2022). For plant species without a CRPR, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2016), and common names follow the List of Vegetation Alliances and Associations (CDFG 2010).

Wildlife surveys were conducted by qualified biologists using field methods appropriate to the target taxon. Latin and common names for vertebrate species referred to in this report follow Crother (2012) for amphibians and reptiles, Wilson and Reeder (2005) for mammals, and the American Ornithological Society Checklist of North and Middle American Birds (AOS 2019) for birds.

3.2.1 Vegetation Community and Land Cover Mapping

Dudek conducted vegetation mapping to characterize current conditions and dominant natural communities on the Project site. Vegetation mapping was conducted consistent with Vegetation Alliances and Associations: Natural Communities List Arranged Alphabetically by Life Form (Natural Communities List; CDFG 2010) based on *A Manual of California Vegetation*, second edition (Sawyer et al. 2009), the California expression of the National Vegetation Classification Standard, Version 2 (FGDC 2008). These classification systems focus on a quantified, hierarchical approach that includes both floristic (plant species) and physiognomic (community structure and form) factors as currently observed. Subsequent to Dudek's vegetation mapping effort, CDFW updated the list (CDFG 2010) as the California Natural Communities List (CDFW 2018a), which incorporated changes based on taxonomic revisions related to dominant plants, reassignment of associations to new or different alliances, and revisions to the rarities rankings of some communities. In addition, CNPS has made available an online version of *A Manual of California Vegetation* (CNPS 2019b). Dudek's vegetation map and nomenclature reflect revisions in the CDFW (2018) update

3.2.2 Floristic and Focused Surveys for Special-Status Plant Species

Based on a literature review, Dudek developed a list of special-status plant species that had occurred, or that could occur, within or near the Project site. Based on the blooming periods of the species identified in the literature review, Dudek biologists conducted seasonally timed floristic surveys of the Project site during March and April 2022.

Plant species bloom at slightly different times each year depending on temperature, rainfall patterns, elevation, and other environmental factors. Reference population checks were conducted for selected target species to determine appropriate timing of focused rare plant surveys. These checks involved locating known populations of rare plants during a period when they are known to be blooming or exhibit other phenological characteristics that allow for species identification. Observations of reference populations during peak phenology provide assurances that these species would be identifiable if they are present in the Project area.

3.2.2.1 Floristic Surveys Refence Site for Special-Status Plant Species

On February 8, 2022, a reference location for Kern mallow in Kern County was visited. Over 100 plants were identified. All plants were vegetative and easily identifiable as *Eremalche* sp., but could not be identified to subspecies at the early phenological stage they were identified in. A reference location for San Joaquin woollythread (*Monolopia congdonii)* in Kern County was visited on February 8, 2022. Several plants were identified; all were vegetative. The second reference check was conducted on February 18, 2022. At that point, a large number of both Kern mallow and San Joaquin woollythread were in bloom.

3.2.2.2 Floristic Surveys

Dudek conducted the floristic surveys in accordance with the USFWS, CDFW, and CNPS guidelines (Cypher 2002; CDFW 2018; CNPS 2001) in March and April 2022. During the March and April 2022 surveys, biologists conducting the surveys were familiar with the target special-status plant species and the general flora of the region. These surveys involved pedestrian transects spaced approximately 20 meters (66 feet) apart, depending on topography and density of vegetative cover. When special-status botanical resources were encountered, botanists recorded location data using a Trimble® R1 GNSS receiver or EOS Arrow 100 with submeter accuracy. For Kern mallow (*Eremalche parryi* ssp. *Kernensis)*, the location of individuals was mapped as a point when few individuals were encountered and as a polygon for areas with many individuals. The resulting mapping includes the extent of Kern mallow; however, due to the small size of the plants and high number of individuals counts or estimates were not recorded. For CNPS California Rare Plant Rank (CRPR) 4 species, the general location of the species was

3.2.2.3 Focused Atriplex Surveys

The area where the unknown *Atriplex* species were observed is located within the range of two *Atriplex* species that the CNPS has assigned a CRPR of 1B:

- Lost Hills crownscale (*Atriplex coronata* var. *vallicola,* CRPR 1B.2)
- Lesser saltscale (*Atriplex miniscula,* CRPR 1B.1)

The CRPR 1B rank is assigned to plants that are considered to be rare throughout their range, with most of the plants occurring in California. It is the most common ranking and has been assigned by CNPS to more than a thousand plant species. Neither of these species is afforded protection pursuant to the federal or California Endangered species act; nor are they currently under consideration for listing. The impact on CNPR 1B plants is normally included in the environmental documents prepared pursuant to CEQA due the CNPS recognition of their limited distribution. On August 11, 2022, a reference location for Lost Hills crownscale (*Atriplex coronata* var. *vallicola*) and lesser saltscale (*Atriplex miniscula*) was visited in Kern County, located approximately 21 miles southeast of the Project site. Plants were vegetative and easily identifiable as *Atriplex coronata* var. *vallicola* and *Atriplex miniscula.* This reference location has similar vegetation communities as those found within the Project site.

A supplemental survey was conducted in August 2022, to determine the identity of *Atriplex* species that had been observed in a vegetative state during the March and April surveys. On August 11, 2022, a reference location for Lost Hills crownscale (*Atriplex coronata* var. *vallicola*) and lesser saltscale (*Atriplex miniscula*) was visited in Kern County, located approximately 21 miles southeast of the Project site. Plants were vegetative and easily identifiable as *Atriplex coronata* var. *vallicola* and *Atriplex miniscula.* This reference location has similar vegetation communities as those found within the Project site.

The Atriplex Survey Area was determined by mapping the extent of the unknown *Atriplex*, during the March and April surveys, which covered approximately 53 acres of the approximately 3,371-acre Project site. The Atriplex Survey Area did not contain significant environmental gradients and was deemed by surveying biologists to have a relatively uniform likelihood of containing the as-yet unidentified *Atriplex* species. Assuming uniform potential of occurrence within the Atriplex Survey Area, the sampling strategy for the second survey pass (August 2022) used the Spatially Balanced points tool in ESRI's ArcGIS to assign primary sampling units at a uniform density within the Atriplex Survey Area. This tool utilizes an algorithm, which randomly assigns point locations within the given area of interest, while maintaining a preference for spatially disperse points within the overall area of interest.

A total of 18 points were assigned. A three-acre survey area was centered on each point. If large portions of the primary sampling unit fell outside of the Atriplex Survey Area, then the primary sampling unit was moved toward the center of the Atriplex Survey Area. In three locations where the Atriplex Survey Area was too organically shaped to

Biologists began delineating the polygon using pin flags. Polygon delineation utilized a five meter nearest neighbor rule meaning all individuals occurring within five meters of each other were aggregated into a single group, and those further apart than five meters were designated as a new group or be mapped singly. Pin flags were placed approximately 0.25 meter away from the target individual to the outside edge of the polygon. Once an entire polygon was delineated with pin flags, the polygon was assigned a unique identifier and mapped using a Trimble® R1 GNSS receiver or EOS Arrow 100 with submeter accuracy by following the pin flag boundary. After recording the GPS position of the polygon, the biologists determined which approach, of the two described below, was most appropriate for providing a count of individuals, with a preference for censusing when possible.

Census Method:

For polygons where a complete census was feasible, the number of individuals within the polygon were counted and recorded.

Sub-Sampling Method:

For polygons that were either too large or too dense for the complete census method to be viable, the total number and density of special status, or suspected special status, individuals were estimated using a restricted random subsampling approach. Biologists first established a baseline transect along the long axis of the polygon. Then the biologist calculated the number of 1 x 5-meter quadrats needed to sample approximately 5% of the total polygon area. Perpendicular transects were then established emanating from the baseline transect at a consistent interval with a randomly assigned start point (as assigned by a random number generator). The number of perpendicular transects were equal to the number of 1 x 5-meter quadrats needed to sample approximately 5% of the polygon. Along each perpendicular transect a 1 x 5-meter quadrat was established at a randomly assigned distance from the baseline transect using a random number generator. The number of *Atriplex* individuals rooted within the 1 x 5 meter quadrat was counted and recorded. A minimum of three quadrats were sampled within each polygon, with a minimum distance of five meters between quadrats. This method maintains independence between sampling units and ensures sampling without replacement.

3.2.3 San Joaquin Kit Fox Assessment and Surveys

Listed as endangered under the federal Endangered Species Act (ESA) and threatened under the California Endangered Species Act (CESA), the SJKF is protected by federal and state statutes. USFWS has established the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999), which prescribes methodologies for habitat assessments and surveys for the subspecies throughout its range. The San Joaquin Kit Fox Survey Protocol for the Northern Range calls for an early evaluation of a site and its potential to support SJKF to determine whether protocol surveys are necessary.

Kit fox home ranges vary in size and are often related to factors such as prey base (USFWS 2020). In a study conducted for a solar development in Carrizo Plain, kit fox ranges were on average 3.6 square miles with the Project site whereas in an undeveloped reference site the range was smaller averaging 2.0 square miles (USFWS 2020). There are instances when kit fox ranges are larger; however, range sizes have been estimated at approximately 0.2 square miles up to 9.3 square miles (USFWS 2020). In years of drought, kit fox would typically maintain their home only in the case there is enough prey to sustain their needs (White et al 1993). However, if prey base is limited, kit fox will adjust in response to the low prey base and move to areas with a higher prey base which will include overlap into exiting ranges of other foxes (White et al. 1993).

SJKF 2021 Surveys

Dudek collected den resource data concurrent with BNLL adult and hatchling season sample surveys in 2021, noting all suitable den resources that met the criteria and sign of use by SJKF within the sample survey areas. While walking the BNLL transects, surveyors recorded all dens approximately 5 to 8 inches in diameter that appeared suitable for SJKF. A den was considered a potential SJKF den if it was observed to continue into the ground as far as the observer could see and evidence was insufficient to conclude that it is being, has been, or could be used by a SJKF. In addition, signs of occupancy including fresh spoils, visible tracks, scat, and fresh digging were used to determine SJKF activity (Dudek 2022a).

In accordance with the SJKF survey protocol (USFWS 1999), surveyors did not identify a den as active unless camera images of SJKF use and/or direct observations were made. Additionally, surveyors did not identify a den as a known den unless evidence of SJKF use (i.e., scat, tracks, prey remains, fresh digging, claw marks, etc.) at any time had been observed at the den. Any subterranean hole that has entrances of appropriate dimensions (approximately 5 to 8 inches in diameter) for which evidence is insufficient to conclude that it is being, has been, or could be used by a SJKF was recorded as a potential den. Five wildlife cameras during the adult season surveys and three wildlife cameras during the hatchling season surveys were deployed to areas with high concentrations of potentially active dens in different locations to document the species that occupied each of these areas. The cameras were left in place to passively determine what species was using the den.

SJKF 2022 Surveys

Pedestrian transect surveys were conducted for the entirety of the Project site. Surveys were conducted by qualified biologists following the protocol set forth in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). Surveys were conducted from June 15, 2022, through August 4, 2022. Surveys were conducted for all vegetation communities included in the USFWS survey protocol, which encompasses the entire Project site. To provide 100% visual coverage for the survey area, transect widths were adjusted based on vegetation height and topography to facilitate the detection of dens and other sign. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped. In addition to surveying for SJKF, surveyors

were deployed in batches of 40 cameras. Camera stations were baited and included a scent lure (e.g., Gusto) to maximize detectability of canids and meso-carnivores. Bait stations included a punctured, but not opened, can of cat food or fish secured to the ground by a 12-inch nail driven through it. Approximately ¼ teaspoon dollops of scent lure was placed on a small rock next to the bait. Cameras were set approximately 10 feet from the bait station, focused on the bait station, and were oriented to minimize false triggers (e.g., away from direct sun, away from active roads, etc.). Each camera was deployed on site for a minimum of 10 consecutive nights and bait stations were refreshed midway through the survey period. Cameras were set to take bursts of three photos with no delays between triggering events. High-powered AA batteries and 32 GB SD cards were used. Batteries were replaced when they reached less than 50% life (Dudek 2022b).

Cameras and bait stations within Sections 4, 5, 6, 8, and Position 9-1 were set on September 23, 2022, refreshed on September 28, 2022, and removed on October 6, 2022. Cameras and bait stations within Sections 9 (beginning with 9-2), 15, 16, and 22 were set on October 7, 2022, refreshed on October 12, 2022, and removed on October 18, 2022.

In accordance with the survey protocol (USFWS 1999), surveyors did not identify a den as active unless camera images of SJKF use and/or direct observation were made. Additionally, surveyors did not identify a den as a known den unless evidence of SJKF use (i.e., scat, tracks, prey remains, fresh digging, claw marks, etc.) at any time had been observed at the den. Any subterranean hole that has entrances of appropriate dimensions (approximately 5 to 8 inches in diameter) for which evidence is insufficient to conclude that it is being, has been, or could be used by a SJKF was recorded as a potential den. In addition to surveying for SJKF, surveyors opportunistically surveyed for other sensitive species including kangaroo rat and San Joaquin antelope squirrel. Surveyors looked for burrows that show distinguishable San Joaquin antelope squirrel scat and looked for visual and audible signs of San Joaquin antelope squirrel.

SJKF 2023 Surveys

Pedestrian transect surveys were conducted for APN 044-101-160 on February 2 and 3, 2023. APN 044-101-160 consists of approximately 80 acres. An approximately 200-foot-wide easement across APN 044-101-160 was originally included in the Project. Pelicans Jaw Solar, LLC added the full parcel (approximately 80 acres) to place the PG&E switching station closer to the existing PG&E 230-kV transmission line and to account for acreage removed from development due to engineering and environmental constraints. Surveys were conducted by qualified biologists following the protocol set forth in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). To provide 100% visual coverage for the survey area, transect widths were adjusted based on vegetation height and topography to facilitate the detection of dens and other sign, but did not exceed 20 meters wide. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped. In addition to surveying for SJKF, surveyors opportunistically surveyed for other sensitive species (Dudek 2022b).

The presence of burrows is the most essential component of BUOW habitat as they are required for nesting, roosting, cover, and caching prey (Coulombe 1971; Martin 1973; Green and Anthony 1989; Poulin et al. 2011). In California, western BUOWs most commonly live in burrows created by California ground squirrels. BUOWs may occur in human-altered landscapes such as agricultural areas, ruderal grassy fields, vacant lots, and pastures if the vegetation structure is suitable (i.e., open and sparse); useable burrows are available; and foraging habitat occurs in close proximity (Gervais et al. 2008). Debris piles, riprap, culverts, and pipes can be used for nesting, secondary shelter sites, and roosting.

BUOW 2021 Surveys

Dudek collected burrow resource data concurrent with BNLL adult and hatchling season sample surveys in 2021, noting all suitable burrow resources that met the criteria and sign of use by BUOW within the sample survey areas. While walking the BNLL transects, surveyors recorded all burrows larger than 4-inch in diameter that appeared active. A burrow was considered active if it was observed to continue into the ground as far as the observer could see and if there were no spider webs in the entrance (Dudek 2022a).

Surveyors were conservative when considering a burrow active unless there was fresh sign (i.e., whitewash, owl pellets, etc.). Most burrows were marked as "unknown" when collecting data. Surveyors were also conservative when determining the species that created the burrow.

Five wildlife cameras during the adult BNLL season surveys and three wildlife cameras during the hatchling BNLL season surveys were deployed to areas with high concentrations of potentially active burrows in different locations to document the species that occupied each of these areas. The cameras were left in place to passively see what was using the burrow.

BUOW 2022 Surveys

Pedestrian transect surveys were conducted for the entirety of the Project site. Surveys were conducted concurrently with SJKF and AMBA surveys by qualified biologists following the protocol set forth in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). Surveys were conducted from June 15, 2022, through August 4, 2022. Surveys were conducted for all vegetation communities included in the USFWS survey protocol, which encompasses the entire Project site. To provide 100% visual coverage for the survey area, transect widths were spaced between 30 and 100 feet and adjusted based on vegetation height and topography to facilitate the detection of dens and other sign. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped.

Wildlife camera monitoring was also conducted across the entirety of the Project site. Camera monitoring was intended to replace the spotlighting survey and scent station studies outlined in Sections 2, 3, and 4 of the

focused on the bait station, and were oriented to minimize false triggers (e.g., away from direct sun, away from active roads, etc.). Each camera was deployed on site for a minimum of 10 consecutive nights and bait stations were refreshed midway through the survey period. Cameras were set to take bursts of three photos with no delays between triggering events. High-powered AA batteries and 32 GB SD cards were used. Batteries were replaced when they reached less than 50% life (Dudek 2022b).

Cameras and bait stations within Sections 4, 5, 6, 8, and Position 9-1 were set on September 23, 2022, refreshed on September 28, 2022, and removed on October 6, 2022. Cameras and bait stations within Sections 9 (beginning with 9-2), 15, 16, and 22 were set on October 7, 2022, refreshed on October 12, 2022, and removed on October 18, 2022.

BUOW 2023 Surveys

Pedestrian transect surveys were conducted for APN 044-101-160 on February 2 and 3, 2023. APN 044-101-160 consists of approximately 80 acres. An approximately 200-foot-wide easement across APN 044-101-160 was originally included in the Project. Pelicans Jaw Solar, LLC added the full parcel (approximately 80 acres) to place the PG&E switching station closer to the existing PG&E 230-kV transmission line and to account for acreage removed from development due to engineering and environmental constraints. Surveys were conducted by qualified biologists. To provide 100% visual coverage for the survey area, transect widths were adjusted based on vegetation height and topography to facilitate the detection of dens and other sign, but did not exceed 20 meters wide. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped. In addition to surveying for SJKF, surveyors opportunistically surveyed for other sensitive species including BUOW (Dudek 2022b).

3.2.5 American Badger Surveys

AMBA 2021 Surveys

Dudek collected den resource data concurrent with BNLL adult and hatchling season sample surveys in 2021, noting all suitable den resources that met the criteria and sign of use by AMBA within the sample survey areas. While walking the BNLL transects, surveyors recorded all dens larger than 4-inch in diameter that appeared active. A den was considered active if it was observed to continue into the ground as far as the observer could see and if there were no spider webs in the entrance.

Surveyors were conservative when considering a den active unless there was fresh dirt piled outside, fresh scat, or paw prints. Surveyors were also conservative when determining the species that created the den. AMBA dens were marked when claw marks were seen on each of the rounded lateral sides of a den entrance (Dudek 2022a).

AMBA 2022 Surveys

Pedestrian transect surveys were conducted for the entirety of the Project site. Surveys were conducted concurrently with SJKF and BUOW surveys by qualified biologists following the protocol set forth in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). Surveys were conducted from June 15, 2022, through August 4, 2022. Surveys were conducted for all vegetation communities included in the USFWS survey protocol, which encompasses the entire Project site. To provide 100% visual coverage for the survey area, transect widths were adjusted based on vegetation height and topography to facilitate the detection of dens and other sign. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped. In addition to surveying for SJKF, surveyors opportunistically surveyed for other sensitive species (Dudek 2022b).

Wildlife camera monitoring was also conducted across the entirety of the Project site. Camera monitoring was intended to replace the spotlighting survey and scent station studies outlined in Sections 2, 3, and 4 of the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). The use of wildlife camera monitoring across the Project site rather than performing spot-lighting survey and scent station studies set forth in sections 2, 3, and 4 of the USFWS survey protocol was communicated to USFWS, CDFW, and Kern County in a memorandum dated June 7, 2022 (Sapphos 2022). A total of 80 game cameras were placed throughout the Project site. Cameras were deployed in batches of 40 cameras. Camera stations were baited and included a scent lure (e.g., Gusto) to maximize detectability of canids and meso-carnivores. Bait stations included a punctured, but not opened, can of cat food or fish secured to the ground by a 12-inch nail driven through it. Approximately ¼ teaspoon dollops of scent lure was placed on a small rock next to the bait. Cameras were set approximately 10 feet from the bait station, focused on the bait station, and were oriented to minimize false triggers (e.g., away from direct sun, away from active roads, etc.). Each camera was deployed on site for a minimum of 10 consecutive nights and bait stations were refreshed midway through the survey period. Cameras were set to take bursts of three photos with no delays between triggering events. High-powered AA batteries and 32 GB SD cards were used. Batteries were replaced when they reached less than 50% life (Dudek 2022b).

Cameras and bait stations within Sections 4, 5, 6, 8, and Position 9-1 were set on September 23, 2022, refreshed on September 28, 2022, and removed on October 6, 2022. Cameras and bait stations within Sections 9 (beginning with 9-2), 15, 16, and 22 were set on October 7, 2022, refreshed on October 12, 2022, and removed on October 18, 2022.

AMBA 2023 Surveys

Pedestrian transect surveys were conducted for APN 044-101-160 on February 2 and 3, 2023. APN 044-101-160 consists of approximately 80 acres. An approximately 200-foot-wide easement across APN 044-101-160 was originally included in the Project. Pelicans Jaw Solar, LLC added the full parcel (approximately 80 acres) to place

3.2.6 Golden Eagle Survey

A golden eagle nesting survey was conducted by Dudek experienced raptor biologist Russell Sweet on February 21, 2022, via ground survey. The survey was conducted within the approximately 3,371-acre Project area and within one-mile of the Project area. Mr. Sweet was joined by Dudek biologist Emma Hansen-Smith who accompanied Mr. Sweet as he searched for golden eagle. USFWS' *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations* (Interim Protocols; Pagel et al. 2010) and aerial imagery were reviewed to determine where suitable golden eagle nesting habitat (i.e., areas with hills and slopes) occurred within the Project area and one-mile survey buffer to establish observations points to observe areas on cliffs, utility towers, or in trees suspected to be nesting habitat.

Based on review of aerial imagery and fieldwork completed prior to the golden eagle survey, it was determined there is little, if any suitable nesting habitat expected on the Project site and within one mile. There are no cliffs or large trees in the survey area; therefore, no observation points were established. Transmission towers and other smaller trees within the survey area were visually scanned for potential nest presence. There are no cliffs located in the survey area and the area is not a known nest territory, therefore only one observation period (i.e., the survey conducted on February 21, 2022) was needed for this effort in compliance with the Interim Protocol. Surveys within the one-mile buffer were conducted via public access roads and through the use of binoculars. Mr. Sweet recorded territory status, total number of golden eagles, locations of golden eagle observations, age class of golden eagle, flight directions, and behaviors. For each observation, the following data, if applicable, were recorded: species, length of time of observation, approximate location, age, sex, morphology, subspecies, habitat, and behavior (HMANA 2014) (Dudek 2022c).

3.2.7 Swainson's Hawk Surveys

SWHA is state listed as threatened species under the CESA. It nests in California in the Central Valley and smaller adjacent valleys, the Klamath Basin, the Northeastern Plateau, Lassen County, and the Mojave Desert. It breeds in riparian areas, stands of trees in agricultural environments, oak savannah, Joshua trees (*Yucca brevifolia*) in the Mojave Desert, and juniper-sage flats. In the San Joaquin Valley, it nests in riparian areas and in isolated tree clusters, often near rural residences or other areas with some human disturbance. Alfalfa fields are the favored foraging areas of SWHA in the Central Valley, but the species also forages in undisturbed grasslands, fallow agricultural fields, and some row crops.

Focused surveys for SWHA following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC 2000) were conducted on March 23, March 24, March 31, April 7, April 11, April 18, April 19, May 5, May 25, and June 3, 2022. Pursuant to this protocol, Dudek experienced raptor biologist Pedro Garcia, assisted by Dudek biologists Heather Maine, Tamara Bryant, and Eric Nicholson, surveyed

3.2.8 Tricolored Blackbird Habitat Assessment and Surveys

Habitat assessment and surveys for tricolored blackbird were completed concurrently with the first three of the ten survey days for SWHA. This coincided with the peak of the tricolored blackbird breeding season (Beedy 2017). The Project area, including a 500-foot buffer, was evaluated for potential suitable breeding habitat, including wetlands (cattails, bulrushes, willows) and agricultural fields (triticale, wheat, etc.) (Beedy 2017). Due to the lack of breeding habitat observed during the first three survey days, Dudek biologists focused on incidental observations of tricolored blackbirds within the survey area during the remaining seven survey days (Dudek 2022d).

3.2.9 Blunt-nosed Leopard Lizard Sample Surveys

Focused BNLL adult and hatchling sample surveys were conducted in 2021. The sample surveys included a perimeter sample area, and five internal band transects equating to approximately 964 acres or approximately 30 percent of the approximately 3,371-acre Project site. The perimeter sample area consisted of an approximate 500-foot-wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional diagonal band transects were surveyed across the site. These transects were intended to supplement the perimeter area and were 300-feet wide. The sample areas were chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation mapping was completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas were designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site (Dudek 2022a).

Sampling surveys were performed using a five-visit survey protocol for the adult season and two-visit survey protocol for the hatchling season. The support comes from Germano (2009) where the average time to detect the first BNLL was 3.6 days and 90% of the first sightings were made within five days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but “when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments” (p. 107). Surveys were performed sequentially across the site; beginning with the perimeter and progressing from transects 1 through 5. Each subsequent survey pass used the same sequence.

For the adult season sample surveys, three initial passes were completed within the original transect layout from May 23, 2021, through June 16, 2021. After these initial passes, some areas were classified as low-quality habitat for BNLL due to a lack of rodent burrows or vegetation canopy to provide refugia. After consultation with CDFW on June 23, 2021, modifications were made to the sample areas and additional transects were added, focusing on areas with a higher likelihood of BNLL occurrence and to provide additional coverage of the Project site. Passes

Emme Nix, Dudek biologist served as the Principal Investigator for the adult surveys. Ms. Nix has coauthored two peer reviewed articles on the species and has previously performed protocol surveys for BNLL with the Bureau of Land Management, including studying the thermal ecology of the species. Ms. Nix has performed approximately 1,000 hours of BNLL protocol level surveys and has handled over 120 individual BNLLs (Dudek 2022a).

Nicole Gaudenti, Dudek biologist served as the Principal Investigator for the hatchling surveys. Ms. Gaudenti has authored and coauthored several peer reviewed articles on BNLL and has performed protocol level surveys including over 900 hours of BNLL surveys and handled over 80 individual BNLLs.

In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW 2019), the survey field team consisted of one Level II biologist for every three Level I biologists, all walking each transect in parallel and visually surveying for BNLL. Although the original survey design called for surveyors to be spaced at 17 meters apart when walking the transects, many of the survey areas had been recently grazed by cattle and had very little vegetation cover. In these instances, surveyors increased transect widths to 20 meters.

Surveys were not conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeded 10 mph. Surveys were limited to periods during the optimal temperature range for detecting BNLL, which is approximately 77 F to 95 F. Minor exceptions to the temperature constraints were made for the sample surveys. For example, start temperatures of 75 F and end temperatures of 97 F occurred in some instances. In these cases, the Level II biologist used their extensive field experience with BNLL to make their best professional judgment regarding whether to continue surveying. Surveyors also looked for aboveground presence of the common, smaller-bodied side-blotched lizard (*Uta stansburiana*) to assess whether the larger-bodied BNLL would be aboveground as well.

3.2.9.1 Blunt-nosed Leopard Lizard Protocol Level Surveys

In accordance with the "Approved Survey Methodology for the Blunt-nosed Leopard Lizard" (CDFG 2019), qualified biologists conducted protocol-level BNLL surveys beginning on April 15, 2023. Surveys were conducted in accordance with the Blunt-nosed Leopard Lizard Protocol Level Survey Notification submitted to CDFW and USFWS on April 6, 2023. Hatchling surveys are anticipated to occur from August 15 through September 30, 2023.

Qualified biologists are walking parallel transects spaced at a distance of 10 meters (32.8 feet) based on site conditions and in accordance with direction received from CDFW.

As required by the CDFW protocol, surveys are being conducted between 8:00 a.m. and 2:00 p.m., and are limited to periods during the optimal temperature range for detecting this species 77° F to 95° F (25° C-35° C). Surveys are not being conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph.

3.2.10 San Joaquin (Nelson's) Antelope Squirrel Surveys

3.2.11 Giant Kangaroo Rat, Short-nosed Kangaroo Rat and Tipton Kangaroo Rat Surveys

Short-nosed kangaroo rats are not expected to occur at the Project site given the species range relative to the Project site. Short-nosed kangaroo rats range extends to the west of the California Aqueduct, whereas the Project is located approximately 4.75 miles to the east of the California Aqueduct.

Burrow resource surveys performed on the Project site from June to August 2022 mapped all potential kangaroo rat burrows (2 to 4 inches in diameter). The burrows were mapped along transects 30 to 100 feet apart (depending on visibility), with 100% coverage of the Project site. A trapping plan to sample the potential kangaroo rat burrows was sent to CDFW and USFWS on January 13, 2023.

A survey of potential kangaroo rat burrows conducted on February 17, 2023, under dry conditions before and while traps were being set, found that many of the burrow systems had been damaged by previous rains, mainly those on flat ground having one to several burrow entrances surrounded by bare dirt. Some had blocked entrances and were considered inactive based on the absence of dirt movement or burrow repair. There were two types of potentially active burrows on the site: those on flat ground with one to several entrances with at least one entrance tunnel open and those in roadside berms. All three burrow types were sampled (live-trapped), but the trap effort was weighted to active or potentially active burrows.

The trapping survey sampled all potentially suitable kangaroo rat habitats across the Project site. Sherman™ live traps (3 x 3.75 x 12") with shortened doors and extra-large (4 x 4.5 x 15") traps were set along transects in areas with high burrow density and at stations with lower density burrows. Traps were set in areas with potential kangaroo rat burrows. In area with high density burrows, the distance between traps was 10-25 meters.

Live-trapping was carried out in accordance with the Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (UWFWS 2013) from February 17 to 24, 2023, led by Phil Brylski (USFWS permit TE148555-2). The survey was conducted over a seven-night period rather than a five-night period due to the winter timing of the survey, in accordance with the survey protocol and trapping plan submitted to CDFW and USFWS on January 13, 2023.

Traps were baited with a bird seed/rolled oats mixture, set at dusk and checked every three hours because nighttime temperatures were below 50°F. A piece of paper towel was included in each trap as nesting material to help animals stay warm. Animals were identified and released immediately at the point of capture. Sex, weight, hindfoot length, and reproductive condition were recorded for the captured kangaroo rats. UTM coordinates of traps and capture locations of kangaroo rats were recorded using a Garmin 62S (NAD 83) GPS unit.

3.2.12 Vernal Pool Fairy Shrimp Surveys

Wet season sampling surveys were performed in accordance with the USFWS *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2017) and with the survey methods discussed with the USFWS on September 29, 2020 and provided in a memorandum to USFWS on October 14, 2020 (Dudek 2022e). The surveys consisted of ground surveys within 24 hours of rain events to identify vernal pools and other aquatic resources that provide potential suitable habitat. Surveys occurred every 10 days for the first month and then every 20 days for additional surveys. Mr. Brock Ortega, Dudek biologist (TE-81345-9) served as the principal investigator for this survey. The surveys were further supported by three additional permitted biologists, Ashley Estacio (TE-815537), Julie Thomas (TE-834492-4), and Kyla Garten (TE-68734D-0). Two additional assisting biologists worked under the direct supervision of the permitted biologists, Emma Hansen-Smith and Jakob Dewhurst. For the wet season sample surveys, site visits began after initial storm events when potential listed large branchiopod habitat had become inundated. A total of eight surveys were conducted: October 28, 2021; December 10, 2021; December 15, 2021; December 30, 2021; January 9, 2022; January 18, 2022; February 7, 2022; and March 30, 2022. All potential habitat (with water) was sampled after rain events. Sampling continued within each potential habitat until it dried. At each wet season visit, representative portions of the bottom, edges, and vertical water column of the features were adequately sampled using a dip net or aquarium net. The contents of the nets were examined and emptied frequently. Information on feature conditions and species was recorded (Dudek 2022e).

3.2.13 Western Spadefoot Surveys

Focused surveys for western spadefoot were conducted concurrently with wet season vernal pool invertebrate sample surveys in 2021 and 2022. The survey methods used were adapted from the Habitat Assessment and Baseline Surveys for the Western Spadefoot (*Spea hammondii*) and the Western Pond Turtle (*Emys marmorata*) on the Irvine Ranch Land Reserve (USGS 2004). Surveys consisted of visually examining water bodies for any evidence of western spadefoot (e.g., adults [rarely observed], egg masses, larvae). Dip nets were also used to sample for larval spadefoots. A total of eight surveys were conducted: October 28, 2021; December 10, 2021; December 15, 2021; December 30, 2021; January 9, 2022; January 18, 2022; February 7, 2022; and March 30, 2022. All potential habitat (with water) was sampled after rain events. Sampling continued within each potential habitat until it dried. At each survey, representative portions of the bottom, edges, and vertical water column of the features were adequately sampled using a dip net or aquarium net. The contents of the nets were examined and emptied frequently.

3.2.14 Crotch's Bumble Bee

Potential for occurrence of Crotch's bumble bee within or in close proximity to the Project site is very low, as potential habitat is of low quality. Crotch's bumble bee habitat consists of grasslands and chaparral shrublands and requires a

Transect surveys for Crotch's bumble bee (*Bombus crotchii*) were conducted concurrently with terrestrial species surveys, including SJKF and AMBA, in 2021, 2022, and 2023 at the Project site. Biologists looked for the species within vegetative habitats and mammal burrows. Surveys were conducted under favorable conditions.

3.2.15 Jurisdictional Aquatic Resources

In September 2022 and February 2023, Dudek biologists conducted a jurisdictional delineation of the approximately 3,371-acre Project site to assess for the presence of potential waters of the United States and waters of the state.

3.2.15.1 Waters of the United States

The United States Army Corps of Engineers (USACE) delineation of Waters of the United States was conducted in accordance with the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008a) (i.e., the pre-2015 regulations [former 40 CFR 230.3(s)] and the *Rapanos* guidance). A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States: A Delineation Manual (USACE 2008b) was used to determine the limits of non-wetland waters. Areas which currently support hydrophytic vegetation were assessed during the field delineation for the presence of wetland hydrology and hydric soils to determine whether they were three-parameter wetlands. Jurisdictional boundaries were mapped in the field using ESRI Collector on a mobile device and a Trimble® R1 GNSS Receiver with submeter accuracy. Non-wetland waters of the United States were delineated based on the presence of an ordinary high water mark and determined using the current federal jurisdictional definition (ACOE 2008b). Evidence of an OHWM was determined based on the presence of shelving, scour, undercut banks, wrack, sediment deposits and/or changes in vegetation.

3.2.15.2 Waters of the State

For the delineation of waters of the state, Dudek collected field data concurrent with the delineation site visits noted above for waters of the United States. Dudek's field methods for determining whether a particular area meets the state definition of a wetland followed the State Water Recourses Control Board's *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State,* which includes the same three-parameter delineation procedures as described above and in the *1987 Corps of Engineers Wetlands Delineation Manual* and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Dudek 2022g).

The jurisdictional extent of non-wetland waters of the state were identified and delineated based on the presence of an ordinary high water mark, (for purposes of jurisdiction under the Porter-Cologne Water Quality Control Act. The jurisdictional extent of aquatic features under California Fish and Game Code Section 1600 were identified and

by the presence of a bed and bank. A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determined CDFW-regulated riparian habitat. Streambeds under the jurisdiction of CDFW were mapped to include the top of bank of the stream/channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code 1602.

3.2.15.3 Field Delineation Data Collection

Jurisdictional boundaries were mapped in the field using ESRI Collector on a mobile device and a Trimble® R1 GNSS Receiver with submeter accuracy. Following the field work, aquatic resources were digitized using ArcGIS. Wetland determination data forms were completed at 30 sampling points in September 2022 to determine the status of three wetland criteria (hydrophytic vegetation, hydric soils, and hydrology) within potential jurisdictional aquatic resources of the review area. One OHWM datasheet in September 2022 was recorded at potential non-wetland waters within the review area to determine the status of OHWM indicators within those features.

4 Results

This section discusses results of the literature review and focused biological surveys conducted for the Project. Cumulative lists of plant and wildlife species observed during the field surveys are included in Appendix I and Appendix J, respectively. Photographic documentation collected during the field surveys is provided in Appendix K.

4.1 Vegetation Communities and Land Cover Types

The vegetation communities and land cover types observed within the Project site is shown on Figure 4. Vegetation mapping was conducted during the delineation of aquatic resources completed in December 2020 (Dudek 2021). Nine natural vegetation communities, which are identified in *A Manual of California Vegetation Online* (CNPS 2022) and *The California Natural Community List* (CDFW 2022c), and five land cover types were mapped during field surveys. Table 2 summarizes the vegetation communities and land cover types within the Project site.

Table 2. Summary of Vegetation Communities and Land Cover Types

Vegetation Community/ Land Cover Type	Vegetation Communities Rarity Ranking State[a]	Approximate Acreage
Allenrolfea occidentalis Association	S3	3.10
Bassia (hyssopifolia, scoparia) Semi-natural Association	—	74.76
Bromus rubens – mixed herbs Semi-natural Association	—	2,418.36
Bromus rubens Semi-natural Association	—	176.09
Centromadia (*pungens*)- tar plant fields	S2	3.09
Salsola spp. Semi-natural Association	—	0.49
Saltmarsh sand-spurrey (*Spergularia marina*) Provisional Alliance	S3?	6.24
Suaeda nigra (*moquinii*) Association	S3	4.50
Tamarisk ramosissima Tamarisk thickets Semi-natural Alliance	—	2.25
Barren	N/A	28.33
Disturbed Habitat	N/A	528.50
Drainage Ditch	N/A	57.41
Open Water	N/A	0.02
	Total	**3,303.14[b]**

Notes:

[a] State rank in accordance with Sawyer et al. (2009) current rarity ranking (CDFW 2022c)

4.1.1 Natural Vegetation Communities

Of the approximately 3,371 acres within the project site, approximately 2,688.88 are comprised of natural vegetation communities, including approximately 17 acres that are recognized as state-designated sensitive plant communities (Table 2). Further descriptions of these vegetation types are provided below.

4.1.1.1 Allenrolfea occidentalis Association

CDFW (2022c) ranks *Allenrolfea occidentalis* associations as S3 with CNPS (2022) ranking it as a S3.2 (threatened) meaning it is a sensitive natural plant community and should be considered during the CEQA review process. *Allenrolfea occidentalis* associations are dominant or co-dominant in the shrub herbaceous layers with *Atriplex canescens*, *Distichlis spicata*, *Frankenia salina*, *Kochia californica*, *Sarcobatus vermiculatus*, *Sporobolus airoides* and *Suaeda moquinii* (CNPS 2022). This association is typically found within dry lakebeds, hummocks, playas, and seeps and classified as a facultative wetland species. The Project site contains approximately 3.10 acres of this association, that is dominated by *Distichlis spicata* and *Frankenia salina* and only found in two locations on the Project site, which are directly adjacent to functional culverts where water is likely to occur often enough to support the species in this association (Table 2 and Figure 4).

4.1.1.2 Bassia (*hyssopifolia, scoparia*) Semi-natural Association

The approximately 74.76 acres of Bassia (*hyssopfolia, scoparia*) of semi-natural Association within the Project site is not recognized as a state-designated sensitive plant community (Table 2 and Figure 4). This is considered a provisional alliance by CDFW (2022c) and is not formally described in *A Manual of California Vegetation* (CNPS 2019b). This vegetation community is found in previously disturbed areas with evidence of recent tilling or farming and along roadsides in the southern portion of the Project site. It is an herbaceous community dominated by *Bassia sp.* and *Bromus rubens*, with large patches of bare ground.

4.1.1.3 Bromus *rubens* Semi-natural Associations

The approximately 2,594.45 acres of *Bromus rubes* semi-natural Association within the Project site is not recognized as a state-designated sensitive plant community (Table 2 and Figure 4). *Bromus rubens* semi-natural associations, specifically the mixed herb association, are the most abundant vegetation communities throughout the Project site, comprising 2,418.36 acres (Table 2 and Figure 4). The dominant or co-dominant characteristic species of this semi-natural alliance are *Bromus rubens*, *Schismus arabicus* and/or *Schismus barbatus* with other non-natives in the herbaceous layer and emergent shrubs potentially present at low cover (CNPS 2022), comprising 176.09 acres (Table 2 and Figure 4). Within the Project site, this association is dominated by *Bromus rubens* and *Schismus arabicus* and located in upland areas. This vegetation community is not associated with wetland features.

pools or flats with periodic or intermittent inundation and is recognized as facultative. Within the Project site, this vegetation community contains *Frankenia salina*, *Hirschfeldia incana*, *Hordeum murinum*, *Lasthenia californica*, and *Lasthenia fremontii* and is only found in the northwestern corner of the Project site near an inactive irrigation canal. CDFW (2022c) and CNPS (2022) rank this association as S2 meaning it is a sensitive natural community and should be considered during the CEQA review process.

4.1.1.5 *Salsola spp*. Semi-natural Association

The approximately 0.49 acres of *Salsola spp.* semi-natural association within the Project site is not recognized as a state-designated sensitive plant community (Table 2 and Figure 4). This is considered a provisional alliance by CDFW (2022c) and is not formally described in *A Manual of California Vegetation* (CNPS 2019b). This vegetation community is located between large patches of bare ground in previously disturbed areas with evidence of recent tilling or farming in the middle of the Project site. It is an herbaceous community dominated by *Salsola spp.* With *Bromus rubens* and *Bassia spp.*

4.1.1.6 Saltmarsh sand-spurrey (*Spergularia marina*) Provisional Alliance

The approximately 6.24 acres of Saltmarsh sand-spurrey (Spergularia marina) Provisional Alliance within the Project site is recognized as a state-designated sensitive plant community (Table 2 and Figure 4). *Spergularia marina* is the dominant or co-dominant species in the herbaceous layer with *Agrostis stolonifera*, *Alopecurus aequalis*, *Argentina anserina*, *Atriplex triangularis*, *Chenopodium foliosum*, *Cotula coronopifolia*, *Eleocharis macrostachya*, *Polypogon monspeliensis* and *Scirpus* maritimus (CNPS 2022). This alliance can be found in moist or seasonally flooded alkaline/saline areas and is classified as an obligate meaning it is found in wetlands. This is confirmed by the presence of this alliance within the Project site only found in two locations that are associated with a three-parameter wetland. CDFW (2022c) and CNPS (2022) rank this association as S3, meaning it is considered a sensitive natural community and should be considered during the CEQA review process.

4.1.1.7 *Suaeda nigra* (*moquinii*) Association

The approximately 4.5 acres of *Suaeda nigra* (*moquinii*) Association within the Project site is recognized as a state-designated sensitive plant community (Table 2 and Figure 4). *Suaeda moquinii* or *Isocoma acradenia* is dominant or co-dominant in the shrub layer with *Allenrolfea occidentalis*, *Atriplex canescens*, *Atriplex polycarpa*, *Kochia californica* and *Sarcobatus vermiculatus*. Herbs within this association may include *Frankenia salina*, *Schismus spp*. Or *Sporobolus airoides* (CNPS 2022). This vegetation community can be found on flat or gently sloping valley bottoms or playas that have deep alkaline or saline soils. *Suaeda moquinii* is recognized as an obligate plant meaning it is found in wetlands. Within the Project site, this community is dominated by *Suaeda moquinii* with *Allenrolfea occidentalis, Frankenia salina*, and *Schismus barbatus* also present. This association was documented within two three-parameter wetlands and within a seasonally ponded depression that even though it was not

ditches, washes and rivers. *Tamarix ramosissima* is considered a facultative species and is found within the inactive irrigation canal located in the southern portion of the Project site.

4.1.2 Land Cover Types

Of the approximately 3,548.14 acres within the Project site, 859.26 acres (estimated based on GIS data, aerial imagery, and in-field measurements) are comprised of land cover types that do not constitute natural vegetative (Table 2 and Figure 4). Brief descriptions of each are provided below.

4.1.2.1 Barren

A section of land in the middle of the Project site more towards the eastern side is an area of Barren land. Vegetation was sparse in this area but multiple occurrences of Atriplex sp. were documented during the rare plant survey conducted by Dudek. The barren land cover type consists of approximately 28.33 acres (Table 2 and Figure 4).

4.1.2.2 Disturbed Habitat

The disturbed habitat present in the northeastern edge and the southeastern portion of the Project site consists of heavily grazed areas. The remaining areas of disturbed habit within the Project site are present in the form of maintained ranch roads, remnant buildings, structures associated with historical agricultural operations and paved roads. The disturbed habitat land cover type consists of approximately 528.50 acres within the Project site (Table 2 and Figure 4).

4.1.2.3 Drainage Ditch

The drainage ditches are present along the edges of the Project site as well as throughout and are present in the form of man-made agricultural ditches used mainly for flood irrigation. The drainage ditch land cover type consists of approximately 57.41 acres within the Project site (Table 2 and Figure 4).

4.1.2.4 Open Water

A small portion of open water (two human-made wetlands) are present in the northeastern portion of the Project site within a slight topographic depression. This is due to the presence of a leaking irrigation pipe creating an artificial wetland with standing water present due to a ditch. Unintended leakage of water has resulted in prolonged saturated conditions that support robust, hydrophytic vegetation, including alkali heath (*Frankenia salina*), mouse barley (*Hordeum marinum*), saltmarsh sand-spurrey, and silverscale saltbush (*Atriplex argentea*). Natural hydrology has been artificially augmented at this location, and these wetlands would therefore be expected to return to upland if the

4.2 Sensitive Biological Resources

4.2.1 Special-Status Plants

For the purposes of this report, special-status plant species are those plants listed, proposed for listing, or candidates for listing as threatened or endangered by the USFWS under the ESA; those listed or proposed for listing as threatened or endangered under the CESA; and those that are designated as having a CRPR of 1 or 2 in the CNPS Online Inventory of Rare and Endangered Plants (CNPS 2022).

Table 3 includes a summary of botanical survey dates, personnel, and conditions. During the 2022 floristic surveys, a total of 49 plant species were observed consisting of 53% native plant species and 47% non-native plant species.

Two rare plant species were identified in the surveys conducted in March, April, and August 2022 including: Kern mallow, a species listed as endangered, pursuant to the Federal Endangered Species Act, observed in the south-central portion of the survey area; and Lost Hills crownscale a CRPR 1B.2 plant that was observed within the Atriplex Survey Area. The CRPR 1B rank is the most common ranking and has been assigned by CNPS to more than a thousand plant species. Lost Hills crownscale is not afforded protection pursuant to the federal or California Endangered Species Act and is not currently under consideration for listing.

A cumulative list of the plant species observed is included in Appendix I.

Dudek completed surveys for special-status/rare plant species in March and April 2022 and focused surveys in August 2022.

4.2.1.1 Rare Plant Surveys – March and April 2022

One special-status plant species was observed during the March and April 2022 rare plant surveys (Table 3, Summary of Botanical Surveys, Personnel, Conditions, and Results (March – April 2022)). Kern mallow (*Eremalche parryi* ssp. *Kernensis*), a species listed as endangered pursuant to the Federal Endangered Species Act, was observed in the south-central portion of the survey area. In the areas where it was feasible to count individuals, approximately 1,968 were enumerated within the approximately 6.06-acre area where Kern mallow was identified throughout the Project site.

Table 3. Summary of Botanical Surveys, Personnel, Conditions, and Results (March – April 2022)

Survey Date	Survey Conditions	Surveyors	Rare Plant Observations

Table 3. Summary of Botanical Surveys, Personnel, Conditions, and Results (March – April 2022)

Survey Date	Survey Conditions	Surveyors	Rare Plant Observations
3/15/2022	7:00 AM-3:00 PM; 39-75 F; 0% cloud cover; 0-1 mph wind	Dilip Mahto, Tamara Bryant, and Nevada Trager	Kern mallow (*Eremalche parryi* ssp. *Kernensis*)
3/16/2022	7:01 AM-3:00 PM; 39-75 F; 10-30% cloud cover; 3-7 mph wind	Dilip Mahto and Tanya Baxter	Kern mallow (*Eremalche parryi* ssp. *Kernensis*)
3/17/2022	7:00 AM-3:00 PM; 54-76 F; 10% cloud cover; 0-4 mph wind	Dilip Mahto, Tamara Bryant, Josh McLaughlin, Tanya Baxter, and Nevada Trager	Kern mallow (*Eremalche parryi* ssp. *Kernensis*)
3/18/2022	7:00 AM-3:00 PM; 55-76 F; 10-20% cloud cover; 0-3 mph wind	Dilip Mahto, Tamara Bryant, Josh McLaughlin, and Tanya Baxter	Kern mallow (*Eremalche parryi* ssp. *Kernensis*)
3/21/2022	7:00 AM-3:00 PM; 38-60 F; 0% cloud cover; 8-14 mph wind	Dilip Mahto, Tamara Bryant, and Nevada Trager	None
3/22/2022	7:00 AM-3:00 PM; 42-78 F; 0% cloud cover; 2-4 mph wind	Dilip Mahto, Tamara Bryant, and Nevada Trager	None
3/23/2022	7:00 AM-3:00 PM; 42-90 F; 0% cloud cover; 2 mph wind	Dilip Mahto, Tamara Bryant, Josh McLaughlin, and Nevada Trager	None
3/24/2022	7:00 AM-3:05 PM; 57-86 F; 20% cloud cover; 1-4 mph wind	Dilip Mahto, Tamara Bryant, Josh McLaughlin, Heather Moine, and Nevada Trager	None
3/25/2022	7:10 AM-2:45 PM; 55-89 F; 20-30% cloud cover; 1-4 mph wind	Dilip Mahto, Heather Moine, Josh McLaughlin, and Nevada Trager	None
3/29/2022	7:38 AM-3:32 PM; 49-67 F; 20-40% cloud cover; 1-4 mph wind	David Jirsa, Dilip Mahto, Heather Moine, Lasthenia Lee, and Tamara Bryant	Kern mallow (*Eremalche parryi* ssp. *Kernensis*)
3/30/2022	7:26 AM-4:59 PM; 54-72 F; 40-50% cloud cover; 1 mph wind	David Jirsa, Dilip Mahto, Eric Nicholson, Heather Moine, Lasthenia Lee, and Tamara Bryant	Kern mallow (*Eremalche parryi* ssp. *Kernensis*)
3/31/2022	7:00 AM-3:00 PM; 38-82 F; 0% cloud cover; 1-2 mph wind	Dilip Mahto, Tamara Bryant, Eric Nicholson, David Jirsa, and Lasthenia Lee	None
4/1/2022	7:00 AM-3:00 PM; 48-72 F; 0% cloud cover; 0-2 mph wind	Eric Nicholson and Dave Jirsa	None
4/4/2022	7:10 AM-3:44 PM; 49-74 F; 0-30% cloud cover; 1-6 mph	David Jirsa, Dilip Mahto, Heather Moine, and Tamara Bryant	Kern mallow (*Eremalche parryi*

4.2.1.2 Atriplex Species Surveys – August 2022

During the August 2022 surveys, Lost Hills crownscale was identified within 12 of the 18 three-acre primary sampling units placed within the Atriplex Survey Area identified within the Biological Survey Work Plan Addendum (Table 4, Summary of Botanical Surveys, Personnel, Conditions, and Results (August 2022) and Figure 5a and 5b Focused Sample Survey Results). No lesser saltscale (*Atriplex miniscula*) individuals were identified within the 18 three-acre primary sampling units.

Table 4. Summary of Atriplex Species Surveys (August 2022)

Survey Date	Survey Conditions	Surveyors	CRPR Plant Observations
8/12/2022	7:00 AM-2:30 PM; 68-90 F; 0% cloud cover; 0-3 mph wind	Alex Chaney, Marc Baker	*Atriplex coronata* var. *vallicola*
8/13/2022	6:30 AM-1:07 PM; 67-92 F; 0% cloud cover; 0-8 mph wind	Alex Chaney, Marc Baker	*Atriplex coronata* var. *vallicola*
8/14/2022	6:40 AM-10:00 AM; 66-82 F; 0% cloud cover; 0-3 mph wind	Alex Chaney, Marc Baker	*Atriplex coronata* var. *vallicola*

Observations of Lost Hills crownscale led to an estimate of approximately 1,024,717 (on+-497,064) individuals occurring within the primary sampling units in 2022 (90% Confidence Interval (CI) reported). Lost Hills crownscale abundance within the Atriplex Survey Area and Project area is estimated at approximately 10,152,291 (+-4,924,616) individuals (90% CI).

Table 5 provides a summary of the survey methods and findings within each of the 18 three-acre primary sampling units, located within the approximately 535-acre Atriplex Survey Area.

Table 5. Summary of Atriplex Species Surveys

Three-Acre Sample Survey Area	Survey Type (Census or Sub-Sampling Method)	CRPR Plant Observations	Estimated Individual Plant Count (90% CI)	Occupied Area (Acres)
1	Sub-Sampling – 1-meter x 5-meter plots	*Atriplex coronata* var. *vallicola*	169,894 (+-81,671)	2.99
2	Sub-Sampling – 1-meter x 5-meter plots	*Atriplex coronata* var. *vallicola*	131,366 (+-61,558)	3.01
3	Sub-Sampling – 1-meter x 5-meter plots	*Atriplex coronata* var. *vallicola*	186,291 (+-75,011)	2.95
4	Census	*Atriplex coronata* var. *vallicola*	3	0.00

Table 5. Summary of Atriplex Species Surveys

Three-Acre Sample Survey Area	Survey Type (Census or Sub-Sampling Method)	CRPR Plant Observations	Estimated Individual Plant Count (90% CI)	Occupied Area (Acres)
11	Census	*Atriplex coronata* var. *vallicola*	350	0.06
12	Census	*Atriplex coronata* var. *vallicola*	43	0.06
13	Census	*N/A*	0	N/A
14	Sub-Sampling – 1-meter x 5-meter plots	*Atriplex coronata* var. *vallicola*	134,058 (+- 63,037)	1.65
15	Census	*N/A*	0	N/A
16	Sub-Sampling – 1-meter x 5-meter plots	*Atriplex coronata* var. *vallicola*	100,598 (+- 57,912)	2.35
17	Sub-Sampling – 1-meter x 5-meter plots	*Atriplex coronata* var. *vallicola*	198,021 (+- 94,700)	1.53
18	Census	N/A	0	N/A
Total Atriplex coronata var. vallicola Within Primary Sampling Units			1,024,717(+- 497,064)	17.23
Total Estimated *Atriplex coronata* var. *vallicola* Within Project Area			**10,152,291 (+- 4,924,616)**	**170.73 (+- 4.89)**

Two rare plant species were identified in the surveys conducted in March, April, and August 2022 including: Kern mallow, a species listed as endangered, pursuant to the Federal Endangered Species Act, observed in the south-central portion of the survey area; and Lost Hills crownscale a CRPR 1B.2 plant that was observed within the Atriplex Survey Area. The CRPR 1B rank is the most common ranking and has been assigned by CNPS to more than a thousand plant species. Lost Hills crownscale is not afforded protection pursuant to the federal or California Endangered Species Act and is not currently under consideration for listing. The 18 three-acre Primary Sampling Units used in the Atriplex survey made up roughly 10% of the total 535-acre Atriplex Survey Area where Atriplex sp. were originally observed in March and April 2022. Of the 54 acres that were surveyed within Primary Sampling Units for Atriplex sp., Lost Hills crownscale was observed at rate of approximately 19,000 plants per acre. Lost Hills crownscale is estimated to occupy approximately 170.73 (+- 4.89) acres within the entire Project site.

Based on Dudek's literature review described in Section 3.1 and associated habitat suitability analysis, a total of 14 special-status plant species were identified as having potential to occur within the Project site or its vicinity. Table 6, below, lists the 14 special-status plant species and one sensitive natural community, describes habitat requirements,

lant Species and their Potential to Occur in the Project Site

	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
	None/None/1B.1	Meadows and seeps, Playas; Alkaline, Lake Margins/annual herb/May–Oct/195–2,785	**Not expected to occur, not observed**. Suitable habitat is absent within the Project site. No CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
	None/None/1B.2	Valley and foothill grassland/ perennial herb/Aug-Sep (Nov)/ 130-330	**Low potential to occur, not observed**. Suitable habitat is present within the Project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
	None/None/1B.2	Chenopod scrub, Valley and foothill grassland, Vernal pools; Alkaline/ annual herb/Apr–Sep/165–2,080	**High potential to occur, observed**. Observed individuals on 535 acres in the *Atriplex* Survey Area of the Project site during August 2022 rare plant surveys.
	None/None/1B.1	Chenopod scrub, Playas, Valley and foothill grassland; Alkaline, Sandy/ annual herb/May–Oct/50–655	**Low potential to occur, not observed.** No observed individuals on 535 acres in the *Atriplex* Survey Area of the Project site during August 2022 rare plant surveys.
	FE/SE/1B.1	Chenopod scrub, Pinyon and juniper woodland, Valley and foothill grassland; Sandy/annual herb/ Feb–May/200–3,280	**Low potential to occur, not observed**. Suitable habitat is present within the Project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
e	None/None/1B.1	Chenopod scrub, Marshes and swamps, Riparian scrub/annual/ perennial herb/May–Aug/10–330	**Not expected to occur, not observed**. Suitable habitat is absent within the Project site. Several CNDDB observations have been recorded at the Kern National Wildlife Refuge, approximately 4 miles to the east (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.

lant Species and their Potential to Occur in the Project Site

	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
	None/None/1B.2	Chenopod scrub, Cismontane woodland, Valley and foothill grassland; Alkaline/perennial herb/Mar–June/10–2,590	**Low potential to occur, not observed.** Suitable habitat is present within the Project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
/	FE/None/1B.2	Chenopod scrub, Pinyon and juniper woodland, Valley and foothill grassland; Clay (sometimes), Dry, Openings, Sandy (sometimes)/annual herb/Jan (Feb)Mar–May/230–4,230	**High potential to occur, observed.** Approximately 2,000 individuals were observed in the central portion of the Project site during March and April 2022 rare plant surveys.
	None/None/1B.1	Vernal pools/annual herb/ Feb-Apr/0-655	**Low potential to occur, not observed.** Suitable habitat is present within the Project site. Two CNDDB observations have been recorded within the Project site; however, observations were in 1954 (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.
	None/None/1B.1	Marshes and swamps, Playas, Vernal pools/annual herb/ Feb–June/5–4,000	**High potential to occur, not observed.** Suitable habitat is present within the Project site. One CNDDB observation was recorded within the Project site in 2013 (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.
	None/None/1B.2	Chenopod scrub, Valley and foothill grassland/annual herb/Mar–Apr/ 490–2,295	**Low potential to occur, not observed.** Suitable habitat is present within the Project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
ds	FE/None/1B.2	Chenopod scrub, Valley and foothill grassland/annual herb/Feb–May/ 195–2,620	**Low potential to occur, not observed.** Suitable habitat is present within the Project site. The nearest CNDDB occurrence was recorded approximately 3 miles south of the Project site (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.

lant Species and their Potential to Occur in the Project Site

	Status (Federal/ State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
	None/None/1B.2	Chenopod scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools/annual herb/ Mar–May/5–3,050	**Low potential to occur, not observed.** Suitable habitat is present within the Project site; however, no CNDDB observations have been recorded within 5 miles. Species not observed during surveys conducted in March, April, and August 2022.
	None/None/1B.1	Chenopod scrub/annual herb/Feb–Mar/215–590	**Low potential to occur, not observed**. Suitable habitat is present within the Project site. Three CNDDB observations have been recorded approximately 4 miles from the Project site (CDFW 2022a). Species not observed during surveys conducted in March, April, and August 2022.
ush	None/G2, S2.1	saltbush (*Atriplex spinifera*), saltbush – bud sagebrush (*Atriplex spinifera – Picrothamnus desertorum*), saltbush (*Atriplex spinifera* / annual herb)	**Not expected to occur, not observed**. Valley saltbush scrub CNDDB occurrence was recorded in 1985 within the northwest portion of the Project site. Community was not observed during surveys; and was most likely disturbed/removed from ongoing agricultural use. Species not observed during surveys conducted in March, April, and August 2022.

gered in California and elsewhere
gered in California but more common elsewhere
ver 80% of occurrences threatened / high degree and immediacy of threat
(20-80% occurrences threatened / moderate degree and immediacy of threat

4.2.2 Special-Status Wildlife

For the purposes of this report, special-status wildlife species are those that are designated as either rare, threatened, or endangered (or candidate) by CDFW or USFWS and are protected under either the CESA (Fish and Game Code Section 2050 et seq.) or ESA (16 U.S.C. 1531 et seq.); meet the CEQA definition of rare, threatened or endangered (14 CCR 15380(b),(d)); or are considered Fully Protected under Fish & Game Code, Sections 3511, 4700, 5050, and 5515. Special-status wildlife species also include those that are of expressed concern to resource/regulatory agencies or local jurisdictions. This includes wildlife on CDFW's Special Animals List (CDFW 2022b) that are Species of Special Concern. A cumulative list of the wildlife species observed is included in Appendix J.

Based on Dudek's literature review described in Section 3.1 and associated habitat suitability analysis, a total of 23 special-status wildlife species were identified as having potential to occur on-site. Table 7, below, lists the 23 special-status wildlife species, their regulatory status, and habitat requirements, and provides an assessment of their potential to occur. Of these species, 10 species were eliminated from consideration due to the absence of suitable habitats (e.g., vernal pools, chaparral, scrub, estuarine conditions, etc.), or because the study area is outside of the known range of the species: vernal pool fairy shrimp (*Branchinecta lynchi*), monarch (*Danaus plexippus*), delta smelt (*Hypomesus transpacificus*), western pond turtle (*Actinemys marmorata*), coast horned lizard (*Phrynosoma blainvillii*), tricolored blackbird (*Agelaius tricolor*), western snowy plover (Charadrius nivosus nivosus), mountain plover (*Charadrius montanus*), fulvous whistling-duck (*Dendrocygna bicolor*), and Buena Vista Lake ornate shrew (*Sorex ornatus relictus*). The remaining 13 special-status wildlife species were either observed or considered to have low, moderate, or high potential to occur on or in close proximity to the Project site. All CNDDB occurrences that have been recorded within 5 miles of the Project site are depicted on Figure 6, CNDDB Occurrences.

Wildlife Species and their Potential to Occur in the Project Site

n Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
bumble	None/SC	Statewide distribution in a variety of habitats and agricultural fields. Wet years with wildflower bloom.	**Low potential to occur, not observed.** Low quality habitat is present on site. The nearest CNDDB occurrence was documented approximately 27 miles away in 1953.
ool fairy	None/FT	Habitat is limited to vernal pools in Oregon and California. Occasionally, will be found in habitats other than vernal pools, such as artificial pools created by roadside ditches.	**Not expected to occur, not observed.** Species was not detected during 2021/2022 focused surveys for vernal pool fairy shrimp.
elt	SE/ST	Endemic to the San Francisco Estuary. Shallow, fresh or slightly brackish backwater sloughs and edgewaters with good water quality and substrate are used for spawning.	**No potential to occur, not observed.** Project site is outside of species range and suitable habitat is absent within the Project site.
spadefoot	None/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture.	**Low potential to occur, not observed.** Pastures and agriculture lands are located on site and immediately adjacent, respectively; however, valley-foothill woodlands, coastal scrub habitats are absent. No western spadefoots were observed or detected during focused surveys. One CNDDB observation has been recorded for western spadefoot, approximately 5 miles southeast of the Project site (CNDDB 2022a).

Wildlife Species and their Potential to Occur in the Project Site

n Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent vegetation and basking sites; adjacent uplands used for nesting and during winter.	**Not expected to occur, not observed.** Suitable habitat (ponds, small lakes, etc.) is absent from the Project site. Additionally, no CNDDB observations have been recorded within 5 miles of the Project site.
sed izard	FE/SE, FP	Range is in central California; arid, open areas that have patchy or sparse vegetation, that is characterized by low, drought-tolerant shrubs; found below 2,600 feet in elevation. Current distribution extends from Merced County in the north to Santa Barbara and Ventura counties in the south.	**Low potential to occur, not observed.** Suitable habitat (arid, open spaces; sparse vegetation, etc.) is present on site. One CNDDB occurrences has been recorded within the Project site, in 1974 (CDFW 2022a). No blunt-nosed leopard lizards were detected within the sample survey areas during the adult and hatchling seasons completed on July 8, 2021, and September 29, 2021, respectively. Pelicans Jaw Solar, LLC is conducting protocol surveys for BNLL throughout the approximately 3,371-acre Project area in 2023. Surveys are following the revised CDFW (October 2019) Approved Survey Methodology for the Blunt-Nosed Leopard Lizard. The entire Project site is being surveyed 12 times during the adult season and 5 times during the juvenile season. No BNLL have been identified during the ongoing surveys.
juin ip	None/SSC	Open, dry, treeless areas including grassland and saltbush scrub.	**Low potential to occur, not observed.** Suitable habitat for this species exists within the Project site. The nearest CNDDB occurrence is approximately 5 miles southwest of the Project site.

Wildlife Species and their Potential to Occur in the Project Site

n Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
rned lizard	None/SSC	Inhabits open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads.	**Not expected to occur, not observed.** Suitable habitat (woodlands, coniferous forests, sandy washes, etc.) is absent from the Project site. Additionally, no CNDDB observations have been recorded within 5 miles of the Project site.
l blackbird	None/ST, SSC	Nests near freshwater, emergent wetland with cattails or tules, but also in Himalayan blackberry; forages in grasslands, woodland, and agricultural fields.	**Not expected to nest, not observed.** Suitable habitat (freshwater emergent wetlands with tules or cattails) is absent from the Project for nesting; however, could forage in the adjacent agricultural fields. The nearest CNDDB occurrence is approximately 1 mile east of the Project site. The species was not observed during focused surveys in March and June 2022.
g owl	None/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows.	**Known to occur, observed.** Two individuals were observed flushed from burrows during 2021 BNLL focused surveys. Additionally, several individuals and potentially active burrows were observed on game cameras during 2022 focused SJKF surveys.
n's hawk	None/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture.	**Known to occur, observed.** One active and one inactive Swainson's hawk nest were observed during the 10 surveys that were conducted between March 2022 and June 2022. Both nests were observed in the 0.5-mile survey buffer, but more than 500 feet from the Project boundary. No suitable nesting trees were identified on-site. Suitable nesting trees are located within the 0.5-mile survey buffer.

Wildlife Species and their Potential to Occur in the Project Site

n Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
snowy	FT/SSC	Consists primarily of coastal beaches, sand bars, sand dunes, and river-mouths, above the high tide line.	**Not expected to occur, not observed.** Suitable habitat is absent from the Project site. Two CNDDB occurrences have been recorded; approximately 4 miles from the Project site (CDFW 2022a).
n plover	None/SSC	Semi-arid plains, grasslands, plateaus. Favors areas of very short grass, even bare soil. Typically, far from water. Nests mostly in short-grass prairie, including overgrazed pasture and very arid plains. In some areas, nests mainly on the rather barren open ground found in large prairie-dog towns. Winter habitats include desert flats, plowed fields.	**Not expected to occur, not observed.** Suitable habitat is absent from the Project site. No CNDDB occurrences have been recorded within 5 miles of the Project site.
whistling-	None/SSC	Freshwater wetlands, flooded rice fields, flooded pastures, and flooded agricultural fields.	**Not expected to occur, not observed.** Suitable habitat (freshwater wetlands, flooded rice fields, flooded pastures, etc.) is absent from the Project site. One CNDDB occurrence has been recorded, approximately 3 miles northeast of the Project site (CDFW 2022a).
's thrasher	None/SSC	Open desert scrub, alkali desert scrub, and desert succulent scrub. In the San Joaquin Valley, the species is found primarily in habitats dominated by saltbush, and often frequents desert washes and flats with scattered saltbush.	**Low potential to occur, not observed.** Suitable habitat for this species exists within the Project site. No CNDDB occurrences have been recorded within 5 miles of the Project site.

Wildlife Species and their Potential to Occur in the Project Site

n Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
(San antelope	None/FT	Relatively arid annual grassland and shrubland communities. They are most numerous in areas with a sparse-to-moderate cover of shrubs such as saltbushes, California ephedra, bladderpod, goldenbushes, matchweed, and others.	**Low potential to occur, not observed.** Suitable habitat for this species exists within the Project site. Several CNDDB occurrences have been recorded within 5 miles of the Project site; however, none within the Project site. The nearest CNDDB observation is approximately 1 mile to the south of the Project site (CDFW 2022a). Focused San Joaquin (Nelson's) antelope squirrel surveys were conducted in conjunction with BNLL adult and hatchling sample surveys in 2021. Surveys for San Joaquin (Nelson's) antelope squirrel were also conducted from June 15 through August 4, 2022. No San Joaquin (Nelson's) antelope squirrel were observed.
ıgaroo rat	SE/FE	Prefers annual grassland on gentle slopes with sandy soils. However, most remaining populations are on poorer, marginal habitats which include shrub communities on a variety of soil types and steeper slopes.	**Low potential to occur, not observed.** The Project site provides suitable habitat; however, no CNDDB observations have been recorded within 5 miles of the Project site. During 2021 BNLL focused surveys, a desiccated kangaroo rat (*Dipodomys* sp.) carcass was discovered. The carcass could not be identified to species level due to the deteriorated condition of the carcass. During the 2022 SJKF surveys, two kangaroo rat skulls were identified. The skulls were examined by Philip Brylski,

Wildlife Species and their Potential to Occur in the Project Site

n Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
			PhD (USFWS, Section 10(a) Survey Permit No. TE-148555-2). Based on the overall skull size, the degree of bullar inflation and the size and shape of the interparietal bone, they were determined to be Heermann's kangaroo rat (*Dipodomys heermanni*), which are not listed from a federal or state perspective. Pelicans Jaw Solar, LLC conducted a protocol-level small mammal trapping survey between February 17-24, 2023. No giant kangaroo rats were observed.
ıngaroo rat	FE/SE	Limited to arid-land communities occupying the Central Valley floor of the Tulare Basin in level or nearly level terrain. Occupy alluvial fan and floodplain soils ranging from fine sands to clay-sized particles with high salinity.	**Low potential to occur, not observed**. The Project site provides suitable habitat; however, only one CNDDB observation has been recorded within 5 miles of the Project site. Species was documented approximately 4 miles east of the Project site. During 2021 BNLL focused surveys, a desiccated kangaroo rat (*Dipodomys* sp.) carcass was discovered. The carcass could not be identified to species level due to the deteriorated condition of the carcass. During the 2022 SJKF surveys, two kangaroo rat skulls were identified. The skulls were examined by Philip Brylski, PhD (USFWS, Section 10(a) Survey Permit No. TE-148555-2). Based on the overall skull size, the degree of bullar inflation and the size and shape of the interparietal bone, they were determined to be Heermann's kangaroo rat, which

Wildlife Species and their Potential to Occur in the Project Site

n Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
			are not listed from a federal or state perspective. Pelicans Jaw Solar, LLC conducted a protocol-level small mammal trapping survey between February 17-24, 2023. No Tipton kangaroo rats were observed.
asshopper	None/SSC	Typically inhabit arid shrubland communities in hot, arid grassland and shrubland associations	**Low potential to occur, not observed.** Suitable habitat is present within the Project site; however, no CNDDB observations have been recorded within 5 miles.
sta Lake ırew	FE/SSC	Near water sources in protective groundcover like deep leaf litter, cattails and fallen logs.	**Not expected to occur, not observed.** Suitable habitat is absent from the Project site. One CNDDB observation was recorded, approximately 4 miles east of the Project site (CDFW 2022a).
ı badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils.	**Known to occur, observed.** Several individuals were observed in active dens on game cameras captured during 2021 BNLL focused surveys and 2022 SJKF focused surveys. Additionally, numerous potential dens were observed during focused surveys.
ıuin kit fox	FE/ST	Grasslands and scrublands, including those that have been modified; oak woodland, alkali sink scrubland, vernal pool, and alkali meadow.	**Known to occur, observed.** Two individuals were observed during 2021 BNLL focused surveys. During the combined SJKF pedestrian surveys and camera study, a total of three active dens and seven other known dens were recorded within the Project site. Dens were recorded as active only when SJKF activity was observed at the den, and known only when fresh dirt piled outside,

Wildlife Species and their Potential to Occur in the Project Site

n Name	Status (Federal/State)	Primary Habitat Associations	Potential to Occur
			fresh scat, or paw prints were observed. There were no natal dens observed within the Project area. Because SJKF area a mobile species with a wide range, the exact number of individuals residing within the Project site is unknown at this time.

The following discussion describes the results of the focused, species-specific surveys and assessments

4.2.2.1 Burrowing Owl Surveys

BUOW BUOW 2021 Surveys

Three individuals were observed flushed from burrows during 2021 BNLL focused surveys for the Project site. Additionally, numerous potential burrows for BUOW use were observed and recorded (Figure 7) (Dudek 2022a).

BUOW 2022 Surveys

No direct observations of BUOW were made during 2022 surveys; however, BUOW were observed on game camera positions 5-2, 8-6, 16-1, and 22-5. Additionally, seven potentially active BUOW burrows were observed and recorded (Figure 8) (Dudek 2022b).

BUOW 2023 Surveys

No direct observations of BUOW were made during 2023 surveys for the Project site.

4.2.2.2 Golden Eagle Survey

During the surveys no active raptor nests or golden eagle nests were observed. Little suitable nesting habitat was identified within the survey area, including no large trees or cliffs. Several electrical transmission towers were present within the survey area, but no eagles were observed nesting within the electrical transmission towers. Several towers had remnants of nests and an unoccupied common raven (*Corvus corax*) nest. No potential golden eagle nests were observed within the survey area (Dudek 2022c).

Three golden eagle individuals were observed along the east edge of the Project site during the surveys (Figure 10). One adult golden eagle of unknown sex was observed perched on a wooden power pole within the eastern edge of the Project site; there was no sign of a nest on the wooden power pole; therefore, it was determined that this individual was likely hunting on site. The golden eagle was observed perched for approximately 20 minutes before it flew off heading east out of the surveyor's vision. In addition, two adult golden eagles (unknown sex) were observed soaring together over the eastern edge of the Project site. Surveyors were unable to determine if one of the soaring golden eagles was the same golden eagle that was perched on the wooden power pole earlier in the day. The two golden eagles were observed for approximately 15 minutes as they started to soar higher to the west of the Project area and out of sight. Based on the distance these two were soaring overhead, it was difficult to determine whether they were hunting in the Project area or capturing thermals. Three additional raptor species were observed during surveys, including great horned owl (*Bubo virginianus*), red-tail hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*) (Dudek 2022c). No active nests were identified. Details on the focused survey are in Table 8, below.

4.2.2.3 Swainson's Hawk Survey

Dudek conducted ten focused surveys for SWHA on the Project site and surrounding vicinity in 2022 (Table 9). Suitable nesting habitat was identified within the 0.5-mile survey buffer, but not within the Project area. During the surveys, two potential SWHA nests were observed and monitored (Figure 11). One SWHA nest (Nest #1) remained active and presumably in the incubating phase as of the last survey conducted on June 3, 2022 and one of the potential SWHA nests (Nest #2) became inactive (presumed to not have proceeded past the nest building/egg laying stage) (Dudek 2022d). Both nests were observed within the 0.5-mile survey buffer surrounding the Project site and were located more than 500 feet from the Project site.

Approximately eight SWHA individuals were observed within the Project area during the surveys. One light morph adult and one intermediate morph adult SWHA were observed flying in the northeastern section of the survey area during the March 23, 2022, survey. No SWHA or nests were observed during the March 24, 2022, survey. Two adult SWHA were observed flying overhead to the northwest of the Project area on April 7, 2022. A pair of SWHA were repeatedly observed near Nest #1: both observed copulating near Nest #1 on March 31, 2022; one observed briefly perched on Nest #1 before flying to the west on April 11, 2022; both observed nest building, courting, and copulating by Nest #1 on April 18 and 19, 2022; one observed on Nest #1 for over an hour, presumably incubating, on May 5, May 25, and June 3, 2022, with the second SWHA observed hunting and bringing the nesting SWHA food on June 3, 2022. A second SWHA nest (Nest #2) was observed on May 5, 2022, with one SWHA observed foraging nearby and one sitting on the nest. However, by May 25 and June 3, 2022, no SWHA were observed near Nest #2 and the nest appeared to be slightly askew and empty. Nest #2 was determined by Mr. Garcia to no longer be active (Dudek 2022d).Details on the focused surveys are included in Table 9, below.

Table 9. Summary of Swainson's Hawk Surveys, Personnel, and Conditions

Date/Times	Times	Personnel	SWHA Observations	Site Conditions
3/23/22	7:30 AM-10:00 AM	Pedro Garcia	2 adults flying overhead; no nests	54.3–72°F; 0% cloud cover; 1–4 mph wind
3/24/22	7:21 AM–10:00 AM	Pedro Garcia	No SWHA or nests	57.5–75°F; 0–20% cloud cover; 1–4 mph wind
3/31/22	7:15 AM–10:00 AM	Pedro Garcia	2 adults copulating near incomplete nest (Nest #1); female remained perched near nest, male flew to the south	54.5– 58°F; 0–70% cloud cover; 0–6 mph wind
4/7/22	9:00 AM–5:00 PM	Pedro Garcia, Heather Moine, and	2 adults flying overhead	70–87°F; 0% cloud cover; 0–3 mph wind

Table 9. Summary of Swainson's Hawk Surveys, Personnel, and Conditions

Date/Times	Times	Personnel	SWHA Observations	Site Conditions
5/5/22	9:00 AM–11:30 PM	Pedro Garcia	1 adult sitting on Nest #1, presumably incubating; 2 adults by a second nest (Nest #2) sitting on nest and foraging nearby	80–82°F; 20% cloud cover; 0–2mph wind
5/25/22	8:00 AM–10:30 AM	Pedro Garcia	1 adult sitting on Nest #1, presumably incubating; no activity at Nest #2	82–92°F; 10% cloud cover; 0–2 mph wind
6/3/22	12:10 PM–1:30 PM	Pedro Garcia	2 adults at Nest #1: 1 sitting on nest, presumably incubating, and 1 hunting and bringing food to the incubating SWHA; no activity at Nest #2, nest was determined to be inactive	90°F; 10–20% cloud cover

Notes: cc = cloud cover.

4.2.2.4 Tricolored Blackbird Survey

No suitable tricolored blackbird breeding habitat was observed during surveys. The entire Project site consisted of inactive agriculture and grazed pastures that had been overgrazed down to bare dirt. A dry canal, which is part of the Kern River Channel, runs north-to-south along the eastern edge of the Project boundary. This canal is not permanently wet and does not provide suitable nesting habitat for the species. The dry channel contained sparse patches of ruderal vegetation, alkali scrub plants including big saltbush (*Atriplex lentifomis*), and nonnative grasses and shrubs including salt cedar (*Tamarix ramosissima)*. Adjacent habitat to the Project site consisted of overgrazed and inactive agriculture as well as already harvested wheat and hay. On March 24, 2022, one male red-winged blackbird (*Agelaius phoeniceus*) was briefly observed passing by the northeastern portion of the Project boundary. No tricolored blackbirds or active nests were observed during the survey passes or subsequent site visits (Dudek 2022d).

4.2.2.5 Blunt-nosed Leopard Lizard Surveys

BNLL Reference Sightings 2021

BNLL Adult Season Sample Surveys 2021

No BNLL were detected within the sample survey areas during the adult season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects per survey pass were evaluated within the Project boundaries during the first three passes with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects per survey pass were evaluated during the final two passes within the revised transect areas.

Note that adult season survey pass #1 required five days of surveys whereas all subsequent surveys required four days of survey to cover all areas within the sample survey area. The additional day of surveys was primarily related to the surveyors becoming oriented with the Project site and how to access each of the survey areas. No adult BNLL were observed or detected during the surveys (Dudek 2022a). Details on the focused surveys are included in Table 10, below.

Table 10. Summary of BNLL Adult Season Surveys, Personnel, and Conditions

Date	Times	Surveyors (Bold=Level II; Plain text=Level I)	BNLL Observations	Site Temperatures
Adult Season (Sample Survey Pass #1)				
5/23/21	7:45 AM – 1:56 PM	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, Josh McLaughlin, and Sophia Weber (site orientation)	0	75.5-92.2°F
5/24/21	8:05 AM – 2:00 PM	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0	77-93°F
5/25/21	8:33 AM – 2:00 PM	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0	77– 99°F
5/26/21	8;32 AM – 1:10 PM	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0	77.5-94°F
5/27/21	8:59 AM – 12:05 PM	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0	75-93.5°F
Adult Season (Sample Survey Pass #2)				
5/30/21	7:20 AM – 1:21 PM	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0	72.5-95.2°F
5/31/21	7:19 AM – 11:32 AM	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0	81.8-97.4°F
6/1/21	6:54 AM – 10:29 AM	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0	78.4-97°F
6/2/21	7:00 AM –	**Emme Nix**, Grace Sanclemente,	0	75.4-97.4°F

Table 10. Summary of BNLL Adult Season Surveys, Personnel, and Conditions

Date	Times	Surveyors (Bold=Level II; Plain text=Level I)	BNLL Observations	Site Temperatures
Adult Season (Sample Survey Pass #4; Revised Survey Area)				
6/28/21	7:15 AM – 11:30 AM	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0	78-93°F
6/29/21	8:00 AM – 10:01 AM	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0	75.2-89.6°F
6/30/21	7:42 AM – 11:07 AM	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0	77.1-92.3°F
7/1/21	7:47 AM – 9:37 AM	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0	75.9-91°F
Adult Season (Sample Survey Pass #5, Revised Survey Area)				
7/6/21	7:22 AM – 11:32 AM	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0	75.5-88.6°F
7/7/21	8:03 AM – 12:08 PM	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0	75.9-97.9°F
7/8/21	7:48 AM – 11:09 PM	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0	76.7-97.9°F

BNLL Hatchling Season Sample Surveys 2021

No BNLL were detected within the sample survey areas during the hatchling season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects were evaluated within the Project boundaries during the first pass with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects were evaluated during the second pass within the revised transect areas (Dudek 2022a). Details on the focused surveys are included in Table 11, below.

Table 11. Summary of BNLL Hatchling Season Sample Surveys, Surveyors, and Conditions

Date	Times	Surveyors (Bold=Level II; Plain text=Level I)	BNLL Observations	Site Temperatures
Hatchling Season (Sample Survey Pass #1)				
9/19/21	8:30 AM – 12:30 PM	**Nicole Gaudenti**, Tamara Bryant, Teodora Ungureanu, Garry Turner	0	75.5-92.2°F
9/20/21	9:00 AM – 1:30 PM	**Nicole Gaudenti**, Tamara Bryant,	0	77-93°F

Table 11. Summary of BNLL Hatchling Season Sample Surveys, Surveyors, and Conditions

Date	Times	Surveyors (Bold=Level II; Plain text=Level I)	BNLL Observations	Site Temperatures
9/27/21	8:30 AM – 12:00 PM	**Nicole Gaudenti,** Tamara Bryant, Sophia Weber, Teodora Ungureanu	0	70-87°F
9/28/21	9:51 AM – 1:00 PM	**Tamara Bryant**, Andrea Dransfield, Jakob Dewhurst, Sophia Weber	0	70.6-75.8°F
9/29/21	9:42 AM – 12:48 PM	**Tamara Bryant**, Andrea Dransfield, Jakob Dewhurst, Sophia Weber	0	76.3-83.6°F

BNLL Adult Season Protocol Surveys 2023

In accordance with the "Approved Survey Methodology for the Blunt-nosed Leopard Lizard" (CDFG 2019), qualified biologists conducted protocol-level BNLL surveys beginning on April 15, 2023. Surveys were conducted in accordance with the Blunt-nosed Leopard Lizard Protocol Survey Notification submitted to CDFW and USFWS on April 6, 2023. Hatchling surveys are anticipated to occur from August 15 through September 30, 2023. No BNLL were detected during the adult season protocol surveys at the Project site. Adult BNLL were observed at a reference site, the Pixley National Wildlife Refuge located approximately 22 miles northeast of the Project site.

4.2.2.6 Western Spadefoot Surveys

A total of 11 features were surveyed in conjunction with the 2021/2022 wet season invertebrate sample surveys. The features consisted of vernal pool (no water present), intermittent wetland (no water present), and abandoned irrigation trench features (water present). During the surveys, none of the features or adjacent habitat were found occupied by western spadefoot. The only features to hold water during the surveys were the abandoned irrigation trenches; all other features were observed dry.

4.2.2.7 San Joaquin Kit Fox

SJKF 2021 Surveys

During the 2021 site surveys, no direct SJKF observations were made; however, photos of SJKF were captured at two locations during BNLL adult and hatchling season surveys. 25 potential SJKF dens were observed and recorded (Figure 7) (Dudek 2022a). No natal dens have been observed within the Project site.

Figure 8). Additionally, wildlife cameras were set-up at three known dens that showed SJKF sign (i.e., scat, tracks, prey remains, digging, etc.) during pedestrian transect surveys. The cameras were subsequently checked during camera studies. Photographs were captured of SJKF activity at two of the dens, which were also marked as active, for a total of three active dens.

Biologists covered approximately 268 linear miles of transects in order to provide adequate coverage of the entire 3,371-acre site. Other mammal species observed during the pedestrian surveys were limited to black-tailed jackrabbit (*Lepus californicus*).

Qualified biologists reviewed all accrued camera data for evidence of SJKF presence in the Project site and cataloged the number and species by camera station. Following this review, a senior wildlife biologist performed spot checks of the data identification and looked at all canid photos. Of 80 total cameras set throughout the Project site, 58 cameras captured images of SJKF activity. Images were captured of a SJKF appearing to enter a den that had previously been marked as active at Location 9-7. SJKF activity was widely dispersed throughout the site (see Figure 8). The number of SJKF individuals captured on camera is unknown, as some images of the same individuals can be captured at different locations and on different dates. What is known is that there is at least one pair of SJKF using the site. The use of multiple dens could also lead to multiple foxes being observed on a site this large. SJKF will often move from den to den over multiple days. Most often the moves are related to prey base, predator presence and or parasite infestation (USFWS 2020).

2023 Surveys

No direct observations of SJKF were made during 2023 surveys; however, eight potential SJKF dens were documented (Figure 8).

4.2.2.8 American Badger

AMBA surveys were conducted under favorable weather conditions and concurrent with the SJKF and BUOW survey efforts described previously. AMBAs are generally associated with dry, open, treeless regions, prairies and grasslands, low-intensity agriculture (e.g., pasture and dryland crops), drier open shrublands and forest, parklands, and cold desert areas (Long 1973; Zeiner et al. 1990).

AMBA 2021 Surveys

During the 2021 site surveys, nine direct AMBA observations were made, and an active den was observed during BNLL adult and hatchling season surveys. Numerous potentially active AMBA dens were observed and recorded (Figure 7) (Dudek 2022a).

AMBA 2022 Surveys

AMBA 2023 Surveys

No direct observations of AMBA were made during 2023 surveys.

Table 12 below describes the survey details for the focused BUOW, SJKF, and AMBA surveys conducted in 2022 and 2023.

Table 12. Summary of 2022 and 2023 Burrowing Owl, San Joaquin Kit Fox, and American Badger Surveys, Personnel, and Conditions

Date	Time	Survey Type	Species Detected	Personnel	Site Conditions
6/15/22	7:37 AM – 12:13 PM	BUOW, SJKF, AMBA	Common side-blotched lizard	Grace SanClemente	68°F to 93°F, 0% cc, 0-3 mph winds
6/16/22	7:20 AM – 3:15 PM	BUOW, SJKF, AMBA	Common raven, common side-blotched lizard	Grace SanClemente, Joshua McLaughlin	67°F to 92°F, 0% cc, 1–4 mph winds
6/17/22	7:00 AM – 2:10 PM	BUOW, SJKF, AMBA	Black-tailed jackrabbit, northern mockingbird, mourning dove, cliff swallow, horned lark, common side-blotched lizard, loggerhead shrike, red-tailed hawk	Grace Sanclemente, Joshua McLaughlin, Tamara Bryant, Teodora Ungureanu	58°F to 70°F, 70%–80% cc, 2-8 mph winds
6/22/22	7:30 AM – 3:24 PM	BUOW, SJKF, AMBA	Mourning dove, horned lark, black-tailed jackrabbit	Heather Neldner, Joshua McLaughlin, Madison Bloom, Teodora Ungureanu	76°F to 96°F, 20%–70% cc, 2-15 mph winds
6/23/22	6:30 AM – 1:19 PM	BUOW, SJKF, AMBA	Horned lark, common side-blotched lizard, tiger whiptail	Grace Sanclemente, Heather Neldner, Joshua McLaughlin, Madison Bloom, Randy Thomas, Teodora Ungureanu	72°F to 97°F, 0%-10% cc, 1–5 mph winds
6/24/22	6:30 AM – 1:21 PM	BUOW, SJKF, AMBA	Horned lark, common side-	Grace Sanclemente, Joshua McLaughlin,	72°F to 97°F, 3–7 mph winds

Table 12. Summary of 2022 and 2023 Burrowing Owl, San Joaquin Kit Fox, and American Badger Surveys, Personnel, and Conditions

Date	Time	Survey Type	Species Detected	Personnel	Site Conditions
7/1/22	6:30 AM – 11:45 AM	BUOW, SJKF, AMBA	Common side-blotched lizard, horned lark, mourning dove, common raven, tiger whiptail	Grace Sanclemente, Madison Bloom, Shana Carey, Teodora Ungureanu	65°F to 86°F, 25% cc, 2–4 mph winds
7/7/22	6:28 AM – 12:10 PM	BUOW, SJKF, AMBA	Horned lark	Grace Sanclemente, Madison Bloom	65°F to 81°F, 0% cc, 1–7 mph winds
7/8/22	6:25 AM – 11:04 AM	BUOW, SJKF, AMBA	Horned lark, black-tailed jackrabbit	Grace Sanclemente, Madison Bloom	68°F to 84°F, 10% cc; 1–5 mph winds
7/11/22	7:30 AM – 12:35 PM	BUOW, SJKF, AMBA	Black-tailed jackrabbit, horned lark, common side-blotched lizard	Donovan Rose, Grace Sanclemente, Madison Bloom	76°F to 95°F, 0% cc; 0–3 mph winds
7/12/22	6:44 AM – 2:00 PM	BUOW, SJKF, AMBA	Horned lark, common side-blotched lizard	Donovan Rose, Grace Sanclemente, Madison Bloom	73°F to 100°F, 0% cc; 1–5 mph winds
7/13/22	6:35 AM – 12:30 PM	BUOW, SJKF, AMBA	Horned lark, common raven, San Joaquin kit fox	Donovan Rose, Grace Sanclemente	69°F to 93°F, 0% cc; 1–6 mph winds
7/18/22	6:30 AM – 1:15 PM	BUOW, SJKF, AMBA	Common raven, horned lark, common side-blotched lizard	Grace Sanclemente, Joshua McLaughlin	76°F to 98°F, 10%-30% cc; 1–6 mph winds
7/27/22	6:44 AM – 12:12 PM	BUOW, SJKF, AMBA	Mourning dove	Madison Bloom, Tamara Bryant	70°F to 89°F, 0%-10% cc; 1–4 mph winds
7/28/22	6:33 AM – 11:55 AM	BUOW, SJKF, AMBA	None recorded	Madison Bloom	72°F to 92°F, 0%-10% cc; 0–3 mph winds
7/29/22	6:43 AM – 12:05 PM	BUOW, SJKF, AMBA	None recorded	Madison Bloom	71°F to 92°F, 10%-20% cc; 1–4 mph winds

Table 12. Summary of 2022 and 2023 Burrowing Owl, San Joaquin Kit Fox, and American Badger Surveys, Personnel, and Conditions

Date	Time	Survey Type	Species Detected	Personnel	Site Conditions
2/2/23	6:30 AM – 11:00 AM	BUOW, SJKF, AMBA	None recorded	Russel Sweet, Pedro Garcia	39°F to 57°F, 20% - 50% cc; 0-3 mph winds
2/4/23	6:30 AM – 11:00AM	BUOW, SJKF, AMBA	None recorded	Russel Sweet, Pedro Garcia	37°F to 55°F, 10% - 70% cc; 0-4 mph winds

Notes: BUOW = burrowing owl; SJKF = San Joaquin kit fox; AMBA = American badger; cc = cloud cover, mph = miles per hour.
cc = cloud cover.

Table 13 below describes the wildlife camera monitoring details and results for BUOW, SJKF, and AMBA.

Table 13. Summary of Wildlife Camera Monitoring Results

Camera Position	Species Detections	BUOW/SWHA/ AMBA Detected?
4-1	Black-tailed jackrabbit, coyote, San Joaquin kit fox, common raven	SJKF
4-2	Coyote, black-tailed jackrabbit, San Joaquin kit fox	SJKF
4-3	Coyote, common raven, black-tailed jackrabbit	No
4-4	Black-tailed jackrabbit, San Joaquin kit fox	SJKF
4-5	N/A (camera malfunctioned)	No
5-1	San Joaquin kit fox, common raven	SJKF
5-2	San Joaquin kit fox, burrowing owl, American crow, lizard species	SJKF, BUOW
5-3	Common raven, San Joaquin kit fox, coyote	SJKF
5-4	San Joaquin kit fox, common raven	SJKF
5-5	San Joaquin kit fox, common raven	SJKF
5-6	San Joaquin kit fox, common raven	SJKF
5-7	San Joaquin kit fox, common raven	SJKF
5-8	N/A (camera malfunctioned)	No
5-9	None	No
5-10	Striped skunk, San Joaquin kit fox	SJKF
5-11	Coyote, San Joaquin kit fox	SJKF
5-12	Black-tailed jackrabbit, San Joaquin kit fox, striped skunk	SJKF
6-1	Common raven	No

Camera Position	Species Detections	BUOW/SWHA/ AMBA Detected?
6-11	San Joaquin kit fox	SJKF
6-12	N/A (photos on SD card were corrupted)	No
6-13	San Joaquin kit fox, coyote, black-tailed jackrabbit	SJKF
8-1	None	No
8-2	San Joaquin kit fox, common raven	SJKF
8-3	San Joaquin kit fox, coyote, common raven, striped skunk, lizard species	SJKF
8-4	Black-tailed jackrabbit	No
8-5	San Joaquin kit fox, coyote, common raven, lizard	SJKF
8-6	San Joaquin kit fox, coyote, burrowing owl, bird species, lizard species	SJKF, BUOW
8-7	San Joaquin kit fox, coyote, American crow, common raven	SJKF
8-8	San Joaquin kit fox, coyote, common raven	SJKF
8-9	San Joaquin kit fox, coyote, common raven, kangaroo rat species, American badger	SJKF, AMBA
9-1	San Joaquin kit fox, common raven	SJKF
9-2	San Joaquin kit fox, coyote, common raven, black-tailed jackrabbit	SJKF
9-3	San Joaquin kit fox, coyote, common raven, bird species	SJKF
9-4	San Joaquin kit fox, common raven	SJKF
9-5	San Joaquin kit fox, common raven	SJKF
9-6	San Joaquin kit fox, common raven, coyote, bird species	SJKF
9-7	San Joaquin kit fox, coyote, American badger, common raven	SJKF, AMBA
9-8	San Joaquin kit fox, common raven, lizard species	SJKF
15-1	Coyote, common raven, canine species, lizard species	No
15-2	None	No
15-3	Common raven	No
15-4	Coyote, American kestrel, bird species	No
15-5	Bird species, common raven	No
15-6	Coyote, common raven, western kingbird	No
16-1	Coyote, common raven, burrowing owl	BUOW
16-2	San Joaquin kit fox, coyote, common raven	SJKF
16-3	Western kingbird, San Joaquin kit fox, lizard species	SJKF
16-4	San Joaquin kit fox, coyote, lizard species	SJKF
16-5	Coyote, San Joaquin kit fox, common raven	SJKF
16-6	Coyote, common raven	No
16-7	San Joaquin kit fox, coyote, common raven	SJKF

Camera Position	Species Detections	BUOW/SWHA/ AMBA Detected?
16-16	San Joaquin kit fox, common raven, black-tailed jackrabbit, bird species	SJKF
22-1	Coyote, common raven, San Joaquin kit fox	SJKF
22-2	Black-tailed jackrabbit, common raven, coyote, San Joaquin kit fox	SJKF
22-3	Coyote, common raven	No
22-4	Coyote, common raven, San Joaquin kit fox	SJKF
22-5	Burrowing owl, black-tailed jackrabbit, coyote, San Joaquin kit fox, kangaroo rat species	BUOW, SJKF
22-6	Coyote, common raven	No
22-7	Coyote, common raven	No
22-8	Coyote, common raven	No
22-9	Coyote, common raven, San Joaquin kit fox, black-tailed jackrabbit	SJKF
22-10	Coyote, kangaroo rat species, San Joaquin kit fox, bird species	SJKF
22-11	San Joaquin kit fox, black-tailed jackrabbit, greater roadrunner, coyote, kangaroo rat species	SJKF

4.2.2.9 San Joaquin (Nelson's) Antelope Squirrel Surveys

No San Joaquin antelope squirrels were observed or detected during surveys. Surveys were conducted under favorable weather conditions between May and September 2021, and concurrent with the BNLL. San Joaquin antelope squirrels are generally associated with arid annual grassland and shrubland communities in areas receiving less than about 10 inches of mean annual precipitation. They are most numerous in areas with a sparse-to-moderate cover of shrubs such as saltbushes (*Atriplex* sp.), California ephedra (*Ephedra californica*), bladderpod (*Cleome isomeris*), goldenbushes (*Isocoma* sp.), matchweed (*Lippia nodiflora*), and others (CSUS 2022).

In addition to the surveys conducted in 2021, no San Joaquin antelope squirrel were observed during the 2022 SJKF surveys. Surveyors looked for dens that show distinguishable SJAS scat and looked for visual and audible signs of SJAS. No visual or audible signs of SJAS were detected during surveys.

4.2.2.10 Giant Kangaroo Rat and Tipton Kangaroo Rat Surveys

During the 2022 SJKF surveys, two kangaroo rat skulls were identified. The skulls were examined by Philip Brylski, PhD (USFWS, Section 10(a) Survey Permit No. TE-148555-2). Based on the overall skull size, the degree of bullar inflation and the size and shape of the interparietal bone, they were determined to be Heermann's kangaroo rat (*Dipodomys heermanni*), which are not listed from a federal or state perspective. During 2021 BNLL surveys, a desiccated kangaroo rat carcass was also discovered (Figure 7). The carcass could not be identified to species level due

Table 14. Summary of Wildlife Camera Monitoring Results

Date (2023)	Temperature (°F)*	Cloud Cover (%)	Wind (mph)
2/17 – 2/18	38/45	5	0
2/18 – 2/19	39/48	0	3
2/19 – 2/20	38/48	0	0
2/20 – 2/21	47/49	10-70	2-5
2/21 – 2/22	44/47	15	10-15
2/22 – 2/23	39/45	75-90	5-10
2/23 – 2/24	38/45	100	5-8

Note:
* high and low temps for the trap session, with highs generally at night and lows in early morning

The survey yielded 15 Heermann's kangaroo rats (*Dipodomys heermanni*; HKR; 6 subadults, 9 adults, 8 males, and 7 females) and deer mouse (*Peromyscus maniculatus*; PMAN). Table 15 summarizes the captures. The adult HKR averaged 63.2 grams (range 55-86, n=6), with hindfoot lengths less than 42mm. Subadults averaged 37 grams (range 32-41, n=3).

Table 15. Summary of Small Mammal Captures

	HKR		
Date (2023)	Subadults	Adults	PMAN
2/17 – 2/18	1	2	2
2/18 – 2/19	1	1	3
2/19 – 2/20	2	1	5
2/20 – 2/21	0	0	4
2/21 – 2/22	1	2	4
2/22 – 2/23	0	0	6
2/23 – 2/24	1	3	7
Total	**6**	**9**	**31**

Notes:
HKR: Heermann's kangaroo rat (*Dipodomys heermanni*)
PMAN: deer mouse (*Peromyscus maniculatus*)

The small mammal trapping survey yielded captures of HKR and the deer mouse (PMAN), both common species (not state or federally listed, and not on any sensitive species list). Comparison of the large number of potential kangaroo rat burrows observed in 2022 and the low number of HKR captures in 2023 (15) suggests that the

Giant kangaroo rat (GKR). Historically, GKR occurred along the western edge of the San Joaquin Valley from Los Banos in Merced County to the base of the Tehachapi Mountains, and the plains and valleys west of the Temblor Mountains. The Project site is within GKR's historical range, as drawn in USFWS (2020), but just east (and outside of) the historical range as drawn in Bean et al. (2018).

GKR is currently known from six areas: western Fresno and Eastern San Benito Counties; the Kettleman Hills in Kings County; San Juan Creek Valley in San Luis Obispo County; the Lokern, Elk Hills, McKittrick, Taft, and Maricopa areas in western Kern County; the Carrizo Plain in eastern San Luis Obispo County; and the Cuyama Valley in Santa Barbara and San Luis Obispo counties. GKR may also occur in patches between these areas (Williams et al. 1995, Williams 1981, 1992).

The nearest GKR occurrences to the Project site in the CNDDB (CDFW 2022) are two records from the Kettleman Hills, as follows:

- 0.5 mile north, 0.5 mile east Las Perillas pumping plant, Kettleman Hills. The note in the CNNDB states 'colonies verified (sometime between 1979 and 1986) as inhabited' (CNDDB #103). This locality is 8.7 miles northwest of the Project site; and
- Avenal Gap, Kettleman Hills, the note in the CNNDB record states 'colony(ies) verified in 1979. At that time the colony and several, small satellite colonies covered approx 50 acres. By 1985, all but this "core" colony had disappeared. Now only approx 30 precincts over 2-3 acres' (CNDDB #102). This locality is 11.75 miles northwest of the Project site.

These CNDDB records are from 1979 to 1985. Bean et al. (2018) surveyed the Kettleman Hills from 2010 to 2017 using a combination of aerial photos and field assessments focused on burrows, supplemented by live-trapping, and confirmed that GKR still occur in the Kettleman Hills.

Early studies of GKR found them west of the valley floor on grassland and scrub habitats overgrazed by sheep, on sandy and loamy soils (Grinnell, 1932). Currently, good quality GKR habitat is considered to be annual grasslands with few or no shrubs on gentle slopes that do not flood in winter (USFWS 2020), although GKR also occur on similar habitats on slopes of up to 20% (Williams and Kilburn, 1991). Recent surveys along the California aqueduct found GKR in sparse saltbush scrub habitats with little grass cover (Brylski unpubl. data). GKR burrow systems have up to five openings in proximity, known as 'precincts,' which are occupied by one individual (Grinnell 1932). GKR are primarily granivorous, consuming brome (*Bromus* spp), filaree (*Erodium* spp.), peppergrass (*Lepidium* spp.), and fiddleneck (*Amsinckia* spp.) (Williams et al. 1993). The Project site has been used as pasture for cattle and sheep for the last decade, prior to which it was dry farmed, with shrub clearance and tilling.

The live-trapping survey recorded no GKR captures in seven nights of trapping, which is the most definitive evidence

In recent years, aerials imagery has been used to map GKR precincts, which appear as distinct circles from 3 to 9 meters in diameter (Bean et al. 2018; Semerdjian et al. 2021). In those studies, foot surveys confirmed if GKR burrows were present and live-trapping surveys determined if burrows were occupied by GKR. The results were computer-analyzed to classify 5 km grids within the GKR historical range along a spectrum from "GKR absent - high confidence" to "GKR present – high confidence." The Pelicans Jaw Project site is within an area classified as "GKR absent – high confidence."

If GKR burrows were mapped on aerial images, follow-up studies (foot and/or trapping surveys) confirmed GKR presence 98% of the time. However, only approximately half of the sites where GKR were present had GKR burrows in the aerial imagery. This result applies mainly to natural habitats. Agricultural fields that lacked GKR burrows in the aerial imagery would be expected to be classified "GKR absent – high confidence."

Tipton Kangaroo Rat (TKR). The historical range of Tipton's kangaroo rat was the San Joaquin Valley from Lemoore south along the west side of the valley to Lost Hills, Buena Vista Lake and the southern edge of the valley east to Rose Station, and along the eastern side of the valley from the vicinity of Visalia south to Bakersfield. The project site is within TKR's historical range, as drawn in USFWS (2020).

The nearest TKR occurrences to the Project site in the CNDDB are from two localities:

- Southeast of the intersection of I-5 and Twisselman Rd (CNDDB #27). The CNNDB record states 'burrow density was approximately 55 burrows/ha. Habitat consists of approximately 15 ha of Suaeda and Atriplex spinifera, site #85b (Williams 1985)'. This locality is 2 miles west of the southern border of the Project site; and
- Kern National Wildlife Refuge and Semitropic Ridge area. The notes in the CNNDB record (CNDDB #26) state '2004: 28 adults trapped in T26S, R22E Secs 21 & 26. Habitat consists of uncultivated land, dominated by iodine bush, atriplex scrub, shrub-marsh ecotone, & suaeda with scattered alkali playas and scalds. Bromus, Allenrolfea occidentalis, Tamarix, Orthocarpus. Approx 75 captured in Jul. 2004, 28 capt 16-20 Aug. 2006, Aug. 2007: 8 capt 9-12 Jul. Most of the area is grazed by sheep and flooded in winter; some sections are fallow or cultivated.'

The first CNDDB record above (#27) was based on burrow surveys (Williams 1985) in bush seepweed and spiny saltbush habitats, which are known to be suitable for TKR. The Project site contains 4.5 acres of this habitat in the northern part of the site, but no potential kangaroo rat burrows were found in this community. The current survey covered two small areas of iodine bush scrub, the larger of which was outside the Project boundary (along the Kern River Channel) and was live-trapped because it had the highest potential for TKR occurrence (no TKR were captured). The history of dry faming on the site with periodic tilling followed by its use for grazing over the last decade indicates that there is some potential for TKR to colonize the Project site, although habitat quality for TKR on the Project site is low due to the absence of shrubs. TKR do not occur in continuously cultivated areas, but can

their abundance is moderate to high in sparse to moderate shrub cover and low in grasslands that lack shrubs. TKR forage on seeds of native and non-native grasses and forbs as well as seeds from saltbush shrubs, iodine bush, and bush seepweed, and eat green vegetation and insects seasonally (USFWS 1998, 2020). Burrows of TKR are often located in elevated mounds, in road berms, canal embankments, and railroad beds, and at the bases of shrubs and fences where windblown soils accumulate (USFWS 1998).

The live-trapping survey recorded no TKR captures in seven nights of trapping. The Project site contains marginal habitat for TKR due to the near-absence of shrubs. No TKR were captured in the very small patch of iodine bush scrub in the southwestern part of the Project site, or in the larger patch of iodine bush scrub outside the northwestern boundary along the Kern River Channel. With high rainfall in recent months, grass and forb cover on the site is becoming dense; dense grassland/forb cover is unsuitable for TKR.

4.2.2.11 Vernal Pool Fairy Shrimp

A total of 11 features were surveyed during the 2021/2022 wet season surveys. The features consisted of vernal pool (no water present), intermittent wetland (no water present), and irrigation trenches features (water present). The Project site is used for grazing with approximately 10 cows onsite seasonally due to the lack of forage. Water is provided to grazing animals from an on-site well. During the surveys, none of the features were found occupied by federally threatened vernal pool fairy shrimp, federally endangered vernal pool tadpole shrimp, or any other federally listed large branchiopods. The only features to hold water after rain events during the surveys were the abandoned irrigation trenches; all other features were observed dry. The only shrimp species detected within the irrigation trenches was *Artemia franciscana*, which is a type of brine shrimp, found in alkaline ponds and are not listed as a sensitive species at either the state or federal level (Dudek 2022e).

4.2.2.12 Crotch's Bumble Bee

No Crotch's bumble bees were observed during biological surveys of the Project site.

4.2.3 Wildlife Movement Corridors

The Project site does not include primary wildlife movement corridors and no other wildlife species are afforded protection by the Kern County General Plan (Kern County 2009). Additionally, the Project site is not included in a proposed or existing NCCP or Multiple Species Habitat Conservation Plan (MSHCP).

The Project site is situated within the Pacific Flyway, which is a significant avian migration route that covers a wide swath of land along the western Americas from Patagonia to Alaska. Although the Project is located within the Pacific Flyway, it is very small in comparison to the overall Pacific Flyway. The Project is low-lying and is not expected to impact avian migratory movements within the Pacific Flyway.

The jurisdictional delineation represents Dudek's best effort to quantify the extent of aquatic resources potentially regulated by USACE, CDFW, and/or RWQCB within the Project area using the current regulations, written policies, and guidance from current standards. .

4.2.4.1 Waters of the State

Approximately 59.75 acres (88,934 LF) of man-made drainage ditches with defined bed and bank and 1.93 acres of riparian habitat potentially regulated by CDFW were delineated within the review area pursuant to Sections 1600-1603 of the California Fish and Game Code (Figure 12, CDFW Aquatic Delineation). Streambeds under the jurisdiction of CDFW were identified by the presence of a bed and bank and mapped to include the top of bank of the stream/channel and outer dripline of adjacent riparian vegetation. A predominance of hydrophytic vegetation, where associated with a stream channel, was used to determine CDFW-regulated riparian habitat. Table 17 provides a detailed summary of aquatic resources delineated within the review area that are potentially regulated by CDFW.

Approximately 13.61 acres (88,918 LF) of non-wetland waters of the State and 26.27 acres of wetlands potentially regulated by RWQCB as waters of the State are present (Figure 13, –RWQCB Aquatic Delineation). These features are potentially subject to regulation by the RWQCB under the Porter-Cologne Water Quality Control Act. The 30 canals (13.61 acres below OHWM) and the 26.27 acres of wetlands meet the definition of waters of the state under Section II.3.c of the Procedures, meaning they are artificial wetlands resulting from historic human activity that have become a relatively permanent part of the natural landscape and hydrology with no ongoing operation or maintenance (SWRCB 2019). Table 16 provides a detailed summary of aquatic resources delineated within the review area that are potentially regulated by RWQCB.

4.2.4.2 Waters of the United States

The nearest Waters of the United States to the Project site is the Kern River Channel, which intersects an eastern corner of the Project site. Historically, water was diverted from the Kern River to a network of man-made canals on-site via gates and culverts. The Kern River Channel continues off-site to the north and eventually outlets into the historic Tulare Lakebed. Tulare Lake has been considered traditionally navigable water (TNW; SPK2011- 00117), thus, the Kern River Channel could be considered a tributary that flows directly into a TNW.

In *Sackett v. EPA*, the United States Supreme Court narrowed the scope of "waters of the United States" and therefore the CWA. Under *Sackett*, "the CWA's use of 'waters' encompasses only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes." To qualify as waters of the United States, a water must not only be relatively permanent, but also connected to traditional navigable waters. Finally, "the CWA extends only to those

Additionally, the eastern portion of the Project site is situated within the National Flood Hazard Layer (NFHL) 1% (100 year) floodplain associated with the Kern River Channel and Tulare Lake (FEMA 2022). Wetlands at the Project site, however, do not qualify as waters of the United States, as even assuming that the Kern River Channel is itself a water of the United States, these wetlands lack a continuous surface connection to that water such that it is difficult to determine where the water ends and the wetland begins. An additional eight seasonal wetland features documented onsite were located outside the floodplain and were isolated with no connectivity or adjacency to other potentially jurisdictional features. Two human-made wetland features also documented onsite were wholly created in upland by leaking water pump infrastructure, and therefore would be expected to return to upland under normal circumstances (i.e., unintentional leak is fixed). Thus, these ten seasonal wetlands do not meet the current definition of waters of the United States under current definitions.

Table 16. Summary of Potentially Jurisdictional Waters of the State (RWQCB)

Feature Name	Cowardin[1]	OHWM Indicators	Location (Latitude/Longitude; Decimal Degrees)	Acres/ linear feet[2]
Non-Wetland Waters				
2022-NWW-01	R6	Break in slope, bed and bank	35.76812088, -119.7429908	0.24/786
2022-NWW-02	R6	Break in slope, bed and bank	35.76832996, -119.7436123	0.13/1,186
2022-NWW-03	R6	Break in slope, bed and bank	35.7617392, -119.74287	0.34/1.813
NWW-01-CJS	R6	Break in slope, bed and bank	35.73631095, -119.6902139	0.42/2,642
NWW-01-OLK	R6	Break in slope, bed and bank	35.73242759, -119.6973548	0.34/2,544
NWW-01-TKP	R6	Break in slope, bed and bank	35.761419, -119.7167978	0.79/2,484
NWW-02-CJS	R6	Break in slope, bed and bank	35.73693134, -119.6900581	0.18/2,584
NWW-02-OLK	R6	Break in slope, bed and bank	35.73589359, -119.6988908	0.13/4,000
NWW-02-TKP	R6	Break in slope, bed and bank	35.77591888, -119.7299967	2.36/4,230
NWW-03-CJS	R6	Break in slope, bed and bank	35.74687387, -119.7069332	2.03/8,959

Table 16. Summary of Potentially Jurisdictional Waters of the State (RWQCB)

Feature Name	Cowardin[1]	OHWM Indicators	Location (Latitude/Longitude; Decimal Degrees)	Acres/ linear feet[2]
NWW-05-OLK	R6	Break in slope, bed and bank, change in plant community and/or cover	35.77513895, -119.7176003	0.17/1,044
NWW-05-TKP	R6	Break in slope, bed and bank, change in plant community and/or cover	35.77557151, -119.7167554	0.12/1,133
NWW-06-CJS	R6	Break in slope, bed and bank	35.75041463, -119.7252755	0.20/2,455
NWW-06-OLK	R6	Break in slope, bed and bank	35.77593444, -119.7446559	0.23/2,432
NWW-07-CJS	R6	Break in slope, bed and bank	35.75457871, -119.7254028	0.03/1,122
NWW-07-OLK	R6	Break in slope, bed and bank	35.77591328, -119.7434436	0.02/84
NWW-08-CJS	R6	Break in slope, bed and bank	35.78257837, -119.7254512	0.64/4,694
NWW-08-OLK	R6	Break in slope, bed and bank	35.77909437, -119.743346	0.45/4,601
NWW-09-CJS	R6	Break in slope, bed and bank	35.77207339, -119.7256183	0.99/7,299
NWW-09-OLK	R6	Break in slope, bed and bank	35.78325216, -119.7492273	0.45/4,826
NWW-11-CJS	R6	Break in slope, bed and bank	35.7554553, -119.7168438	0.39/4,231
NWW-12-CJS	R6	Break in slope, bed and bank	35.74843349, -119.7167957	0.08/874
NWW-13-CJS	R6	Break in slope, bed and bank	35.76499981, -119.7256152	0.34/2,488
NWW-14-CJS	R6	Break in slope, bed and bank	35.76140534, -119.7281204	1.17/5,151
NWW-15-CJS	R6	Break in slope, bed and bank	35.77561398, -119.7256087	<0.01/38
NWW-18-CJS	R6	Break in slope, bed and bank	35.78332256, -119.7344194	0.72/5,234

Table 16. Summary of Potentially Jurisdictional Waters of the State (RWQCB)

Feature Name	Cowardin[1]	OHWM Indicators	Location (Latitude/Longitude; Decimal Degrees)	Acres/ linear feet[2]
2022-WET-11	PEM	—	35.77440243, −119.7252725	0.06
2022-WET-12	PEM	—	35.77411262, −119.7179261	1.36
			Subtotal within 100-Year FEMA Floodplain	*20.43*
Outside of 100-Year FEMA Floodplain				
2022-WET-01	PEM	—	35.74169926, −119.7068472	0.91
2022-WET-02	PEM	—	35.74224124, −119.7073256	0.04
2022-WET-03	PEM	—	35.74323277, −119.7073722	0.33
2022-WET-04	PEM	—	35.74041726, −119.7069228	2.38
2022-WET-05	PEM	—	35.73972102, −119.7062992	0.38
2022-WET-06	PEM	—	35.73979897, −119.7050509	0.22
2022-WET-07	PEM	—	35.73737041, −119.7028683	0.33
2022-WET-08	PEM	—	35.73667614, −119.7029581	1.06
			Subtotal outside of 100-Year FEMA Floodplain	*5.65*
			Wetlands Subtotal	*26.27*
			Grand Total	**39.68/88,918**

Notes: RWQCB = Regional Water Quality Control Board; OHWM = ordinary high-water mark; NWW = non-wetland water; WET = wetland; R6 = riverine, ephemeral; PEM = palustrine, emergent

1 Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2022).

2 Totals may not sum due to rounding.

Table 17. Summary of Potentially Jurisdictional Waters of the State (CDFW)

		Location (Latitude/	

Table 17. Summary of Potentially Jurisdictional Waters of the State (CDFW)

Feature Name	Cowardin[1]	Location (Latitude/ Longitude; Decimal Degrees)	Acres/linear feet[2]
NWW-02-OLK	R6	35.73589359, -119.6988908	1.82/4,000
NWW-02-TKP	R6	35.77591888, -119.7299967	4.76/4,230
NWW-03-CJS	R6	35.74687387, -119.7069332	8.23/8,959
NWW-03-OLK	R6	35.75421054, -119.707726	2.22/5,146
NWW-04-CJS	R6	35.74675128, -119.707865	0.01/12
NWW-04-OLK	R6	35.768487, -119.7167222	2.3/4,815
NWW-05-CJS	R6	35.7467057, -119.716559	0.01/11
NWW-05-OLK	R6	35.77513895, -119.7176003	0.77/1,044
NWW-05-TKP	R6	35.77557151, -119.7167554	0.67/1,133
NWW-06-CJS	R6	35.75041463, -119.7252755	1.48/2,455
NWW-06-OLK	R6	35.77593444, -119.7446559	1.42/2,432
NWW-07-CJS	R6	35.75457871, -119.7254028	0.5/1,122
NWW-07-OLK	R6	35.77591328, -119.7434436	0.06/84
NWW-08-CJS	R6	35.78257837, -119.7254512	3.24/4,694
NWW-08-OLK	R6	35.77909437, -119.743346	2.85/4,601
NWW-09-CJS	R6	35.77207339, -119.7256183	4.06/7,299
NWW-09-OLK	R6	35.78325216, -119.7492273	2.4/4,826
NWW-11-CJS	R6	35.7554553, -119.7168438	2.26/4,231
NWW-12-CJS	R6	35.74843349, -119.7167957	0.78/874
NWW-13-CJS	R6	35.76499981, -119.7256152	1.63/2,488
NWW-14-CJS	R6	35.76140534, -119.7281204	4.7/5,151
NWW-15-CJS	R6	35.77561398, -119.7256087	0.02/38
NWW-18-CJS	R6	35.78332256, -119.7344194	3.3/5,234
		Streambed Subtotal	*59.75/88,934*
Riparian Habitat			
Iodinebush	RP1SS	35.77544458, -119.7174431	1.93
		Riparian Habitat Subtotal	*1.93*
		Grand Total	**61.68/88,934**

Notes: CDFW = California Department of Fish and Wildlife; OHWM = ordinary high-water mark; NWW = non-wetland water; R6 = riverine, ephemeral; RP1SS = scrub-shrub, lotic, riparian

1 Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2022).

2 Totals may not sum due to rounding. Acreage of streambed taken below Top of Bank (TOB).

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5 Impact Analysis and Recommended Mitigation Measures

This section provides an analysis of the potential for biological resources to be impacted by the proposed Project. The analysis was developed following Appendix G of the CEQA Guidelines, but also provides sufficient information to support a NEPA evaluation and documentation, if needed.

Note: The site design has not been received for the Project; therefore, the information provided in this section is based on Project details known to date.

5.1 Special-Status Species

In accordance with Appendix G of the CEQA Guidelines, the proposed Project would have a significant effect on biological resources if it would:

a.) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

Avoidance and minimization measures are designed to reduce or eliminate impacts to special-status species through Project construction, operation, and decommissioning. Detailed specific measures are outlined below for each special-status species that may occur within the Project site.

5.1.1 Special-Status Plants

Two special-status plant species were observed during the rare plant surveys: Kern mallow, and Lost Hills crownscale.

Kern mallow, a species listed as endangered pursuant to the Federal Endangered Species Act, was observed in the south-central portion of the survey area during the March and April 2022 surveys. The area where Kern mallow was identified measured approximately 6.06 acres, with a total number of individuals estimated to be 1,968.

Lost Hills crownscale, which has been assigned a CRPR of 1B by the CNPS, was observed during the supplemental rare plant surveys. An area totaling approximately 535 acres was identified to contain Lost Hills crownscale and distributed throughout the Project site. The CRPR 1B rank is the most common ranking and has been assigned by CNPS to more than a thousand plant species. The CRPR 1B ranking does not afford protection pursuant to the federal

approximately 50 acres as a result of installation of solar arrays, access roads, inverters, transformers, and other Project infrastructure. Direct impacts to Lost Hills crownscale will be mitigated at an on or off-site location at 1:1 ratio. Additional, indirect impacts through shading of the species and mowing would encompass approximately 443 acres of Lost Hills crownscale habitat. The Project site is currently used for cattle and sheep grazing and has been for the previous 10 years. Upon completion of construction activities and during the operational life of the Project, vegetation management will mow/trim vegetation to a heigh of six to eight inches approximately twice a year. The use of mechanical equipment to mow/trim vegetation will reduce ground disturbance and limit impacts to Lost Hills crownscale compared to current grazing practices because it will trim but not remove the plants. Indirect impacts as a result of vegetation management therefore will be mitigated at an on or off-site location at a 0.5:1 ratio. In addition, Pelicans Jaw Solar, LLC may salvage plants by transplanting the impacted plants to an on or off-site location with CDFW concurrence.

Project impacts to Kern mallow and Lost Hills crownscale are anticipated to be less than significant with implementation of Mitigation Measures BIO-1 through BIO-4. Mitigations Measures BIO-1 and BIO-2 would reduce impacts because all permanently impacted Kern mallow and/or Lost Hills crownscale plants would either be salvaged or compensated at a 1:1 ratio. Additionally, indirectly impacted Lost Hills crownscale plants would be mitigated by preserving compensation land at a 0.5:1 ratio. Furthermore, implementation of Mitigation Measure BIO-3 would reduce the spread of invasive and nonnative plant species which have the potential to out-compete native special-status plant species. Moreover, implementation of Mitigation Measure BIO-4 would further reduce indirect impacts to Kern mallow and Lost Hills crownscale through best management practices such as controlling dust pollution and preventing changes in hydrology.

BIO-1: Special-Status Plant Pre-Construction Surveys. A qualified biologist knowledgeable on the identification of rare plant species should conduct a pre-construction plant survey of areas of proposed disturbance within the Project site plus a 100-foot buffer (where legally accessible) to determine if any special-status plant species are present. Floristic surveys should be conducted during the optimal blooming periods (if feasible) of the target species (see Table 18) prior to start of construction activities in accordance with relevant USFWS and CDFW protocols. Locations of any special-status plant species observed should be mapped. If special-status plants are not identified during the survey(s), no further action is required.

Table 18. Blooming Period of Special-Status Plants with Potential to Occur

Special-Status Plant Species	Blooming Period
Earlimart orach (*Atriplex cordulata var. erecticaulis*)	August – September
Lost Hills crownscale (*Atriplex coronata* var. *vallicola*)	April – September
Lesser saltscale (*Atriplex minuscula*)	May – October
California jewelflower (*Caulanthus californicus*)	February – May

BIO-2: Salvage and Compensatory Mitigation of Known Special-Status Plants. Mapped occurrences of Kern mallow should be avoided to the maximum extent possible. Any Kern mallow that is permanently impacted shall be mitigated by preserving compensation land at a ratio of 1:1 acre on-site or at a nearby location with comparable habitat value. Individual Kern mallow plants and/or seeds will be salvaged from the Project site and translocated to the compensatory mitigation lands.

Mapped occurrence of Lost Hills crownscale should be avoided to the maximum extent possible. Any Lost Hills crownscale that is directly and permanently impacted shall be mitigated by preserving compensation land at a ratio of 1:1 acre. Directly impacted individual Lost Hills crownscale seeds and/or seed-bearing topsoil will be salvaged from the Project site and translocated to the compensatory mitigation lands if a viable population of Lost Hills crownscale does not already occur within the compensatory mitigation lands. Any Lost Hills crownscale that is indirectly impacted (such as through shading or mowing at 6 to 8 inches) would be mitigated by preserving compensation land at a ratio of 0.5:1 ratio on-site or at nearby location with comparable habitat value without salvage. Seed collection and redistribution into the compensatory mitigation lands may be accomplished as needed to meet the success criteria.

All plant/seed/topsoil salvage work would be undertaken in accordance with a salvage plan that would include methods for transplanting and watering (if appropriate), monitoring the health and survivorship of salvaged plants during at least 5 years following salvage, and contingency measures if plant survivorship requirements are not satisfied.

Success criteria within the salvage plan will include:

- The area occupied by special-status plant species within the compensatory mitigation lands will be equal to the total amount required to mitigate impacts to the species from the project in a minimum of one year during the five-year maintenance and monitoring period.
- Native plant species diversity within the compensatory mitigation lands will exceed 10 in a minimum of one year during the five-year maintenance and monitoring period.
- Perennial invasive plant species known to compete with the target special-status plant species will have lower than 10% cover within the compensatory mitigation lands at the end of the five-year maintenance and monitoring period.
- Wildlife use of the compensatory mitigation lands will be consistent with the level observed within the project impact site prior to project construction.

Special-status plant species occupation of the Project site, as surveyed three-to-five years following completion of construction, may be used to reduce or partially satisfy special-status plant species

provide adaptive management recommendations focused on bringing the project onto a positive trajectory towards meeting the success criteria. Adaptive management actions may include non-native plant control, native plant species seeding, and targeted seed collection and redistribution of the target special status plant species, among other things.

BIO-3: Invasive Species. Invasive species have the potential to out-compete native special-status plant species, so the introduction and spread of invasive and nonnative plant species should be avoided and controlled wherever possible during construction and operations, on both the Project site and surrounding areas. This may be achieved through the following measures:

- Clean vehicles and equipment before they enter construction areas.
- Apply chemical deterrents implementing appropriate revegetation actions to disturbed areas to prevent growth of invasive species.
- Implement an annual weed and invasive species control program within the project footprint and areas temporarily impacted during construction.

BIO-4: Best Management Practices to Avoid Indirect Impacts to Special-Status Plants. To reduce any indirect impacts to special-status plants that may be in the Project site, best management practices (BMPs) will be implemented to control dust pollution, prevent discharge of potentially harmful chemicals, and prevent changes in hydrology. BMPs may include the installation of erosion and sedimentation control devices, applying water to control dust, placing drip pans under equipment when not in use, refueling in designated areas, and containing concrete washout properly, among other practices.

5.1.2 Special-Status Wildlife

Twelve (12) special-status wildlife species have the potential to utilize suitable habitat within the Project site for breeding, foraging, or movement: BNLL, western spadefoot, San Joaquin coachwhip, BUOW, SWHA, Le Conte's thrasher, San Joaquin antelope squirrel, giant kangaroo rat, Tipton kangaroo rat, Tulare grasshopper mouse, AMBA, and SJKF. The Project may directly impact species or indirectly impact foraging and movement behavior of species as described further below.

Blunt-Nosed Leopard Lizard

There is suitable habitat for this species within the Project site. If BNLL are present within suitable habitat within the Project site, direct impacts could include injury or mortality during Project-related construction activities. However, even after focused surveys performed for the Project, no occurrences have been recorded within the Project site since one CNDDB occurrence recorded in 1974 that is likely extirpated, as the recording occurred 48

Implementation of Mitigation Measures BIO-10, BIO-12 and BIO-13 listed below would reduce impacts to less than significant by avoiding direct impacts to the species should they be determined to be present during 2023 protocol surveys or discovered unanticipatedly during construction. Implementation of Mitigation Measures BIO-10, BIO-12 and BIO-13 listed below would reduce impacts to less than significant by avoiding direct impacts to the species should they be determined to be present during 2023 protocol surveys or discovered unanticipatedly during construction.

Western Spadefoot

No western spadefoot observations or detections were made during focused surveys. Suitable habitat for these species is present on site (pastures) and immediately adjacent to the Project site (agricultural lands); however, valley-foothill woodlands, coastal scrub habitats are absent. Implementation of Mitigation Measure BIO-12 listed below would reduce impacts to the species to less than significant as all construction personnel would be required to attend Worker Environmental Awareness Training prior to starting work on the project and on an annual basis. The training would include information on special-status species with potential to occur on the Project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species.

San Joaquin Coachwhip

No San Joaquin coachwhip were observed during surveys in 2021 or 2022. There is suitable habitat for this species within the Project site (saltbush scrub); however, the nearest CNDDB occurrence is 5 miles from the Project site (CDFW 2022a). Direct impacts could occur if the species is present in suitable habitat areas. Indirect impacts could occur with the loss of suitable habitat for foraging and reduction of prey availability. Over the long-term, it is expected that with implementation of BIO-17 there would be no loss of foraging habitat, as the species would be able to traverse through the Project site without restriction. In addition, implementation of BIO-17 would exclude potential predators to San Joaquin coachwhip and livestock from the Project site, mitigating loss of suitable foraging habitat. Implementation of Mitigation Measures BIO-10, BIO-12 and BIO-13 listed below would reduce impacts to less than significant by avoiding direct impacts to the species should they be determined to be present during 2023 protocol surveys or discovered unanticipatedly during construction.

Burrowing Owl

Two BUOWs were observed flushed from burrows during 2021 BNLL focused surveys. Additionally, four images of BUOW were captured on game cameras during 2022 focused SJKF surveys. The Project site contains suitable habitat for BUOW burrowing, nesting, and foraging. Individual BUOWs could be injured or killed if they disperse through the Project site during construction activities. If there is an active burrow within the Project site during construction, noise and vibration from construction activities could alter the daily behaviors of individual BUOWs

Swainson's Hawk

Two potential SWHA nests were observed nest building during March and June 2022 focused surveys. The two nests were observed approximately 500-feet outside of the Project boundary. SWHA exhibit high nest-site fidelity year after year and lack of suitable nesting habitat limits their local distribution and abundance (CDFW 2016). No nest trees were identified within the Project footprint and no mature trees with the potential to support nesting SWHAs would be removed by the Project. Impacts to individual nesting SWHAs outside of the Project footprint and within the 0.5-mile survey buffer could occur if construction activities occur near an active nest. Noise and vibration from construction of the Project, and the presence of construction workers, could alter the normal behaviors of nesting adults and affect reproductive success within 0.5 mile.

Although prey sources such as rodents and small birds are likely to still inhabit the area around solar panels on the Project site upon completion of construction, the solar panels will obscure detection by raptors flying overhead. Raptors may be able to use the solar panels, perimeter fencing and utility structures surrounding the facilities as perch sites for hunting. However, under existing conditions (pre-Project) it is not expected that the Swainson's hawk currently use the Project site for foraging due to the absence of agricultural fields, which is this species' preferred type of foraging habitat in the region. The Project site is currently used as grazing land and has been used in the same manner for the last 10 years. The Project site does not contain actively cultivated fields. Though SWHA were not observed on-site, the availability of potential foraging habitat could be reduced due to the presence of solar panels and associated facilities. Implementation of Mitigation Measures BIO-8 and BIO-9, listed below, would reduce any impacts of the Project to nesting SWHAs to less than significant because pre-construction surveys for SWHA nests would occur during the nesting season and if SWHA nests are observed they would be avoided and/or monitored as determined by the qualified biologist.

Le Conte's Thrasher

Le Conte's thrashers were not observed during the 2021 or 2022 surveys. However, if Le Conte's thrasher was to be present in the Project site during construction, direct impacts to Le Conte's thrasher could occur if construction activities occur near an active nest or in foraging habitat during the nesting season. Noise and vibration from construction of the Project or the presence of construction workers could alter the normal behaviors of nesting adults, resulting in harm or death to eggs or nestlings. The loss of suitable habitat for foraging habitat and reduction of prey availability in the area could result in indirect impacts through increased competition for limited resources over the long-term. Implementation of Mitigation Measures BIO-7, BIO-10, BIO-12, BIO-13, and BIO-14 listed below would reduce impacts to less than significant by avoiding direct impacts to the species should they be determined to be present during 2023 preconstruction surveys or discovered unanticipatedly during construction.

San Joaquin Antelope Squirrel

Potential for presence is considered low with suitable habitat on site and several CNDDB observations recorded

Giant Kangaroo Rat and Tipton Kangaroo Rat

Potential for presence of giant kangaroo rat and Tipton kangaroo rat is considered low though there is suitable habitat on site. During 2021 BNLL focused surveys, a desiccated kangaroo rat carcass was discovered. The carcass could not be identified to species level due to the deteriorated condition of the carcass. Additionally, during the 2022 SJKF surveys, two kangaroo rat skulls were discovered and identified. The skulls were examined by Philip Brylski, PhD (USFWS, Section 10(a) Survey Permit No. TE-148555-2). Based on the overall skull size, the degree of bullar inflation and the size and shape of the interparietal bone, they were determined to be Heermann's kangaroo rat, which are not listed from a federal or state perspective. If these species are present within the Project site, direct impacts including injury or mortality could occur.

Pelicans Jaw Solar, LLC conducted protocol-level trapping to determine the species of kangaroo rat that may occupy or traverse the Project site. No giant kangaroo rator Tipton kangaroo rats were observed or detected during surveys.

Over the long term it is expected that with implementation of BIO-17 there would be no loss of foraging habitat within the Project site during operations, as the species would be able to traverse the Project site without restriction. In addition, implementation of BIO-17 would exclude potential predators to San Joaquin coachwhip and livestock from the Project site, mitigating loss of suitable foraging habitat. It is expected that implementation of Mitigation Measures BIO-10, BIO-12, and BIO-13 listed below, would reduce impacts to the species to less than significant by avoiding direct impacts to the species should they be determined to be present during 2023 preconstruction surveys or discovered unanticipatedly during construction. There would be no loss of foraging habitat as no agricultural and grazing activity would occur within the Project site during operations.

Tulare Grasshopper Mouse

Potential for presence is considered low with suitable habitat on-site. No CNDDB observations or detections have been recorded within 5 miles of the Project site. If the species is present within the Project site, direct impacts including injury or mortality could occur. Over the long term it is expected that with implementation of BIO-17 there would be no loss of foraging habitat within the Project site during operations, as the species would be able to traverse the Project site without restriction. Implementation of Mitigation Measures BIO-10, BIO-12, and BIO-13, listed below, would reduce impacts to the species to less than significant by avoiding direct impacts to the species should they be determined to be present during 2023 preconstruction surveys or discovered unanticipatedly during construction.

American Badger

Nine direct AMBA observations were made and one active AMBA den was observed during blunt nosed leopard lizard

San Joaquin Kit Fox

No direct SJKF observations were observed during blunt-nosed leopard lizard adult and hatchling season surveys in 2021; however, photos of SJKF were captured at two locations during the 2021 surveys. During the combined 2022 SJKF pedestrian surveys and camera study, a total of three active dens and seven other known dens were recorded within the Project site. In accordance with the survey protocol (USFWS 1999), surveyors did not identify a den as active unless camera images of SJKF use and/or direct observation were made. Additionally, surveyors did not identify a den as a known den unless evidence of SJKF use (i.e., scat, tracks, prey remains, fresh digging, claw marks, etc.) at any time had been observed at the den. Any subterranean hole that has entrances of appropriate dimensions (approximately 5 to 8 inches in diameter) for which evidence is insufficient to conclude that it is being, has been, or could be used by a SJKF was recorded as a potential den. A total of 106 potential SJKF dens were observed and recorded. Camera data showed SJKF widely dispersed throughout the Project site. Because SJKF are a mobile species with a wide range, the exact number of individuals residing within the Project site is unknown at this time and can change throughout any given year.

SJKF den in a variety of areas such as rights-of-way (ROWs), vacant lots, agricultural and fallow or ruderal habitat, dry stream channels, and canal levees, and populations can fluctuate over time. SJKF home ranges are widely variable, from 1 to 12 square miles, and individuals may change dens often, even during the same season (EPA 2022). SJKF may be attracted to Project site due to the type and level of ground-disturbing activities and the loose, friable soils resulting from intensive ground disturbance. SJKF will forage in fallow in agricultural fields and utilize streams and canals as dispersal corridors.

Because this species is highly mobile, SJKF could be injured or killed if they disperse through the Project site during construction or operations activities. Direct impacts could also include entrapment in trenches or pipes during construction. If there is an active den within the Project site during construction activities, noise and vibration from construction activities could alter the daily behaviors of individuals, or dens could be subject to collapse. Mortalities from vehicle strikes are possible but the proposed Project would not cause an appreciable increase in traffic at night when the species is most active.

Recent studies of similar photovoltaic solar projects have indicated that if designed and managed appropriately (including but not limited to the installation of wildlife-friendly fencing), solar generating facilities can provide habitat value for listed species including SJKF. The publication titled “Solar Energy Development and Endangered Species in the San Joaquin Valley, California: Identification of Conflict Zones” by Scott E. Phills and Brian L. Cyper dated February 5, 2019, found that siting projects in areas with no or marginal habitat value actually might increase the value of these lands for listed species. Preliminary data from solar generating facilities indicated continued, and in some cased increased, use by listed species. For example, the Topaz Solar Farm was largely constructed on active and fallowed dry-land farmed fields, similar to those of the Pelicans Jaw Hybrid Solar Project. SJKF were present in

Similar to the Topaz Solar Farm and the California Valley Solar Ranch projects, wildlife-friendly fencing will be used to keep terrestrial wildlife species from entering the Project site during construction, but will provide openings postconstruction to enable wildlife to move freely through the Project site during operation (e.g., create 3- to 7-inch portals or openings in the fence, raising the fence 7 inches above the ground and knuckling the bottom of the fence [i.e., wrapping the fencing material back to form a smooth edge] to protect wildlife passing underneath).

Over the long-term, it is expected that with implementation of BIO-17 there would be no loss of foraging habitat within the Project site during operations. Implementation of Measures BIO-5, BIO-6, BIO-10, BIO-12, and BIO-13 listed below would avoid direct impacts to the species by avoiding direct impacts to the species should they be determined to be present during 2023 preconstruction surveys or discovered unanticipatedly during construction. Additionally, because habitat loss is the primary threat to the species (Cypher et al. 2013), BIO-17 would reduce impacts to the species to less than significant as the species would be able to traverse the Project site without restriction, while still providing ample habitat for foraging and nesting.

BIO-5: Buffering of Burrows for Burrowing Owl, American Badger, and San Joaquin Kit Fox. As part of the preconstruction surveys conducted under BIO-10, within 14 days prior to the start of Project ground-disturbing activities, a pre-construction survey with a 500-foot buffer to the extent property access is authorized should be conducted by a qualified biologist knowledgeable in the identification of burrowing owl, American badger, and San Joaquin kit fox. If dens and/or burrows that could support any of these species are discovered during the pre-construction surveys, the avoidance buffers outlined below should be established. No work would occur within these buffers unless the biologist approves and monitors the activity.

Burrowing Owl (active burrows):

- Non-breeding season: September 1 – January 31 – 160 feet.

Breeding season: February 1 – August 31 – 250 feet.

American Badger/San Joaquin Kit Fox:

- Potential or Atypical den – 50 feet.
- Known den – 100 feet.
- Natal or pupping den – 500 feet, unless otherwise specified by CDFW.

San Joaquin Kit Fox

In determining whether SJKF activity could occur within these buffers, the biological monitor would take into account the following:

those previous levels of disturbance. If construction noise and duration are similar to disturbances that would have occurred in the area prior to construction (e.g., vehicular traffic on an existing road), those activities could continue with ongoing monitoring of the den by a biological monitor.

- If construction activities have begun within 100 feet of a potential or atypical den that was determined during preconstruction activities to be inactive when construction began and the den becomes active during construction (i.e., becomes a "known" den), those activities would be allowed to continue at the same intensity as occurred when the den became active. A biological monitor would maintain continual watch on the den while construction activities are conducted within the buffer described above.
- In no case would construction activities, regardless of noise and duration, occur closer than 50 feet from a known or potential/atypical den or 500 feet from a natal/pupping den unless approved by California Department of Fish and Wildlife or United States Fish and Wildlife Service. Evidence that the construction activities were causing negative changes in behavior patterns would cause the biologist to disallow those activities inside the buffer.
- If take of San Joaquin Kit Fox cannot be avoided, the project proponent shall confer with California Department of Fish and Wildlife on the need for take authorization through the acquisition of an incidental take permit, pursuant to Fish and Game Code section 2081 subdivision (b).

Burrowing Owl and American Badger

If BUOW or AMBA are found within these recommended buffers and avoidance is not possible, burrow and/or den exclusion would be conducted by qualified biologists and only during the non-breeding season, before breeding behavior is exhibited and after the burrow and/or den is confirmed empty through non-invasive methods, such as surveillance. Replacement of occupied burrows with artificial dens and/or burrows shall occur at a ratio of one burrow collapsed to one artificial den and/or burrow constructed (1:1) to mitigate for evicting burrowing and the loss of dens and/or burrows. Species may attempt to colonize or re-colonize an area that will be impacted; thus, ongoing surveillance shall occur at excluded burrows and/or dens at a rate that is sufficient to detect species if they return.

Burrowing owls should not be excluded from burrows unless or until a Burrowing Owl Exclusion Plan is developed by a qualified biologist consistent with the recommendations of CDFW's 2012 *Staff Report on Burrowing Owl Mitigation* and submitted to the Kern County Planning and Natural Resources Department. The plan shall include, at a minimum:

- Confirm by site surveillance that the burrow(s) is empty of burrowing owls and other species

burrow to prevent collapsing until the entire burrow has been excavated and it can be determined that no owls reside inside the burrow);

- Removal of other potential owl burrow surrogates or refugia onsite;
- Photographing the excavation and closure of the burrow to demonstrate success and sufficiency;

BIO-6: Standard Avoidance and Minimization. Measures for the protection of San Joaquin Kit Fox. The following avoidance and minimization measures should be implemented during all phases of the Project to reduce the potential for impact from the Project. They are modified from the U.S. Fish and Wildlife Service Standardized Recommendations for Protection of the Endangered SJKF Prior to or During Ground Disturbance (USFWS 2011, Appendix E).

- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in securely closed containers and removed at least once a week from the construction or Project site.
- Construction-related vehicle traffic shall be restricted to established roads and predetermined ingress and egress corridors, staging, and parking areas. Vehicle speeds shall not exceed 20 miles per hour (mph) within the Project site.
- To prevent inadvertent entrapment of SJKF or other animals during construction, the contractor shall cover all excavated, steep-walled holes or trenches more than two feet deep at the close of each workday with plywood or similar materials. If holes or trenches cannot be feasibly covered, one or more escape ramps constructed of earthen fill or wooden planks shall be installed in the trench. Before such holes or trenches are filled, the contractor shall thoroughly inspect them for entrapped animals. All construction-related pipes, culverts, or similar structures with a diameter of four-inches or greater that are stored on the Project site shall be thoroughly inspected for wildlife before the pipe is subsequently buried, capped, or otherwise used or moved in anyway. If at any time an entrapped or injured SJKF is discovered, work in the immediate area shall be temporarily halted and USFWS and CDFW shall be consulted.
- SJKF are attracted to den-like structures such as pipes and may enter stored pipes and become trapped or injured. All construction pipes, culverts, or similar structures with a diameter of four inches or greater that are stored at a construction site for one or more overnight periods shall be thoroughly inspected for SJKFs before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a SJKF is discovered inside a pipe, that section of pipe shall not be moved until the USFWS and CDFW have been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved only once to remove it from the path of construction activity, until the fox has escaped.

related restrictions deemed necessary by the USFWS and CDFW. If rodent control must be conducted, zinc phosphide shall be used because of the proven lower risk to SJKFs.

- A representative shall be appointed by the Project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a SJKF or who finds a dead, injured or entrapped SJKF. The representative shall be identified during the employee education program and their name and telephone number shall be provided to the USFWS.
- The Sacramento Fish and Wildlife Office of USFWS and CDFW shall be notified in writing within three working days of the accidental death or injury to a SJKF during Project-related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The USFWS contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers below. The CDFW contact can be reached at (559) 243-4014 and R4CESA@wildlifeca.gov.
- All sightings of the SJKF shall be reported to the CNDDB. A copy of the reporting form and a topographic map clearly marked with the location of where the SJKF was observed shall also be provided to the Service at the address below.
- Any Project-related information required by the USFWS or questions concerning the above conditions, or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at: Endangered Species Division, 2800 Cottage Way, Suite W 2605, Sacramento, California 95825-1846, phone: (916) 414-6620 or (916) 414-6600.

BIO-7: Pre-Construction Surveys for Nesting Birds. If any vegetation will be removed on the Project site, it is recommended to be scheduled prior to the nesting bird season (February 1 to September 15). If Project construction activities will be initiated during the nesting season (February 1 to September 15), a pre-activity nesting bird survey should be conducted within 14 days prior to the start of construction. The surveys should encompass the Project Site and accessible or land visible from accessible areas within a 250-foot buffer for songbirds and a 500-foot buffer for raptors. The surveys may be phased with construction of the Project. The surveys would also evaluate presence/absence of tricolored blackbird nesting colonies in proximity to Project activities and to evaluate whether there is a potential for Project-related impacts. If no active nests are found, no further action is required. However, existing nests may become active and new nests may be built at any time prior to and throughout the nesting season, including when construction activities are in progress.

If active nests are found during the survey or at any time during construction of the Project, an avoidance buffer ranging from 50 feet to 500 feet may be required, with the avoidance buffer from any specific nest being determined by a qualified biologist. The avoidance buffer will remain in place

Advisory Committee (CDFG 2000). Timing and the number of phases of surveys can be adjusted based on the timing of the construction schedule. The surveys may be phased to coincide with active construction areas plus a 0.5-mile buffer of those areas.

BIO-9: Swainson's Hawk Nest Avoidance. No mature trees that could be used by nesting SWHA will be removed during construction of the Project. No avoidance buffer shall be required if construction occurs near a known Swainson's hawk nest outside of the Swainson's hawk nesting season. However, if an active SWHA nest is discovered at any time within 0.5 mile of active construction, a qualified biologist shall complete an assessment of the potential for current construction activities within the 0.5-mile radius to impact the nest. The assessment would consider the type of construction activities (e.g. noise levels and duration), the location of construction relative to the nest and preexisting disturbance levels (e.g. construction activities in historically agricultural land versus activities in non-agricultural land), the visibility of construction activities from the nest location (e.g. topography or vegetation that could block line-of-sight to the nest), the number of construction personnel required to perform activities within the setback, and other existing disturbances in the area that are not related to construction activities of this project. Based on this assessment, the biologist will determine what type of construction activities, if any, can proceed within the 0.5-mile radius, what radius should apply to the type of construction activities in question, and the level of nest monitoring required for the type of construction activity in question. When conducting the assessment, the biologist will consider the following levels of construction activity, with higher levels of activity requiring greater caution in determining setbacks:

- Light construction activity such as fence installation and limited vehicle access. Nose levels generated by these construction activities would likely be similar to existing ambient noise levels in closer proximity to the occupied nests.
- Moderate and/or isolated construction activity such as grading and construction of substation, substation-access road, inverter skids, and manual installation of solar panels. Noise levels generated by these construction activities would likely be similar to existing ambient noise levels beyond a moderate distance from the occupied nests.
- Heavy construction activity across a large area of the Project and/or using louder equipment such as pile drivers, concrete saws, or jackhammers. Noise levels for this type of activity will depend on location of the activities relative to the nest and allowing these activities within the 0.5-mile setback would require coordination with CDFW. In the event the assessment determines that construction activities could occur closer than 0.5-miles to an active nest, in no event would construction activities occur within 500 feet of an active nest without approval from CDFW. Full-time monitoring to evaluate the effects of construction activities on nesting Swainson's hawks would be required.

identified by the project's CEQA review to have potential to occur on the Project site. Surveys need not be conducted for all areas at one time; they may be phased so that surveys occur within 14 days of the portion of the Project site that will be disturbed. To facilitate implementation of BIO-13 and other biological resource mitigation measures required of the project, the location and nature of all special status species observations resulting from the preconstruction survey shall be documented and any suitable dens and/or burrows that could support fossorial special-status wildlife species will be examined for potential occupancy and documented.

BIO-11: San Joaquin Coachwhip Avoidance and Minimization. If the species is present within the work area, they will be allowed to leave on their own. If they do not leave, the qualified biologist may capture and relocate them to nearby suitable habitat at an appropriate distance to ensure the animal will be safe.

BIO-12: Worker Environmental Awareness Training. Prior to the initiation of construction activities, all construction personnel should attend a Worker Environmental Awareness Training program developed by a qualified biologist. Any personnel associated with construction that did not attend the initial training shall be trained by the authorized biologist prior to working on the Project site. Any employee responsible for the operations and maintenance or decommissioning of the project facilities shall also attend the Worker Environmental Awareness Training program prior to starting work on the project and on an annual basis.

The Program shall be developed and presented by the project qualified biologist(s) or designee approved by the qualified biologist(s). The program should include information on the life histories of special-status species with potential to occur on the Project, their legal status, course of action should these species be encountered on-site, and avoidance and minimization measures to protect these species. It shall include the components described below:

- Information on the life history and identification of special-status species that may occur or that may be affected by Project activities. The program shall also discuss the legal protection status of each such species, the definition of "take" under the Federal Endangered Species Act and California Endangered Species Act, measures the Project proponent/operator shall implement to protect the species, reporting requirements, specific measures for workers to avoid take of special-status plant and wildlife species, and penalties for violation of the requirements outlined in the California Environmental Quality Act mitigation measures and agency permit requirements.
- An acknowledgement form signed by each worker indicating that the Worker Environmental Awareness Training and Education program has been completed shall be kept on file at the

- A sticker shall be placed on hard hats indicating that the worker has completed the Worker Environmental Awareness Training and Education program. Construction workers shall not be permitted to operate equipment within the construction areas unless they have attended the Worker Environmental Awareness Training and Education Program and are wearing hard hats with the required sticker.
- The construction crews and contractor(s) shall be responsible for preventing unauthorized impacts from project activities to sensitive biological resources that are outside the areas defined as subject to impacts by Project permits. Unauthorized impacts may result in project stoppage, and/or fines depending on the impact and coordination with the CDFW and/or USFWS.

BIO-13: Biological Monitoring. During construction activity within the Project site, a biological monitor with halt work authority will be present to observe ground-disturbing activities. During construction, the qualified biologist will have the authority to order a halt to construction activities in the following instances: (1) a biological monitor observes activities that may result in mortality or harm to an identified member of a special status animal species; or (2) a biological monitor observes any of the mitigation and avoidance measures are not being implemented properly. Construction will resume when either the listed species moves out of harm's way on its own, is moved out of harm's way consistent with applicable state and federal law, or the avoidance and minimization measures that are not being implemented properly are rectified.

In all areas where a member or members of a listed or fully protected species was determined by preconstruction clearance surveys to be present, the monitor shall halt all activities within 50 feet of the construction activities until either the animal leaves the 50-foot area on its own accord, or, in the alternative, until concluding consultation with USFWS or CDFW in instances where incidental take authorization has not already been obtained.

BIO-14: Bird Flight Diverters. If guy wires are required for any Project infrastructure, such use will be minimized to the extent possible. Any guy wires would be installed with bird flight diverters at no less than 15-foot spacing to reduce the potential for collision from flying birds.

5.2 Sensitive Natural Communities and Critical Habitat

In accordance with Appendix G of the CEQA Guidelines, the proposed Project would have a significant effect on biological resources if it would:

a.) Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US

permanently impacted CDFW-designated sensitive communities would either be salvaged or compensated at a 1:1 ratio. Additionally, indirectly impacted CDFW-designated sensitive communities would be mitigated by preserving compensation land at a 0.5:1 ratio.

BIO-15: Restoration of Impacted CDFW-Designated Sensitive Plant Communities. Mapped CDFW-designated sensitive communities should be avoided to the maximum extent possible. Any CDFW-designated sensitive communities that are directly and permanently impacted shall be mitigated at a ratio of 1:1 acre on-site or at a nearby location with comparable habitat value. Any mapped CDFW-designated sensitive communities that are indirectly impacted (such as through shading or mowing at 6 to 8 inches) would be mitigated by preserving compensation land at a ratio of 0.5:1 ratio on-site or at nearby location with comparable habitat value.

5.3 Jurisdictional Aquatic Resources

In accordance with Appendix G of the CEQA Guidelines, the proposed Project would have a significant effect on biological resources if it would:

a.) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

A formal aquatic resources delineation was conducted for the Project in 2022 and full results are provided in Section 4.2.3 Jurisdictional Aquatic Resources.

Waters of the United States

The nearest potential Waters of the United States to the Project site is the Kern River Channel, which intersects an eastern corner of the Project site. Historically, water was diverted from the Kern River to a network of man-made canals on-site via gates and culverts. The Kern River Channel continues off-site to the north and eventually outlets into the historic Tulare Lakebed.

Tulare Lake has been considered traditionally navigable water (TNW; SPK2011- 00117), thus, the Kern River Channel could be considered a tributary that flows directly into a TNW.

In *Sackett v. EPA*, the United States Supreme Court narrowed the scope of "waters of the United States" and therefore the CWA. Under *Sackett*, "the CWA's use of 'waters' encompasses only those relatively permanent, standing or continuously flowing bodies of water forming geographical features that are described in ordinary parlance as streams, oceans, rivers, and lakes." To qualify as waters of the United States, a water must not only be

drainage ditches are therefore exempt from the jurisdiction of USACE as they are not connected to a navigable Water of the United States.

Additionally, the eastern portion of the Project site is situated within the National Flood Hazard Layer (NFHL) 1% (100 year) floodplain associated with the Kern River Channel and Tulare Lake (FEMA 2022). Wetlands at the Project site, however, do not qualify as waters of the United States, as even assuming that the Kern River Channel is itself a water of the United States, these wetlands lack a continuous surface connection to that water such that it is difficult to determine where the water ends and the wetland begins. An additional eight seasonal wetland features documented onsite were located outside the floodplain and were isolated with no connectivity or adjacency to other potentially jurisdictional features. Two human-made wetland features also documented onsite were wholly created in upland by leaking water pump infrastructure, and therefore would be expected to return to upland under normal circumstances (i.e., unintentional leak is fixed). Thus, these ten seasonal wetlands do not meet the current definition of waters of the United States under current definitions.

Waters of the State

Approximately 13.61 acres (88,918 LF) of non-wetland waters and 26.27 acres of wetlands potentially regulated by RWQCB are present. These features are potentially subject to regulation by the RWQCB under the Porter-Cologne Water Quality Control Act. The 30 canals (13.61 acres below OHWM) and the 26.27 acres of wetlands may meet the definition of waters of the state, including under Section II.3.c of the Procedures, meaning they are artificial wetlands resulting from historic human activity that have become a relatively permanent part of the natural landscape and hydrology with no ongoing operation or maintenance (SWRCB 2019).

All identified wetlands potentially regulated by RWQCB will be avoided by the Project. The Project is anticipated to impact non-wetland waters potentially regulated by RWQCB with access road construction and retention basins. Access road construction is anticipated to include removing the top foot of native soils, installing a geotextile fabric, and compacting new aggregate fill. Approximately 15 access road crossings are anticipated that will consist of approximately 2,000 square feet of ground disturbance per access road crossing.

Retention basin construction will consist of grading and rip-rap installation at the entrance of the trenches. The anticipated impact to the trenches is estimated at 0.1 acre. Up to two retention basins are anticipated to be installed.

Electrical utility line crossings are anticipated to be completed by direction boring underneath the trenches. The direction boring will not impact non-wetland water or wetlands potentially regulated by RWQCB.

The Project is anticipated to require impacts to up to four acres of non-wetland waters, pending final site engineering/design.

Approximately 59.75 acres (88,934 LF) of man-made drainage ditches with defined bed and bank and 1.93 acres

native soils, installing a geotextile fabric, and compacting new aggregate fill. Approximately 15 access road crossings are anticipated that will consist of approximately 2,000 square feet of ground disturbance per access road crossing.

Retention basin construction will consist of grading and rip-rap installation at the entrance of the trenches. The anticipated impact to the trenches is estimated at 0.1 acre. Up to two retention basins are anticipated to be installed.

Electrical utility line crossings are anticipated to be completed by direction boring underneath the trenches. The direction boring will not impact non-wetland water or wetlands potentially regulated by CDFW.

The Project is anticipated to require impacts to up to six acres of man-made drainage ditches, subject to the jurisdiction of the CDFW under Section 1600 of the Fish and Game Code, pending final site engineering/design.

Impacts to jurisdictional aquatic resources would be less than significant with implementation of Mitigation Measure BIO-16 below because jurisdictional aquatic resources would be delineated prior to issuance of grading or building permits. Furthermore, Mitigation Measure BIO-16 would require that all hazardous materials be located away from jurisdictional aquatic waters, which would also be protected from storm-water runoff.

BIO-16: Wetland and Waters Delineation and Protection. Prior to issuance of any grading or building permit, the project proponent/operator will submit a final Delineation report to Kern County. A copy of this report will also be provided to the Central Valley Regional Water Quality Control Board. The report will include Delineation of all potential state and federal jurisdictional features at the Project site. Potential jurisdictional features within the project boundary identified in the jurisdictional delineation report may be shown in plan form. If the proponent determines on the basis of its final project design relative to the final delineation report that the project will impact state or federal jurisdictional aquatic resources, the proponent shall obtain all necessary permits/authorizations from the appropriate regulating agencies (RWQCB, CDFW, and/or USACE) prior to impacting state or federal jurisdictional features. Any material/spoils generated from project activities containing hazardous materials will be located away from state and federal jurisdictional waters and special-status habitat and protected from storm water run-off using temporary perimeter sediment barriers such as berms, silt fences, fiber rolls, covers, sand/gravel bags, and straw bale barriers, as appropriate.

- Equipment containing hazardous liquid materials will be stored on impervious surfaces or plastic ground covers to prevent any spills or leakage from contaminating the ground and at least 50 feet outside the delineated boundary of jurisdictional water features.
- Any spillage of material will be stopped if it can be done safely. The contaminated area will be cleaned, and any contaminated materials properly disposed. For all spills, the project foreman

Wildlife movement corridors, also referred to as dispersal corridors or landscape linkages, are generally defined as linear features along which animals can travel from one habitat or resource area to another. Wildlife movement corridors can be large tracts of land that connect regionally important habitats that support wildlife in general, such as stop-over habitat that supports migrating birds or large contiguous natural habitats that support animals with very large home ranges (e.g., coyotes, mule deer [*Odocoileus hemionus californicus*]). They can also be small scale movement corridors, such as riparian zones, that provide connectivity and cover to support movement at a local scale.

The Project footprint is situated within the Pacific Flyway, which is a significant avian migration route that covers a wide swath of land along the western Americas from Patagonia to Alaska. Although the Project is located within the Pacific Flyway, it is very small in comparison to the overall Pacific Flyway. The Project is low-lying and is not expected to impact avian migratory movements within the Pacific Flyway.

In the San Joaquin Valley, a regional wildlife movement corridor is defined as major rivers that provide connection between the mountains and the San Joaquin and Kern Rivers (Tulare Basin Watershed Partnership 2022). The Project site is not considered a wildlife movement corridor because it does not contain major rivers that connect the mountains and the San Joaquin and Kern Rivers. The Project will not impact the Kern River Channel.

The Project is not located within a mapped wildlife movement corridor or linkage. Local irrigation ditches may be used by wildlife to travel through the vicinity. These irrigation ditches will be impacted minimally by the Project to accommodate the construction and maintenance of access roads, retention basins, and perimeter fencing. SJKF and local wildlife could occur as a transient forager within the Project site. Recommended Mitigation Measure BIO-17, which includes the implementation of wildlife-friendly fencing will ensure that the Project is not a barrier to movement. Implementation of Mitigation Measures BIO-5, BIO-6, and BIO-12 would reduce impacts to the species to less than significant by avoiding direct impacts to the species should they be determined to be present during 2023 preconstruction surveys or discovered unanticipatedly during construction.

BIO-17: Fence Design and Site Permeability. Fences installed on the perimeter of the solar Project site will be designed to allow for passage of SJKF, their prey and other listed wildlife, while impeding the passage of larger predators of SJKFs, such as coyotes and larger domestic dogs. Perimeter fencing shall consist of wire fencing, with openings from 3 to 7 inches square and will be installed inverted, with the larger openings at the bottom to allow SJKF to pass through. Chain link fencing may also be used if it is installed with a 4-6-inch gap from the bottom of the fencing material shall be knuckled back to from a smooth edge. Alternate designs may also be constructed with prior written approval from CDFW and USFWS. In addition, low vegetation will be maintained using equipment to mow/trim vegetation to a height of six to eight inches. Vegetation management is anticipated to occur up to twice a year, within the solar arrays so that wildlife such as SJKF can utilize the Project Area during operation.

5.5 Local Policies and Ordinances

General Plan and is not subject to any local ordinances. Therefore, there are no impacts with respect to local policies and ordinance and no measures are warranted.

5.6 Adopted or Approved Plans

In accordance with Appendix G of the CEQA Guidelines, the proposed Project would have a significant effect on biological resources if it would:

a.) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan.

The PG&E San Joaquin Valley Operations and Maintenance Habitat Conservation Plan (HCP) overlays the proposed Project. The HCP only applies to PG&E maintenance projects and does not apply to the currently proposed Project, and the Project does not conflict with any provision of this HCP.

The proposed Project will not conflict with any approved local, regional, or State Habitat Conservation Plan or Natural Conservation Community Plan, so there will be no impacts and no measures warranted.

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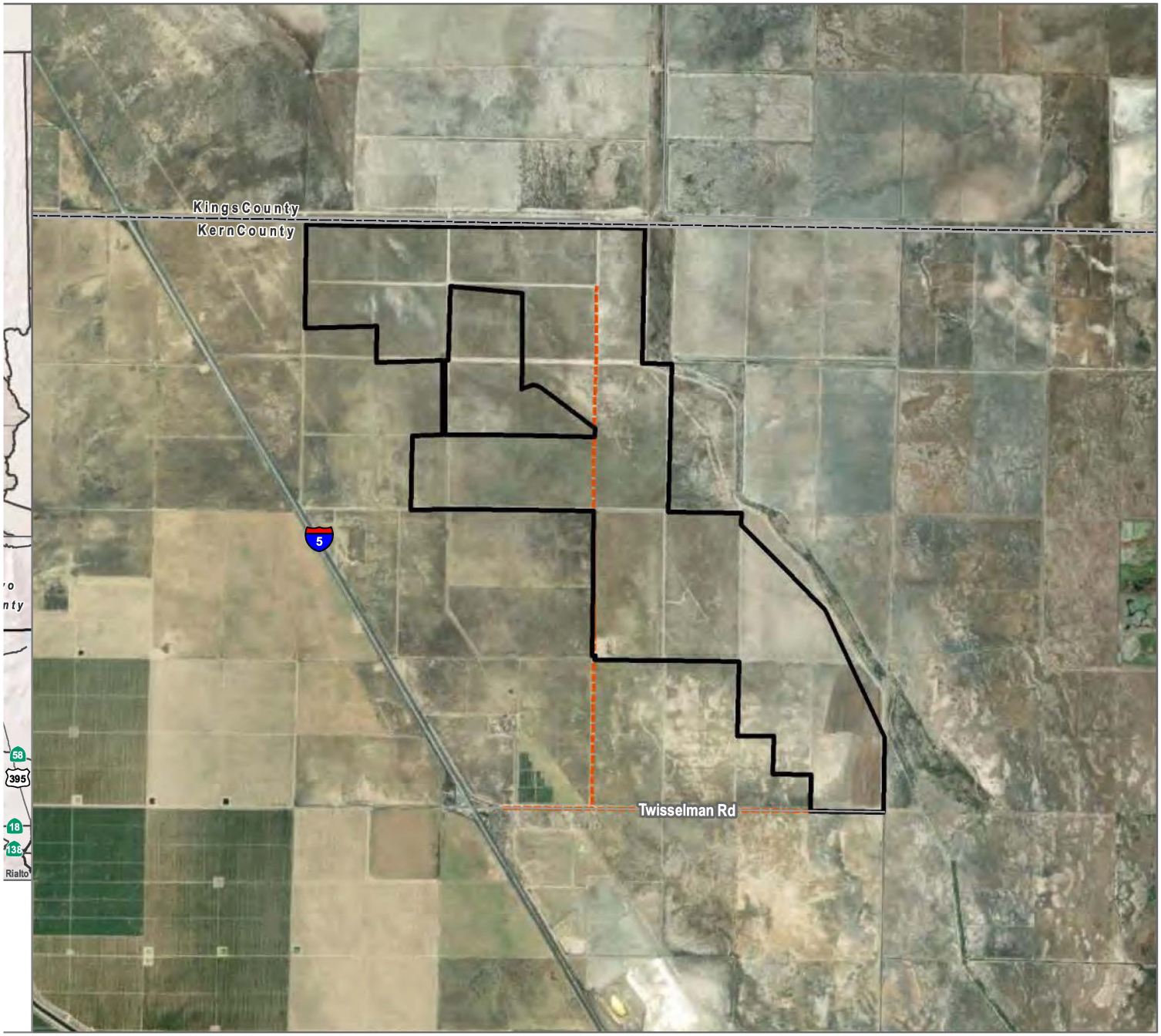
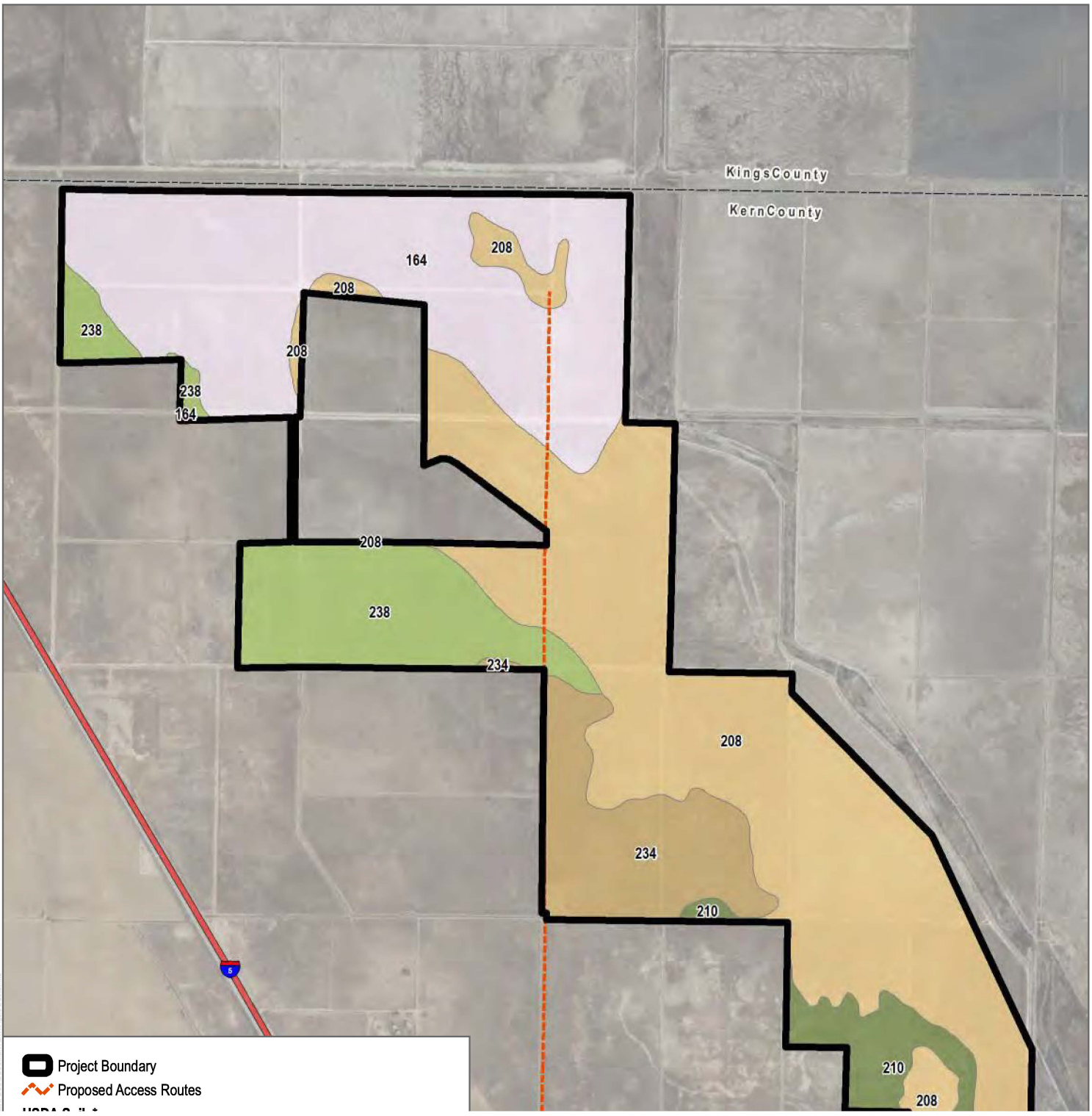


FIGURE 1

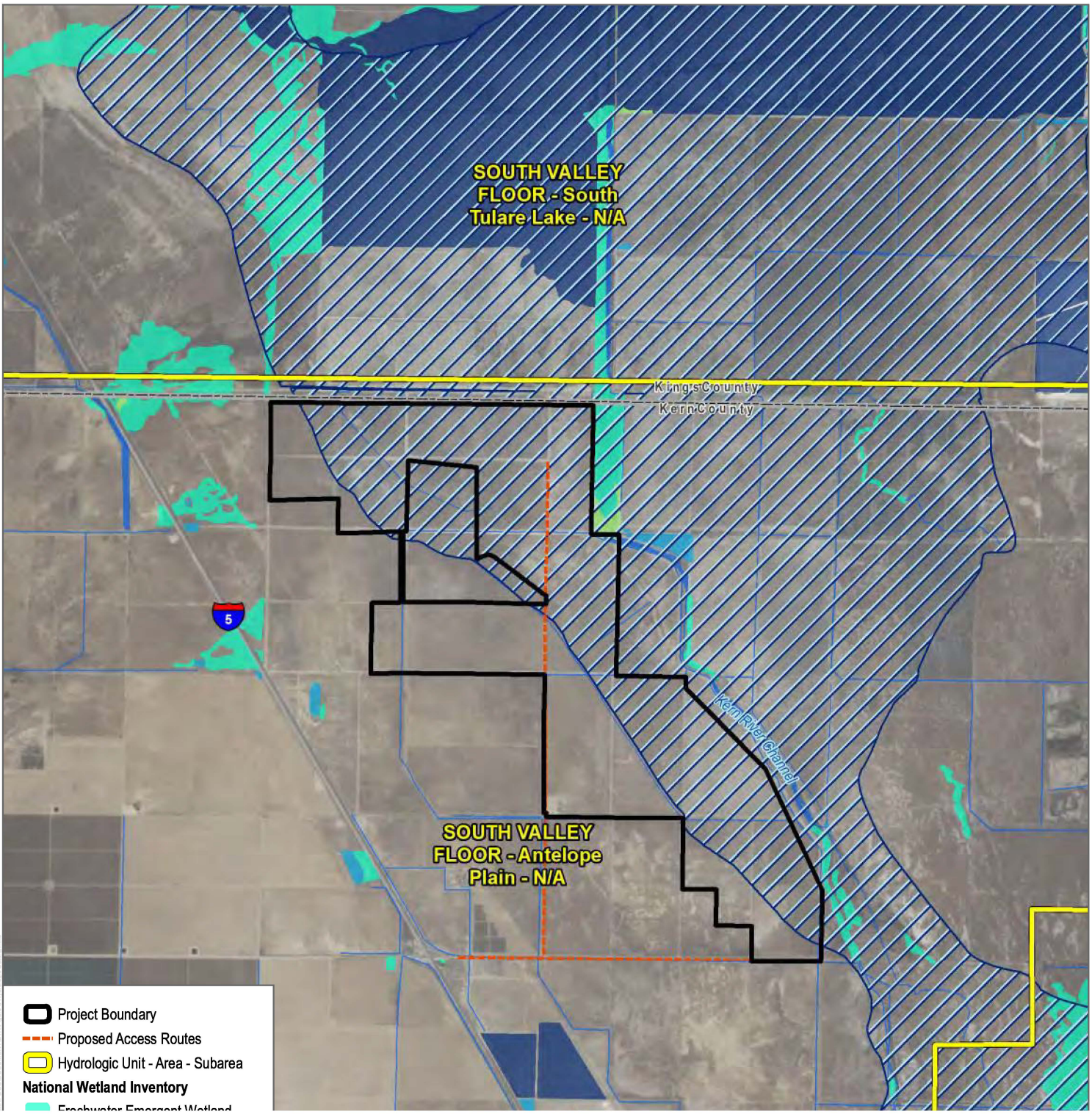
Project Location

Pelicans Jaw Hybrid Solar Project

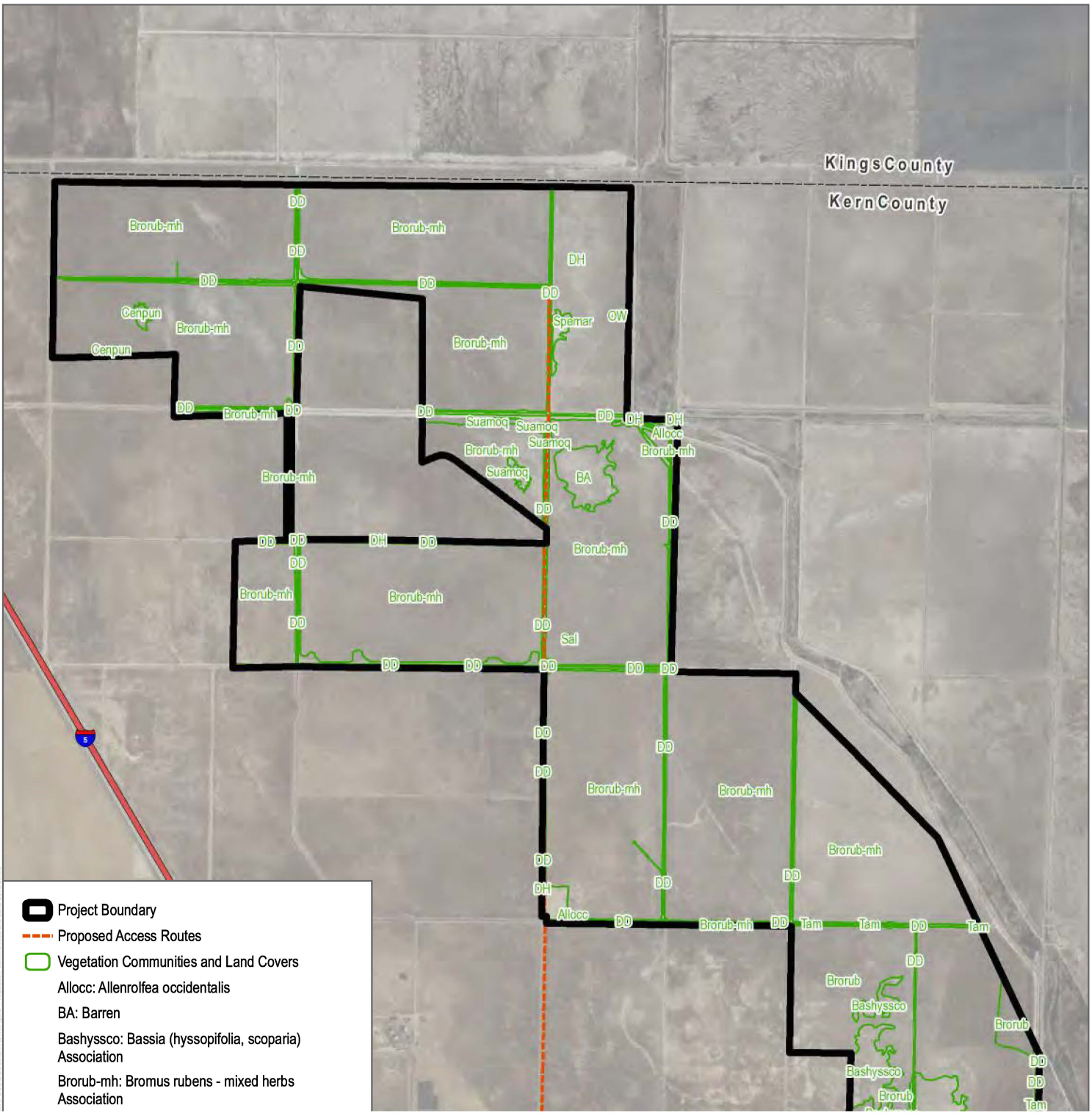
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Kings County
Kern County
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Project Boundary
Proposed Access Routes

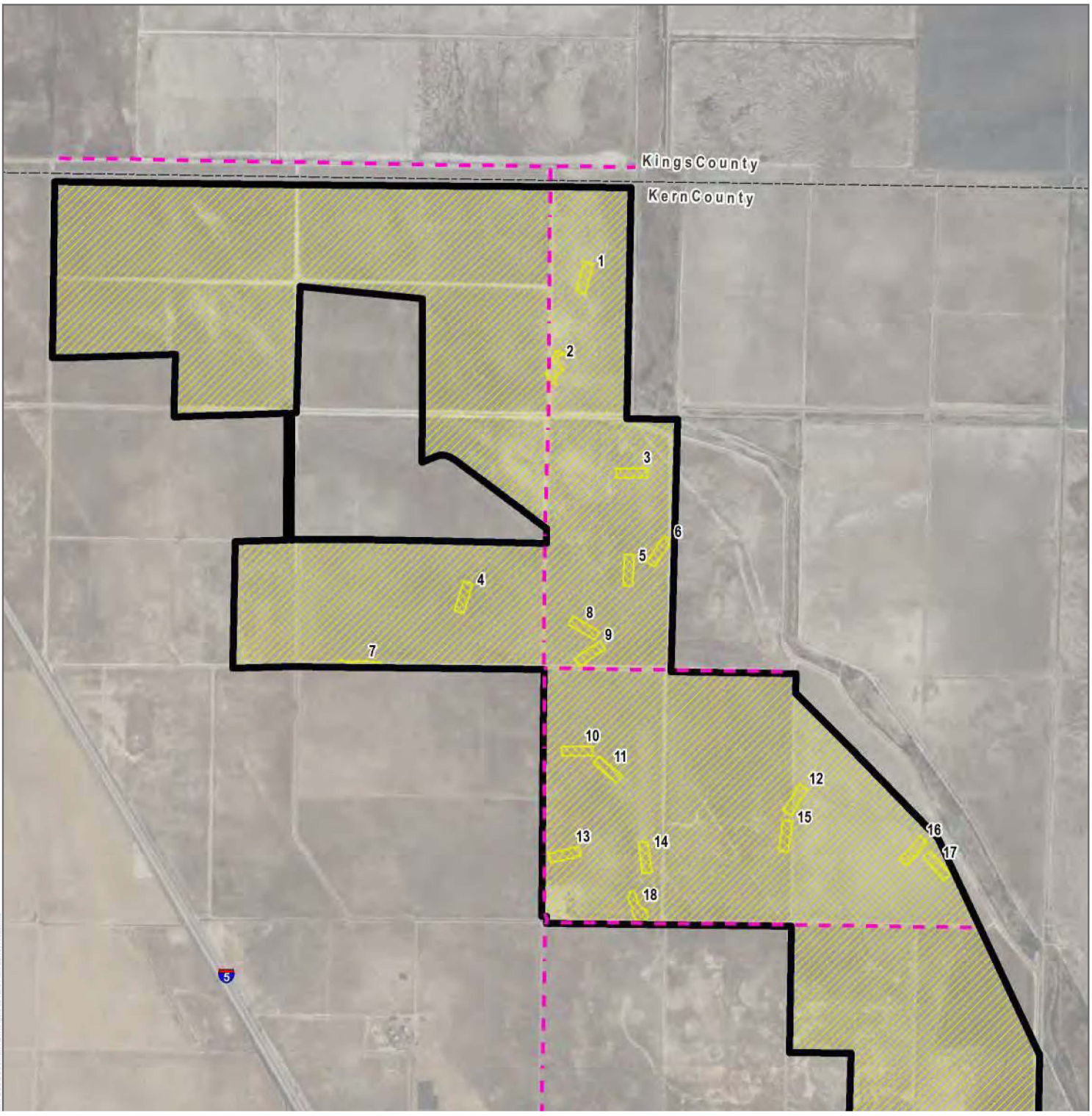
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SOUTH VALLEY
FLOOR - South
Tulare Lake - N/A
Kings County
Kern County
5
Kern River Channel
SOUTH VALLEY
FLOOR - Antelope
Plain - N/A
Project Boundary
Proposed Access Routes
Hydrologic Unit - Area - Subarea
National Wetland Inventory

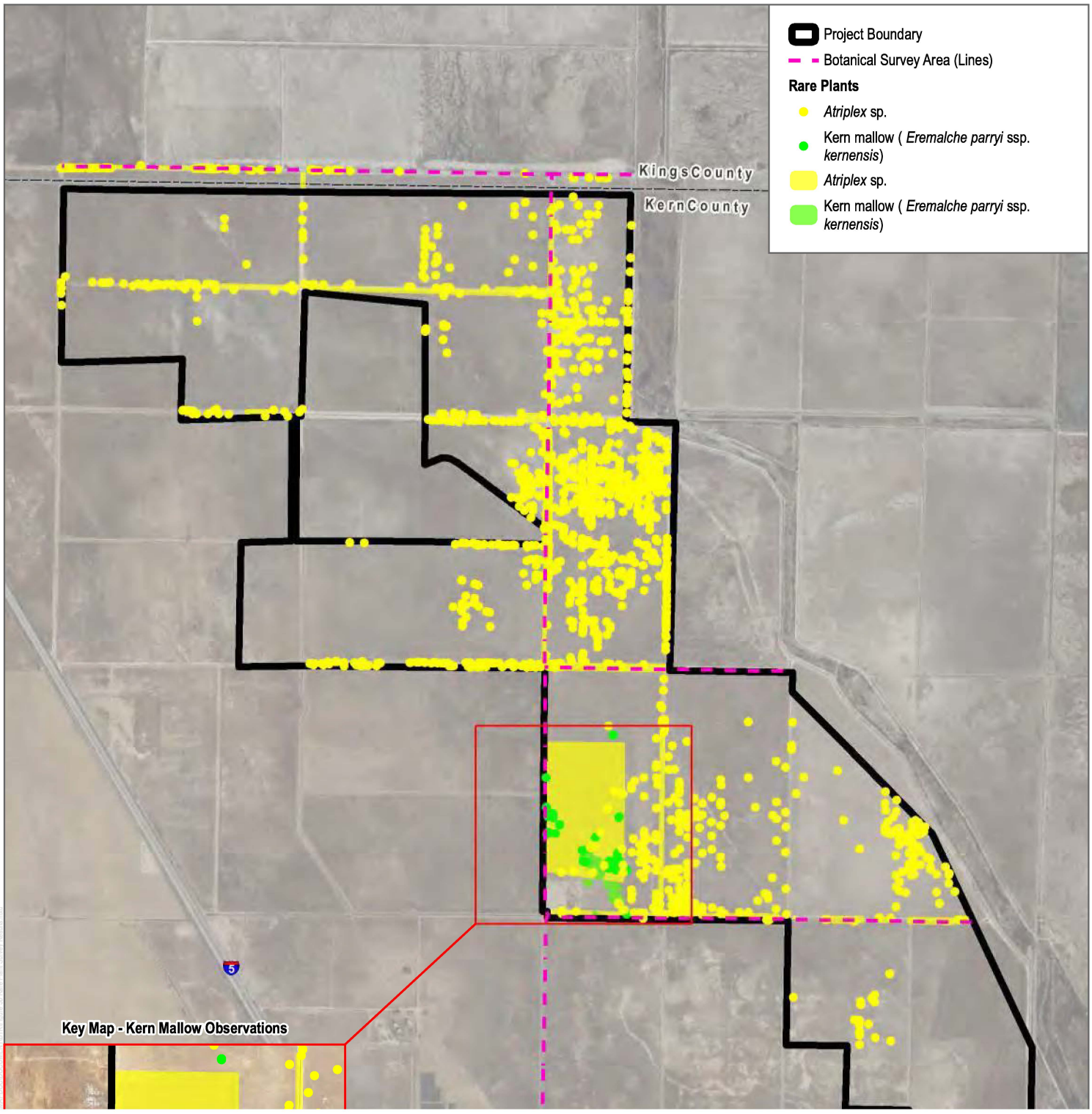
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Kings County
Kern County
Project Boundary
Proposed Access Routes
Vegetation Communities and Land Covers
Allocc: Allenrolfea occidentalis
BA: Barren
Bashyssco: Bassia (hyssopifolia, scoparia) Association
Brorub-mh: Bromus rubens - mixed herbs Association

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Project Boundary
Botanical Survey Area (Lines)
Rare Plants
Atriplex sp.
Kern mallow (Eremalche parryi ssp. kernensis)
Atriplex sp.
Kern mallow (Eremalche parryi ssp. kernensis)
Kings County
Kern County
5
Key Map - Kern Mallow Observations

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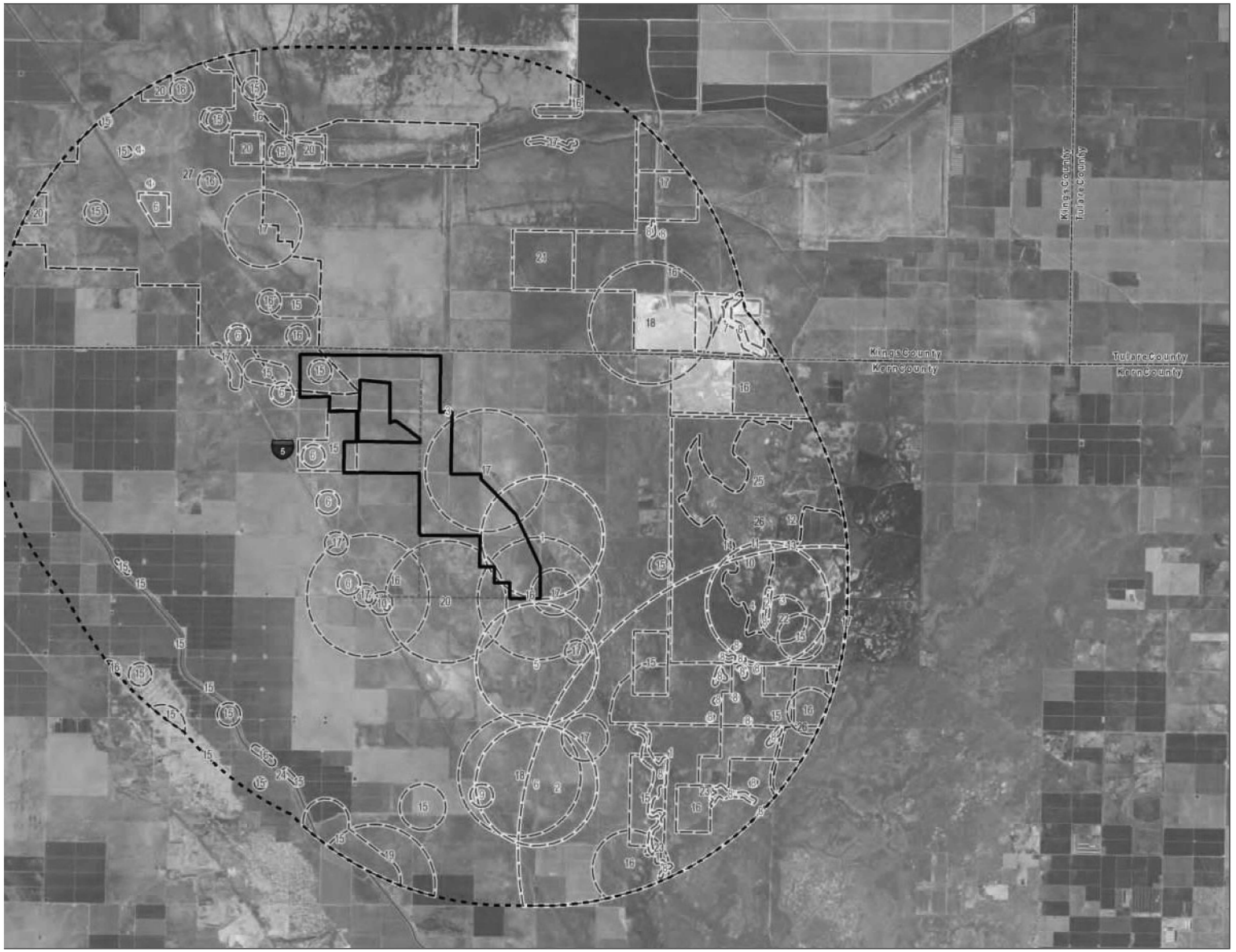
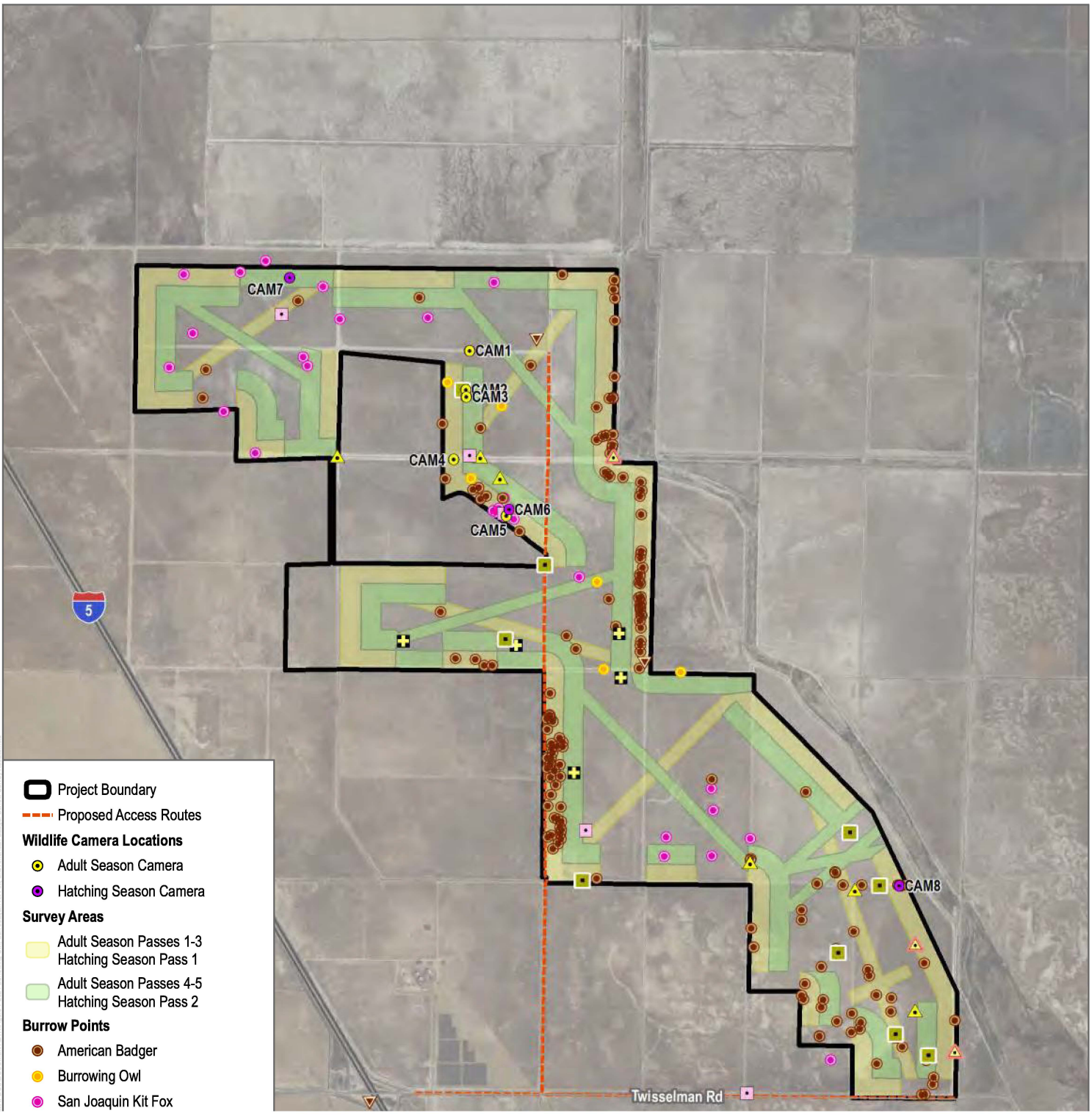


FIGURE 6

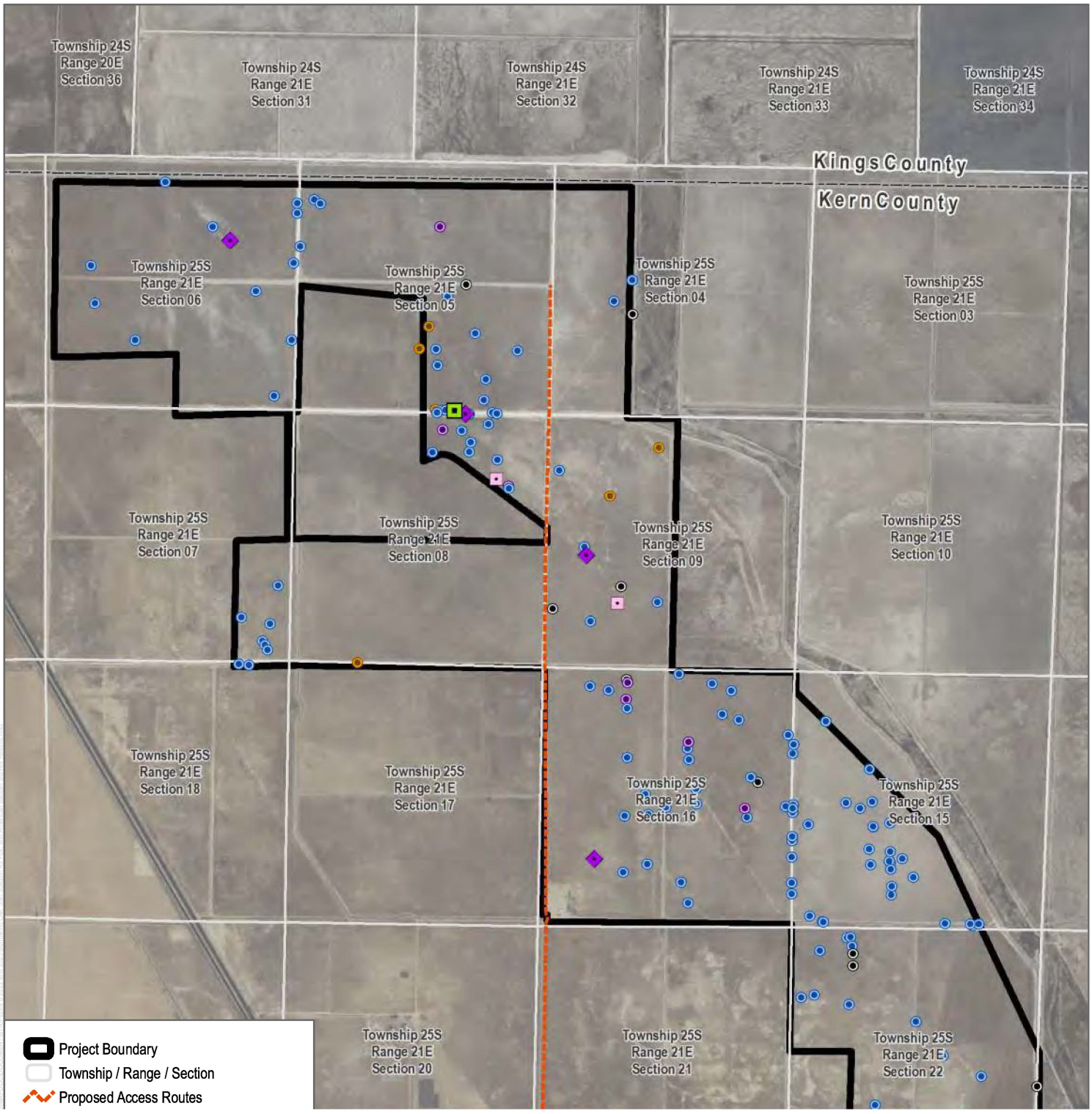
CNDDB Occurrences

Pelican's Jaw Hybrid Solar Projec

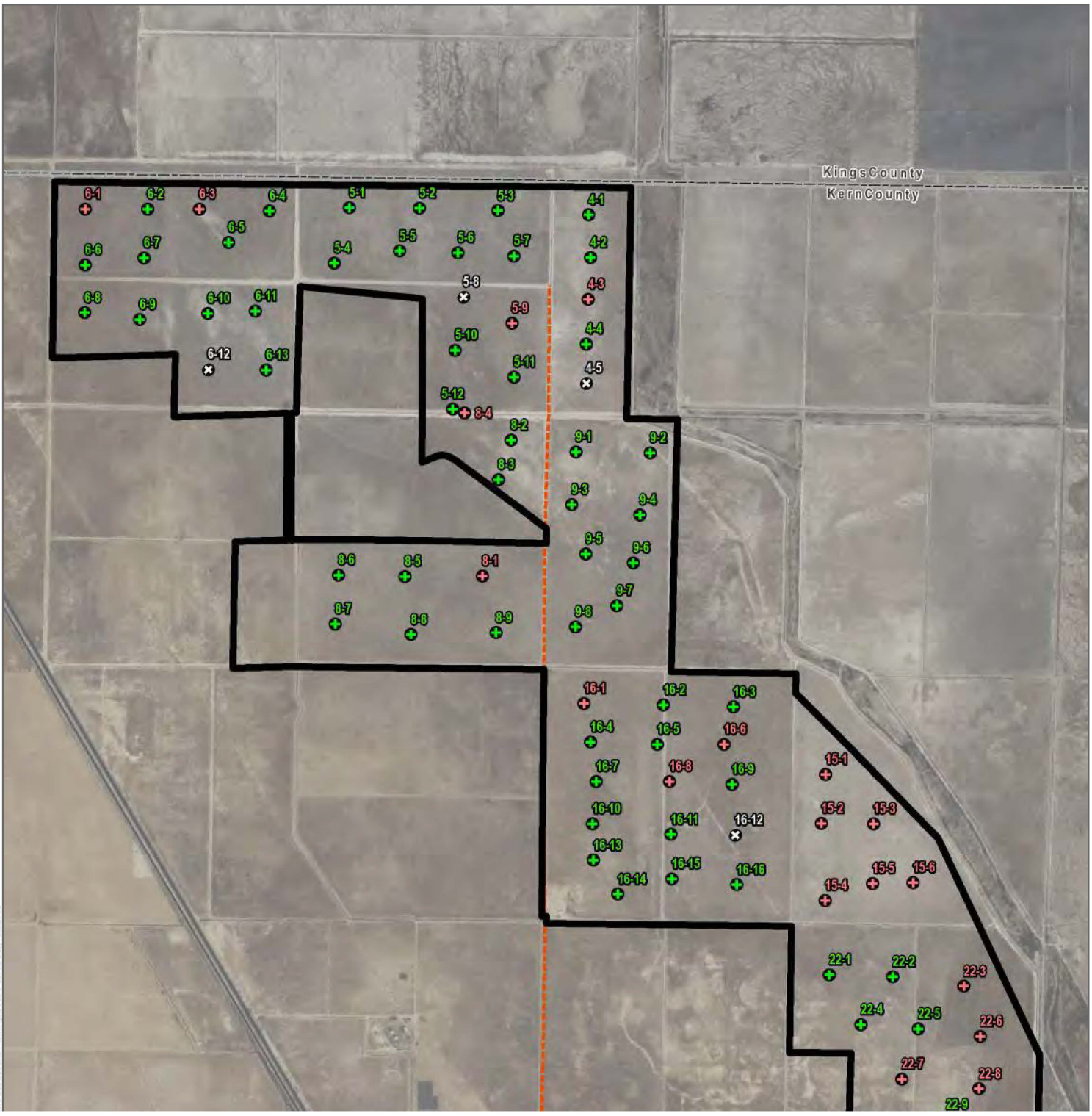
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CAM7
CAM1
CAM2
CAM3
CAM4
CAM6
CAM5
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CAM8
Twisselman Rd
Project Boundary
Proposed Access Routes
Wildlife Camera Locations
Adult Season Camera
Hatching Season Camera
Survey Areas
Adult Season Passes 1-3
Hatching Season Pass 1
Adult Season Passes 4-5
Hatching Season Pass 2
Burrow Points
American Badger
Burrowing Owl
San Joaquin Kit Fox

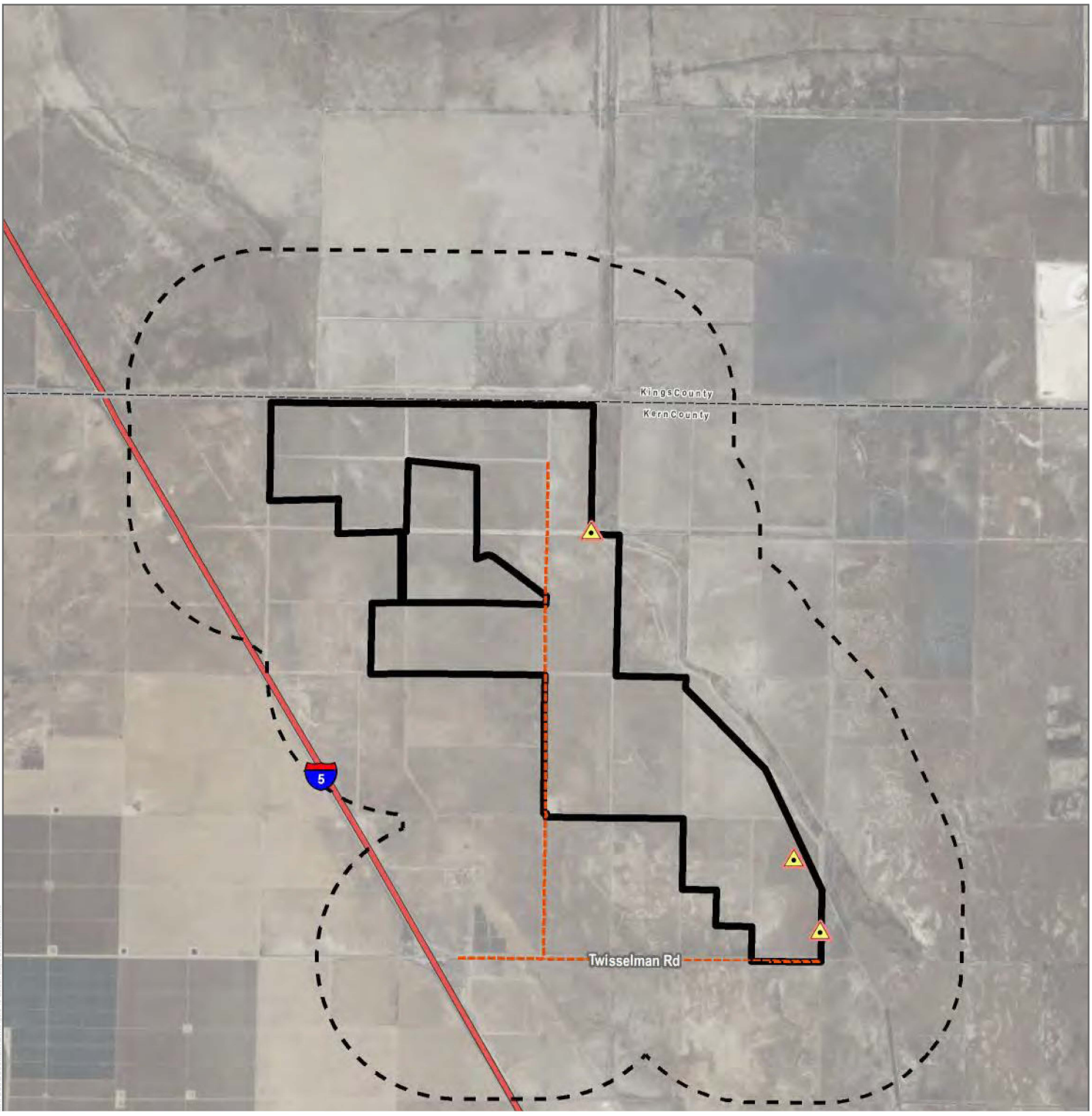
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Township 24S
Range 21E
Section 34
Kings County
Kern County
Township 25S
Range 21E
Section 06
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Section 22
Project Boundary
Township / Range / Section
Proposed Access Routes

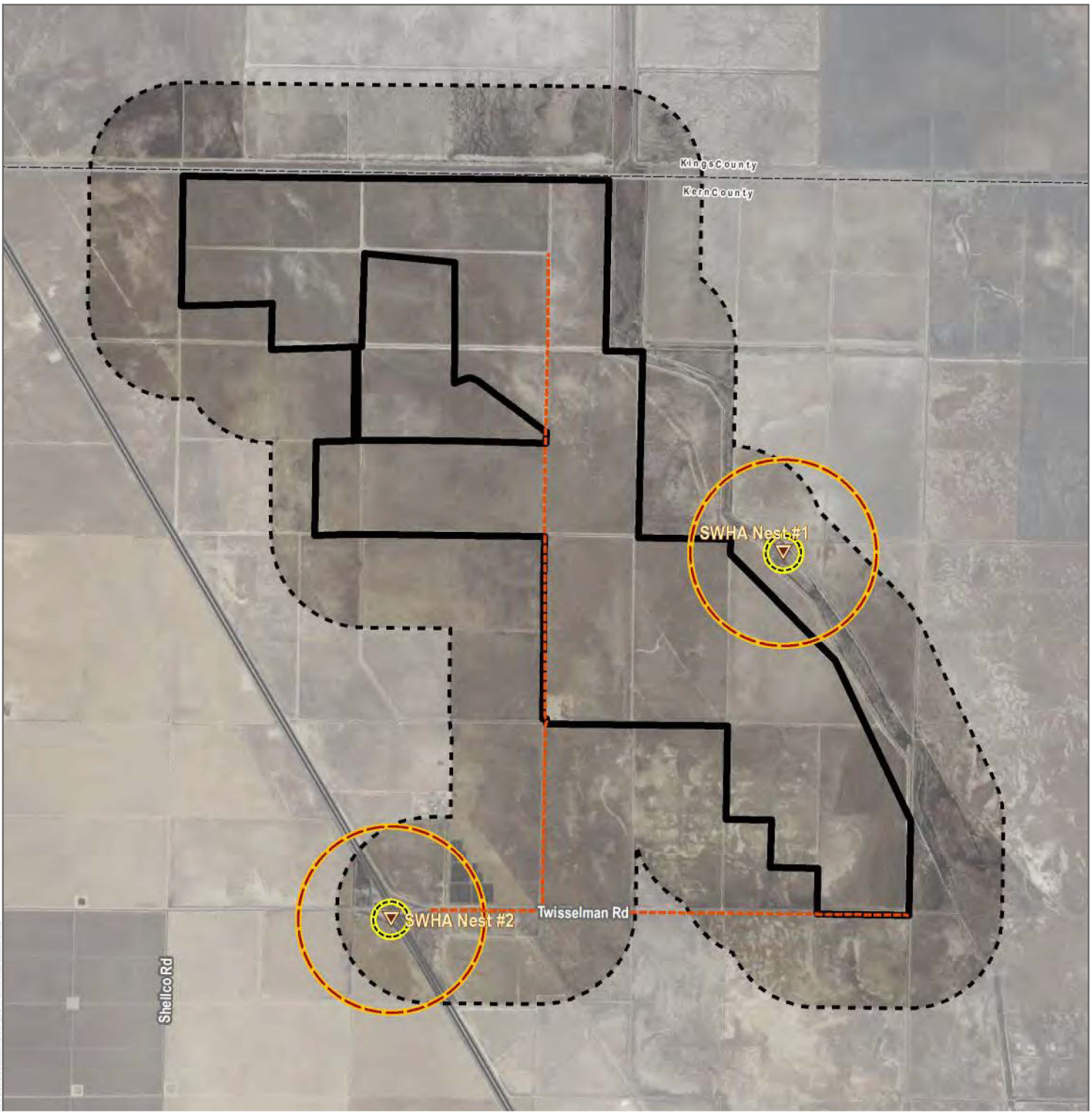
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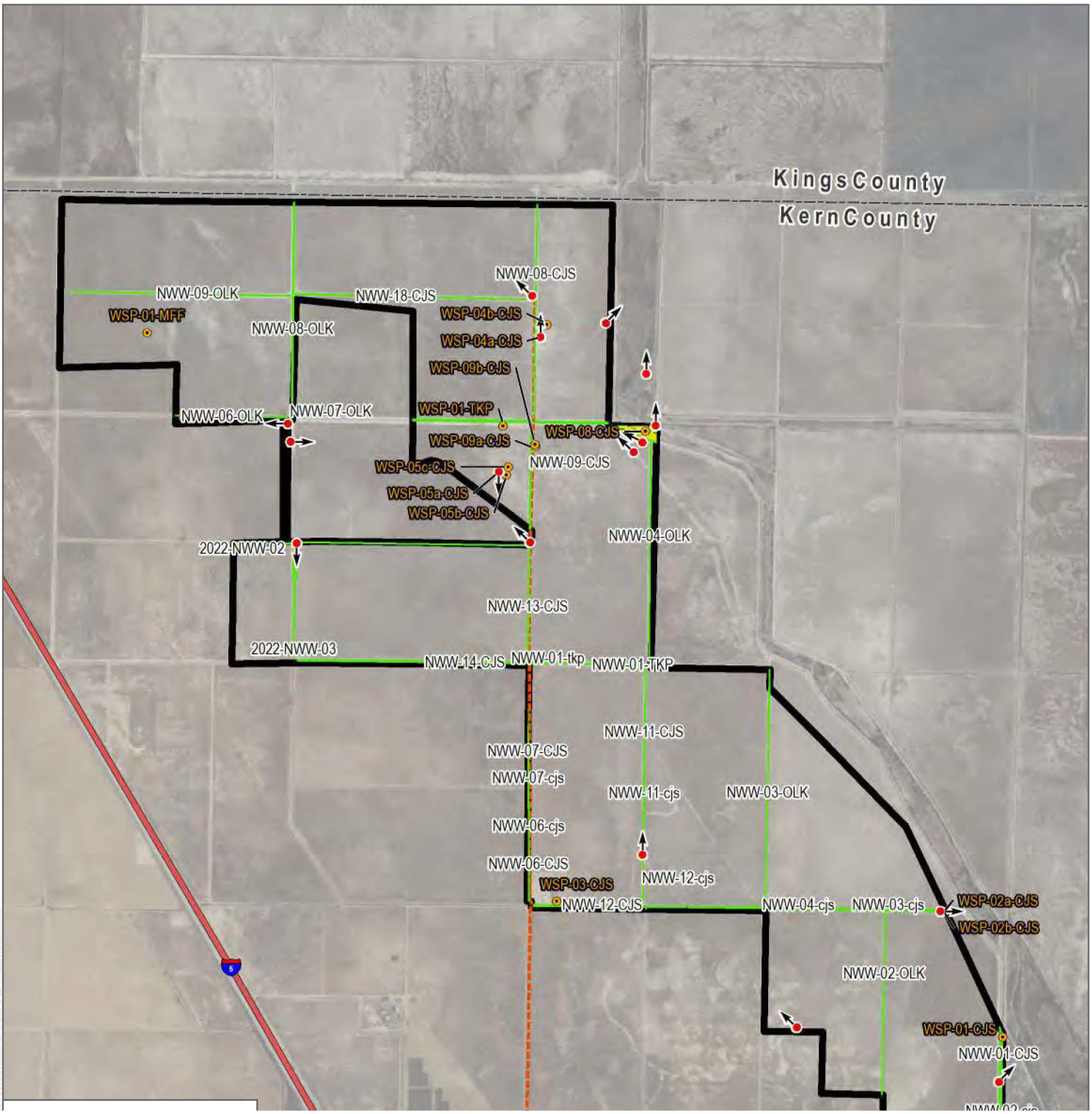
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Twisselman Rd

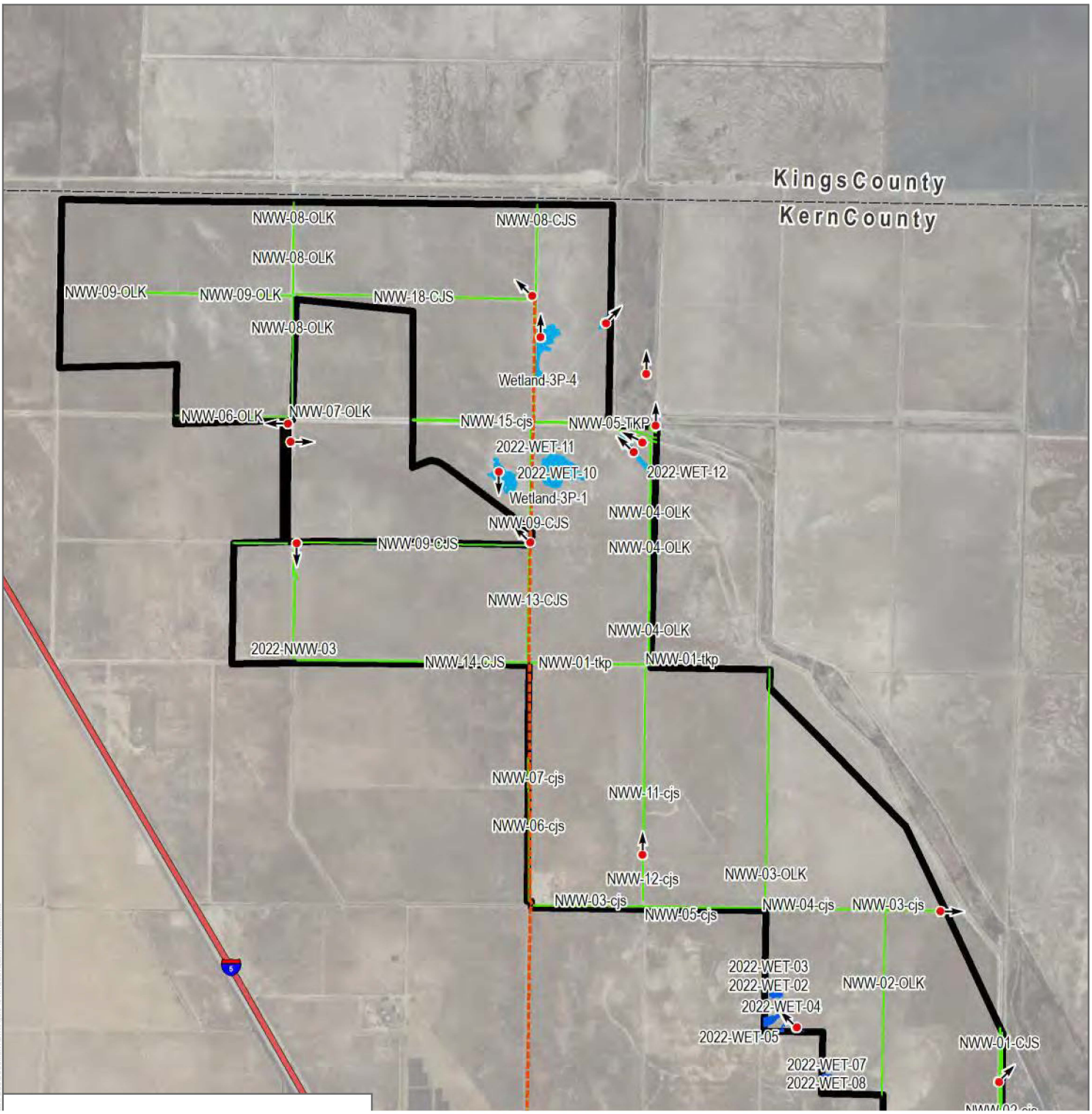
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Kings County
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SWHA Nest #1
SWHA Nest #2
Twisselman Rd
Shellco Rd

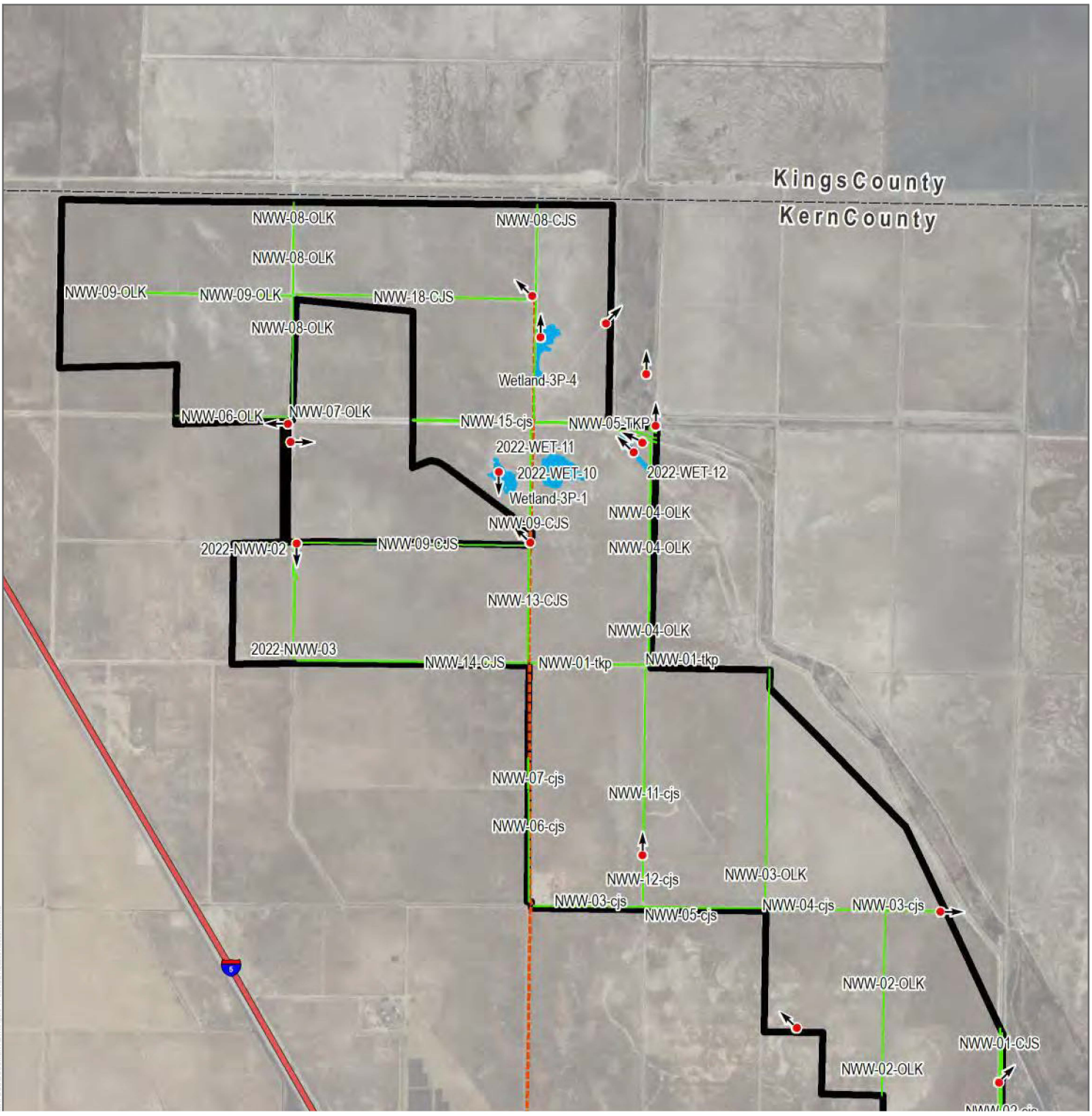
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NWW-09-OLK
NWW-18-CJS
WSP-01-MFF
WSP-04b-CJS
NWW-08-OLK
WSP-04a-CJS
WSP-09b-CJS
NWW-06-OLK
NWW-07-OLK
WSP-01-TKP
WSP-09a-CJS
WSP-08-CJS
NWW-09-CJS
WSP-05c-CJS
WSP-05a-CJS
WSP-05b-CJS
2022-NWW-02
NWW-04-OLK
NWW-13-CJS
2022-NWW-03
NWW-14-CJS
NWW-01-tkp
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NWW-07-CJS
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NWW-11-cjs
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Wetland-3P-4
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NWW-15-cjs
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Appendix A
Biological Survey Work Plan

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan – USFWS Carrie Swanberg – CDFW
From:	Brock Ortega, Heather Moine, Jake Marcon, and Keith Carwana – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan: Rare Plant (*Atriplex* sp.) Addendum
Date:	July 29, 2022
cc:	Tandy McMannes, JungWoo Kim, Alphonso Jung, Hun Kim, and Karl Brutsaert – Pelicans Jaw Solar, LLC Marie Campbell and Sarah Sperling – Sapphos Environmental, Inc. Andrew Bell – Bell-Kearns, Ltd.
Attachment(s):	Figure 1, *Atriplex* sp. Survey Results and Proposed Second Survey Pass Areas Attachment A – Biological Survey Work Plan, April 15, 2021 Attachment B – USFWS and CDFW Meeting Notes, April 28, 2021 Attachment C – Biological Survey Work Plan: San Joaquin Kit Fox Addendum, June 7, 2022

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar and battery energy storage facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project, located on approximately 3,260 acres in unincorporated Kern County. Dudek, working on behalf of the applicant, Pelicans Jaw Solar, LLC, submitted a biological survey work plan to the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), collectively referred to as the resource agencies, for review on April 15, 2021 (**Attachment A**). A subsequent call with USFWS and CDFW occurred on April 28, 2021, to review and discuss the biological survey work plan (**Attachment B**). Pelicans Jaw Solar, LLC is in the process of implementing the approved work plan. This memorandum is intended to serve as an addendum to the April 15, 2021 work plan to include supplemental surveys to determine the species of Atriplex that occur on the project site.

In accordance with the biological survey work plan, Dudek completed surveys for special-status plant species in March and April 2022. During the March and April 2022 surveys, annual *Atriplex* was observed throughout the Project site and were identified when possible. Some species of annual *Atriplex* were not identifiable during the survey (due to the stage of plant maturity); therefore, points and polygons were recorded in the general area of observations for later

Neither of these species are afforded protection pursuant to the federal or California Endangered species act, nor are they currently under consideration for listing. The CRPR 1B rank is assigned to plants that are considered to be rare, throughout their range, with most of the plants occurring in California. It is the most common ranking and has been assigned by CNPS to more than a thousand plant species. The impact on CNPR 1B plants is normally included in the environmental documents prepared pursuant to the California Environmental Quality due the CNPS recognition of their limited distribution. Therefore, Pelicans Jaw Solar, LLC has authorized a survey of 10% of the mapped distribution of *Atriplex* within the project site, when the CRPR 1B species have been observed with fruit a known reference location to assess if it is one of two species common to the San Joaquin Valley, or if it is one of the two CRPR 1B species.

As discussed in the biological survey work plan San Joaquin kit fox addendum dated June 7, 2022 (**Attachment C**), Pelicans Jaw Solar, LLC is planning to conduct supplemental rare plant surveys to verify the species of *Atriplex* that are present within the proposed project area. The surveys will be conducted when a reference population of Lost Hills crownscale and lesser saltscale and can be confirmed to be flowering at one of the known reference locations in Fresno, Kern, and/or Tulare County, normally July/August. Pelicans Jaw Solar, LLC is looking to receive USFWS and CDFW concurrence with the survey work plan prior to commencement of the second survey pass.

Transect Surveys

Pelicans Jaw Solar, LLC proposes to conduct a sampling survey of previously mapped locations of *Atriplex*, to verify the species of *Atriplex* present within the proposed project area. The purpose of the transect surveys within 10 percent of the Atriplex Survey Area, will be to verify the specie or species of *Atriplex* that occur within the project area.

Surveys will commence once reference checks for the target special status species are conducted and positive identification is made. The Atriplex Survey Area was not reported to contain significant environmental gradients and was deemed by surveying biologists to have relatively homogenous habitat characteristics across all areas where *Atriplex* species was identified. Assuming uniform potential of occurrence within the Atriplex Survey Area, the sampling strategy proposes the use of the Spatially Balanced Points tool in ESRI's ArcGIS to assign primary sampling units at a uniform density within the Atriplex Survey Area. This tool utilizes an algorithm, which randomly assigns point locations within the given area of interest, while maintaining a preference for spatially disperse points within the overall area of interest.

A total of 18 points were assigned. A three-acre survey area was centered on each point. If large portions of the primary sampling unit fell outside of the Atriplex Survey Area then the primary sampling unit was moved toward the center of the Atriplex Survey Area. In three locations where the Atriplex Survey Area was too organically shaped to

field identification will be made to the species level, as possible, and a voucher will be collected. All plants and plant populations identified as, or suspected to be, Lost Hills Crownscale or lesser saltscale will be mapped as polygons using the following methods.

Biologists will begin delineating the polygon using pin flags. Polygon delineation will utilize a five meter nearest neighbor rule meaning all individuals occurring within five meters of each other will be aggregated into a single group, and those further apart than five meters will signify a new group or be mapped singly. Pin flags will be placed approximately 0.25 meter away from the target individual to the outside of the polygon. Once an entire polygon has been delineated with pin flags, the polygon will be assigned a unique identifier and mapped using a Trimble® R1 GNSS receiver or EOS Arrow 100 with submeter accuracy by following the pin flag boundary. After recording the GPS position of the polygon, the biologists will decide which approach, of the two described below, is most appropriate for providing a count of individuals, with a preference for censusing when possible.

Census Method:

For polygons where a complete census is feasible, the number of individuals within the polygon will be counted and recorded.

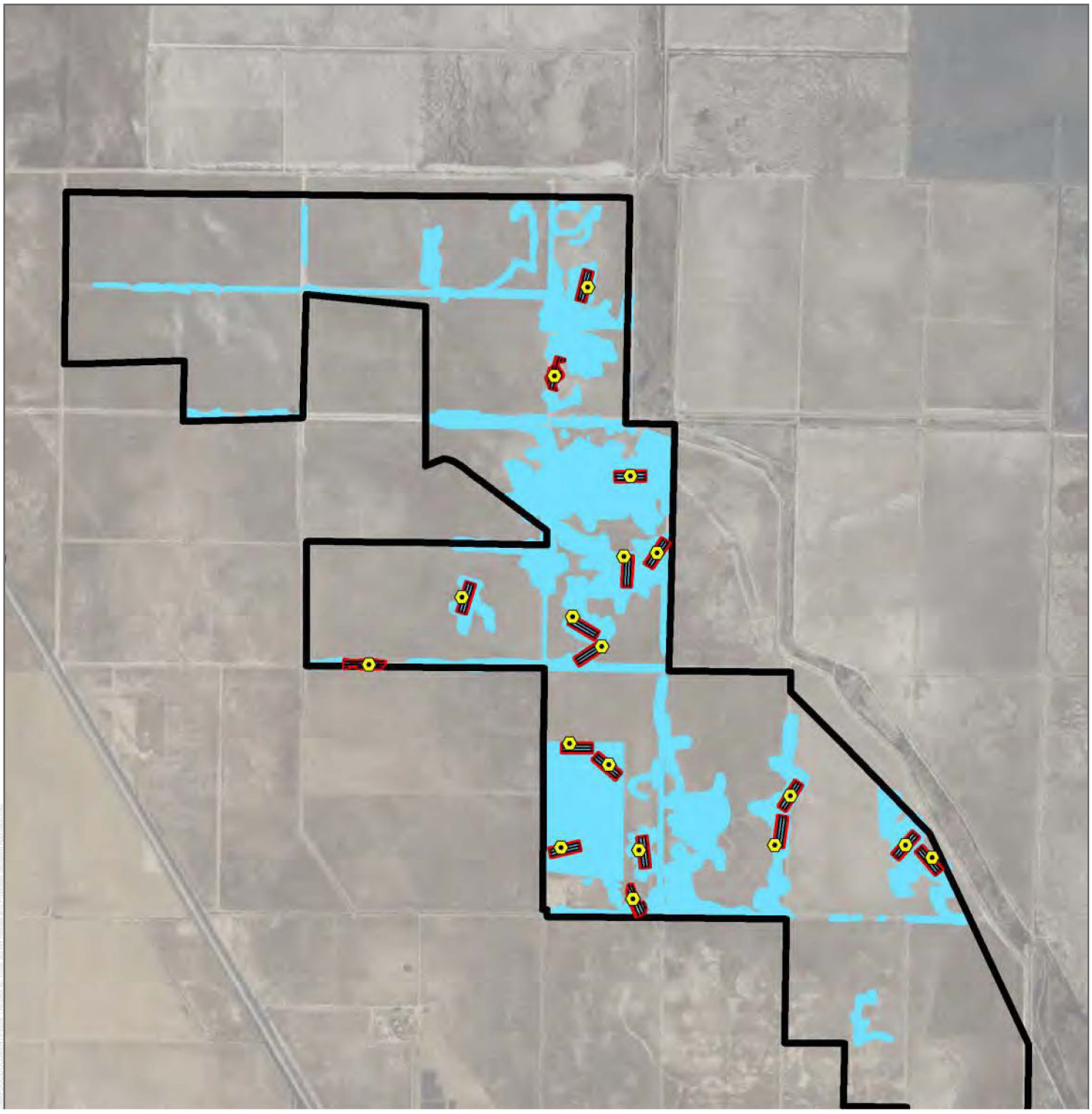
Sub-Sampling Method:

For polygons that are either too large or too dense for the complete census method to be viable, the total number and density of special status, or suspected special status, individuals will be estimated using a restricted random subsampling approach. Biologists will first establish a baseline transect along the long axis of the polygon. Then they will calculate the number of 1 x 5-meter quadrats needed to sample approximately 5% of the total polygon area. Perpendicular transects will then be established emanating from the baseline transect at a consistent interval with a randomly assigned start point (as assigned by a random number generator). The number of perpendicular transects will be equal to the number of 1 x 5-meter quadrats needed to sample approximately 5% of the polygon. Along each perpendicular transect a, 1 x 5-meter quadrat will be established at a randomly assigned distance from the baseline transect using a random number generator. The number of *Atriplex* individuals rooted within the 1 x 5-meter quadrat will be counted and recorded. A minimum of three quadrats will be sampled within each polygon, with a minimum distance of five meters between quadrats. This method maintains independence between sampling units and ensures sampling without replacement.

A California Natural Diversity Data Base site record will be prepared, and submitted to the California Department of

Resource Agency Review and Discussion

Pelicans Jaw Solar, LLC would like to begin the second survey pass as soon as possible. We have included our availability in the email to which this memorandum was attached to schedule a brief conference call should USFWS and/or CDFW have any questions. We are also happy to address any comments/questions via email. We look forward to continued collaboration with the resource agencies regarding the biological survey efforts for the Pelicans Jaw Hybrid Solar Project.



Attachment A

Biological Survey Work Plan

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be "marked" using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

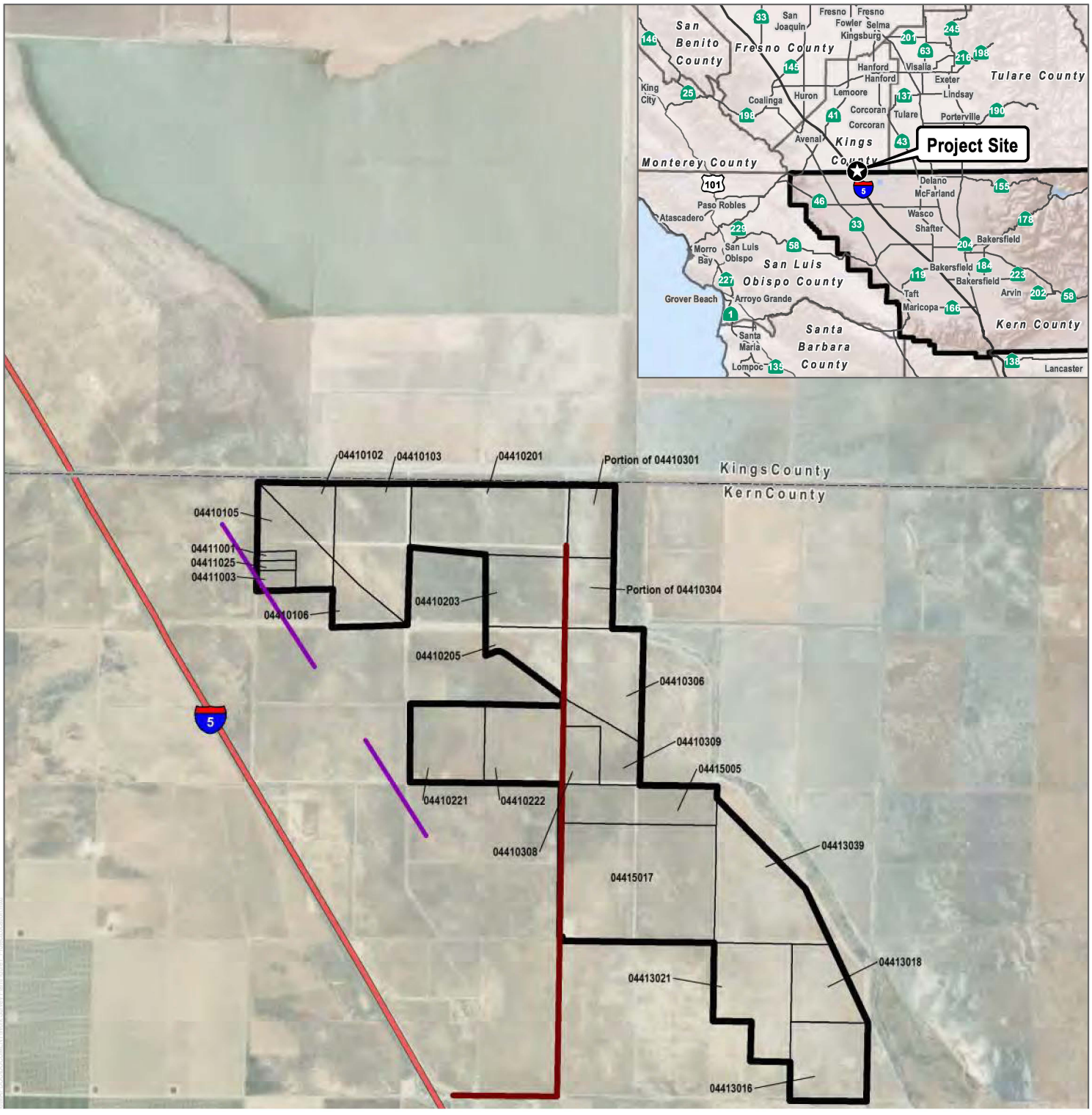
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

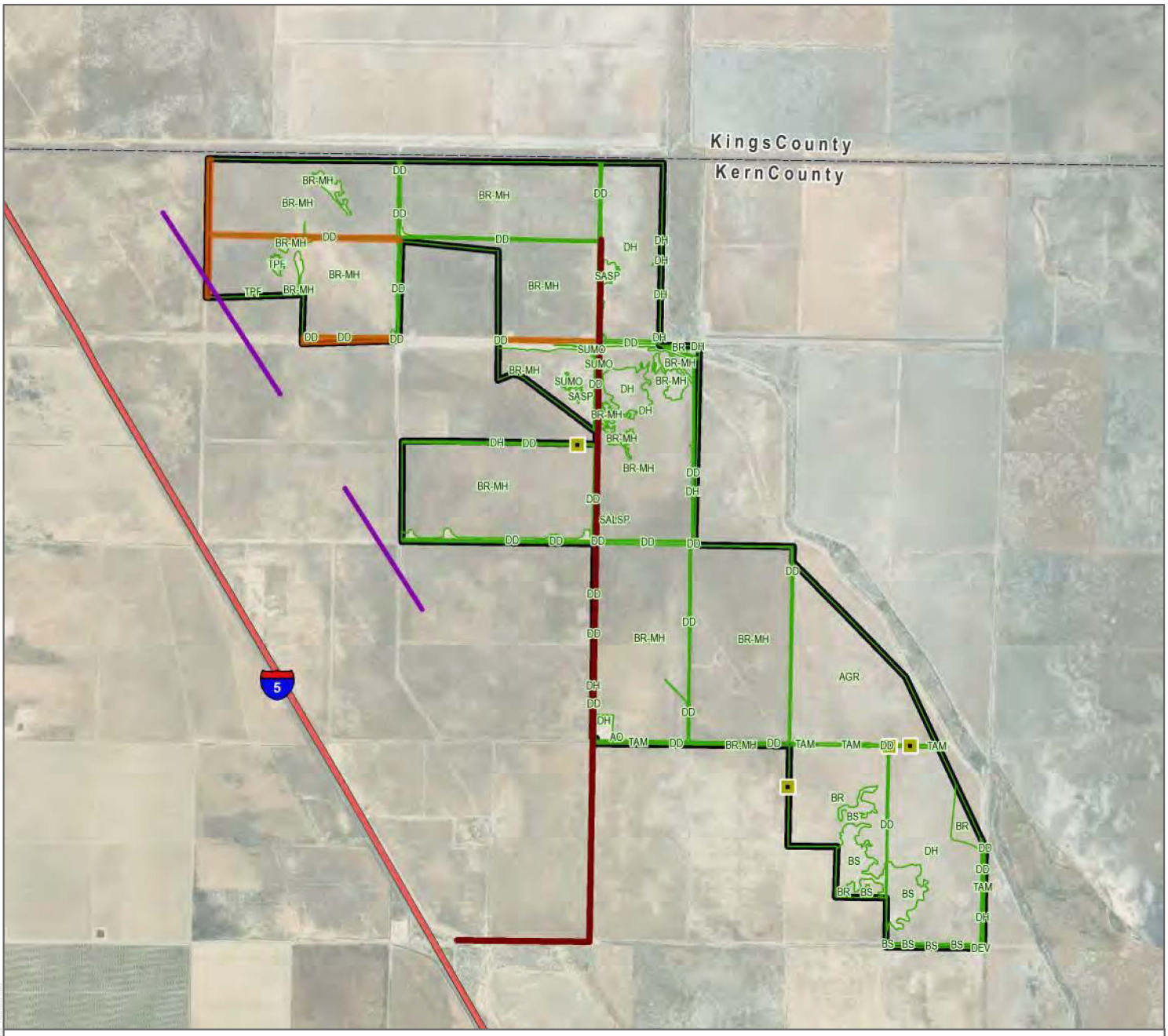
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Kern County
Santa Barbara County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

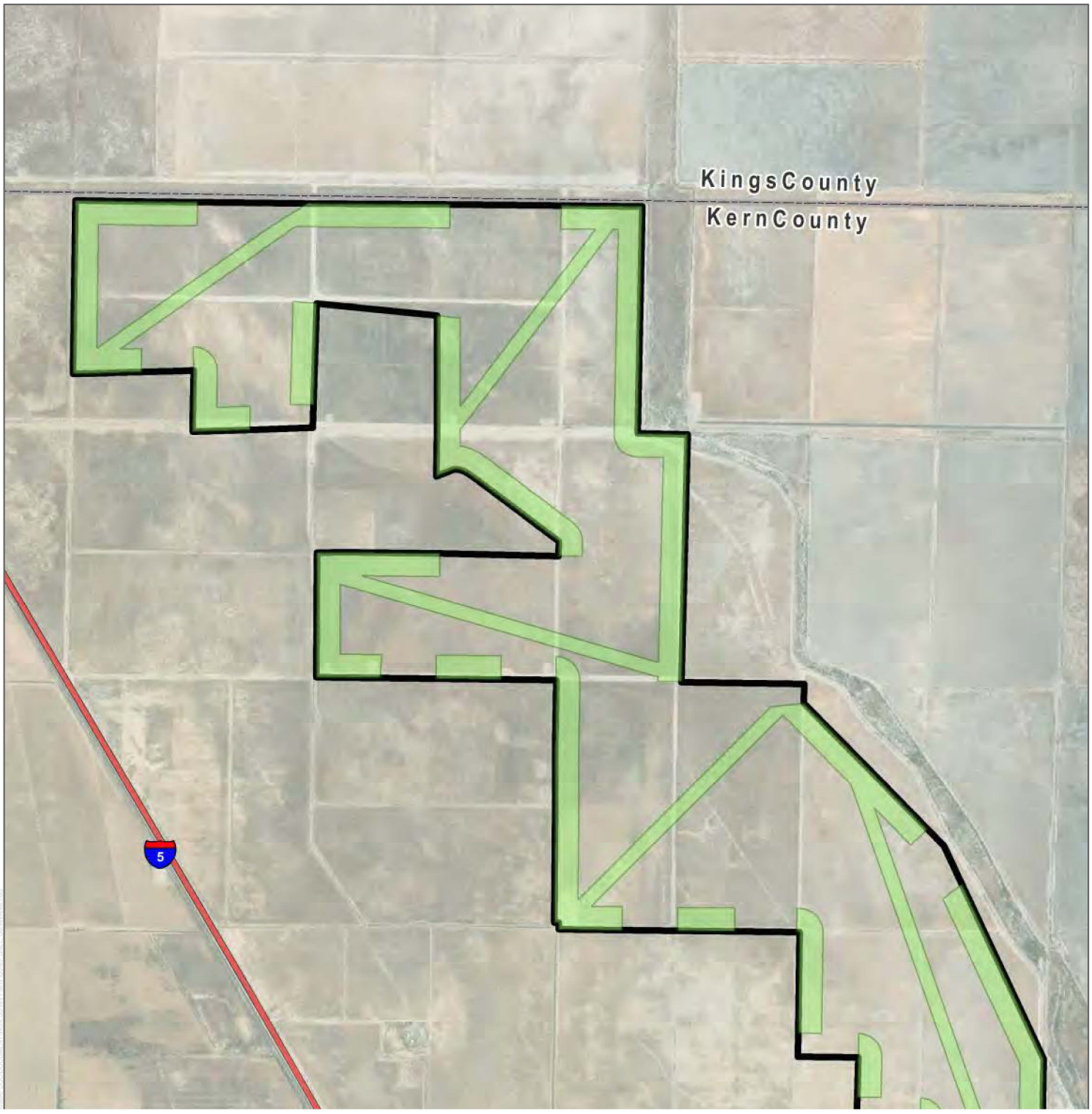
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

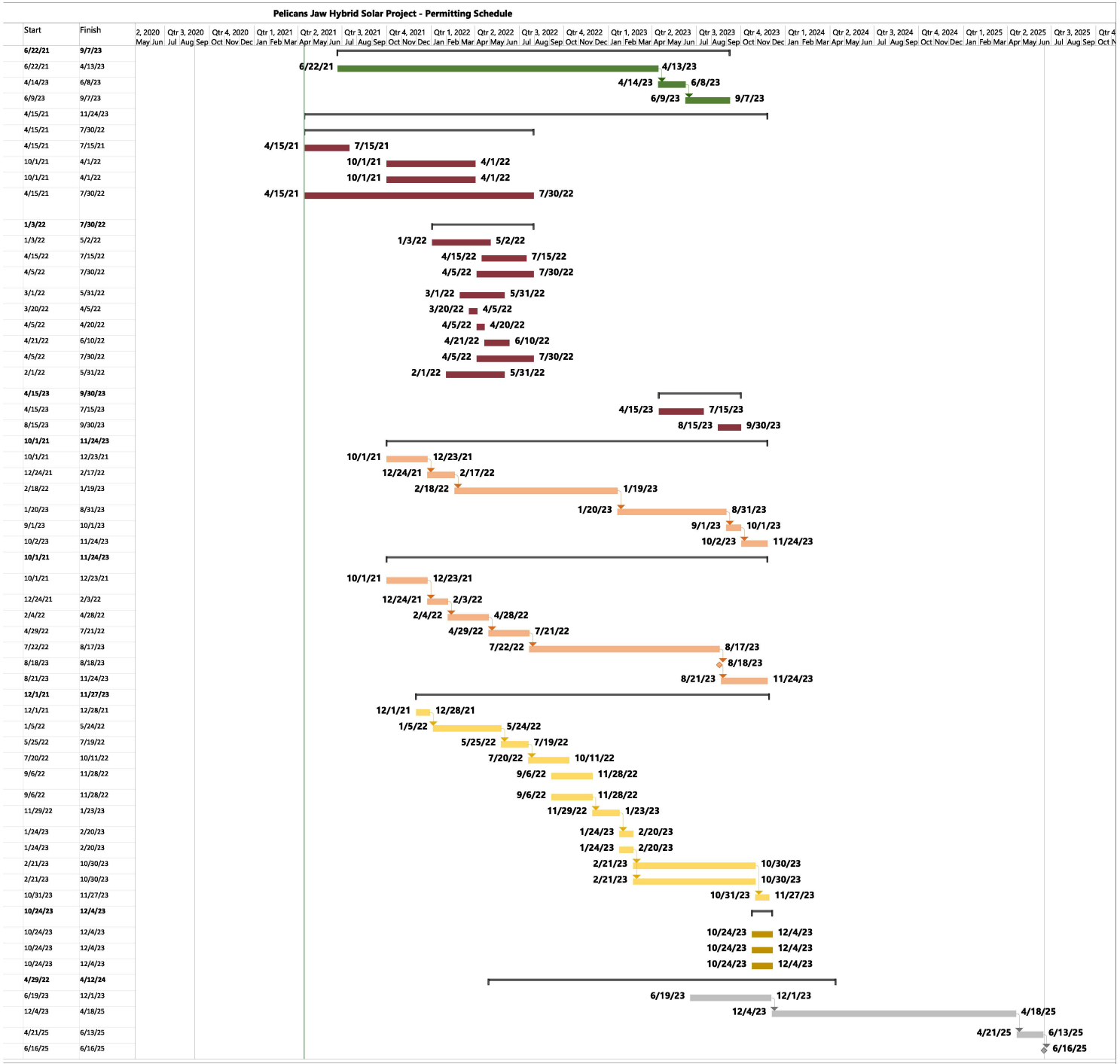
SALSP, Salsola spp. Semi-natural Association


Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

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From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
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MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment B

USFWS and CDFW Meeting Notes, April 28, 2021

PELICANS JAW HYBRID SOLAR PROJECT

BIOLOGICAL SURVEY WORK PLAN

Date:	April 28, 2021
Time:	3:00-4:00 PM
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Location:	Zoom Video Call
Attendees:	**USFWS** – Justin Sloan
	CDFW – Carrie Swanberg
	Pelicans Jaw Solar, LLC – Hun Kim, Alphonso Jung, Tae Kwak, and Tandy McMannes
	Cox, Castle & Nicholson – Clark Morrison
	Dudek – Brock Ortega, Keith Carwana, and Anna Bischoff

---

1. Project Updates

- Dudek described the recently completed habitat assessment, vegetation mapping, and jurisdictional delineation for the Pelicans Jaw Hybrid Solar Project (Project).
    - Based on the results of the on-site surveys, including the presence of hydrophytic vegetation, and greater potential for sensitive species in the Kings County portion of the Project, Pelicans Jaw Solar, LLC decided to remove all Kings County parcels from the Project.
        - With the removal of the Kings County parcels, the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres.

2. Biological Survey Work Plan

- Dudek described the Biological Survey Work Plan dated April 15, 2021 and the proposed surveys to be completed in 2021 and 2022.
    - Pelicans Jaw Solar, LLC is proposing to proceed with blunt-nosed leopard lizard (BNLL) sample surveys in 2021 or 2022 on approximately 955 acres of the approximately 3,260-acre Project site. The BNLL sample surveys are intended to inform the CEQA analysis to be prepared in advance of the required BNLL protocol-level surveys and provide critical site-specific data.

- In addition to BNLL sample surveys, Pelicans Jaw Solar, LLC is anticipated to proceed with concurrent burrow mapping for burrowing owl, San Joaquin kit fox, American badger, and San Joaquin antelope squirrel in 2021.
    - Surveys for large branchipods and western spadefoot toad are anticipated to be initiated during the 2021 wet season.
        - Dudek noted that helicopters will no longer be used to complete large branchipods and western spadefoot toad surveys given the reduction in Project size and vehicle accessibility across the Kern County parcels.
        - USFWS indicated that there was a recent observation of vernal pool fairy shrimp in Kern County.
- Pelicans Jaw Solar, LLC anticipates completing the following surveys in 2022: golden eagle, kangaroo rat trapping, Swainson's hawk, tricolored blackbird, and Buena vista ornate shrew.
    - Dudek noted that a survey work plan will be prepared for Buena vista ornate shrew and small mammal trapping, prior to implementing the surveys and trapping efforts.

3. CDFW and USFWS Discussions

- CDFW recommended conducting full protocol level survey for BNLL but understood the need to conduct sample surveys to support the CEQA analysis in advance of full protocol level surveys within one-year of ground disturbing activities.

    - CDFW was comfortable with the BNLL sample survey area depicted in Figure 3 of the Biological Survey Work Plan.

    - CDFW recommended completing hatchling surveys as part of the proposed BNLL sample surveys.

        - **Action item:** Pelicans Jaw Solar, LLC and Dudek mentioned that they will look into adding hatchling surveys during the BNLL juvenile survey period of August 15 to September 30.

    - Dudek inquired if there is any leeway to begin ground disturbing activities slightly after the one-year BNLL survey period has expired.

        - CDFW indicated that it is their preference to have ground disturbing activities begin

        - CDFW offered to assist and answer any questions that may arise regarding a Streambed Alteration Agreement.

- USFWS inquired about the species anticipated to be included in the Habitat Conservation Plan (HCP)
    - Cox, Castle & Nicholson indicated that that the species to be included will be dependent on the results of the anticipated biological surveys.
    - Cox, Castle & Nicholson asked if USFWS can provide a sample HCP that covers similar species to those with the potential to occur on the Project site.
        - **Action item:** USFWS to provide HCP sample(s).
- In regard to compensatory mitigation, USFWS will request mitigation to the maximum extent practical.
    - USFWS did not want to provide a mitigation ratio at this time until the full suite of impacts is known.

4. Next Steps

- Pelicans Jaw Solar, LLC is anticipated to implement the Biological Survey Work Plan dated April 15, 2021. Pelicans Jaw Solar, LLC will inform CDFW and USFWS of any major changes to be implemented to the Biological Survey Work Plan.

Attachment C

Biological Survey Work Plan: San Joaquin Kit Fox
Addendum, June 7, 2022

Sapphos environmental inc.

June 7, 2022
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M03

TO: U.S. Fish and Wildlife Service
(Mr. Justin Sloan)

California Department of Fish and Wildlife
(Ms. Carrie Swanberg)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Samsung Solar Energy 2, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, and Mr. Thaer Flieh)

SB Energy Corporation
(Ms. Amy Peterson, Ms. Ariana Solis, Mr. Adolfo Espino, Mr. Ravi Bantu, Ms. Jingqi Yang, Mr. Noel Augustine, Mr. Jackson Salovaara, and Mr. Karl Brutsaert)

Dudek
(Mr. Keith Carwana)

Bell-Kearns, Ltd.
(Mr. Andrew Bell)

Kern County
(Mr. Terrence Smalls)

EXECUTIVE SUMMARY

Samsung Solar Energy 2, LLC, formally known as Pelicans Jaw Solar, LLC (Applicant) has retained Sapphos Environmental Inc, (SEI) to take the lead on the application and processing of environmental authorizations for the Pelicans Jaw Hybrid Solar Project (Project) and to ensure the Environmental Impact Report (EIR) prepared for the Project is consistent with those authorizations. Dudek will continue to prepare selected technical reports for the Project, including a jurisdictional delineation and surveys for biological resources.

This Memorandum for the Record has been prepared to update the US Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) regarding the status of surveys for species for which the Project team may ultimately seek incidental take authorization pursuant to Section 10(a)(1) or Section 7 of the federal Endangered Species Act and Section 2081 of the California Fish and Game Code.

This MFR provides a work plan update related to the Project's evaluations of biological resources:

- Jurisdictional Delineation pursuant to Section 404 of the Federal Clean Water Act and Section 1600 of the California Fish and Game Code
- Habitat Assessment
- Rare Plants
- Tri-colored blackbird
- Burrowing owl
- Swainson's hawk
- Golden eagle
- Blunt-nosed leopard lizard
- San Joaquin antelope squirrel
- Tipton kangaroo rat
- San Joaquin kit fox
- American badger

INTRODUCTION

This Memorandum for the Record (MFR updates USFWS and CDFW on the status of the proposed Project, located in Kern County (County), California. Specifically, this MFR describes an updated project description and the status of surveys for species for which the Project team may ultimately seek incidental take authorization pursuant to Section 10(a)(1) or Section 7 of the ESA and Section 2081 of the California Fish and Game Code. This MFR provides a work plan update related to the Project's evaluations of biological resources:

- Jurisdictional Delineation pursuant to Section 404 of the Federal Clean Water Act and Section 1600 of the California Fish and Game Code
- Habitat Assessment
- Rare Plants
- Tri-colored blackbird
- Burrowing owl
- Swainson's hawk
- Golden eagle
- Blunt-nosed leopard lizard
- San Joaquin antelope squirrel
- Tipton kangaroo rat
- San Joaquin kit fox
- American badger

PROJECT DESCRIPTION

The Project would consist of a solar photovoltaic (PV) generation facility of up to 500 megawatts (MW) and a battery energy storage system (BESS) of between 500 and 1,000 megawatt-hours (MWhr) on approximately 3,260 acres of private property in the County.

The Applicant has applied to the County for use authorization by way of a Conditional Use Permit (CUP) and General Plan Amendment (GPA). Construction of the Project is anticipated to occur in three phases, with construction of the first phase of 300 MW of solar beginning in the fourth quarter 2023 and operations commencing in the second quarter 2025. Construction of the second and third phases of 200 MW of solar and the BESS, respectively, would commence in the second quarter 2026 and commence operation in the third quarter 2027. The anticipated operational life of the Project is anticipated to be 35 years.

The Project would primarily consist of PV panels arrayed on a single-axis tracker system with a centrally housed or distributed BESS, and balance of plant improvements such as inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector

precise location determined after completion of environmental surveys and detailed engineering design.

PROJECT LOCATION

Samsung Solar Energy 2, LLC has revised the Project footprint to be limited within the northwest portion of the County, adjacent to the southern border of Kings County with direct access from Interstate 5 (I-5) located approximately two miles to the west (Attachment 1: Figure 1, *Project Location*). The Project is situated within portions of Sections 4, 5, 6, 8, 9, 15, 16, and 22 of Township 25 South, Range 21 East, San Bernardino Base and Meridian. The Project site is generally bordered by Twisselman Road to the south, Lost Hills Road to the east, the Kern and Kings County line to the north, and I-5 to the west (Attachment 1: Figure 2, *Project Vicinity*).

JURISDICTIONAL DELINEATION

Dudek is in the process of preparing a Jurisdictional Aquatic Resources Delineation Findings Memorandum. A field survey is being proposed to support this effort to assess potential jurisdictional aquatic features identified from the USFWS National Wetland Inventory Maps and verify that there is no remnant aquatic or riparian habitat associated with the trenches within the property boundary for which irrigation waters were terminated more than 10 years ago. Through informal site visits, the inactive irrigation ditches have been observed to be clogged and closed off, and water has not been turned on to the site for at least 10 years (2012–2022). Based on the results of the habitat assessment and species specific sampling surveys conducted in 2021, any areas that are potentially subject to the jurisdiction of the U.S. Army Corps of Engineers under Section 404 of the federal Clean Water Act or the California Department of Fish and Wildlife (CDFW) pursuant to Section 1600 of the California Fish and Game Code will be subject to a 3-parameter test to assess the presence or absence of aquatic or riparian habitats.

SURVEYS

Habitat Assessment

SEI completed an updated habitat assessment of the Project area based on site visits conducted during October 11–12, 2021 that identified a sparsely vegetated Project area with evidence of heavy disturbance to Agriculture, Rangeland, and Alkali Scrub habitat caused primarily by sheep and cattle grazing. The quality of the Project area as habitat for sensitive-status species was determined to be low. Further species-specific surveys are proposed to determine the level of occupancy or foraging use of the Project area by these species.

Rare Plants

Tri-colored blackbird

Surveys for tricolored blackbird (TRBL; *Agelaius tricolor*) are being conducted concurrently with SWHA surveys. No active TRBL nests have been identified to date.

Burrowing owl

Surveys for burrowing owl (BUOW; *Athene cunicularia*) will be conducted concurrently with SJKF surveys. Dudek will map all suitable BUOW burrows and document any anecdotal detections and sign of use by BUOW during these surveys.

Swainson's hawk

Swainson's hawk (SWHA; *Buteo swainsoni*) surveys following the Swainson's Hawk Technical Advisory Committee's Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley are currently in the process of being conducted. To date, two active SWHA nests have been identified within the 0.5-mile survey buffer, but both are located outside the Project area. One is located towards the northeast corner of the Project area, and the other along the southwest corner of the heavily trafficked I-5 and Twisselman Road. Should these nests persist annually to construction in 2024, Project activities are not anticipated to have an effect on these nests as no heavy construction activities would occur within 0.5 mile of the nests, and any light or moderate activities would be proposed to be monitored by a qualified biologist.

Golden eagle

Golden eagle (GOEA; *Aquila chrysaetos canadensis*) surveys were conducted by Dudek in February 2022, and a report is currently in preparation for transmittal to the County. No GOEA nest sites were located within 10 miles from the Project site boundary.

Blunt-nosed leopard lizard

Blunt-nosed leopard lizard (BNLL; *Gambelia sila*) sampling surveys (using a methodology Dudek previously discussed with USFWS and CDFW) were conducted in 2021 with negative results. These results are being used to inform the CEQA analysis with the understanding that full protocol BNLL surveys (following the October 2019 BNLL Survey Methodology) will be performed in 2023 concurrently with preparation of the EIR. This aligns with an anticipated construction start date of first quarter 2024.

San Joaquin antelope squirrel

Tipton kangaroo rat

Tipton kangaroo rat (TKR; *Dipodomys nitratoides nitratoides*) trapping is proposed to be conducted by Dudek this year to determine presence/absence of kangaroo rat species and document them if found. Trapping efforts will follow the protocol and conditions described in the previously submitted April 2021 Biological Survey Work Plan (Attachment 2). A trapping plan will be submitted to USFWS and CDFW prior to implementation.

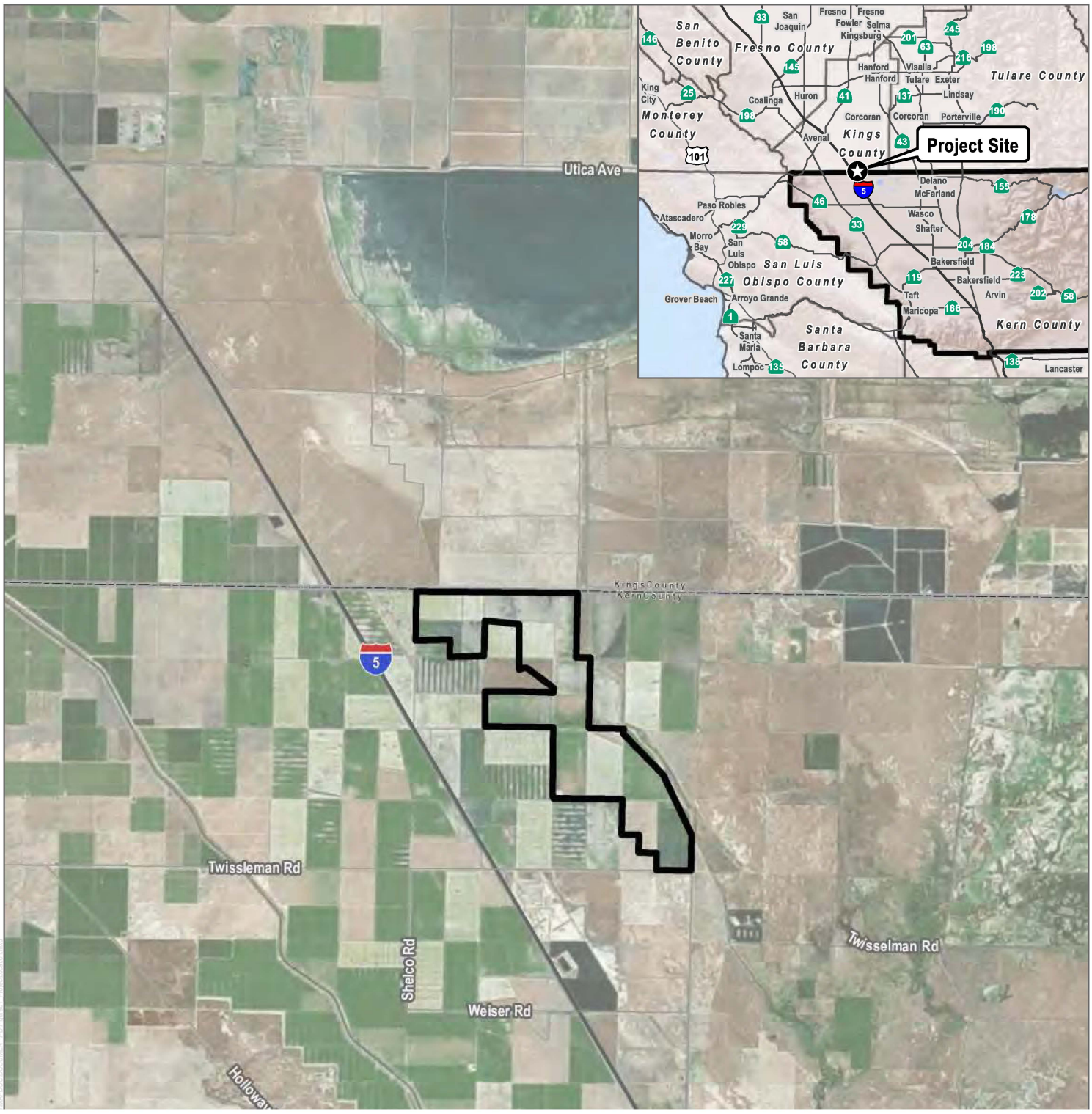
San Joaquin kit fox

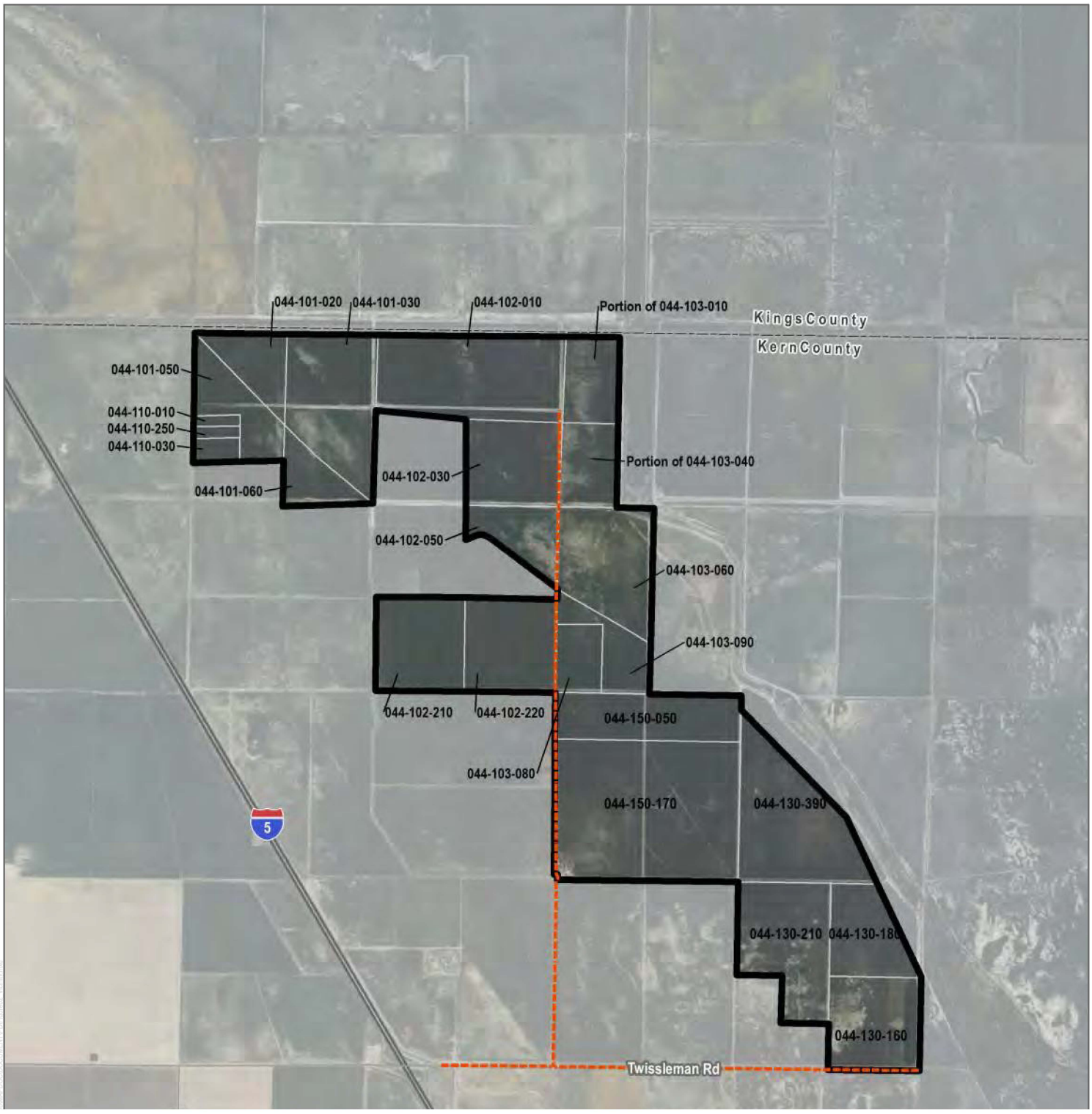
Samsung Solar Energy 2, LLC is proposing to authorize Dudek to initiate surveys for the San Joaquin kit fox (SJKF; *Vulpes macrotis mutica*), and this MFR serves to notify CDFW and USFWS of an amendment to the previously submitted April 2021 Biological Survey Work Plan (Attachment 2). Specifically, Samsung Solar Energy 2, LLC is proposing to conduct modified protocol-level surveys as further described in Attachment 3 (Biological Survey Work Plan: San Joaquin Kit Fox Addendum). Samsung Solar Energy 2, LLC is proposing to proceed with pedestrian transect surveys as defined in the "San Joaquin Kit Fox Survey Protocol for the Northern Range."[2] The proposed modification is to conduct camera monitoring across the entirety of the approximately 3,260-acre Project site rather than spot-lighting survey and scent station studies set forth in sections 2, 3, and 4 of the survey protocol.[3] Samsung Solar Energy 2, LLC is looking to proceed with the pedestrian transect surveys in accordance with the survey protocol to help inform the camera monitoring. Camera monitoring will not begin until Samsung Solar Energy 2, LLC receives USFWS and CDFW concurrence of the proposed modified survey protocol described in Attachment 3. Samsung Solar Energy 2, LLC would like to request USFWS and CDFW concurrence prior to June 24, 2022, to begin camera monitoring.

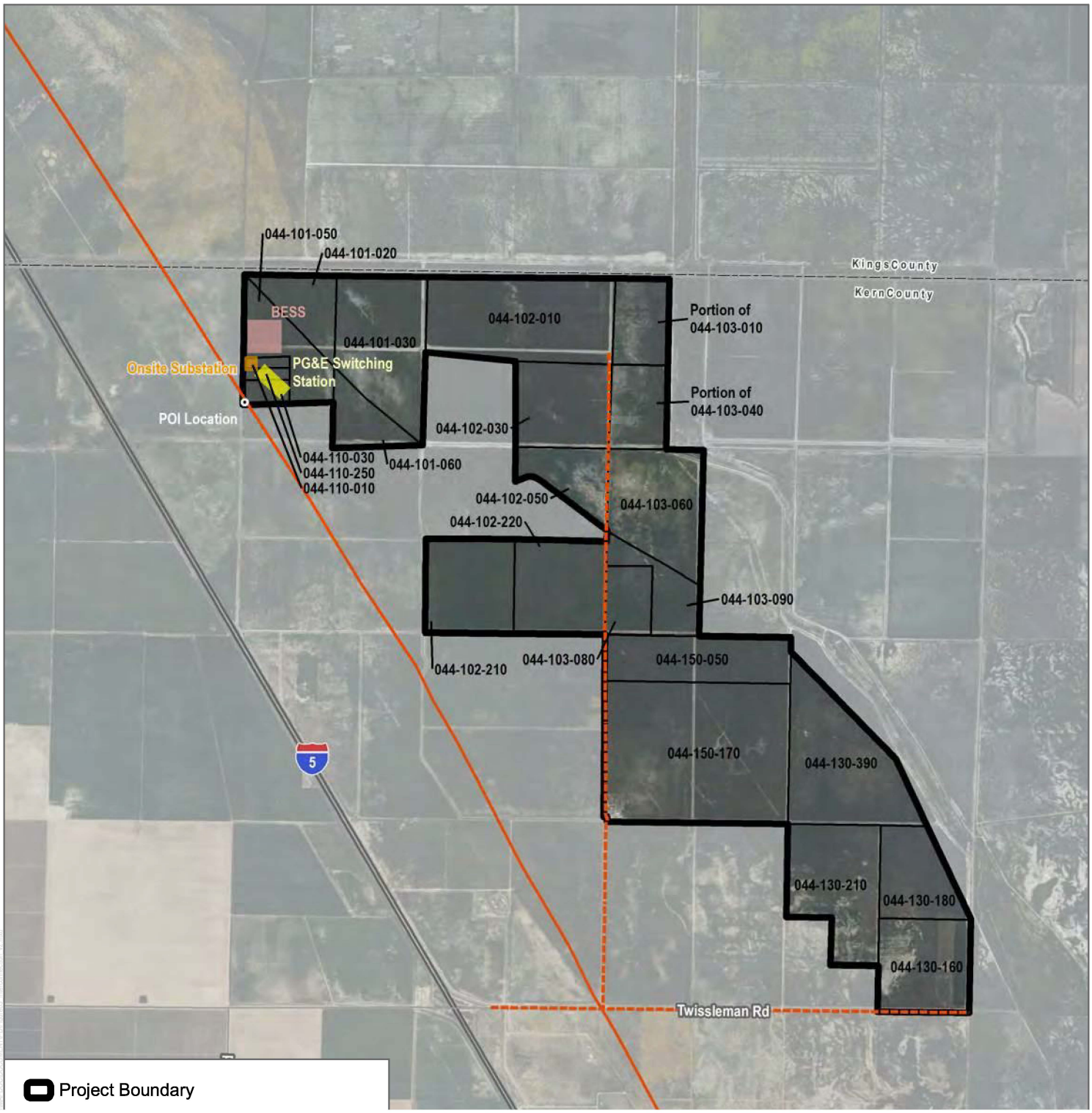
American badger

Surveys for American badger (AMBA; *Taxidea taxus*) will be conducted concurrently with SJKF surveys.

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.


Utica Ave
Kings County
Kern County
5
Twissleman Rd
Shelco Rd
Weiser Rd
Twisselman Rd
Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Fresno
Clovis
Selma
Kingsburg
Hanford
Visalia
Tulare
Exeter
Lindsay
Porterville
Coalinga
Huron
Avenal
Corcoran
King City
Paso Robles
Atascadero
Morro Bay
San Luis Obispo
Grover Beach
Arroyo Grande
Santa Maria
Lompoc
Delano
McFarland
Wasco
Shafter
Bakersfield
Taft
Maricopa
Arvin
Lancaster


044-101-020
044-101-030
044-102-010
Portion of 044-103-010
Kings County
Kern County
044-101-050
044-110-010
044-110-250
044-110-030
044-101-060
044-102-030
Portion of 044-103-040
044-102-050
044-103-060
044-103-090
044-102-210
044-102-220
044-150-050
044-103-080
044-150-170
044-130-390
5
044-130-210
044-130-180
044-130-160
Twissleman Rd


044-101-050
044-101-020
Kings County
Kern County
BESS
044-101-030
044-102-010
Portion of
044-103-010
Onsite Substation
PG&E Switching
Station
POI Location
Portion of
044-103-040
044-102-030
044-110-030
044-110-250
044-110-010
044-101-060
044-102-050
044-103-060
044-102-220
044-103-090
044-102-210
044-103-080
044-150-050
044-150-170
044-130-390
5
044-130-210
044-130-180
044-130-160
Twissleman Rd
Project Boundary

PELICANS JAW HYBRID SOLAR PROJECT

BIOLOGICAL SURVEY WORK PLAN

Date:	April 28, 2021
Time:	3:00-4:00 PM
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Location:	Zoom Video Call
Attendees:	**USFWS** – Justin Sloan
	CDFW – Carrie Swanberg
	Pelicans Jaw Solar, LLC – Hun Kim, Alphonso Jung, Tae Kwak, and Tandy McMannes
	Cox, Castle & Nicholson – Clark Morrison
	Dudek – Brock Ortega, Keith Carwana, and Anna Bischoff

---

1. Project Updates

- Dudek described the recently completed habitat assessment, vegetation mapping, and jurisdictional delineation for the Pelicans Jaw Hybrid Solar Project (Project).
    - Based on the results of the on-site surveys, including the presence of hydrophytic vegetation, and greater potential for sensitive species in the Kings County portion of the Project, Pelicans Jaw Solar, LLC decided to remove all Kings County parcels from the Project.
        - With the removal of the Kings County parcels, the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres.

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- In addition to BNLL sample surveys, Pelicans Jaw Solar, LLC is anticipated to proceed with concurrent burrow mapping for burrowing owl, San Joaquin kit fox, American badger, and San Joaquin antelope squirrel in 2021.
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3. CDFW and USFWS Discussions

- CDFW recommended conducting full protocol level survey for BNLL but understood the need to conduct sample surveys to support the CEQA analysis in advance of full protocol level surveys within one-year of ground disturbing activities.

    - CDFW was comfortable with the BNLL sample survey area depicted in Figure 3 of the Biological Survey Work Plan.

    - CDFW recommended completing hatchling surveys as part of the proposed BNLL sample surveys.

        - **Action item:** Pelicans Jaw Solar, LLC and Dudek mentioned that they will look into adding hatchling surveys during the BNLL juvenile survey period of August 15 to September 30.

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        - CDFW indicated that it is their preference to have ground disturbing activities begin

        - CDFW offered to assist and answer any questions that may arise regarding a Streambed Alteration Agreement.

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    - Cox, Castle & Nicholson indicated that that the species to be included will be dependent on the results of the anticipated biological surveys.
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        - **Action item:** USFWS to provide HCP sample(s).
- In regard to compensatory mitigation, USFWS will request mitigation to the maximum extent practical.
    - USFWS did not want to provide a mitigation ratio at this time until the full suite of impacts is known.

4. Next Steps

- Pelicans Jaw Solar, LLC is anticipated to implement the Biological Survey Work Plan dated April 15, 2021. Pelicans Jaw Solar, LLC will inform CDFW and USFWS of any major changes to be implemented to the Biological Survey Work Plan.

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan – USFWS Carrie Swanberg – CDFW
From:	Brock Ortega, Keith Carwana, and Randi Busse – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan: San Joaquin Kit Fox Addendum
Date:	May 26, 2022
cc:	Tandy McMannes, Amy Peterson, Alphonso Jung, and Hun Kim – Pelicans Jaw Solar, LLC Marie Campbell and Sarah Sperling – Sapphos Environmental, Inc. Andrew Bell – Bell-Kearns
Attachment(s):	Attachment A – Biological Survey Work Plan, April 15, 2021 Attachment B – USFWS and CDFW Meeting Notes, April 28, 2021

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar and battery energy storage facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project located on approximately 3,260 acres in unincorporate Kern County. Pelicans Jaw Solar, LLC submitted a biological survey work plan for the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) review on April 15, 2021 (Attachment A). A subsequent call with USFWS and CDFW occurred on April 28, 2021, to review and discuss the biological survey work plan (Attachment B). Pelicans Jaw Solar, LLC is in the process of implementing the approved work plan. This memorandum is intended to serve as an addendum to the April 15, 2021, work plan to include San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF) surveys.

In accordance with the biological survey work plan, Dudek collected burrow resource data during blunt-nosed leopard lizard (*Gambelia sila;* BNLL) "sample" surveys conducted during the adult and hatchling seasons of 2021. All suitable burrow resources that met the criteria and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), SJKF, and American badger (*Taxidea taxus*; AMBA) within the sample survey areas were recorded. Rather than assume the presence of SJKF in the Project site based on the burrow data and limited camera monitoring data collected to date, Pelicans Jaw Solar, LLC is proposing to conduct modified protocol-level surveys as further described below. Pelicans Jaw Solar, LLC is looking to receive USFWS and CDFW concurrence with the survey protocol prior to commencement of SJKF surveys.

vegetative cover and other visual obstructions. Based on the degree of grazing and drought conditions we expect most areas to be highly visible. Surveys will be conducted between May 1 and September 30 in accordance with the survey protocol (USFWS 1999).

Camera Monitoring

Pelicans Jaw Solar, LLC proposes to conduct camera monitoring across the entirety of the approximately 3,360-acre survey area. Camera monitoring is intended to effectively replace the spot-lighting survey and scent station studies set forth in sections 2, 3, and 4 of the survey protocol (USFWS 1999) and has been approved with agency approval for nearby projects recently. This study will occur after the burrow survey so that the burrow survey can help inform where to deploy cameras.

The 3,360-acre survey area is composed of approximately 5 sections (a section being approximately 640 acres). Dudek will deploy 16 game cameras per section for a total of 80 game cameras throughout the project site. This doubles the usual number of 8 per section for the protocol camera/track-bed surveys. A Dudek species expert will determine the ultimate camera deployment locations based on even distribution, existing potential burrow locations, and other important factors. Dudek will deploy cameras in batches of 40 cameras. Camera stations will be baited and include a scent lure (e.g., Gusto) to maximize detectability of canids and meso-carnivores. Bait stations will include a punctured, but not opened, can of cat food or fish secured to the ground by a 12-inch nail driven through it. Approximately ¼ teaspoon dollops of scent lure will be placed on a small rock next to the bait. Cameras will be set approximately 10 feet from the bait station, focused on the bait station, and will be oriented to minimize false-triggers (e.g., away from direct sun, away from active roads, etc.). Each camera will be deployed on site for a minimum of 10 consecutive nights and the bait stations will be refreshed mid-way through the survey period.

A Dudek qualified biologist will review all accrued camera data for evidence of San Joaquin kit fox presence in the project site and will catalog the number and species by camera station to aid in future agency discussions, CEQA, and permitting. Dudek and Pelicans Jaw Solar, LLC will prepare a letter report documenting the results of transect surveys and camera monitoring for agency review.

Agency Review and Discussion

Pelicans Jaw Solar, LLC would like to begin the modified protocol-level SJKF surveys as soon as possible. We have included our availability in the email to which this memorandum was attached to schedule a brief conference call should USFWS and/or CDFW have any questions. We are also happy to address any comments/questions via email. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts for the

Attachment A

Biological Survey Work Plan

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be "marked" using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

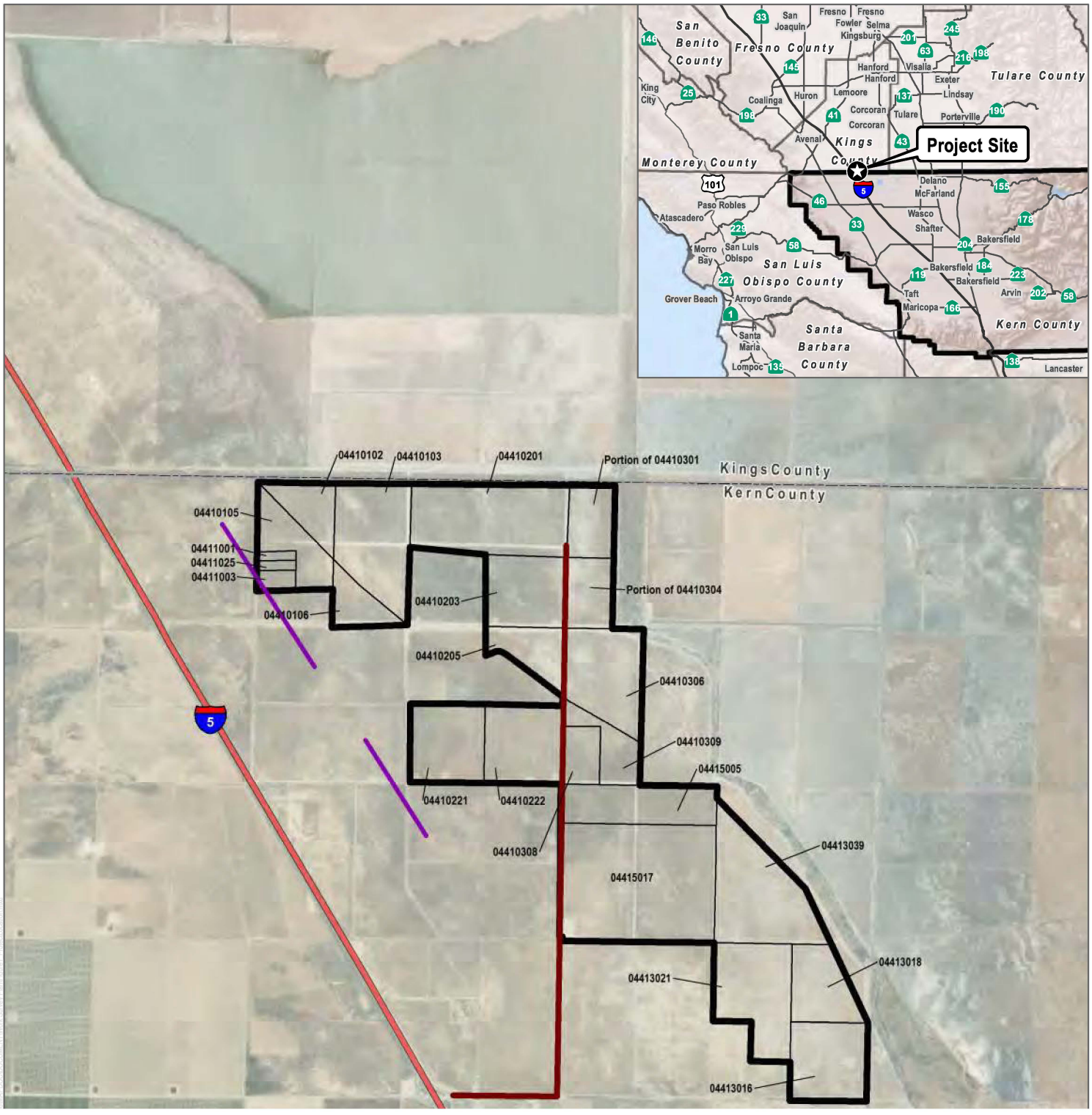
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

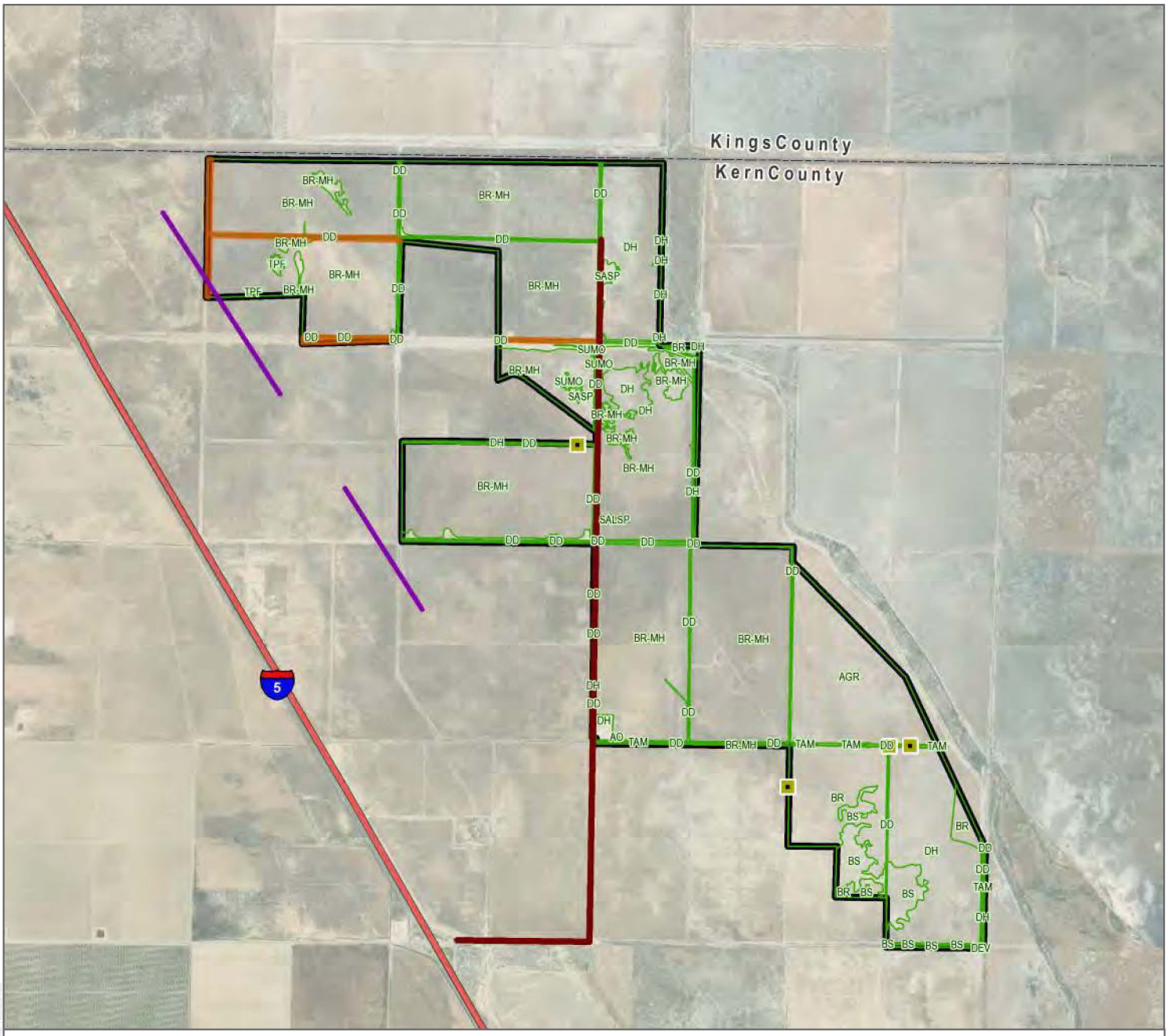
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Kern County
Santa Barbara County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

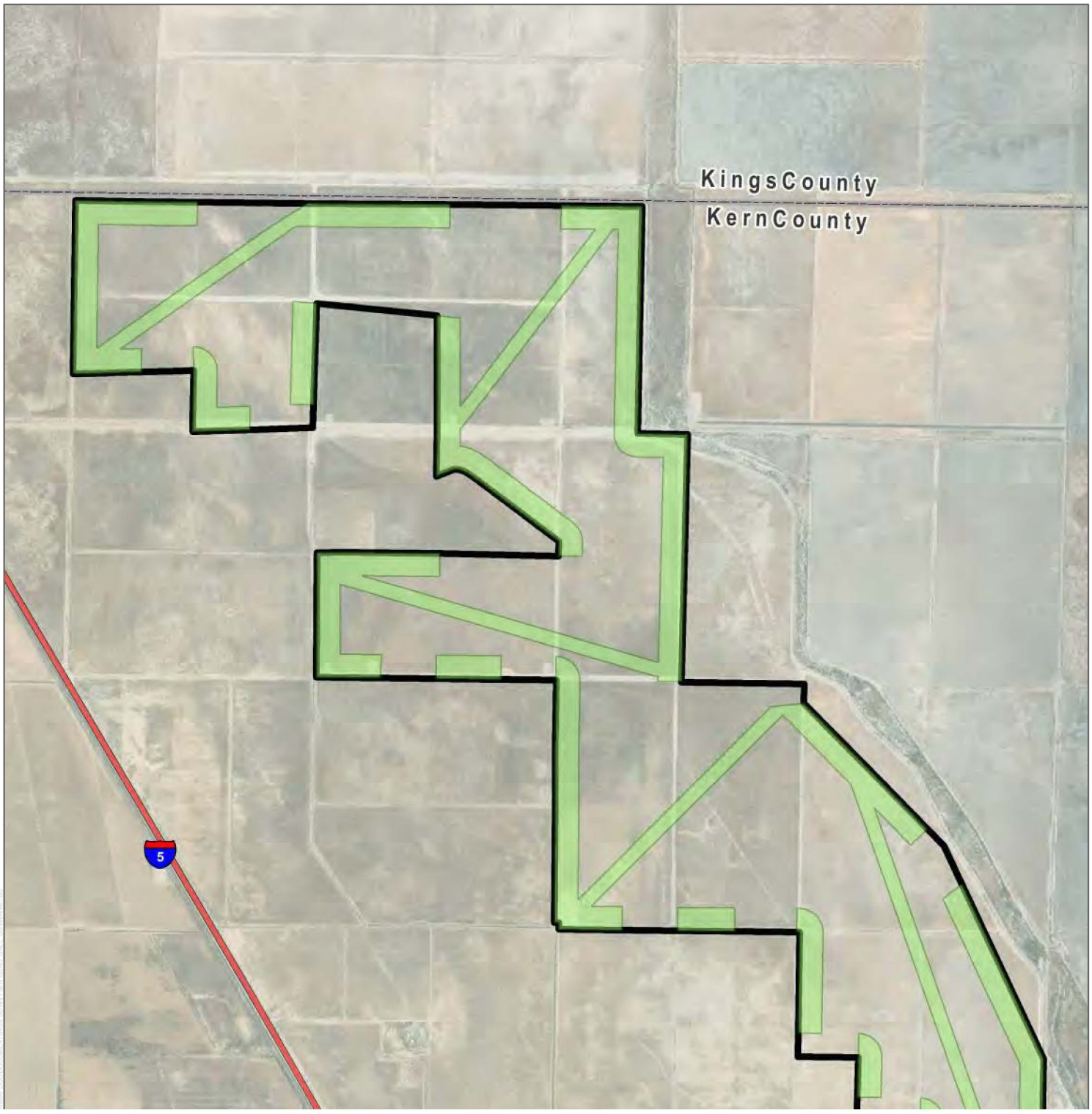
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

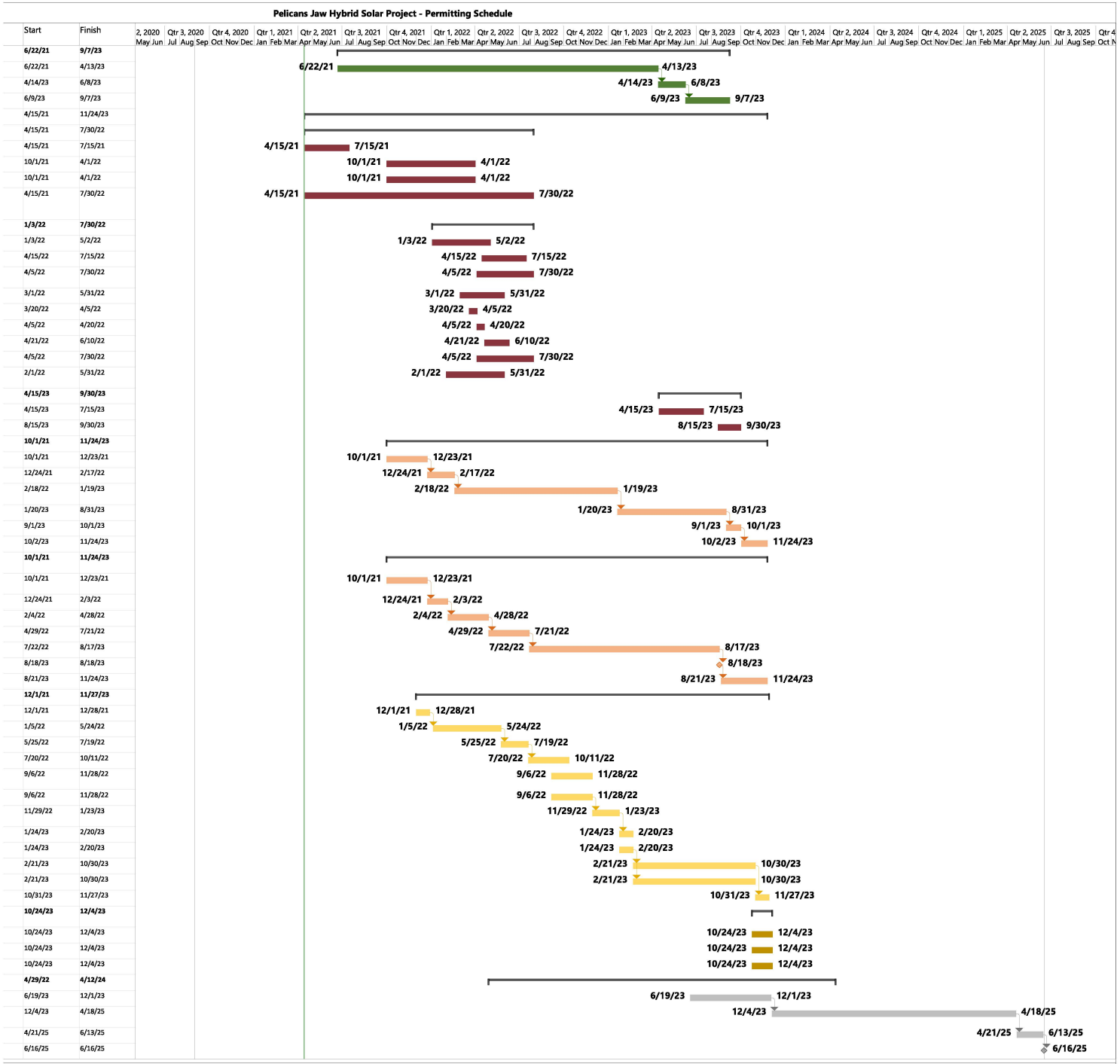
SALSP, Salsola spp. Semi-natural Association


Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

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From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
www.dudek.com

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment B

USFWS and CDFW Meeting Notes, April 28, 2021

PELICANS JAW HYBRID SOLAR PROJECT

BIOLOGICAL SURVEY WORK PLAN

Date:	April 28, 2021
Time:	3:00-4:00 PM
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Location:	Zoom Video Call
Attendees:	**USFWS** – Justin Sloan
	CDFW – Carrie Swanberg
	Pelicans Jaw Solar, LLC – Hun Kim, Alphonso Jung, Tae Kwak, and Tandy McMannes
	Cox, Castle & Nicholson – Clark Morrison
	Dudek – Brock Ortega, Keith Carwana, and Anna Bischoff

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1. Project Updates

- Dudek described the recently completed habitat assessment, vegetation mapping, and jurisdictional delineation for the Pelicans Jaw Hybrid Solar Project (Project).
    - Based on the results of the on-site surveys, including the presence of hydrophytic vegetation, and greater potential for sensitive species in the Kings County portion of the Project, Pelicans Jaw Solar, LLC decided to remove all Kings County parcels from the Project.
        - With the removal of the Kings County parcels, the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres.

2. Biological Survey Work Plan

- Dudek described the Biological Survey Work Plan dated April 15, 2021 and the proposed surveys to be completed in 2021 and 2022.
    - Pelicans Jaw Solar, LLC is proposing to proceed with blunt-nosed leopard lizard (BNLL) sample surveys in 2021 or 2022 on approximately 955 acres of the approximately 3,260-acre Project site. The BNLL sample surveys are intended to inform the CEQA analysis to be prepared in advance of the required BNLL protocol-level surveys and provide critical site-specific data.

- In addition to BNLL sample surveys, Pelicans Jaw Solar, LLC is anticipated to proceed with concurrent burrow mapping for burrowing owl, San Joaquin kit fox, American badger, and San Joaquin antelope squirrel in 2021.
    - Surveys for large branchipods and western spadefoot toad are anticipated to be initiated during the 2021 wet season.
        - Dudek noted that helicopters will no longer be used to complete large branchipods and western spadefoot toad surveys given the reduction in Project size and vehicle accessibility across the Kern County parcels.
        - USFWS indicated that there was a recent observation of vernal pool fairy shrimp in Kern County.
- Pelicans Jaw Solar, LLC anticipates completing the following surveys in 2022: golden eagle, kangaroo rat trapping, Swainson's hawk, tricolored blackbird, and Buena vista ornate shrew.
    - Dudek noted that a survey work plan will be prepared for Buena vista ornate shrew and small mammal trapping, prior to implementing the surveys and trapping efforts.

3. CDFW and USFWS Discussions

- CDFW recommended conducting full protocol level survey for BNLL but understood the need to conduct sample surveys to support the CEQA analysis in advance of full protocol level surveys within one-year of ground disturbing activities.

    - CDFW was comfortable with the BNLL sample survey area depicted in Figure 3 of the Biological Survey Work Plan.

    - CDFW recommended completing hatchling surveys as part of the proposed BNLL sample surveys.

        - **Action item:** Pelicans Jaw Solar, LLC and Dudek mentioned that they will look into adding hatchling surveys during the BNLL juvenile survey period of August 15 to September 30.

    - Dudek inquired if there is any leeway to begin ground disturbing activities slightly after the one-year BNLL survey period has expired.

        - CDFW indicated that it is their preference to have ground disturbing activities begin

        - CDFW offered to assist and answer any questions that may arise regarding a Streambed Alteration Agreement.

- USFWS inquired about the species anticipated to be included in the Habitat Conservation Plan (HCP)
    - Cox, Castle & Nicholson indicated that that the species to be included will be dependent on the results of the anticipated biological surveys.
    - Cox, Castle & Nicholson asked if USFWS can provide a sample HCP that covers similar species to those with the potential to occur on the Project site.
        - **Action item:** USFWS to provide HCP sample(s).
- In regard to compensatory mitigation, USFWS will request mitigation to the maximum extent practical.
    - USFWS did not want to provide a mitigation ratio at this time until the full suite of impacts is known.

4. Next Steps

- Pelicans Jaw Solar, LLC is anticipated to implement the Biological Survey Work Plan dated April 15, 2021. Pelicans Jaw Solar, LLC will inform CDFW and USFWS of any major changes to be implemented to the Biological Survey Work Plan.

Appendix B

CDFW, CNPS, and USFWS Database Search Results

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

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

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

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Location

Kern County, California



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

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Endangered species

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

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

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

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

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

Listed species[1] and their critical habitats are managed by the Ecological Services Program of

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2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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

Mammals

NAME	STATUS
Buena Vista Lake Ornate Shrew Sorex ornatus relictus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1610	Endangered
Giant Kangaroo Rat Dipodomys ingens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6051	Endangered
San Joaquin Kit Fox Vulpes macrotis mutica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered
Tipton Kangaroo Rat Dipodomys nitratoides nitratoides Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/7247	Endangered

Birds

NAME	STATUS
Western Snowy Plover Charadrius nivosus nivosus	Threatened

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Blunt-nosed Leopard Lizard Gambelia silus — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/625

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

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Kern Mallow Eremalche kernensis — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/1731

San Joaquin Wooly-threads Monolopia (=Lembertia) congdonii — Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/3746

Critical habitats

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

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

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

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

NAME	BREEDING SEASON
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Bullock's Oriole *Icterus bullockii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 21 to Jul 25
Common Yellowthroat *Geothlypis trichas sinuosa* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/2084	Breeds May 20 to Jul 31

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Mountain Plover Charadrius montanus — Breeds elsewhere

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/3638

Western Grebe aechmophorus occidentalis — Breeds Jun 1 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.
https://ecos.fws.gov/ecp/species/6743

Probability of Presence Summary

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

Probability of Presence (■)

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

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

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of

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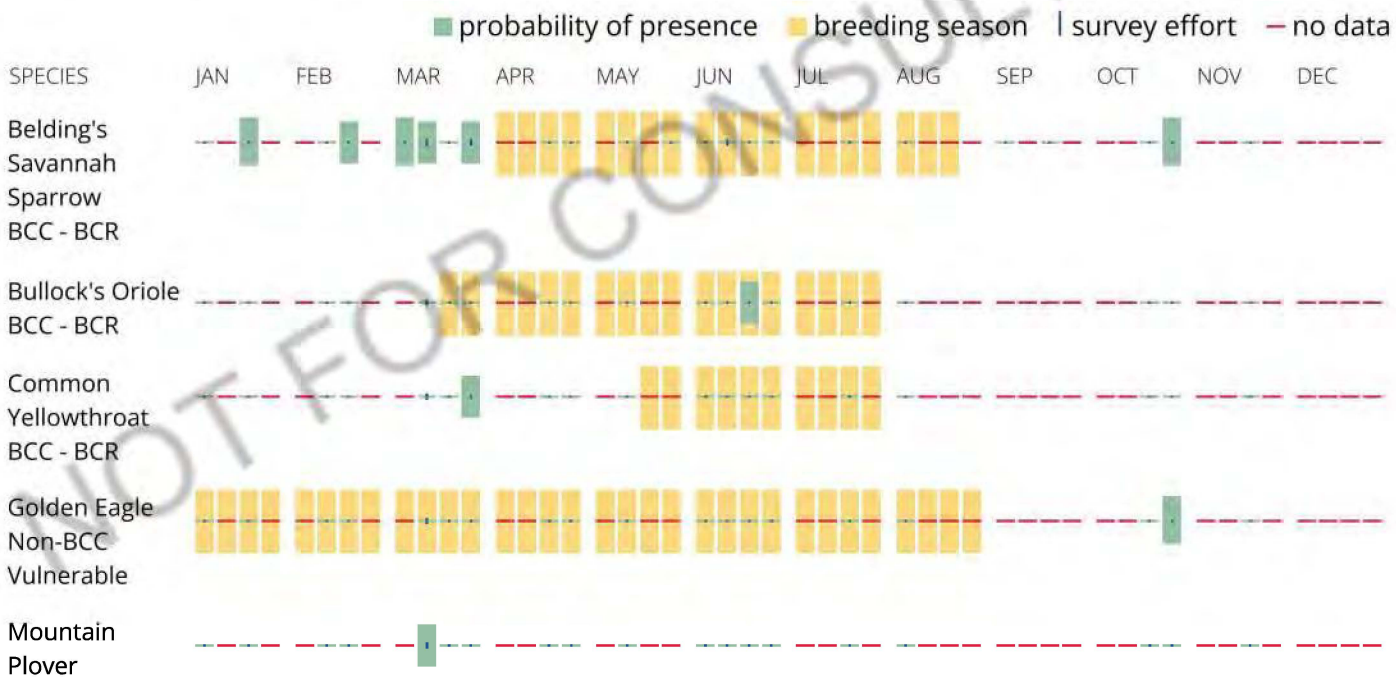
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering,

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Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project

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more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Coastal Barrier Resources System

Projects within the John H. Chafee Coastal Barrier Resources System (CBRS) may be subject to the restrictions on Federal expenditures and financial assistance and the consultation requirements of the Coastal Barrier Resources Act (CBRA) (16 U.S.C. 3501 et seq.). For more information, please contact the local Ecological Services Field Office or visit the CBRA Consultations website. The CBRA website provides tools such as a flow chart to help determine whether consultation is required and a template to facilitate the consultation process.

There are no known coastal barriers at this location.

Data limitations

The CBRS boundaries used in IPaC are representations of the controlling boundaries, which are depicted on the official CBRS maps. The boundaries depicted in this layer are not to be considered authoritative for in/out determinations close to a CBRS boundary (i.e., within the "CBRS Buffer Zone" that appears as a hatched area on either side of the boundary). For projects that are very close to a CBRS boundary but do not clearly intersect a unit, you may contact the Service for an official determination by following the instructions here: https://www.fws.gov/service/coastal-barrier-resources-system-property-documentation

Data exclusions

CBRS units extend seaward out to either the 20- or 30-foot bathymetric contour (depending on the location of the unit). The true seaward extent of the units is not shown in the CBRS data, therefore projects in the offshore areas of units (e.g., dredging, breakwaters, offshore wind energy or oil and gas projects) may be subject to CBRA even if they do not intersect the CBRS data. For additional information, please contact CBRA@fws.gov.

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There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

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Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Lost Hills NW (3511966) OR Antelope Plain (3511967) OR Blackwells Corner (3511957) OR Lost Hills (3511956) OR Lost Hills NE (3511965) OR Semitropic (3511955) OR Hacienda Ranch (3511975) OR Lone Tree Well (3511976) OR West Camp (3511977))
 AND Taxonomic Group IS (Fish OR Amphibians OR Reptiles OR Birds OR Mammals OR Mollusks OR Arachnids OR Crustaceans OR Insects)

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
American badger *Taxidea taxus*	AMAJF04010	None	None	G5	S3	SSC
black-crowned night heron *Nycticorax nycticorax*	ABNGA11010	None	None	G5	S4	
blunt-nosed leopard lizard *Gambelia sila*	ARACF07010	Endangered	Endangered	G1	S1	FP
Buena Vista Lake ornate shrew *Sorex ornatus relictus*	AMABA01102	Endangered	None	G5T1	S1	SSC
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S3	SSC
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G3G4	S4	SSC
fulvous whistling-duck *Dendrocygna bicolor*	ABNJB01010	None	None	G5	S1	SSC
Le Conte's thrasher *Toxostoma lecontei*	ABPBK06100	None	None	G4	S3	SSC
molestan blister beetle *Lytta molesta*	IICOL4C030	None	None	G2	S2	
mountain plover *Charadrius montanus*	ABNNB03100	None	None	G3	S2S3	SSC
Nelson's (=San Joaquin) antelope squirrel *Ammospermophilus nelsoni*	AMAFB04040	None	Threatened	G2G3	S2S3	
San Joaquin coachwhip *Masticophis flagellum ruddocki*	ARADB21021	None	None	G5T2T3	S2?	SSC
San Joaquin kit fox *Vulpes macrotis mutica*	AMAJA03041	Endangered	Threatened	G4T2	S2	

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Tipton kangaroo rat *Dipodomys nitratoides nitratoides*	AMAFD03152	Endangered	Endangered	G3T1T2	S1S2	
tricolored blackbird *Agelaius tricolor*	ABPBXB0020	None	Threatened	G1G2	S1S2	SSC
Tulare grasshopper mouse *Onychomys torridus tularensis*	AMAFF06021	None	None	G5T1T2	S1S2	SSC
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western snowy plover *Charadrius nivosus nivosus*	ABNNB03031	Threatened	None	G3T3	S3	SSC
western spadefoot *Spea hammondii*	AAABF02020	None	None	G2G3	S3	SSC
white-faced ibis *Plegadis chihi*	ABNGE02020	None	None	G5	S3S4	WL

Record Count: 24

Search Results

21 matches found. Click on scientific name for details

Search Criteria: County is one of [**KRN:KNG**], Quad is one of [**3511966:3511967:3511957:3511956:3511965:3511955:3511975:3511976:3511977**]

▲ SCIENTIFIC NAME	COMMON NAME	FAMILY	LIFEFORM	BLOOMING PERIOD	FED LIST	STATE LIST	GLOBAL RANK	STATE RANK	CA RARE PLANT RANK	PHOTO
Antirrhinum ovatum	oval-leaved snapdragon	Plantaginaceae	annual herb	May-Nov	None	None	G3	S3	4.2	 © 2013 Chris Winchell
Astragalus hornii var. *hornii*	Horn's milk-vetch	Fabaceae	annual herb	May-Oct	None	None	GUT1	S1	1B.1	No Photo Available
Atriplex cordulata var. *erecticaulis*	Earlimart orache	Chenopodiaceae	annual herb	Aug-Sep(Nov)	None	None	G3T1	S1	1B.2	 © 2009 Robert E. Preston, Ph.D.
Atriplex coronata var. *coronata*	crownscale	Chenopodiaceae	annual herb	Mar-Oct	None	None	G4T3	S3	4.2	 © 1994 Robert E. Preston, Ph.D.
Atriplex coronata var. *vallicola*	Lost Hills crownscale	Chenopodiaceae	annual herb	Apr-Sep	None	None	G4T3	S3	1B.2	No Photo Available
Atriplex minuscula	lesser saltscale	Chenopodiaceae	annual herb	May-Oct	None	None	G2	S2	1B.1	 © 2000

Eremalche parryi ssp. *kernensis*	Kern mallow	Malvaceae	annual herb	Jan(Feb)Mar-May	FE	None	G3G4T3	S3	1B.2	No Photo Available
Eriastrum hooveri	Hoover's eriastrum	Polemoniaceae	annual herb	Mar-Jul	FD	None	G3	S3	4.2	No Photo Available
Eriogonum gossypinum	cottony buckwheat	Polygonaceae	annual herb	Mar-Sep	None	None	G3G4	S3S4	4.2	No Photo Available
Lasthenia chrysantha	alkali-sink goldfields	Asteraceae	annual herb	Feb-Apr	None	None	G2	S2	1B.1	 © 2009 California State University, Stanislaus
Lasthenia ferrisiae	Ferris' goldfields	Asteraceae	annual herb	Feb-May	None	None	G3	S3	4.2	 © 2009 Zoya Akulova
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Asteraceae	annual herb	Feb-Jun	None	None	G4T2	S2	1B.1	 © 2013 Keir Morse
Layia munzii	Munz's tidy-tips	Asteraceae	annual herb	Mar-Apr	None	None	G2	S2	1B.2	 © 2017 Neal Kramer
Monolopia congdonii	San Joaquin woollythreads	Asteraceae	annual herb	Feb-May	FE	None	G2	S2	1B.2	No Photo Available
Phacelia ciliata var. *opaca*	Merced phacelia	Hydrophyllaceae	annual herb	Feb-May	None	None	G5TH	SH	3.2	No Photo Available
Puccinellia simplex	California alkali grass	Poaceae	annual herb	Mar-May	None	None	G2	S2	1B.2	No Photo

Suggested Citation:

California Native Plant Society, Rare Plant Program. 2022. Rare Plant Inventory (online edition, v9-01 1.5). Website https://www.rareplants.cnps.org [accessed 15 November 2022].

Appendix C

2022 San Joaquin Kit Fox Survey Report

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Tandy McMannes – Pelicans Jaw Solar, LLC
From:	Brock Ortega, Keith Carwana, and Abby Bergsma– Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – San Joaquin Kit Fox (SJKF) Survey and Camera Study Results
Date:	December 22, 2022
Attachment(s):	Figure 1 – Project Location Figure 2 – SJKF Survey and Camera Study Results Figure 3 – Camera Study Results Attachment A – Resumes of Principal Investigators Attachment B – Resumes of Biologists Conducting Pedestrian Surveys Attachment C – Biological Survey Work Plan Attachment D – Biological Survey Work Plan Addendum Attachment E – Survey Field Logs Attachment F – Photo Log

Executive Summary

This memorandum provides results of pedestrian San Joaquin kit fox ((SJKF); *Vulpes macrotis mutica*) surveys and associated wildlife camera studies undertaken in support of the Pelicans Jaw Hybrid Solar Project (Project), located in the unincorporated territory of Kern County, California (Figure 1, *Project Location*). The Project site is located adjacent, and to the south of the border of Kern County with Kings County, approximately two miles east of the U.S. Interstate 5. The cumulative surveys were conducted by qualified biologists following the survey protocol set forth in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999) and as amended by a work plan submitted to the California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS) on June 7, 2022. The work plan proposed enhanced camera studies across the approximately, 3,273-acre Project site rather than performing the spot-lighting survey and scent station studies set forth in sections 2, 3, and 4 of the USFWS survey protocol. Brock Ortega and Russell Sweet served as the Principal Investigators for the surveys (see Attachment A for resumes). Pedestrian transect surveys were conducted June 15 through August 4, 2022. Wildlife camera studies were conducted from September 23 to October 18, 2022.

Camera study data showed SJKF activity throughout the Project site. Of the 80 total cameras set throughout the site, 58 cameras captured SJKF activity. The camera that was set at Location 9-7 coincided with one of the existing active dens and captured images of continued SJKF use during the camera study. There were multiple images of two SJKF within the same frame and one of a SJKF and American badger within the same frame during the wildlife camera study.

Introduction

The purpose of this memorandum is to provide results of SJKF pedestrian surveys and associated wildlife camera study undertaken in support of the Project.

The SJKF is in the family Canidae and is a year-round resident of arid and semi-arid regions of California's San Joaquin Valley and surrounding valleys. Their habitat includes grasslands, which are dominated by grasses and forbs, and desert, where vegetation is sparse (USFWS 2022). They require loose-textured sandy soils for burrowing and a suitable prey base. They are opportunistic hunters and mainly feed on small mammal species such as kangaroo rats, mice, ground squirrels, and ground-nesting birds.

Listed as endangered under the federal Endangered Species Act (ESA) and threatened under the California Endangered Species Act (CESA), the SJKF is protected by federal and state statutes. USFWS has established the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999), which prescribes methodologies for habitat assessments and surveys for the subspecies throughout its range. The San Joaquin Kit Fox Survey Protocol for the Northern Range calls for an early evaluation of a site and its potential to support SJKF to determine whether protocol surveys are necessary.

The SJKF surveys and associated wildlife camera study are intended to inform the CEQA lead agency and wildlife agencies of the presence, potential presence, or absence of SJKF. This survey data will also be used to inform the Biological Resources Technical Report (BRTR) that will be submitted by the Applicant to Kern County to provide information characterizing the baseline conditions at the Project site in relation to SJKF. The surveys will also support an assessment of federal ESA and CESA compliance.

Project Description

The Project will include up to 500-megawatt (MW) of photovoltaic solar generation and a battery energy storage system (BESS) with a capacity of up to 2,000 megawatt-hours (MWhr). The Project will primarily consist of photovoltaic (PV) solar panels, a single-axis tracker system, inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector substation, generation interconnection (gen-tie) line, access

and the installation of up to 1,000-MWhr of battery energy storage (phase three) to begin construction in the first quarter of 2024 and become commercially operational in the fourth quarter 2024 (up to 12 months). The operational life of the Project is anticipated to be 35 years.

Pelicans Jaw Solar, LLC has prepared a Biological Survey Work Plan, which included the methods for focused special-status survey methods (Attachment C) that was submitted to the United States Fish and Wildlife service (USFWS) and the California Department of Fish and Wildlife (CDFW) on April 15, 2021 and discussed during a subsequent conference call on April 28, 2021.

On June 7, 2022, an addendum to the biological survey work plan was submitted to USFWS, CDFW, and Kern County to conduct camera studies across the entirety of the approximately 3,273-acre survey area (Attachment D). Camera studies were approved to replace the spot-lighting survey and scent station studies set forth in sections 2, 3, and 4 of the survey protocol (USFWS 1999). Camera studies occurred after pedestrian transect surveys to identify potential dens and help inform where cameras should be deployed.

Location

The Project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5, located approximately 2 miles to the west. The Project site and surrounding properties are currently vacant and have historically been used for cattle and sheep grazing for at least the last 10 years, from 2012 to 2022. Historically, prior to 2012, the Project site was used for agricultural cultivation (Wonderful Orchards – Samsung Solar Facility Previous 10 Year Farming History; Wonderful Orchards 2022).

Project location details were recorded from USGS topographic quadrangle and the County Assessor's Parcel Maps:

- **County**: Kern
- **U.S. Geological Survey (USGS) 7.5-Minute Quadrangle (Quad)**: West Camp and Lone Tree Well
- **Latitude, Longitude**: 38.473731, -121.184568 (centroid, decimal degrees).
- **Assessor Parcel Numbers (APNs)**: 044-101-02, 044-101-03, 044-101-05, 044-101-06, 044-102-01, 044-102-03, 044-102-05, 044-102-21, 044-102-22, 044-103-01 (portion of), 044-103-04 (portion of), 044-103-06 (portion of), 044-103-08, 044-103-09 (portion of), 044-103-09 (portion of), 044-110-01, 044-110-03, 044-110-25, 044-130-16, 044-130-18, 044-130-21, 044-130-39, 044-150-05, 044-150-17, 044-102-23, 044-101-16 (portion of), and 044-101-11 (portion of).

Methods

Pelicans Jaw Solar, LLC prepared a Biological Survey Work Plan, which included the methods for focused special-status survey methods (Attachment C) that was submitted to the United States Fish and Wildlife service (USFWS) and the California Department of Fish and Wildlife (CDFW) on April 15, 2021 and discussed during a subsequent conference call on April 28, 2021.

On June 7, 2022, an addendum to the biological survey work plan was submitted to USFWS, CDFW, and Kern County with a modification to conduct enhanced camera studies across the entirety of the approximately 3,273-acre survey area. Camera studies were approved to replace the spot-lighting survey and scent station studies recommended in sections 2, 3, and 4 of the survey protocol (USFWS 1999). Camera studies occurred after pedestrian transect surveys which identified potential dens and helped inform where cameras should be deployed. Because there was not a specific area with a significantly higher concentration of known or potential SJKF dens recorded during pedestrian surveys, cameras were evenly dispersed throughout the Project site.

Brock Ortega and Russell Sweet served as the Principal Investigators for the surveys (see Attachment A for resumes). Pedestrian transect surveys were conducted for the entirety of the 3,273-acre Project site. Surveys were conducted by qualified biologists following the protocol set forth in the San Joaquin Kit Fox Survey Protocol for the Northern Range (USFWS 1999). Surveys were conducted from June 15, 2022, through August 4, 2022. To provide 100% visual coverage for the survey area, transect widths were spaced between 30 and 100 feet depending on vegetation height and topography to facilitate the detection of dens and other sign. The locations of dens, sign, and small mammal burrows (prey availability) were documented and mapped.

In accordance with the survey protocol (USFWS 1999), surveyors did not identify a den as active unless camera images of SJKF use and/or direct observation were made. Additionally, surveyors did not identify a den as a known den unless evidence of SJKF use (i.e., scat, tracks, prey remains, fresh digging, claw marks, etc.) at any time had been observed at the den. Any subterranean hole that has entrances of appropriate dimensions (approximately 5 to 8 inches in diameter) for which evidence is insufficient to conclude that it is being, has been, or could be used by a SJKF was recorded as a potential den. In addition to surveying for SJKF, surveyors opportunistically surveyed for other sensitive species including kangaroo rat and San Joaquin antelope squirrel. Surveyors looked for burrows that show distinguishable San Joaquin antelope squirrel scat and looked for visual and audible signs of San Joaquin antelope squirrel.

Surveyors recorded the following data daily:

- Time of day, temperature, cloud cover, and wind speed; and

by a 12-inch nail driven through it. Approximately ¼- teaspoon dollops of scent lure were placed on a small rock next to the bait. Cameras were set approximately 10-12 feet from the bait station, focused on the bait station, and were oriented to minimize false triggers (e.g., away from direct sun, away from active roads, etc.). Each camera was deployed on site for a minimum of 10 consecutive nights and bait stations were refreshed midway through the deployment period. Cameras were set to take bursts of three photos, with no delays between triggering events. High-powered AA batteries and 32GB SD cards were used. Batteries were replaced when they reached less than 50% life.

Cameras and bait stations within Sections 4, 5, 6, 8, and Position 9-1 were set on September 23, 2022, refreshed on September 28, 2022, and removed on October 6, 2022. Cameras and bait stations within Sections 9 (beginning with 9-2), 15, 16, and 22 were set on October 7, 2022, refreshed on October 12, 2022, and removed on October 18, 2022 (Figure 3, *Camera Study Results)*.

SJKF Pedestrian Survey Results

A total of ten known SJKF dens were observed and recorded during the pedestrian transect surveys. Three of these dens were considered active based on camera images of SJKF use and direct observation. Additionally, 106 potential dens were observed and recorded.

During the pedestrian transect surveys, one SJKF was observed emerging from a den along an irrigation ditch that runs east-west across the northeast portion of the site on July 13, 2022. This den was marked as active (see Figure 2, *SJKF Survey and Camera Study Results*). Additionally, wildlife cameras were set-up at three known dens that showed SJKF sign (i.e., scat, tracks, prey remains, digging, etc.) during pedestrian transect surveys. The cameras were subsequently checked during camera studies. Photographs were captured of SJKF activity at two of the three dens (see Attachment F – Photo Log) for a total of three active dens.

Biologists covered approximately 268 linear miles of transects in order to provide adequate coverage of the entire 3,273-acre site. Other mammal species observed during the pedestrian surveys were limited to black-tailed jackrabbit (*Lepus californicus*).

Copies of the survey field logs have been included as Attachment E and are summarized in Table 1, below.

Table 1. Summary of San Joaquin Kit Fox Surveys, Personnel, and Conditions

Date	Time	Survey Type	Species Detections	Personnel	Site Conditions
6/15/22	7:37 AM – 12:35 PM	BUOW, SJKF, AMBA	Common side-blotched lizard	Grace Sanclemente, Shana Carey	68°F to 93°F, 0% cc, 0–3 mph winds

Date	Time	Survey Type	Species Detections	Personnel	Site Conditions
			lizard, loggerhead shrike, red-tailed hawk		
6/22/22	7:30 AM – 3:24 PM	BUOW, SJKF, AMBA	Mourning dove, horned lark, black-tailed jackrabbit	Heather Neldner, Joshua McLaughlin, Madison Bloom, Teodora Ungureanu	76°F to 96°F, 20%–70% cc, 2-15 mph winds
6/23/22	6:30 AM – 1:19 PM	BUOW, SJKF, AMBA	Horned lark, common side-blotched lizard, tiger whiptail	Grace Sanclemente, Heather Neldner, Joshua McLaughlin, Madison Bloom, Randy Thomas, Teodora Ungureanu	72°F to 97°F, 0%-10% cc, 1–5 mph winds
6/24/22	6:30 AM – 1:21 PM	BUOW, SJKF, AMBA	Horned lark, common side-blotched lizard	Grace Sanclemente, Joshua McLaughlin, Randy Thomas, Teodora Ungureanu	72°F to 97°F, 3–7 mph winds
6/28/22	6:22 AM – 1:17 PM	BUOW, SJKF, AMBA	Common side-blotched lizard, tiger whiptail	Teodora Ungureanu	72°F to 100°F, 2–6 mph winds
6/29/22	6:30 AM – 1:29 PM	BUOW, SJKF, AMBA	None recorded	Grace Sanclemente, Madison Bloom	70°F to 89°F, 0% cc, 1-5 mph winds
6/30/22	6:45 AM – 12:10 PM	BUOW, SJKF, AMBA	Common side-blotched lizard	Grace Sanclemente, Madison Bloom	68°F to 91°F, 0% cc, 0–4 mph winds
7/1/22	6:30 AM – 11:45 AM	BUOW, SJKF, AMBA	Common side-blotched lizard, horned lark, mourning dove, common raven, tiger whiptail	Grace Sanclemente, Madison Bloom, Shana Carey, Teodora Ungureanu	65°F to 86°F, 25% cc, 2–4 mph winds
7/7/22	6:28 AM – 12:10 PM	BUOW, SJKF, AMBA	Horned lark	Grace Sanclemente, Madison Bloom	65°F to 81°F, 0% cc, 1–7 mph winds

Date	Time	Survey Type	Species Detections	Personnel	Site Conditions
7/13/22	6:35 AM – 12:30 PM	BUOW, SJKF, AMBA	Horned lark, common raven, **San Joaquin kit fox**	Donovan Rose, Grace Sanclemente	69°F to 93°F, 0% cc; 1–6 mph winds
7/18/22	6:30 AM – 1:15 PM	BUOW, SJKF, AMBA	Common raven, horned lark, common side-blotched lizard	Grace Sanclemente, Joshua McLaughlin	76°F to 98°F, 10%-30% cc; 1–6 mph winds
7/27/22	6:44 AM – 12:12 PM	BUOW, SJKF, AMBA	Mourning dove	Madison Bloom, Tamara Bryant	70°F to 89°F, 0%-10% cc; 1–4 mph winds
7/28/22	6:33 AM – 11:55 AM	BUOW, SJKF, AMBA	None recorded	Madison Bloom	72°F to 92°F, 0%-10% cc; 0–3 mph winds
7/29/22	6:43 AM – 12:05 PM	BUOW, SJKF, AMBA	None recorded	Madison Bloom	71°F to 92°F, 10%-20% cc; 1–4 mph winds
8/1/22	6:48 AM-1:00 PM	BUOW, SJKF, AMBA	None recorded	Madison Bloom	77°F, 60% cc; 1 mph winds
8/3/22	6:28 AM – 1:01 PM	BUOW, SJKF, AMBA	None recorded	Madison Bloom	70°F to 95°F, 0% cc; 0–2 mph winds
8/4/22	6:30 AM – 12:01 PM	BUOW, SJKF, AMBA	None recorded	Madison Bloom	72°F to 95°F, 20% - 70% cc; 0-4 mph winds

Wildlife Camera Study Results

Qualified biologists reviewed all accrued camera data for evidence of SJKF presence in the Project site and cataloged the number and species by camera station. Following this review, a senior wildlife biologist performed spot checks of the data identification and looked at all canid photos. Of 80 total cameras set throughout the Project site, 58 cameras captured images of SJKF activity. Images were captured of a SJKF appearing to enter a den that had previously been marked as active at Location 9-7. SJKF activity was widely dispersed throughout the site (Figure 3, *Camera Study Results*). The number of SJKF individuals captured on camera is unknown, as some images of the same individuals can be captured at different locations and on different dates. What is known is that there is at least one pair of foxes using the site. The use of multiple dens could also lead to multiple foxes being observed on a site this large. Kit fox will often move from den to den over multiple days. Most often the moves are related to

into exiting ranges of other foxes (White et al. 1993Camera study results are summarized in Table 2, below. Attachment F – Photo Log provides representative photos of SJKF activity within the Project site.

Table 2. Summary of Wildlife Camera Study Results

Camera Position	Species Detections	SJKF Detected?
4-1	Black-tailed jackrabbit, coyote, San Joaquin kit fox, common raven	Yes
4-2	Coyote, black-tailed jackrabbit, San Joaquin kit fox	Yes
4-3	Coyote, common raven, black-tailed jackrabbit	No
4-4	Black-tailed jackrabbit, San Joaquin kit fox	Yes
4-5	N/A (camera malfunctioned)	No
5-1	San Joaquin kit fox, common raven	Yes
5-2	San Joaquin kit fox, burrowing owl, American crow, lizard species	Yes
5-3	Common raven, San Joaquin kit fox, coyote	Yes
5-4	San Joaquin kit fox, common raven	Yes
5-5	San Joaquin kit fox, common raven	Yes
5-6	San Joaquin kit fox, common raven	Yes
5-7	San Joaquin kit fox, common raven	Yes
5-8	N/A (camera malfunctioned)	No
5-9	None	No
5-10	Striped skunk, San Joaquin kit fox	Yes
5-11	Coyote, San Joaquin kit fox	Yes
5-12	Black-tailed jackrabbit, San Joaquin kit fox, striped skunk	Yes
6-1	Common raven	No
6-2	Common raven, coyote, San Joaquin kit fox	Yes
6-3	Common raven	No
6-4	Common raven, San Joaquin kit fox	Yes
6-5	Common raven, coyote, San Joaquin kit fox	Yes
6-6	Common raven, San Joaquin kit fox	Yes
6-7	San Joaquin kit fox, coyote, common raven	Yes
6-8	Common raven, San Joaquin kit fox	Yes

Camera Position	Species Detections	SJKF Detected?
8-3	San Joaquin kit fox, coyote, common raven, striped skunk, lizard species	Yes
8-4	Black-tailed jackrabbit	No
8-5	San Joaquin kit fox, coyote, common raven, lizard	Yes
8-6	San Joaquin kit fox, coyote, burrowing owl, bird species, lizard species	Yes
8-7	San Joaquin kit fox, coyote, American crow, common raven	Yes
8-8	San Joaquin kit fox, coyote, common raven	Yes
8-9	San Joaquin kit fox, coyote, common raven, kangaroo rat species, American badger	Yes
9-1	San Joaquin kit fox, common raven	Yes
9-2	San Joaquin kit fox, coyote, common raven, black-tailed jackrabbit	Yes
9-3	San Joaquin kit fox, coyote, common raven, bird species	Yes
9-4	San Joaquin kit fox, common raven	Yes
9-5	San Joaquin kit fox, common raven	Yes
9-6	San Joaquin kit fox, common raven, coyote, bird species	Yes
9-7	San Joaquin kit fox, coyote, American badger, common raven	Yes
9-8	San Joaquin kit fox, common raven, lizard species	Yes
15-1	Coyote, common raven, canine species, lizard species	No
15-2	None	No
15-3	Common raven	No
15-4	Coyote, American kestrel, bird species	No
15-5	Bird species, common raven	No
15-6	Coyote, common raven, western kingbird	No
16-1	Coyote, common raven, burrowing owl	No
16-2	San Joaquin kit fox, coyote, common raven	Yes
16-3	Western kingbird, San Joaquin kit fox, lizard species	Yes
16-4	San Joaquin kit fox, coyote, lizard species	Yes
16-5	Coyote, San Joaquin kit fox, common raven	Yes
16-6	Coyote, common raven	No

Camera Position	Species Detections	SJKF Detected?
16-15	San Joaquin kit fox, coyote, common raven	Yes
16-16	San Joaquin kit fox, common raven, black-tailed jackrabbit, bird species	Yes
22-1	Coyote, common raven, San Joaquin kit fox	Yes
22-2	Black-tailed jackrabbit, common raven, coyote, San Joaquin kit fox	Yes
22-3	Coyote, common raven	No
22-4	Coyote, common raven, San Joaquin kit fox	Yes
22-5	Burrowing owl, black-tailed jackrabbit, coyote, San Joaquin kit fox, kangaroo rat species	Yes
22-6	Coyote, common raven	No
22-7	Coyote, common raven	No
22-8	Coyote, common raven	No
22-9	Coyote, common raven, San Joaquin kit fox, black-tailed jackrabbit	Yes
22-10	Coyote, kangaroo rat species, San Joaquin kit fox, bird species	Yes
22-11	San Joaquin kit fox, black-tailed jackrabbit, greater roadrunner, coyote, kangaroo rat species	Yes

Western Burrowing Owl, American Badger, and Other Wildlife Species

In addition to surveying for SJKF, Dudek collected burrow and den resource data for all suitable burrow and den resources that met the criteria and sign of use by western burrowing owl (*Athene cunicularia*; BUOW) and American badger (*Taxidea taxus*; AMBA) within the survey area (Figure 2). No BUOW or AMBA observations were made during the pedestrian surveys. Seven potentially active BUOW burrows and 21 potentially active AMBA dens were observed and recorded. Surveyors were conservative when determining the species that created or potentially occupied the burrow or den. Burrowing owl burrows were mapped only when the distinct "white cast" or owl pellets were found in the immediate nearby area or burrow mouth. Badger dens were marked when claw marks were seen on each of the rounded lateral sides of a den entrance. The Burrow Points were assumed to be active or previously occupied by SJKF, BUOW, or AMBA based on visual indicators. However, minimal investigation was completed at the Burrow Points such as setting up and monitoring the burrows with wildlife cameras, using tracking medium such as diatomaceous earth, or other methods. Wildlife cameras from the wildlife camera study captured BUOW activity at four locations: 5-2, 8-6, 16-1, and 22-5. These locations are widely dispersed throughout the site. AMBA activity

CESA. Additionally, a desiccated kangaroo rat carcass was observed on July 8, 2022. The carcass could not be identified to species level due to the deteriorated condition of the carcass.

No nesting birds were observed on-site. Protocol level Swainson's hawk surveys were conducted March 2022 through June 2022 and have been reported separately.

No San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) were observed during the SJKF surveys. SJKF surveyors looked for dens that show distinguishable SJAS scat and looked for visual and audible signs of SJAS. No visual or audible signs of SJAS were detected during SJKF surveys.

Conclusion

During the combined SJKF pedestrian surveys and camera study, a total of three active dens and seven other known dens were recorded within the Project site. Dens were recorded as active only when SJKF activity was observed at the den, and known only when fresh dirt piled outside, fresh scat, or paw prints were observed. Additionally, a total of 106 potential SJKF dens were observed and recorded. Camera data showed SJKF activity widely dispersed throughout the Project site. Because SJKF are a mobile species with a wide range, the exact number of individuals or pairs residing within the Project site is unknown at this time and can change throughout any given year.

References

USFWS. 1999. "San Joaquin Kit Fox Survey Protocol for the Northern Range." Sacramento, California: Sacramento Fish and Wildlife Office. June 1999. Accessed November 2022. https://www.fws.gov/sites/default/files/documents/survey-protocols-for-the-san-joaquin-kit-fox.pdf

USFWS. 2020. "Species Status Assessment Report for the San Joaquin Kit Fox." Version 1.0.

USFWS. 2022. "San Joaquin Kit Fox." Accessed November 2022. https://www.fws.gov/species/san-joaquin-kit-fox-vulpes-macrotis-mutica

White, Patrick J et al. 1993. "Reproduction and Spacing Patterns of Kit Foxes Relative to Changing Prey Availability." Journal of Wildlife Management. Volume 57, Issue 4.

Wonderful Orchards. 2022. "Wonderful Orchards – Samsung Solar Facility Previous 10 Year Farming History. "

Attachment A

Resumes of Principal Investigators

Brock Ortega

PRINCIPAL, SENIOR WILDLIFE BIOLOGIST



Brock Ortega has 28 years' experience as a wildlife biologist. Mr. Ortega brings extensive expertise to his project teams in many areas, including mitigation monitoring, permitting issues related to wetland resources and threatened or endangered species, wildlife biology and management, ecological assessment, environmental impact assessment and mitigation, habitat remediation, endangered species management plan authorship, and project management. He has conducted more than 20,000 hours of focused and general wildlife surveys.

Mr. Ortega is a recognized qualified surveyor for a number of listed and rare amphibian and mammal species and has federal permits for several species. He is U.S. Fish and Wildlife Service (USFWS)–authorized as an arroyo toad (*Bufo californicus*) emergency handler; USFWS and California Department of Fish and Wildlife (CDFW)–qualified to survey San Joaquin kit fox (*Vulpes macrotis mutica*) throughout its range; and USFWS and U.S. Forest Service (USFS)–qualified to survey arroyo toad, California red-legged frog (*Rana draytonii*), mountain yellow-legged frog (*Rana muscosa*), and Coachella Valley fringe-toed lizard (*Uma inornata*) throughout their ranges.

Project Experience

Development

Master-Planned Community, Santa Barbara County, California. Supervisory biologist for environmental surveys. Conducted initial habitat assessments for vernal pools and special-status wildlife species, including California red-legged frog and tiger salamander (*Ambystoma tigrinum)*. Developed strategy for conducting vegetation mapping, jurisdictional wetland delineation, and focused surveys for special-status plants and animals on approximately 4,000 acres of land. The master-planned community project consists of a large development with several thousand homes with associated schools, professional offices, shopping areas, and safety facilities. Dudek is assisting with multiple

Education

Humboldt State University BS, Wildlife Biology and Management, 1991

Certifications

USFWS Federal 10a Survey Permit No. TE-813545-5:

- *California Gnatcatcher Surveys*
- *Least Bell's Vireo Surveys/Nest Monitoring*
- *Southwestern Willow Flycatcher Surveys*
- *Quino Checkerspot Butterfly Surveys*
- *Fairy Shrimp Surveys*
- *Mohave Ground Squirrel (Spermophilus (Xerospermophilus) mohavensis) Chief Survey Permit*

Professional Affiliations

American Ornithologists'

astutus), sensitive reptile and amphibian, and small mammal studies. Designed and implemented study design for wildlife corridor and ringtail cat studies. For the wildlife corridor study, reviewed 20 crossing locations under and in the vicinity of Interstate 5 along a 10-mile stretch of highway; directed review and analysis of over 16,000 camera station photographs from undercrossings; directed game trail field work; directed implementation of a project-wide geographic information systems (GIS)-based permeability modeling effort to determine preferred wildlife usage and movement across the site and estimate post-project wildlife usage and movement across the site. For the ringtail cat study, designed, sited, and directed implementation of a baited-station camera study that used a rotating group of 20 digital infrared/motion-sensing game cameras to determine the presence/absence of ringtail cat. More than 200 stations were run across the project area for a period of 16 days each. These camera stations were successful at capturing a variety of large, medium, and small mammals, along with a variety of avian species. Performed habitat assessments for sensitive amphibian and reptile species. Was responsible for designing and implementing both studies. Performed as a project biologist for this project, conducting focused surveys for arroyo toad, California red-legged frog, southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), yellow-billed cuckoo (*Coccyzus americanus*), sensitive butterflies, raptors, and general wildlife.

Mission Village Project, Newhall Land and Farming Company, Los Angeles County, California. Supervisory biologist for habitat assessments and focused surveys in 2007 for vernal pool species and California gnatcatcher on 520 acres of land. Assisted in study design, focused surveys, and analysis.

High Country Project, Newhall Land and Farming Company, Los Angeles and Ventura Counties, California. Lead biologist for habitat assessments and focused wildlife surveys in 2005 for vernal pool species, large mammal usage, California gnatcatcher, southwestern pond turtle (*Actinemys marmorata*), arroyo toad, owls, and special-status birds and reptiles on 23,000 acres of land. Determined species survey methods and biologist coverage areas, and performed analysis on the data collected.

4S Kelwood/4S Ranch, Newland Communities, San Diego County, California. Served as primary wildlife biologist for this project. Conducted habitat assessments and surveys for least Bell's vireo, California gnatcatcher, clapper rail (*Rallus longirostris*), southwestern pond turtle, and Quino checkerspot butterfly (*Euphydryas editha quino*). In addition, conducted a wildlife movement analysis across the property and monitored construction and removal of vegetation.

Trabuco Canyon, The Planning Center, Orange County, California. Lead wildlife biologist for preparation of biological technical reports for California Environmental Quality Act (CEQA) documentation for the Trabuco Canyon Project, which encompasses over 1,110 acres. Managing and conducting a 2.5-year wildlife corridor study program, focused surveys for least Bell's vireo and southwestern willow flycatcher, focused surveys for arroyo toad, habitat assessments and focused surveys for burrowing owl (*Athene cunicularia*), focused California gnatcatcher surveys, nesting raptor surveys, California red-legged frog surveys, and fairy shrimp surveys.

Yokohl Ranch, Yokohl Ranch LLC, Tulare County, California. Served as a lead wildlife biologist for the project to perform initial habitat assessments for pond turtles, ringtail cats, wildlife movement, and mammals. Dudek is preparing biological resources reports and an environmental impact report (EIR) for an approximately 4,800-acre site that will be developed within the 36,000-acre Yokohl Ranch located in Tulare County. The planned development area lies within valley, foothill, and Sierra Nevada mountain habitats.

Energy

Hazard Tree Removal Project, Southern California Edison (SCE), San Bernardino and San Jacinto Mountains, Riverside and San Bernardino Counties, California. Project manager responsible for SCE's Hazard Tree Removal Project in the San Bernardino National Forest and surroundings. Responsible for conducting biological surveys along all SCE circuits within the San Bernardino and San Jacinto Mountains prior to removal of bark beetle–infested trees, drought-stressed trees, and other damaged trees from the vicinity of its poles, lines, and other facilities. The project area encompasses 106 square miles, an estimated 62,000 acres of tree removal, 22,000+ power poles, and 538 linear miles of utility lines. Responsibilities include serving as project manager, obtaining weekly survey priorities, devising work schedules, coordinating with SCE personnel and USFS biologists regarding site-specific sensitivities, conducting biological surveys of all lines within San Bernardino National Forest, and writing biological assessments for the USFS.

Pole and Utilities Replacement Project, SCE, Riverside and San Bernardino Counties, California. Served as project manager and primary wildlife biologist. Responsibilities included conducting habitat assessments for sensitive wildlife species at multiple locations in Riverside and San Bernardino counties. These locations range from the Santa Ana Mountains and western valleys of Riverside County to San Jacinto Mountain, Palm Springs, Coachella Valley, the southern slopes of San Bernardino County, San Bernardino Mountains, and Apple Valley region of San Bernardino County.

Daggett Ridge Wind Farm EIR/EIS, AES Wind Generation (Daggett Ridge Wind Farm LLC), San Bernardino, California. Served as the lead biologist for the Daggett Ridge Wind Farm project responsible for coordination with the Bureau of Land Management (BLM) and survey design and reporting. Dudek was contracted by Daggett Ridge Wind Farm LLC, a subsidiary company of AES Wind Generation, to prepare required CEQA and National Environmental Policy Act (NEPA) documentation associated with the proposed Daggett Ridge Wind Farm located on public (BLM) and private land in San Bernardino County, California. Dudek initially worked with the County of San Bernardino (California lead agency) staff and the BLM (federal lead agency) to prepare a project management plan to produce a detailed project task schedule, detailed outline of the draft environmental impact report/environmental impact statement (EIR/EIS), a public outreach plan, and a mechanism for regular project updates. Dudek then prepared a combined Environmental Assessment/Initial Study (EA/IS) to focus the environmental analysis required for the EIR/EIS to critical resource areas.

Desert Renewables Energy Conservation Plan, California Energy Commission, Southern California. Served as a project biologist, providing analysis and coordination with species experts. Dudek was selected by the California

San Diego Gas and Electric (SDG&E) Cleveland National Forest Electric Safety and Reliability Project, California Public Utilities Commission, San Diego County, California. Serves as the lead biologist for the project. Responsible for coordination with the USFS, determination of species impacts, study design, and monitor management. Dudek was contracted by the California Public Utilities Commission (CPUC) to prepare environmental documents pursuant to CEQA and NEPA for the SDG&E Cleveland National Forest Electric Safety and Reliability Project. SDG&E proposed to submit an application to the USFS for a Master Special Use Permit, which combined approximately 70 special-use permits and other approvals for various electric transmission and distribution facilities located throughout the Cleveland National Forest (CNF) into one master permit under one 20-year authorization. The project also proposed activities on non-CNF lands, including private lands that are near the CNF and fall under the jurisdiction of the CPUC and other federal lands not under the jurisdiction of the USFS. For activities on private lands, SDG&E submitted an application for a Permit to Construct in accordance with CPUC General Order 131-D. The project will also include maintenance, replacement or relocation, and operation of existing, active 69-kilovolt (kV) transmission and 12 kV distribution lines; installation or removal of 12 kV distribution lines; maintenance, relocation, or construction of access roads; and maintenance or widening of existing rights-of-way (ROWs) or acquisition of ROWs. The power lines included in the project traverse CNF land, BLM land, California State Parks land, County of San Diego land, tribal land, and private land holdings.

Mountain View IV Wind Energy EIR/EIS Project, City of Palm Springs/Bureau of Land Management, Riverside, California. Served as lead project biologist for the project. Dudek prepared a joint EIR/EIS for the City of Palm Springs and the BLM. The project consists of two development options for a 1,659-acre site. The first development option consists of 49 1,000-kilowatt (kW) turbines. The second includes 58 850 kW turbines. Both alternatives involve the installation of support facilities, including gravel-surfaced access roads, an electrical substation, and an electrical transmission line to connect the turbines to the substation. The project also included a compatibility analysis with the recently adopted Coachella Valley Multi-Species Conservation Plan. The project site is within the City of Palm Springs corporate boundaries; however, the western half of the project site is composed of BLM land, and the eastern half is private land under the management of the Coachella Valley Water District (CVWD). Consultation and coordination with both lead agencies (City of Palm Springs and BLM) and CVWD played a vital role in the planning process and ultimate certification of the EIR/EIS. The Final EIR/EIS was ultimately certified and adopted by the lead agencies in December 2008.

Borrego Solar Project Characterization Study, Confidential Client, San Diego, California. Served as lead project biologist for analysis. Dudek was contracted to provide environmental services for the 187-acre Borrego Springs Solar Project in San Diego County, California. Located on former agricultural lands, the project would include an interconnection to a 69 kV Borrego Substation located 1.3 miles away, along Borrego Valley Road. The characterization study will be used to determine site constraints, affecting schedule and possible delays associated with development and environmental permitting. The study was presented showing methods used to determine site constraints, findings that discuss both engineering and environmental constraints, and a site

Solar Farm Initial Site Constraints and Fatal Flaw Analysis, Concentrix Solar Inc., San Diego County, California. Serves as lead project biologist for analysis. Dudek was contracted by Concentrix Solar Inc. to conduct an initial site constraints analysis for a proposed solar renewable energy development within the County of San Diego, near the unincorporated community of Boulevard. In addition to conducting a regulatory/environmental constraints survey for this project, Dudek's environmental scientists provided a comprehensive "fatal-flaw" environmental analysis that will allow Concentrix Solar to better make key decisions about developing other solar energy sites within the County of San Diego. To date, these projects include nearly 1,000 acres in San Diego County and involve a variety of resource issues.

Southern California Edison Demolition of Mohave Generating Station, Destrier Inc., Laughlin, Nevada. Served as project manager and lead biologist for project. Dudek subcontracted to Destrier Inc., of Irvine, California, to assist in the demolition process (i.e., providing quality assurance and technical support) for the demolition of Southern California Edison's (SCE's) Mohave Generating Station, located in Laughlin, Nevada, near the Colorado River. Dudek initially assisted Destrier Inc. in the Demolition Bid Review process, reviewing contractor bids regarding responsiveness, completeness, and technical approach. The review included bid compliance with state, federal, and local permits and regulations related to asbestos abatement, hazardous materials waste transportation and disposal, soil and samplings. Later, Dudek provided biological coordination regarding a variety of federally listed threatened and endangered species and other special-status species issues including desert tortoise (*Goperus agassizii*), Yuma clapper rail, bald eagle (*Haliaeetus leucocephalus*), golden eagle, burrowing owl, relict leopard frog (*Lithobates onca)*, gila monster (*Heloderma suspectum)*, razorback sucker (*Xyrauchen texanus)*, and bonytail chub (*Gila elegans)*. Dudek was requested to provide recommendations to avoid attractive nuisance habitat on site, to identify potential nesting issues related to the structure, and to coordinate with the USFWS regarding listed species – obtaining a Section 10 concurrence letter from the local USFWS office in less than 2 months.

Tule Wind Project As-Needed Environmental Services, Iberdrola Renewables Inc.; San Diego County, California. Serves as lead biologist and task manager. Dudek was initially contracted to conduct a habitat assessment for Quino checkerspot butterfly at the Tule project site in McCain Valley, in southeastern San Diego County. According to USFWS guidelines, habitat assessments are required to identify suitable vegetation structure and determine the presence/absence of suitable host and nectar plant species used by the Quino. Areas identified as suitable habitat then required focused surveys, according to USFWS protocol, by Dudek's USFWS-permitted biologists. Dudek conducted Quino surveys within the Cuyapaipe, BLM, and state lands along approximately a 10-mile, 1,000-foot-wide corridor of proposed wind turbines and access roads, as well as two, 10-acre substation sites and a 100-foot-wide corridor for 10 miles in McCain Valley, proposed for overhead transmission lines. The survey results mapped and characterized the vegetation communities using GIS technology, and all suitable Quino habitat was mapped, identified, and described in a project report. The Quino survey work was later expanded to include approximately 400 additional acres located on Rough Acres Ranch north of McCain Road, and an additional 1,000-foot-wide corridor designated as an anticipated "action area" for wind turbine projects.

Solar Power at Santee Lakes Recreational Preserve, Padre Dam Municipal Water District, San Diego County, California. Served as lead project biologist. The Padre Dam Municipal Water District (District) used an innovative approach to incorporate solar paneling into their Santee Lakes Recreational Preserve park. The District proposed to construct recreation vehicle (RV) ports over three RV parking areas to support solar paneling. A feasibility study was conducted that indicated that solar panels would be cost effective through a "Power Purchase Agreement" and would benefit the District, park users, and the surrounding community by providing clean energy to the power grid. Dudek prepared an IS that determined that a negative declaration would be the appropriate environmental document for this project. A key factor of the project was that it would provide the District with renewable, clean energy into the power grid, which would help reduce the District's overall carbon emissions at the preserve. A key issue analyzed and determined to be less than significant was the visual charter and light and glare for the neighboring residences from the structures and solar paneling.

Municipal

As-Needed Biological and Cultural Resources Surveys and Monitoring, Department of Parks and Recreation, County of San Diego, California. Served as project manager, providing as-needed consulting services for biological and cultural resources. Services included conducting Phase I cultural resources surveys; baseline biological surveys; habitat, wildlife corridor, and sensitive plant and animal species monitoring; and habitat restoration. Prepared technical reports, developed vegetation management plans, and developed public access plans providing analysis and recommendations for potential multiple-use trails and staging areas. Responsible for oversight, wildlife survey design, and staffing for the following projects:

- Baseline Biodiversity and Cultural Survey for the Pascoe, Helix-Lambron, and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve. This project included preparation of a vegetation management plan for the approximately 313-acre area in Escondido, California.
- Baseline Biodiversity and Cultural Survey for the Escondido Creek Preserve. This project included preparation of a vegetation management plan for the approximately 346-acre site in the Elfin Forest.
- Baseline Biodiversity and Cultural Survey for the San Luis Rey River Park. This project included preparation of a trails assessment and vegetation management plan for the approximately 460-acre site in the northern San Diego County area.
- Tijuana River Valley Regional Park Habitat Restoration Project. This 33-acre site is located in southern San Diego County.
- Lusardi Creek Perennial Invasive Vegetation Control and Coastal Sage Scrub Seed Imprinting Project. This project included preconstruction surveys for nesting birds. This approximately 2-acre site is located in the San Dieguito River Valley.
- Santa Ysabel West Perennial Invasive Vegetation Control Project. This approximately 0.26-acre area is a mitigation site in eastern San Diego County.

- Baseline Biodiversity and Cultural Survey for the Potrero/Mason Properties. This project included preparation of a vegetation management plan and access plan. The survey was conducted over an approximately 505-acre area in the Barratt Junction area. This work is still in progress.

Resource Management

LaBorde Canyon Off-Highway Vehicle Park Study, Riverside County, California. Served as the project manager and lead biologist for the 2,600-acre study. Was responsible for scheduling ten biologists and one subconsultant to conduct habitat mapping, sensitive plant surveys, Stephens' kangaroo rat (*Dipodomys stephensi*) and San Bernardino kangaroo rat (*Dipodomys merriami parvus*) habitat assessments and trapping, installation and implementation of 20 reptile trap arrays, raptor nest surveys, and general wildlife surveys.

San Luis Rey Bike Path, City of Oceanside, San Diego County, California. Served as project manager and primary wildlife biologist. This project was located at the western end of the San Luis Rey River, near Interstate 5. Conducted vegetation mapping and focused surveys for California gnatcatcher and a variety of sensitive plant species. Processed environmental studies in support of the City of Oceanside's Mitigated Negative Declaration and wrote the habitat restoration plans for the project.

Annual Gnatcatcher Surveys, Trump National Golf Club, City of Rancho Palos Verdes, California. Conducted gnatcatcher surveys over approximately 100 acres of restored coastal sage scrub and coastal bluff scrub habitat within and surrounding the golf course on the Palos Verdes Peninsula. The goal of the surveys was to determine the breeding status of paired birds, territory number, size and location, breeding success, and cowbird predation in accordance with the Ocean Trails Habitat Conservation Plan. Prepared annual monitoring reports that summarized population dynamics and identified threats to gnatcatchers.

Western Riverside County Multiple Species Habitat Conservation Plan (MSCHP), Riverside County Transportation and Land Management Agency, Riverside County, California. Served as one of the primary biologists for the Western Riverside MSHCP. Responsible for writing species accounts and coverage assessments for all of the covered reptiles, amphibians, insects, and crustaceans within the planning area. Also responsible for analyzing various wildlife crossing and corridor issues and determining potential methods for safely conveying wildlife across planned roadways. This involved extensive review of current state-of-the-art wildlife underpasses and overpasses within California, nationally, and globally. This also included visiting various sites, such as the Interstate 80 underpasses east of Sacramento. Also participated in implementation of the MSHCP, reviewing proposed projects for consistency with the MSHCP.

West Coyote Hills Field Closure and Development Project, Chevron USA Production Company and Chevron Pacific Coast Homes, City of Fullerton, Orange County, California. Assisted Chevron in obtaining a federal Section 4(d) permit to allow closure of the approximately 600-acre oil field. This field was home to over 46 pairs of California gnatcatchers. Managed environmental compliance regarding endangered species issues and included regular

Environmental Surveys of Simon and Mount Gower Preserves, County of San Diego, California. Served as senior wildlife biologist. Provided direction on wildlife survey design and directed staff with regard to survey locations and various wildlife studies, including avian point-count stations, herp arrays, game camera locations, and small mammal trapping, within the 617-acre Simon Preserve and the 1,522-acre Mount Gower Preserve located in Ramona, California.

Stephens' Kangaroo Rat Habitat and Fire Management Plan, Riverside County Habitat Conservation Agency, Riverside County, California. Project manager responsible for preparing a Stephens' kangaroo rat Habitat and Fire Management Plan for the Riverside County Habitat Conservation Agency reserves in Lake Mathews and Steele Peak. Conducted interviews of habitat managers, species experts, and wildlife agency personnel. Coordinated expected fire behavior modeling for the reserve in order to develop a fire protection strategy and brush management plan. Established a suite of monitoring protocols and measures to track population levels and contributed habitat statistics to use for future management decisions. Conducted live-trapping in eleven 90-meter by 90-meter grids that included 49 traps per grid. Established a series of stratified grids across the reserve and field-verified the sites. Tested surrogate burrow count methodologies and sampled vegetation using a modified relevé method.

Baseline Biological Surveys of the Otay Ranch Preserve – Salt Creek and San Ysidro Mountain Parcels, County of San Diego, California. Serving as project manager, staffed the project and attended preserve owner/manager meetings as needed. Provided direction on wildlife survey design and directed staff with regard to survey locations and various wildlife studies, including butterfly surveys, avian point-count stations, herp arrays, game camera locations, and small-mammal trapping, within an approximately 1,350-acre area located in Chula Vista, California.

Transportation

Stormwater Best Management Practice (BMP) Pilot Study and Statewide Wet Basin Projects, California Department of Transportation (Caltrans), Statewide, California. Served as project manager for this BMP pilot study that began in 1999 to account for potential endangered species issues related to implementation of BMPs in San Diego and Los Angeles counties. Initially evaluated all proposed structures to determine which had the potential to become attractive nuisances to sensitive wildlife species. Potentially sensitive BMPs were then monitored over a 2-year period to determine their true impact on sensitive species. During this timeframe, Worked with Caltrans, project engineers, scientists, regulatory agencies, and local conservation groups to modify maintenance and facility management regimes to avoid impacts to a wide variety of sensitive species. As a result of this project, it was determined that one type of BMP was at greater risk of becoming an attractive nuisance to threatened and endangered species. At Caltrans' request, formulated a project strategy and initiated discussions with the regulatory agencies to determine a strategy to permit installation of the BMPs on a statewide level. It was determined that the best method would be to employ the Safe Harbors Act or possibly pursue a habitat conservation plan under Section 7 or 10 of the Endangered Species Act. Currently studying potential BMP sites throughout the entire state and is in contact with the pertinent regulatory agencies and field offices toward devising an effective permitting strategy.

alternatives and ranges from approximately 1.7 kilometer (1.1 mile) to 6.5 kilometers (4 miles) in width and is approximately 52 kilometers (32 miles) in length. In addition, was responsible for devising a cost-effective helicopter survey method for potential fairy-shrimp-occupied pools after rain events, reducing potential survey time from days to 3 hours. Was also responsible for siting and design of at least 15 major and minor wildlife undercrossings and 3 wildlife overcrossings to accommodate reserves in western Riverside County.

Rancho Santa Fe Road Widening and Bridge Replacement Project, City of Carlsbad Public Works Department, San Diego County, California. Served as a primary wildlife biologist for the project and conducted focused surveys for California gnatcatcher.

Water/Wastewater

As-Needed Contract, City of San Diego Engineering and Capital Projects Department and Water Utilities Department, San Diego County, California. Completed environmental impact studies for several sewer and storm drain projects under the City of San Diego as-needed contract. Wrote several mitigation monitoring plans and processed documentation for CEQA compliance. Personally managed approximately 8 of the 80 projects.

As-Needed Biological Services 2000–2005, San Diego Metropolitan Wastewater Department, City of San Diego, California. Served as primary biologist. Responsibilities included conducting habitat assessments and focused surveys for arroyo toad, California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, fairy shrimp, and other species.

San Diego Pipeline No. 6, Metropolitan Water District (MWD) of Southern California, Riverside and San Diego Counties, California. The project consisted of a 30-mile-long, 9-foot-diameter water conveyance pipeline. Began work on this project as a project monitor, with responsibilities including conducting habitat assessments for at least 10 federally and state-listed plant and wildlife species, conducting biological studies, coordinating monitoring activities, and monitoring site investigations for the early project activities. Transitioned into project manager for the approximately $1.5-million contract, and was responsible for providing environmental support services to the MWD necessary to support revised environmental documents for the pipeline. All tasks for this contract met aggressive scheduling requirements and were within budget.

Tributary Areas 3 and 8 Environmental Monitoring, U.S. Marine Corps Base Camp Pendleton, San Diego County, California. Served as project manager and primary biologist. Implemented categorical exclusion permit requirements supporting installation of an upgraded sewer system over a portion of the base. This required writing a monitoring and compliance plan; initiating habitat assessments over portions of the system which had the potential to affect least Bell's vireo, California gnatcatcher, and arroyo toad; and monitoring activities on a regular basis in accordance with the monitoring plan.

Non-Potable Water Distribution System, Yucaipa Valley Water District, San Bernardino and Riverside Counties, California. Served as lead biologist for wildlife studies within San Timoteo Canyon. Responsibilities included

monitoring plan writing, and wetland permitting. Recently completed two projects that involved widening existing channels in the Salt Creek and Perris Valley areas: 4- and 2-mile-long study areas, respectively. These projects involved conducting biological studies (i.e., vegetation mapping, wetland delineations, and focused surveys for California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, arroyo toad, Quino checkerspot, and sensitive plants), relocating burrowing owls, reporting, and assisting with resource agency permitting as required. Many of the projects required coordination with resource agencies.

Russell Sweet

Biologist

Russell Sweet is a biologist with 18 years' experience working with special-status and endangered species throughout California, with an emphasis on species in the Central Valley. Mr. Sweet is responsible for biological survey data collection and plant and animal species identification, with an emphasis on rare, threatened, endangered, and sensitive species and vegetative communities. He has conducted numerous common and special-status species surveys and habitat impact analyses in Kern, Kings, Tulare, Fresno, San Bernardino, Orange, Riverside, Inyo, and Los Angeles Counties, and performed focused surveys for San Joaquin kit fox (Vulpes macrotis mutica), burrowing owl (*Athene cunicularia*), Nelson's antelope squirrel (*Ammospermophilus nelsoni*), blunt-nosed leopard lizard (*Gambelia sila*), least Bell's vireo (*Vireo bellii pusillus*), and California gnatcatcher (*Polioptila californica californica*).

Mr. Sweet has written numerous environmental impact reports (EIRs), environmental impact statements (EISs), biological assessments (BAs), and natural environment studies in accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). He has also authored wetland delineation documents. Mr. Sweet's project management experience includes overseeing budgets and personnel, coordinating schedules, and liaising with agencies, such as the California Department of Fish and Wildlife (CDFW), U.S. Fish and Wildlife Service (USFWS), and Bureau of Land Management (BLM).



Russell Sweet

California State University, Bakersfield

BS, Biology, 1999

Certifications

Southwestern Willow Flycatcher Workshop Certificate

Clean Water Act, Section 404, Nationwide, and Other Specialized Permits

Desert Tortoise Council 10th Annual Surveying, Monitoring, and Handling Techniques Certificate

Introduction to Arcview GIS 3.x

CDFW SCP, SCIN No. SC-000145

Professional Affiliations

California Native Plant Society, Kern County Chapter

Wildlife Society, Western Section

Project Experience

Development

Landfill HCP Implementation, County of Tulare, California. As lead biologist and USFWS-approved San Joaquin kit fox surveyor, conducted track plate/scent station, camera station, and spotlighting for San Joaquin kit fox. Conducted additional surveys for burrowing owl. Surveys were conducted according to protocol measures approved by USFWS, CDFW, and a

Kern County Sports Park EIR, County of Kern, California. As lead biologist, prepared the biological resources section of the Kern County Sports Park EIR for residential development. Conducted and evaluated BAs performed by contracted employees, as well as the potential impacts to special-status flora and fauna inhabiting the project area and vicinity.

Amargosa Creek Draft EIR (DEIR), City of Lancaster, California. As biologist, prepared the biological resources section of the Amargosa Creek DEIR for residential development. Evaluated BAs conducted by contracted employees, as well as the potential impacts to special-status flora and fauna inhabiting the project area and vicinity. Mapped and characterized all on-site and adjacent plant communities.

Fisherman's Village Renovation DEIR, City of Marina del Rey, California. As biologist, prepared the biological resources section of the Fisherman's Village Renovation DEIR as part of the Marina del Rey Specific Plan. Evaluated BAs conducted by contracted employees, as well as the potential impacts to special-status flora and fauna inhabiting the project area and vicinity.

Tejon Mountain Village, Tejon Ranch Company, County of Kern, California. As lead biologist, managed and conducted jurisdictional delineations for the Tejon Mountain Village development in the City of Lebec. Analyzed 141 stream segments in the Castac Lake Watershed using hydrogeomorphic methodologies functional assessment results.

Walmart Distribution Center, Walmart, County of San Bernardino, California. As biologist, conducted formal protocol and pedestrian burrowing owl surveys for the Walmart distribution center in the City of Barstow. Dusted and visually tracked potential burrowing owl burrows for 4 nights. Excavated burrows using hand tools and scoping methods. Consulted with CDFW prior to excavation. Survey areas consisted of Creosote bush scrub and rubber rabbitbush (*Ericameria nauseosa*). Observed one burrowing owl.

Education

Jurisdictional Delineation, California Lutheran University, City of Thousand Oaks, California. As biologist, conducted jurisdictional delineations and prepared a subsequent jurisdictional delineation report as part of the university master plan in the City of Thousand Oaks.

On-Call Biological Services, California State University, Bakersfield, City of Bakersfield, California. As on-call, lead biologist, conducted threatened and endangered species surveys prior to ground-disturbing activities, prepared biological reports for surveys conducted prior to ground-disturbing activities, and conducted San Joaquin kit fox den monitoring.

Energy

Lost Hills Solar EIR, County of Kern, California. As biologist, conducted a peer review of the biological resources report and authored the biological resources chapter of the EIR.

Line 119 Biological Monitoring, Southern California Gas Company, Pyramid Lake, California. As biologist and

Line 103 Biological Monitoring, Southern California Gas Company, Coles Levee Ecosystem Preserve, City of Tupman, California. As biologist and biological construction monitor, provided biological resources services for the proposed pipeline replacement project in the Coles Levee Ecosystem Preserve. Biological services included pre-construction surveys for sensitive plant and animal species. Conducted daily biological construction monitoring throughout the project. Provided pre-construction environmental training to construction crews. Work area was within a CDFW preserve where several sensitive plant and animal species live.

Central California Clean Energy 500-kilovolt (kV) Transmission Line Project for Proponent's Environmental Assessment, Pacific Gas and Electric Company (PG&E), County of Kern, California. As biologist, provided biological resources services for newly proposed PG&E transmission alignments. Performed level II blunt-nosed leopard lizard surveys in accordance with protocol methodologies approved and accepted by USFWS and CDFW.

San Joaquin Valley Road Betterment for the Tulare River Bore, Southern California Gas Company, County of Tulare, California. As lead biologist, conducted special-status species, common species, nesting bird, and habitat surveys prior to project implementation. Conducted bird surveys for potential nesting cliff swallows (Petrochelidon pyrrhonota) and barn swallows (Hirundo rustica) under the Tulare River Bridge on three separate visits prior to pipeline bore. Observed numerous nests for both cliff swallow (5) and barn swallow (10) species. As lead monitor during bore project, monitored bird activity during construction.

Tehachapi Renewable Transmission Project (TRTP) Regulatory Compliance, Southern California Edison (SCE), Counties of Kern, San Bernardino, and Los Angeles, California. As jurisdictional delineator, provided regulatory delineations services for the construction of segments 4 through 11 of the TRTP, an approximately 174-mile transmission line project. Evaluated stream reaches and potential wetlands that may have impacts during commission of the proposed TRTP project. Collected impact analyses for future permitting issues for the proposed project.

TRTP Biological Consulting Services, SCE, Counties of Kern, San Bernardino, and Los Angeles, California. As lead biological monitor, provided biological resources services for the construction of segments 4 through 11 of the TRTP, an approximately 174-mile transmission line project. Liaised between client/owner and biological monitors in the field; scheduled biologists in the field; and managed daily logs, special-status animal reporting, and weekly meetings with biology staff and client. Led focused surveys for a number of key species, including burrowing owl, and provided support for surveys for coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher (Empidonax traillii extimus), and rare plants. Provided input for client team working within desert kit fox (Vulpes macrotis arsipus) habitat, including survey techniques, den monitoring, den scoping, and excavation.

Burrowing Owl Surveys. Provided biological resources services for the construction of segments 4 through 11 of the TRTP. Led focused surveys for a number of key species, including the burrowing owl, with approximately 25+ owls observed during duration of burrowing owl surveys conducted over 2 years throughout the project.

- **California Gnatcatcher Surveys.** Montebello Hills Oilfield is densely populated with California gnatcatchers and is considered critical habitat for the species. Provided support for protocol and focused California gnatcatcher surveys with a permitted biologist. Surveyed during the day and included playback of

- **Riparian Bird Support**. Conducted focused, protocol-level surveys for least Bell's vireo in the morning and included auditory and visual detections. Detected more than 20 least Bell's vireos.
- **Lead Biological Monitor for Segment 7.** As lead biological monitor for segment 7 of the TRTP project, liaised between SCE, construction monitors, and the environmental coordinator. Worked closely with the client and contractors to ensure appropriate biological monitors were scheduled and prepared on a daily basis, based on the biological resources and project requirements. Mentored and ensured biological monitors were well versed in the biological opinion, the mitigation monitoring plan, streambed alteration agreements, and the Incidental Take Permit, as well as other management plans. Reviewed and submitted daily monitoring reports. Coordinated with other biologists to conduct focused and protocol surveys to ensure data was up to date and submitted to clients in a timely manner.

Elk Hills Oil Field Environmental Services, Occidental of Elk Hills Inc., County of Kern, California. Served as biologist. Provided seven years of environmental services support according to the master services agreement and biological opinion for Occidental of Elk Hills Inc. production of crude oil and natural gas from the Elk Hills Oil Field in western Kern County. Assisted in compliance with CEQA/NEPA; state and federal Endangered Species Acts; construction monitoring for well-pads, pipelines, transmission lines, well abandonment, and oil cleanup; annual monitoring efforts for San Joaquin kit fox, blunt-nosed leopard lizards, spotlighting, small mammal trapping, nesting bird surveys, floristic surveys and vegetation monitoring; as well as state and federal air, water, and waste regulations.

Coles Levee Ecosystem Preserve, Aera Energy, County of Kern, California. As biologist, conducted and assisted annual compliance biological monitoring for blunt-nosed leopard lizard, San Joaquin kit fox, Nelson's antelope squirrel, and endangered/sensitive plants, including small mammal trapping efforts for federal and state endangered Tipton kangaroo rat (Dipodomys nitratoides nitratoides). Implemented GPS/geographic information system (GPS/GIS) for annual compliance biological monitoring, ongoing and new projects, and general maintenance. Conducted threatened and endangered species training and surveys prior to any ground-disturbing activities. Monitored construction efforts in compliance with CDFW and USFWS regulations.

Master Services Agreement, Exxon/Mobil, County of Kern, California; Master Services Agreement, Chevron/Texaco, County of Kern, California; Master Services Agreement, Vintage Production California LLC, County of Kern, California. As biologist, assisted in compliance with CEQA and NEPA and state and federal endangered species acts, construction, habitat assessments, and reclamation for 7 years. Conducted special-status species and habitat surveys prior to project implementation, developed mitigation measures, monitored for project compliance, and conducted threatened and endangered training sessions with contractors.

Recreation

Polo Community Park Biological Constraints Survey, North of the River Recreation and Park District, City of Bakersfield, California. As lead biologist/project manager, provided biological resource services for the development of an approximately 40-acre park. Performed biological constraints analysis for potential biological sensitive resources, a 14-day pre-construction survey, and subsequent technical reports. Conducted biological surveys for San

Transportation

EIR/EIS for Interstate 15 Widening from San Bernardino to Interstate 215, Riverside County Transportation Commission/HDR Engineering, County of Riverside, California. As biologist, provided biological resources services for the widening of the Interstate 15 corridor. Led focused surveys for burrowing owl.

State Route (SR-) 178 Widening Biological Surveys, City of Bakersfield/Parsons Brinckerhoff, City of Bakersfield, California. As biologist, provided biological resources services for the widening of SR-178, a Thomas Roads Improvement Program project in conjunction with the California Department of Transportation (Caltrans). Performed jurisdictional delineations and focused surveys for a number of key species, including burrowing owl, San Joaquin kit fox, and rare plants.

SR-99/Cartmill Avenue Overpass Expansion Project, City of Tulare in Conjunction with Caltrans, County of Tulare, California. As biologist and USFWS-approved San Joaquin kit fox surveyor, provided biological resources services for the expansion of north- and southbound ramps from Cartmill Avenue to SR-99, in addition to the expansion of Cartmill Avenue from two lanes to four lanes over SR-99. Conducted biological pre-construction surveys for San Joaquin kit fox, burrowing owl, and nesting birds. Monitored identified San Joaquin kit fox dens for 3 consecutive nights using tracking medium spread at the den entrance. No occupied dens were observed. Conducted burrowing owl focus surveys at potential burrows for 4 days in accordance with CDFW burrowing owl protocols. Conducted environmental awareness training for all personnel prior to work and ongoing as work continued.

Hageman Road Extension Environmental Documentation, City of Bakersfield/Lim and Nascimento Engineering Inc., City of Bakersfield, California. As biologist, provided biological resources services for the Hageman Road extension, a Thomas Roads Improvement Program project, in conjunction with Caltrans. Performed protocol surveys in accordance to USFWS- and CDFW-approved methodologies for burrowing owl and wrote the draft BA and the Natural Environment Study.

Water/Wastewater

Machado Lake Ecosystem Rehabilitation Project, City of Los Angeles, California. Project was to improve water quality, enhance habitat, and promote recreation. Included dredging; excavation of contaminated soils in the lake; installation of water quality control measures; removal of invasive vegetation and aquatic wildlife species; and planting of native upland, riparian, wetland, and aquatic vegetation. As project manager/CDFW-approved designated biologist, oversaw biological monitoring, including construction monitoring, nesting bird surveys, bat surveys, least Bell's vireo, and invasive vegetation removal; scheduled construction and archaeological monitors; managed budget; and consulted with CDFW and USFWS. Wrote technical survey reports and annual reports pursuant to a CDFW Section 1602 Streambed Alteration Agreement, a USFWS biological opinion, Army Corps of Engineers Nationwide Permits, and a Regional Water Quality Control Board 401 certification.

Wilmington Drain Multiuse Project, City of Los Angeles, California. Project was to improve water quality, reduce trash, enhance habitat, and promote recreational opportunities. Included excavation of contaminated soils in the channel, removal of invasive vegetation and aquatic wildlife species, and planting of native upland and

Taft Prison Wastewater Treatment Plant Special-Status Surveys, City of Taft, California. As project manager/lead biologist, provided biological resource services for the development of approximately 178 acres for agricultural production. Analyzed biological constraints for potential biological sensitive resources and wrote subsequent technical reports. Conducted biological surveys for San Joaquin kit fox, burrowing owl, Nelson's antelope squirrel, nesting birds, blunt-nosed leopard lizard, and rare plants.

McFarland Wastewater Treatment Plant, City of McFarland, California. Served as lead biologist. Conducted biological constraints analysis for the expansion of the wastewater treatment plant. Performed surveys for nesting birds, special-status plants, and San Joaquin kit fox. Conducted threatened and endangered species training and surveys prior to ground-disturbing activities. Monitored construction efforts in compliance with CDFW and USFWS regulations.

Visalia Wastewater Treatment Plant Expansion, City of Visalia, California. As lead biologist, conducted biological constraints analysis for the expansion of the wastewater treatment plant. Performed surveys for nesting birds, special-status plants, burrowing owl, and San Joaquin kit fox. Surveys were conducted in various habitats, such as agricultural fields, orchards, open space, and urban settings.

Relevant Previous Experience

- ICF International, Lead Biologist, Bakersfield, California, August 2008–July 2015
- Ram Environmental Engineering, Biologist, Bakersfield, California, June 2008–August 2008
- Impact Sciences Inc. Biologist/Project Manager, Bakersfield, California, September 2006–June 2008
- Quad Knopf Inc. Associate Senior Environmental Scientist/Biologist, Bakersfield, California, March 2000–September 2006

Conference Presentations

- "Blunt-nosed Leopard Lizard." 2007. Workshop at The Wildlife Society. Served as Field Exercise Instructor, Level II Surveyor.

Specialized Training

- Swainson's Hawk (*Buteo swainsoni*) Training, The Wildlife Society, Sacramento-Shasta Chapter, 2014
- Rare Pond Species Survey Techniques Workshop, California Tiger Salamander (Ambystoma californiense), Western Pond Turtle (Actinemys marmorata), California Red-Legged Frog (Rana draytonii), Laguna de Santa Rosa Foundation and The Wildlife Project, 2013
- Ecology and Conservation of California Bats, San Francisco State University, Sierra Nevada Field Campus, 2012
- New Zealand Mud Snail (*Potamopyrgus antipodarum*) Workshop, Santa Monica Baykeeper, 2007

Attachment B

Resumes of Biologists Conducting Pedestrian Surveys

Madison Bloom

COMPLIANCE MONITOR

Madison Bloom is a compliance monitor with a background in wildlife ecology, ornithology, botany, plant ecology & taxonomy, mammalogy, zoology, environmental ethics, and herpetology. Ms. Bloom possesses wildlife technique skills including mist netting, quadrat surveys, point counts, small mammal trapping, GIS, invasive plant removal, bird banding, handheld GPS, wildlife surveys, Jepson manual, orienteering, and studying animal tracks and plaster molds.

Education

California State Polytechnic University, Humboldt

BS, Wildlife Conservation, 2021

Project Experience

Solar Power Project, Confidential Client, Kern County, California. Conducted pre-construction surveys on a 300 MW future solar facility for nesting birds, small mammals, San Joaquin kit fox (*Vulpes macrotis mutica*), American badger (*Taxidea taxus),* and Swainson's hawk (*Buteo swainsoni*). Performed biological monitoring during construction activities and consulted with construction personnel on Project mitigation measures and governing documents. Implemented protective measures for resources on site, including no-disturbance buffers and monitoring. Relocated wildlife from the construction area and completed daily monitoring reports. (2022)

Previous Working Experience

The Hatchet House, Arcata, California. Throwing Coach and Bartender. Instructed customers on how to properly throw axes; relayed and enforced safety rules; safely managed crowds to keep a safe environment; created and encouraged a happy experience; maintained a clean and neat workspace; performed various opening and closing duties on a daily basis; poured and served beverages. (2021-2022)

The Crabs Ballpark, Arcata, California. Concessions Worker. Greeted patrons as they entered the park; worked the register collecting payment for snacks and raffle tickets; moved objects up to 50 pounds; maintained a clean and neat workspace; performed various opening and closing duties on a daily basis; traveled throughout the park selling raffle tickets and assisting patrons. (2019-2021)

Humboldt State University, Arcata, California. Student Clubs Coordinator. Handled the University Clubs social media pages; greeted students and faculty as they entered the office or Zoom call; organized student events on

North of the River Recreation and Park District, Bakersfield, California. Lifeguard. Mentored staff to ensure smooth adoption of new customer service program; ensured compliance with pool policies and procedures; offered suggestions to staff to maximize safety awareness; maximized customer satisfaction by greeting all pool patrons with courtesy and resolving and issues promptly; promoted a safe and interactive environment for club clients and members; cultivated positive relationships with participants by interacting with them during group fitness classes. (2016-2018)

Volunteer Experience

- MARE Riding Center for Children with Disabilities
- Humboldt Wildlife Care Center
- Bakersfield Food Bank
- Bakersfield Animal Shelter

Tamara K. Bryant

BIOLOGIST

Tamara K. Bryant is a Biologist with 11 years of biological monitoring experience in California, working with a variety of species including blunt-nosed leopard lizard, desert tortoise, desert kit fox, orange-throated whiptail, arroyo toad, spadefoot toad, California tiger salamander, and California red-legged frog. Ms. Bryant has worked in several riparian and desert habitats and responsibilities have included conducting species presence/absence and pre-construction surveys, assisting clients in maintaining environmental compliance, monitoring sites for hazardous materials/sediment erosion control, and construction monitoring.

Education

Coastal Carolina University, Conway, South Carolina

BS, Marine Science and Biology

Certifications

CDFW Flat-Tailed Horned Lizard Handling Permit, El Centro, CA, 2011

Hazardous Waste Operations and Emergency Response (OSHA HAZWOPER) Certification, 2010

Transportation Worker Identification Credential (TWIC), 2010

Project Experience

Solar Power Project, Confidential Client, Riverside County, California. Surveyed, monitored, and protected natural resources and delineated environmental constraints during the construction of a solar field within desert tortoise, desert kit fox, and burrowing owl habitat. Monitored surveillance cameras and documented sensitive species during construction activities. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, CDFW, CEQA, NEPA, and ESA.

San Gabriel Reservoir Project, Los Angeles County, California. Surveyed, monitored, and protected natural resources and delineated environmental constraints during the cleanout of the San Gabriel Reservoir within Santa Ana sucker and riparian habitat. Monitored surveillance cameras and documented sensitive species during construction activities. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, CDFW, CEQA, NEPA, ESA, and Public Works.

Pelicans Jaw Hybrid Solar Project, Kern County, California. Conducted blunt-nosed leopard lizard hatchling and adult surveys to provide biological findings/constraints in previously disturbed habitat for the proposed construction of a solar field. Surveys were conducted in accordance with CDFW Survey Protocol Guidelines. Observed and documented other sensitive wildlife within the San Joaquin Valley.

lines within riparian areas and other sensitive habitat. Monitored hazardous tree removals. Coordinated monitoring schedule, documented and reported oil spills/hazardous releases, and conducted SWPPP inspections. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, NEPA, ESA, and the Reporting Program for Liberty Utilities.

San Diego Gas & Electric and Sempra Utilities Cleveland National Forest Wood to Steel Project, San Diego County, California. Lead Biological Monitor. Monitored and protected natural resources and endangered species during the underground installation of 230 kV transmission lines and overhead installation of 12 kV and 69 kV transmission lines within arroyo toad and other sensitive habitat. Coordinated monitoring schedule. Submitted daily environmental field inquiries on mitigation actions in accordance with the Migratory Bird Treaty Act, CPUC, USFWS, BLM, CDFW, ESA, and the Reporting Program for the SDG&E Powerlink.

SCE Santa Barbara County Reliability Project, Riverside County, California. Biological Monitor. Monitored and protected natural resources and delineated environmental constraints during the construction of substations and the installation of 500 kV transmission lines. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, NEPA, and ESA.

Panoche Valley Solar Project, San Benito County, California. Conducted blunt-nosed leopard lizard hatchling and adult surveys to provide biological findings/constraints in previously disturbed habitat for the construction of a solar field. Surveys were conducted in accordance with CDFW Survey Protocol Guidelines. Observed and documented other sensitive wildlife within San Benito County.

California Department of Transportation Freeman Gulch Widening Project, Kern County, California. Biological Monitor. Surveyed, monitored, and protected natural resources and delineated environmental constraints during the widening of State Route 14 and State Route 178 within Mojave ground squirrel, desert tortoise, desert kit fox, and burrowing owl habitat. Monitored surveillance cameras and documented sensitive species progress during construction. Attended construction meetings and provided biological updates and concerns to construction personnel. Coordinated monitoring schedule. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, CEQA, NEPA, and ESA.

SCE Tehachapi Renewable Transmission 500 kV Underground East and West Transition Stations Project, San Bernardino County, California. Biological Monitor. Provided general environmental compliance coordination and support for project construction activities. Acted as onsite environmental compliance monitoring liaison. Coordinated construction activities with Professional Electric Construction Services (PECS) for compliance with environmental related measures identified in the project's environmental permits and other mitigation requirements. Made recommendations about mitigating actions to alleviate non-compliance issues. Attended the daily tailboard briefings and discussed any potential impacts that may constrain the day's construction activities.

sensitive biological resources. Provided WEAP trainings as needed. Submitted daily environmental field inquiries on mitigation actions in accordance with environmental regulations.

SCE DPV2 Transmission Line, Riverside County, California. Desert Tortoise/Biological Monitor. Monitored and protected natural resources and delineated environmental constraints during the construction of substations and the installations of 500 kV transmission lines within desert tortoise, desert kit fox, Mojave fringe-toed lizard, and burrowing owl habitat. Submitted daily field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, NEPA, ESA, and the Reporting Program for SCE Devers-Palo Verde 2 Transmission Line.

McCoy Solar Project and SCE DPV2 Transmission Line Project, Riverside County, California. BLM Compliance Monitor. Monitored and documented the level of compliance on BLM land during the construction of the McCoy Solar Farm. Interacted directly with BLM representatives and on-site biologists and submitted daily environmental compliance inquiries on construction activities, compliance issues, and mitigation resolutions. Monitored and protected natural resources and delineated environmental constraints during the construction of substations and the installation of 500 kV transmission lines.

SDG&E and Sempra Utilities Sunrise Powerlink, San Diego County, California. Monitored and protected natural resources and endangered species during the underground installation of 230 kV transmission lines within sensitive habitat. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, NEPA, ESA, and the Reporting Program for the SD&E Powerlink.

Marine-Related Project Experience

Offshore Desalination Reactivation Project, Santa Barbara, California. Global Diving Sensitive Marine Species and Turbidity Monitor. Conducted sensitive marine species monitoring (SMSM) during all offshore construction. Notified crew of Marine Mammal Species that enter the project area in accordance with the CCC and City of Santa Barbara. Prior to the day's activities, conducted a pre-activity visual survey of the area directly associated with the vessel transit corridor and offshore project area. Documented and reported Marine Species sightings and notified the crew of observations within the 30 ft. work zone. Collected turbidity readings during various underwater activities.

British Petroleum MC 252 Deepwater Horizon Spill Response, Louisiana Department of Wildlife and Fisheries (LDWF) Monitoring Program, Bourg, Louisiana. Environmental Field Technician. Conducted site assessments of potentially oiled areas in marsh environments while obtaining and preserving water, sediment and tissue samples for analysis using Standard Operating Procedures. Documented and monitored field locations and submitted daily inquires on observed site conditions, activities, and incidents.

National Oceanic and Atmospheric Administration (NOAA) Vessel Pisces Water Quality Cruise. Operated the CTD

National Marine Fisheries Service, Northwest Observers, Dutch Harbor, Alaska. North Pacific Groundfish Observer. Managed the North Pacific fisheries through the independent data collection of unsorted catch obtained on commercial fishing vessels. Performed vessel safety inspections to ensure all equipment and permits are up to date. Recorded vessel fishing locations and identify and account for all catch. Submitted daily inquiries on sampled catch, vessel wildlife interactions and field incidents.

Specialized Training

- Fish and Wildlife Service Desert Tortoise Authorized Biologist Training Course, Primm, NV, 2017
- The Southern California Wildlife Society Arroyo Toad Field Ecology Workshop, San Diego, CA, 2017
- Laguna de Santa Rosa Foundation Amphibians and Reptiles Monitoring Workshop, Santa Rosa, CA, 2014
- Wetland Delineation Course, San Diego, CA, 2013
- Hazard Analysis Training for work in Energized Substations, 2012
- Fish and Game Desert Tortoise Training Workshop, Riverside County, CA, 2011

DUDEK

Shana Carey

ASSOCIATE BIOLOGIST

Shana Carey is a biologist with 4 years' experience in biological research, conservation, and environmental consulting throughout Southern and Central California and Nevada. Ms. Carey's work in California's Central Valley allowed her the opportunity to study and have hands-on experience with many threatened and endangered species, including blunt-nosed leopard lizard (*Gambelia sila*), Blainville's horned lizard *(Phrynosoma blainvillii)*, San Joaquin kit fox (*Vulpes macrotis mutica*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), and a variety of birds of prey, including Swainson's hawk (*Buteo swainsoni*) and Golden eagle (*Aquila chrysaetos*). She has worked on a variety of projects in both the private and public sectors including wildlife and botanical surveys, avian mortality research, construction and stormwater channel monitoring, technical report and proposal writing, vegetation identification and mapping, and jurisdictional delineations.

Education

California State University, Bakersfield
BS, Biology, 2015

Professional Affiliations

American Ornithologists' Union

Center for Biological Diversity

National Audubon Society

Society for Conservation Biology

The Wildlife Society – Western Section, Southern California Chapter

Project Experience

Development

Pala Mesa Project, Beazer Homes Holding Corporation. Fallbrook, California. Conducted biological and construction monitoring across several years from project inception through the present for a planned residential housing development in the community of Pala Mesa in northern San Diego County. Responsibilities include communicating with the county and agencies regarding protocol compliance, ensuring Best Management Practices (BMPs) are followed, and ensure that no unauthorized biological impacts are made to the environmentally sensitive area around the perimeter of the site which support breeding pairs of California gnatcatchers (*Polioptila californica)* as well as other wildlife. Also conducted surveys for and nest monitoring of California gnatcatchers within an active construction buffer zone.

Laurel Creek, Encore Housing Opportunity Fund, Vista, California. Conducted biological construction monitoring for a housing development at the Laurel Creek construction site, inspection of native plant restoration areas, stormwater BMP spot checks, and review of construction activities along a jurisdictional stream channel and associated riparian corridor that bisects the project site.

Proctor Valley Village 14, Jackson Pendo Development, Chula Vista, California. Conducted Hermes copper butterfly (*Lycaena hermes*) surveys as well as host plant habitat mapping.

Otay Ranch Village Resort Project, Baldwin & Sons LLC/Otay Lakes LP, Otay Ranch, California. Served as a field biologist and conducted a field survey for various species of butterfly adults and larvae, most notably the endangered Quino checkerspot butterfly (*Euphydryas editha quino*) and its host plant (*Plantago erecta*) under the supervision of permitted biologists in preparation for ongoing host plant mapping.

Grapevine Project, Tejon Ranch Corporation, Kern County, California. Assisted in literature search to examine, collect, and organize relevant documents and references in order to help complete an extensive and detailed biological resources technical report with multiple appendices.

Energy

Jacumba Valley Ranch, Baywa Solar Projects LLC, San Diego County, California. Performed a habitat assessment and associated protocol surveys for burrowing owl, as well as conducted spring season rare plant surveys at the proposed solar site.

Confidential Project, Santa Barbara County, California. Conducted focused surveys, mapping, and population estimations for Gaviota tarplant (*Deinandra increscens* ssp. *villosa*) in addition to general rare plant surveys, and native grassland mapping within the project site in 2018 and 2019.

Imperial Solar Energy Center West, CSolar IV West, LLC, Seeley, California. Served as field lead from 2016 through 2018 in charge of coordinating and conducting various research trials including carcass persistence and searcher efficiency, migration monitoring, and mortality studies on site. Collected, organized, and managed data from various trials, as well as installed and monitored camera traps to identify predators and scavengers on site. Trained staff and fellow biologists on proper procedures and protocols to conduct trials and monitoring. Helped create electronic form to streamline on-site data entry and collection.

Desert Tortoise Surveys, First Solar, Inc., Rosamond/Willow Springs, California. Working with a team of biologists, conducted protocol-level surveys for Desert Tortoises (*Gopherus agassizii)* by walking transects spaced 10–15 meters apart across a proposed solar development site to determine the presence or absence of the species and their sign.

Resource Management

Confidential Project, Boulevard, California. Conducted several types of avian surveys, vegetation mapping, rare plant surveys, Quino checkerspot butterfly habitat assessment and host plant mapping, and Peninsular bighorn sheep *(Ovis Canadensis nelsoni)* surveys around Boulevard, California. Birds were detected and identified

Casey's June Beetle Project, U.S. Fish and Wildlife Service (USFWS), Riverside County, California. Assisted with the 2018 population-wide trapping surveys for the federally endangered Casey's June Beetle (Dinacoma caseyi) in Palm Springs. Responsibilities included installing and disassembling trapping stations, as well as handling and documenting beetles for recapture to help inform species population dynamics and range.

Arroyo Toad Annual Monitoring Surveys, The Reserve at Rancho Mission Viejo, San Juan Capistrano, California. Assisted in focused annual monitoring surveys for arroyo toad *(Anaxyrus californicus)* in the San Juan Creek watershed. Identified arroyo toad tadpoles at different development stages among other Southern California frog and toad species including western toad *(Anaxyrus boreas)*, pacific treefrog *(Pseudacris regilla)*, and the introduced, invasive bullfrog *(Lithobates catesbeianus)*. Recorded data regarding presence/absence and habitat type and quality. The monitoring program aims to satisfy the USFWS monitoring requirements and actively track the presence and abundance of sensitive species on preserve lands.

Avian Bridge Mortality Study, City of San Diego Public Utilities Department, San Diego, California. Conducted avian bridge avoidance surveys at Sunset Cliffs Blvd. and West Mission Bay Dr. bridges, both of which span the San Diego River within a very urban area. Surveys were done to help determine the current impact of vehicle traffic on birds which pass over and under, as well as vehicle-strike rate, and collision avoidance measures of birds. Data was used to help inform and plan the future bridge design and renovations.

Buena Vista Lagoon Ridgway's Rail Monitoring, Aquatic Environments, Inc., Carlsbad, California. Conducted daily Ridgway's rail surveys (both on foot and using an aquatic vehicle) within the project area, east and west of the I-5 freeway, in preparation for vegetation removal maintenance. The adjacent staging area was also surveyed. Several rails were detected on multiple occasions within the lagoon over the course of the project.

Avian Point Counts, Rancho Mission Viejo, Orange County, California. Conducted avian point count surveys throughout various regions of south Orange County including within Ronald W. Caspers Wilderness Park, Thomas F. Riley Wilderness Park, and several suburban areas. Identified and recorded birds both visually and acoustically, as well as mapped their locations and determined population demographics.

Fanita Ranch Wildlife Usage/Corridor Study, Santee, California. Installed and monitored wildlife camera stations throughout Fanita Ranch in order to determine frequently used wildlife routes. Cameras were located in various habitats and locations in order to determine and better understand how and where wildlife was traversing territories and environment. Cameras were maintained and checked on a regular basis.

Fanita Ranch Coastal Cactus Wren Nesting Survey, Santee, California. Conducted nesting survey to map areas of suitable habitat (cactus patches) for coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*), as well as mapped all nests found on site.

Water/Wastewater

Stadium Wetlands Mitigation Project, City of San Diego Public Utilities Department, California. Monitored the vegetation removal of both native and non-native vegetation in preparation for planned wetlands restoration just south of SDCCU stadium along the San Diego River. Also conducted nesting bird and raptor surveys and aided crew in invasive species identification and removal.

Stormwater Division Emergency Channel Maintenance Biological Monitoring, Michael Baker International, San Diego, California. Responsible for monitoring the removal of vegetation (both native and non-native), sediment, and other materials from city stormwater channels to help prevent flooding. Communicated with city and contractor crews so that they understand the limits of work, boundaries of channels, and ensure compliance with California Department of Fish and Wildlife (CDFW), U.S. Army Corps of Engineers, and Regional Water Quality Control Board permits and conditions. Ensured that BMPs are upheld and coordinated with engineers and supervisors on site to anticipate and swiftly resolve concerns. Wrote site observation reports and assisted with follow up reporting and document preparation after completion of maintenance in each channel.

San Dieguito Pump Station Construction Monitoring, Santa Fe Irrigation District, Rancho Santa Fe, California. Responsible for weekly site visits to monitor, document, and ensure netting is intact and properly surrounding pumping station building and several bays on the bank of San Dieguito Reservoir. The purpose of netting was to prevent swallows and other birds from nesting under eaves and other parts of the structures. If a tear in the netting is detected, it is documented and the construction manager is notified to schedule a repair. General field data, photos, and site observations were recorded upon each visit.

Saxony Pump Station Nesting Bird Monitoring, TC Construction Company, Encinitas, California. Visited pump station several times per week to conduct surveys for nesting birds on site and in the immediate, accessible vicinity. Also ensured that construction activities were not impacting sensitive habitat or species, as well as ensured compliance with the Migratory Bird Treaty Act. Provided efficient, timely feedback through daily monitoring reports using Dudek's data collection software Kerata.

Vegetation Identification and Mapping, Granite Development LLC, San Bernardino and San Diego Counties, California. Assisted biologist and botanist to identify native and non-native vegetation in a variety of wetland areas, including stormwater channels, and classify vegetation alliances using both Sawyer and Keeler-Wolf and Oberbaur Vegetation Classification Systems. Assisted with mapping vegetation communities using GIS.

Relevant Previous Experience

Volunteer at Life Net Nature Avian Monitoring Research Project in Reserva Las Tangaras, Mindo, Ecuador. Fieldwork was conducted in December 2017 with fellow volunteers and researchers under supervision of Dr. Dusti Becker in order to study the survival patterns, habitat mosaic, and species composition of the tropical montane

Scientific Aide at CDFW. Worked with environmental scientists in a research capacity on a comprehensive, multiyear demographic study of blunt-nosed leopard lizards (*Gambelia sila*) in different areas of the San Joaquin Valley. Protocol-level transect surveys were conducted almost daily during the 2015 blunt-nosed season (May–November) allowing her to accumulate more than 150 hours of survey experience, as well as hands-on experience catching, assessing, measuring, weighing, PIT-tagging and toe-clipping adult and hatchling blunt-nosed leopard lizards. Blainville's horned lizards (*Phyrnosoma blainvillii*) were also included in the demographic study and data was collected from this species in the same manner. In addition, small mammal trapping for conservation and research purposes was conducted regularly at multiple sites throughout the San Joaquin Valley. Some of the species commonly caught during trapping efforts included the endangered Tipton kangaroo rat, endangered giant kangaroo rat (*Dipodomys ingens*), Heermann's kangaroo rat (*Dipodomys heermanni*), San Joaquin pocket mouse (*Perognathus inornatus*), and deermice (*Peromyscus maniculatus*). Demographic data was collected from these trapping sessions and individuals were marked for future identification purposes. Participated in establishing bait stations and trail cameras in marshy areas of the southern San Joaquin Valley to monitor the endangered Buena Vista lake shrew (*Sorex ornatus relictus*) and other species. Assessed habitat and set out cover boards in order to attract the Northern California legless lizard (*Anniella pulchra*) for research purposes with Dr. Ted Papenfuss. Assisted in a variety of other tasks including radio telemetry, residual dry matter analysis, biological driving surveys, data collection, and analysis.

Seasonal Field Technician and Blunt-Nosed Leopard Lizard Surveyor, McFaddin Endangered Species Assessment. Conducted protocol-level biological surveys (often on mitigation land) and documented conditions for the endangered blunt-nosed leopard lizard and other special-status species in the southern San Joaquin Valley. Conducted a nesting bird survey and small mammal den/burrow surveys (particularly flagging and tagging GPS coordinates of burrow locations of Dipodomys species) in the presence of burrowing owls (*Athene cunicularia*).

Scientific Aide, Endangered Species Recovery Program (ESRP), California State University, Stanislaus. Worked closely with biologists from ESRP to live trap urban San Joaquin kit foxes infected with sarcoptic mange within the city of Bakersfield. Data was taken for each captured fox and its health condition was assessed and documented. For mild cases of mange, foxes would be field treated then released. For severe cases, foxes would be transported to a local veterinary facility for treatment. Camera and bait stations were established around town and regularly checked to monitor health of fox populations.

Small Mammal Trapping Coursework, California State University, Bakersfield, California. Live-trapped small mammals, most notably *Dipodomys* species, for weeklong intervals at several locations surrounding Bakersfield. Conducted trapping sessions under supervision of university professor Dr. Germano for research and conservation purposes. Baited traps each evening and checked at sunrise. Collected data and measurements from each individual and marked in case of recapture.

Volunteer and Student, Facility for Animal Care and Treatment, California State University, Bakersfield, California

Specialized Training

- Arroyo Toad Workshop, The Wildlife Society Southern California Chapter, April 2019. Potrero Creek, California.
- Southwestern Desert Bat Class, Dr. Patricia Brown, October 2018, Desert Studies Center (DSC) at Soda Springs (Zzyzx), California.
- Wetland/Riparian Plant Identification, California Native Plant Society, August 2018, Tijuana River National Estuarine Research Reserve, Imperial Beach, California
- Basic Wildlife Rehabilitation Course, International Wildlife Rehabilitation Council, February 2018. Anaheim, California.
- Worker Environmental Awareness Program training, First Solar Inc., January 2018. Seeley, California.
- West Coast Sea Turtle Workshop, January 2018, Aquarium of the Pacific, Long Beach, California.
- Mid-Coast Annual Environmental Review training, Mid-Coast Transit Constructors, January 2017–2019. San Diego, California.
- Advanced Camera Trapping Workshop, The Wildlife Society Western Section, November 2017. San Rafael, California.
- CNPS Vegetation Mapping Workshop, California Native Plant Society, March 2017. Redlands, California.
- Introduction to Desert Tortoises and Field Techniques Workshop, November 2016. Ridgecrest, California.
- The Wildlife Society Conference, Western Section Annual Conference, February 2016. Pomona, California.
- Mid-Coast Corridor Transit Project Training, February 2016. San Diego, California.
- North County Transportation District, Right-of-Way Training, January 2016. Oceanside, California.

DUDEK

Joshua McLaughlin

BIOLOGIST

Joshua McLaughlin is a Biologist with 6 years' professional experience conducting wildlife surveys for numerous species, including special-status species such as desert tortoise (*Gopherus agasizii*), San Joaquin kit fox (*Vulpes macrotis mutica*), burrowing owl (*Athene cunicularia*), and Swainson's hawk (*Buteo swainsoni*). Mr. McLaughlin has experience providing restoration services in the San Joaquin River Valley as well as biological monitoring services on large solar arrays. Mr. McLaughlin also has technical experience in data analysis and map creation.

Education

Gordon College, Wenham, MA
BS, Biology, 2016

Certifications

CPR and First Aid

Pesticide Applicator Categories C & F

Professional Affiliations

The Audubon Society (Fresno Chapter)

The Wildlife Society (Western Chapter and San Joaquin Chapter)

Project Experience

Pelicans Jaw Hybrid Solar Project, Kern County, California. Conducted protocol-level blunt nosed leopard lizard surveys and burrow surveys, and wildlife camera installation for sensitive species within suitable habitat in Kern County. Resources were collected and updated digitally using ArcGIS Collector.

Solar Power Project, Confidential Client, Kern County, California. Conducted pre-construction surveys for nesting birds, small mammals, San Joaquin kit fox (*Vulpes macrotis mutica*), American badger (*Taxidea taxus),* and Swainson's hawk (*Buteo swainsoni*). Performed biological monitoring during construction activities and consulted with construction personnel on project mitigation measures and governing documents. Implemented protective measures for resources on site, including no-disturbance buffers and monitoring. Relocated wildlife from the construction area and completed daily monitoring reports.

Solar Project, Confidential Client, Kern County, California. Biological monitor on an approximately 760 MW photovoltaic solar project in Kern County. Conducted line transect and clearance surveys for sensitive species including desert tortoise, desert kit fox, and burrowing owl prior to construction activities. Monitored and recorded breeding/nesting behavior of avian species during construction activity according to the Migratory Bird Treaty Act and associated permit requirements. Monitored known desert tortoise habitat during construction activities to minimize and avoid adverse impacts to sensitive species and associated habitat. Facilitated construction personnel compliance with federal, state, and local environmental regulations and associated permits.

Heather Neldner

BIOLOGIST

Heather Neldner is a biologist with 5 years' experience working in a field environment surveying and monitoring. Species experience includes blunt-nosed leopard lizards (*Gambelia sila*), various other herpetofauna, small mammals, invertebrates, freshwater fish, birds and vascular plants. Ms. Neldner also has an extensive list of field techniques experience including camera trapping, seining, use of Sherman traps, VHF radio telemetry, spotlighting, mist netting, lizard noosing, cover boards, point counts (audio & visual), use of ID keys, ear-tagging, shell marking, field necropsies, toe clipping, blood drawing, pitfall traps, and various transect techniques.

Project Experience

Strauss Wind Farm, Santa Barbara County, California. Approved as a biological monitor to oversee all aspects of construction. Conduct preconstruction surveys for American badger, burrowing owl, and San Diego desert woodrat. Conduct nesting bird and roosting bat surveys and ensure on-site compliance with all project permits.

Rancho Seco Solar II, Sacramento, California. Field Lead. Coordinated with contractor and subcontractors to determine number and location of ground-disturbing activities; assigned biological monitors to tasks. Communicated compliance concerns with project manager and worked with on-site team to develop solutions. Provided biological monitoring & pre-construction surveys for California tiger salamander (CTS) and other sensitive species (e.g. WPT, western spadefoot, burrowing owl, Swainson's hawk). Authorized to handle and relocate CTS and WSF found within the project site

Wildfire Emergency Hazard Tree Risk Assessment and Mitigation Monitoring Project, Highways 9 and 236, 2020 CZU Lightning Complex, Santa Cruz County, California. Helped assess the risk posed by wildfire damaged trees by identifying those trees that are an immediate hazard, recommend mitigation, and monitor mitigation efforts along Highways 236 and 9.

Education

California Polytechnic State University, San Luis Obispo, CA

BS, Biological Sciences, Field Biology emphasis, 2017

California Polytechnic State University, San Luis Obispo, CA

MS, Biological Sciences (Physiology), in progress

Professional Affiliations

NSF Fellow, American Society of Ichthyologists and Herpetologists, Society for the Study of Amphibians and Reptiles, Western Section of the Wildlife Society, Luis Stokes Alliance for Minority and Underrepresented Student Participation in STEM, American Academy for the Advancement of Science, Cal Poly Wildlife Club

Posters and Presentations

H. Neldner,M. Westphal,I. Moore,K.Ivey,N. Gaudenti,and E. Taylor."Hormonal Herps: Stress and Physiology of an Endangered Lizard (*Gambelia sila*)."

G. Kolluru, E.Wojan, S.Bertram, C.Castillo, H. Neldner, J.Fitzgerald and N.Carreiro."Sexual selection via male-male competition in a polymorphic poecilid fish.

H. Neldner, M. Westphal, I. Moore, K.Ivey, and E. Taylor. "Blunt-nosed Bling: Are radio collars a stressor to Blunt-nosed Leopard Lizards (*Gambelia sila*)?"

H. Neldner, M. Westphal, I. Moore, K.Ivey, and E. Taylor. "Hormonal Herps: Stress and Physiology of an Endangered Lizard (*Gambelia sila*)"

M. Kepler, H. Neldner, A. Skeate, S. Clement, and E. Taylor. "Designing Primers f or Assessing NR3C1 Methylation in *Thamnophis sirtalis infernalis*"

G. Garcia, J.T. Nolan, H Crowell, H. Neldner, and E. Taylor. "Snake-Eat-Snake World: Quantifying Pacific Rattlesnake (*Crotalus oreganus*) Responses to King snake (*Lampropeltis californiae*) Stimuli"

H. Neldner, J. Budke, and G. Kolluru. "Do Females Pick a Winner? Social Eavesdropping in the Poeciliid Fish *Girardinus metallicus*"

H. Neldner, J.Budke and G. Kolluru. "Social Eavesdropping and its Effects on Mate Choice in a Tropical Freshwater Fish"

C. Castillo, H. Neldner, and G. Kolluru. "Sexual selection in a Cuban Poeciliid fish: the role of color and aggression in mating success"

Grants and Fellowships

- World Congress of Herpetology 9 Student Scholarship
- National Science Foundation Graduate Research Fellowship ($136,000)
- Frost Undergraduate Research Program ($2000)

Donovan Rose

ENVIRONMENTAL COMPLIANCE AS-NEEDED MONITOR

Donovan Rose is an Environmental Compliance As-Needed Monitor with 8 years' professional experience as an environmental scientist specializing in pre-construction surveys, wetland delineation, fire restoration, biological monitoring, and monitoring of potential habitat of State and Federal protected species and species of special concern. Specific species include California tiger salamander, California Red Legged Frog (*Rana draytonii*), Foothill Yellow Legged Frog (*Rana boylii*), Western Pond Turtle (*Actinemys marmorata*), Blue Elderberry (*Sambucus mexicana*), and various avian species documented by the USFWS, California Department of Fish and Wildlife (CDFW), Migratory Bird Treaty Act (MBTA), Bureau of Land Management (BLM), California Forest Practice Rules 2020 (FPR), California Department of Forestry (CDF), and the State and Federal Endangered Species Acts (CESA, ESA).

Education

California State University BS, Environmental Studies, Minor in GIS

Certifications

ISA Certified Arborist, Tree Risk Assessment Qualification

40 Hour HazWoper Certification

CNPS Certified Consulting Biologist

Dudek Project Experience

Rancho Seco Solar II, Sacramento, California. Field Lead. Coordinated with contractor and subcontractors to determine number and location of ground-disturbing activities; assigned biological monitors to tasks. Communicated compliance concerns with project manager and worked with on-site team to develop solutions. Provided biological monitoring & pre-construction surveys for California tiger salamander (CTS) and other sensitive species (e.g. WPT, western spadefoot, burrowing owl, Swainson's hawk). Authorized to handle and relocate CTS and WSF found within the project site.

Potrero Hills Landfill Expansion Project, Waste Connections, Inc., Solano County, California. Conducted various annual field surveys and monitoring for a 10-year monitoring program for rare plants including San Joaquin spearscale (Extriplex joaquiniana), Contra Costa goldfields (Lasthenia conjugens), and pappose tarplant (Centromadia parryissp. parryi); non-native invasive species; federally-listed large branchiopod species including conservancy fairy shrimp (Branchinecta conservation), vernal pool fairy shrimp (Branchinecta lynchii), and vernal pool tadpole shrimp (Lepidurus packardi); and California tiger salamander (Ambystoma californiense). Prepared annual regulatory compliance reporting.

Relevant Previous Experience

areas and private properties. Acknowledged and facilitated compliance to the standards of the Occupational Safety and Health Administration (OSHA) and other safety procedures and regular inspections of work equipment.

Mountain G Enterprises, Arcadis, FEMA, CalRecycle, CALFIRE, CalOES, Folsom, California. Biologist. Identified and classified watercourses in areas affected by the Camp Fire based on guidelines and standards specified by the 2020 California Forest Practice Rules (FPR), delineated wetlands (vernal pools and riparian areas) based on vegetation, soil, and hydrologic factors with reference to US Fish and Wildlife Service (USFWS) and US Army Corps of Engineers (USACE) prior to tree work and identified navigable waters to be protected by sections 401 and 404 of the Clean Water Act. Documented environmental compliance during tree felling, clean-up, and hauling. Advised contractors on how to complete work while minimizing impacts. Collaborated with Tribal Monitors, contractors, and Registered Professional Foresters (RPFs) in completing monitoring reports. Identified and monitored potential habitat of State and Federal protected species and species of special concern (California Red Legged Frog (*Rana draytonii*), Foothill Yellow Legged Frog (*Rana boylii*), Western Pond Turtle (*Actinemys marmorata*), Blue Elderberry (*Sambucus mexicana*), and various avian species documented by the USFWS, California Department of Fish and Wildlife (CDFW), Migratory Bird Treaty Act (MBTA), Bureau of Land Management (BLM), California Forest Practice Rules 2020 (FPR), California Department of Forestry (CDF), and the State and Federal Endangered Species Acts (CESA, ESA)).

Mountain G Enterprises, Arcadis, FEMA, CalRecycle, CALFIRE, CalOES, Folsom, California. TRAQ Certified Arborist. Inspected trees and prescribed work based on their likelihood to impact public or private infrastructure within specified time frames. Classified and flagged WLPZs for tree work, biological monitoring, and to establish appropriate protection measures based on Forest Practice Rules and USACE Guidelines. Identified navigable waters to be protected by sections 401 and 404 of the Clean Water Act, including wetlands (vernal pools and riparian areas), based on vegetation, soil, and hydrologic factors. Identified potential habitat and individuals of protected amphibian, reptile, avian, and aquatic populations to be identified or monitored by qualified biologists. Utilized ArcGIS software to establish or identify priority work zones, prescribe tree work, or conduct quality control of completed pre-inspections for use by tree crews. Complied with standards and procedures to maintain and facilitate safety and environmental compliance in work environments. Communications and customer service liaison between staff, tree crews, and landowners. Understood and applied policies and procedures to maintain legal compliance on land of varying ownership.

Environmental Resources Management, Pacific Gas and Electric, Sonora California. Consulting Utility Forester. Identified hazard trees and bird nests for biological monitoring. Prescribed tree work based on PG&E standards and best management practices. Served as liaison between landowners, tree crews and PG&E staff to maintain customer satisfaction, and facilitated compliance to policies, best management practices, and safety procedures.

California State University, Sacramento, California. Student assistance and internship experience from August

Cost Distance to collect a representative samples of Suisun Marsh freshwater and saltwater vegetation for educational seminars at a Wonder of Wetlands event at an elementary school in Bay Point, California, sponsored by PG&E. These GIS tools were used with the purpose of calculating a route that makes collection faster while minimizing travel outside of the roads.

- **Jepson Prairie and Mather Field vernal pools** (Duration: intermittently for 3 years). Monitored vegetation communities using the quadrat method, and calculated percent cover and proportion for each native and invasive species in vernal pools, ecotones, and upland areas. Species identification include Amphibians (federally listed California Tiger Salamander (*Ambystoma californiese*), and Pacific Chorus Frog (*Pseudacris regilla*)), macroinvertebrates (Backswimmer (*Notonectidae spp.*), Water Boatmen (*Corixidae spp.*) and the federally listed Tadpole Shrimp (*Lepidurus packardi*), Fairy Shrimp (*Branchinecta spp.*), and Clam Shrimp (*Cyzikus californicus*)). Identified habitat for California Tiger Salamander (*Ambystoma californiese*) and Western Pond Turtle (*Actinemys marmorata*).
- **Kachituli Oxbow**. Monitored tree stands, shrubs, and soils annually for 2 years in ten 12m2 quadrats. Measured relative cover, line intercept, frequency, DBH, height, density, and abundance of tree species in 10 quadrats. Species included Valley Oak (*Quercus lobata*), Sycamore (Platanus occidentalis), Black Willow (*Salix nigra*), Oregon Ash (*Fraxinus latifolia*), Box Elder (*Acer negundo*), Cottonwood (*Populus fremontii*), and Elderberry (*Sambucus mexicana*). Sampled forest and grassland soils each year to measure soil thickness and carbon content to infer carbon sequestration rates about the study area.
- **American River**. Used a surber sampler to collect and identify macroinvertebrates to infer species diversity about preclassified substrates of American River's benthic environment. The dataset was maintained and updated for additional statistical analyses. Analyses of this data set continued intermittently for 6 months in other courses.

Specialized Training

- **Systems Maintenance and Community Outreach, Sustainable Technology Optimization Research Center (STORC), California State University, Sacramento, California, 2017**. Built and maintained aquaponic systems and provided reports on water quality of the systems. Organized and scheduled fish feeding intervals, and presented STORC's success in public forums.

- **Environmental Research and Development Support, California Energy Commission, Energy Research and Development Division, Sacramento, California, 2016.** Compiled statistical data and maps, processed and maintained large datasets, generated and analyzed GIS data for R&D bark beetle research, and assisted staff in defining detailed technical tasks for R&D projects. Additionally, participated in CEC meetings on CEQA process.

DUDEK

Grace Sanclemente

BIOLOGIST

Grace Natalie Sanclemente is a biologist with experience with sensitive species including. burrowing owls (*Athene cunicularia*), and San Joaquin kit fox (*Vulpes macrotis*), and Swainson's hawk (*Buteo swainsoni*). Grace has experience conducting construction monitoring on large solar facilities. Grace has great organizational skills and can complete tasks in a timely manner. Grace also is adaptable and is comfortable in evolving environments, as well as possessing good communication skills.

Education

University of California, Santa Barbara

B.A. Environmental Studies, 2020

Project Experience

Pelicans Jaw Hybrid Solar Project, Kern County, California. Conducted protocol-level blunt nosed leopard lizard surveys and burrow surveys, and wildlife camera installation for sensitive species within suitable habitat in Kern County. Resources were collected and updated digitally using ArcGIS Collector.

Delta Field Division HCP Project, Stanislaus County, California. Installed and reviewed wildlife camera along the California Aqueduct as part of a long-term wildlife corridor study for the Department of Water Resources.

Quinto Ranch Solar Project, Stanislaus County, California. Conducted burrow surveys for San Joaquin kit foxes, American badgers, and burrowing owls within suitable habitat for the species. Resources were collected and updated digitally using ArcGIS Collector.

Proxima Solar Project, Stanislaus County, California. Conducted pre-construction surveys for San Joaquin kit fox, burrowing owls, and nesting birds for a 200-megawatt solar project. Additional activities included weekly spot checks, construction monitoring, and daily Swainson's hawk nest checks to ensure the implementation of mitigation measures during construction activities.

Solar Project, Confidential Client, Kern County, California. Worked as a biological monitor on an approximately 760 MW Photovoltaic solar project site. Conducted line transect and clearance surveys for sensitive species including desert tortoise, desert kit foxes, and burrowing owl prior to construction activities. Monitored and recorded breeding/nesting behavior of avian species during construction activity according to the Migratory Bird Treaty Act and associated permit requirements. Monitored known desert tortoise habitat during construction

Randolph K. Thomas

COMPLIANCE MONITOR

Randolph K. Thomas is a compliance monitor with experience specializing with desert tortoise (*Gopherus agasizii*), giant garter snake (*Thamnophis gigas*), and western pond turtles (*Actinemys marmorata*) and has conducted research on aquatic species in the Bahamas as well as the Midwestern United States. Mr. Thomas has a diverse teaching background and has conducted community-focused outreach in many areas.

Education

University of Toledo

Bachelor of Science, 2019

Certifications

Advanced Medical Certification: First Aid, CPR, AED, 2020

American Red Cross Water Safety Instructor

American Red Cross Lifeguard, First Aid, CPR, AED

SSI Open Water Dive SCUBA Certification

Research Experience

United States Geological Service, Clark County, Nevada. Wildlife Technician. Conducted field and lab studies on endangered Mojave desert tortoise (*Gopherus agasizii*) and surrounding desert flora and fauna. Primary duties included telemetric surveying and radio transmitter application, tracking and handling desert tortoises for demographic and occupancy studies along with habitat and vegetation surveys, and husbandry of captive desert tortoises for population surveying and translocation studies. Conducted science communication and public awareness delivery through videography and photography; composed educational and instructional visual works including lessons, documentaries, and informational segments. Protocol for visual desert tortoise surveys includes trekking through washes, over mountains and hillsides, and covering various desert habitat up to 10 miles per day in high heat and cold weather conditions.

United States Geological Survey, Solano County, California. Wildlife Technician. Conducted field and lab studies on giant garter snakes (*Thamnophis gigas*) and western pond turtles (*Actinemys marmorata*). Primary duties included aquatic trapping to capture giant garter snakes for demographic and occupancy studies along with habitat and vegetation surveys, husbandry of captive snakes for radio telemetry surgical implantation, and radio telemetry tracking. Conducted E-DNA sampling for western pond turtles in Northern California monitoring spatial distribution, conducted visual surveys to provide standard guidelines that determine pond turtle presence and relative abundance. Survey protocols for giant garter snakes includes extensive kayaking and trekking, and for western pond turtle includes trekking through streams, creeks, lakes, reservoirs, and ponds, segmenting sites by 250m for a total of 500m trekked.

University of Toledo, Kalamazoo, Michigan. Research Assistant. Conducted data analysis of specimen collection from an oil spill; quantified shell injury and overall condition from turtles collected from oil spill sites along the Kalamazoo River in Kalamazoo, MI.

University of Toledo, Department of Environmental Sciences. Directed Research. Project consisted of studying the effects of wildlife from cyanobacteria found in Lake Erie. Assessed the stress levels linked to immune strength in turtles (*Chrysemys picta* and *Graptemys geographica*) in affected waterways. Analyzed data in the lab, conducted field research, data interpretation and analysis using Microsoft Excel, photography and habitat analysis, and telemetry and tracking.

University of Toledo, Northwest Ohio. Research Assistant. Assisted in field collection of turtles and trap set up for experimentation in northwest Ohio. Analyzed blood samples from turtle collection in search of immune deficiencies and blood parasites.

Teaching Experience

Sharks 4 Kids, Inc, Bimini, Bahamas. Ambassador and Instructor. Taught curriculum, games, and activities to allow teachers to integrate shark education into their science programs in an introductory, intermediate, or advanced level. Sharks 4 Kids is a non-profit organization specializing in creating a new generation of shark advocates through access to a dynamic range of educational materials and experiences.

Pigeon Key Foundation, Marathon, Florida. Marine Science Instructor. Led and facilitated both classroom and hands-on learning activities for students age K-college on a variety of marine science subjects. Hands-on activities included fishing, kayaking, snorkeling, and invertebrate collection. Participated in camp activities and acted as an overnight counselor in the student dorms. Created group workbooks, expanded and updated curriculum, maintained the membership list, and wrote articles for the foundation's newsletter.

Camp Adventure, Manama, Bahrain. CYP Coordinator, Navy Bahrain, United States Department of Defense. Acted as Child Youth Program Project Coordinator, working with Childcare Development Center (CDC), Student Age Care (SAC), and Teen Camp. Duties included implementing lesson planning and hands-on activities for group curriculum. Tracked progress of children throughout the program and made personalized development plans to optimize the mental and physical development in each child.

Camp Adventure, Okinawa, Japan. Aquatics Coordinator. Managed staff and scheduling of swim lessons and lifeguarding training sessions through the US Marine branch. Duties included scheduling of instructors, constructing lesson plans and templates for students, gathering information for upcoming swim lessons, orchestrating lifeguard certifications, and coordinating group and team building activities.

Certification of Appreciation and Service, USMC Okinawa MCCS Aquatics, 2019. Recognized for positive, team-based approach working on behalf of Semper Aquatics.

Dean's List, University of Toledo, 2019. Awarded to students who received a 3.7 GPA or higher in a given semester.

African American Leadership Council United Way School, University of Toledo, 2018. Awarded to a student who showcased exemplary performance in school and community.

Office of Residence Life Developer of the Year, University of Toledo, 2018. Award presented to the Resident Adviser who embraced and promoted community day in and day out, enriching the campus atmosphere and enhancing the living/learning community experience.

MESP Award, Summer Bridge Program, University of Toledo, 2016. Awarded for outstanding performance throughout the Multicultural Emerging Scholars Program (MESP).

President's List, University of Toledo, 2015. Awarded to students who received a 4.0 GPA in a given semester.

DUDEK

Teodora Ungureanu

COMPLIANCE MONITOR

Teodora Ungureanu is a compliance specialist with experience in chemistry, microbiology, and ecology. Ms. Ungureanu is a recent biology graduate with great communication and organization skills built over various jobs and projects. She is familiar with marine microbes and fauna.

Education

University of California, Santa Barbara

BS, Ecology and Evolutionary Biology, 2020

Relevant Previous Experience

Solar Power Project, Confidential Client, Kern County, California. Conducted pre-construction surveys on a 300 MW future solar facility for nesting birds, small mammals, San Joaquin kit fox (*Vulpes macrotis mutica*), American badger (*Taxidea taxus),* and Swainson's hawk (*Buteo swainsoni*). Performed biological monitoring during construction activities and consulted with construction personnel on Project mitigation measures and governing documents. Implemented protective measures for resources on site, including no-disturbance buffers and monitoring. Relocated wildlife from the construction area and completed daily monitoring reports.

Solar Project, Confidential Client, Kern County, California. Wildlife Biologist/Biological Monitor on a project consisting of approximately 760 MW of photovoltaic solar near Mojave, CA. Conducted line transect and clearance surveys for sensitive species including desert tortoise, kit foxes, and burrowing owl prior to construction activities. Monitored and recorded breeding/nesting behavior of avian species during construction activity according to the Migratory Bird Treaty Act and associated permit requirements. Monitored known desert tortoise habitat during construction activities to minimize and avoid adverse impacts to sensitive species and associated habitat. Facilitated construction personnel compliance with federal, state, and local environmental regulations and associated permits.

Marine Microbiology Lab. Researched marine microbial population dynamics when introduced to nutrient rich mediums. She collected dissolved organic carbon, DNA, and bacterial abundance samples from the cultures. Methods include flow cytometry, lysis protocol, and microscopy. R and Excel were used to find patterns, track population dynamics, and develop graphs for the research paper.

Aquatic Communities Lab. Researched abiotic and biotic factors affecting a barnacle's ability to settle and recruit within the rocky intertidal zone. Data and graphs were created with Excel.

Teacher's Assistant, University of California, Santa Barbara. Teacher's assistant for "Nutrition for Health." Graded exams, homework, classwork, and worked one on one with students regarding class material and issues.

Skills

- Lab Skills: Microscopy, PCR, Pipetting, Lysis Protocol, Flow Cytometry
- R Programming
- Microsoft Word, Excel, PowerPoint
- Scientific Data Analysis and Modeling
- Calculus through Differential
- Fluent in Romanian

Attachment C

Biological Survey Work Plan

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ENCINITAS, CALIFORNIA 92024
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MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be "marked" using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

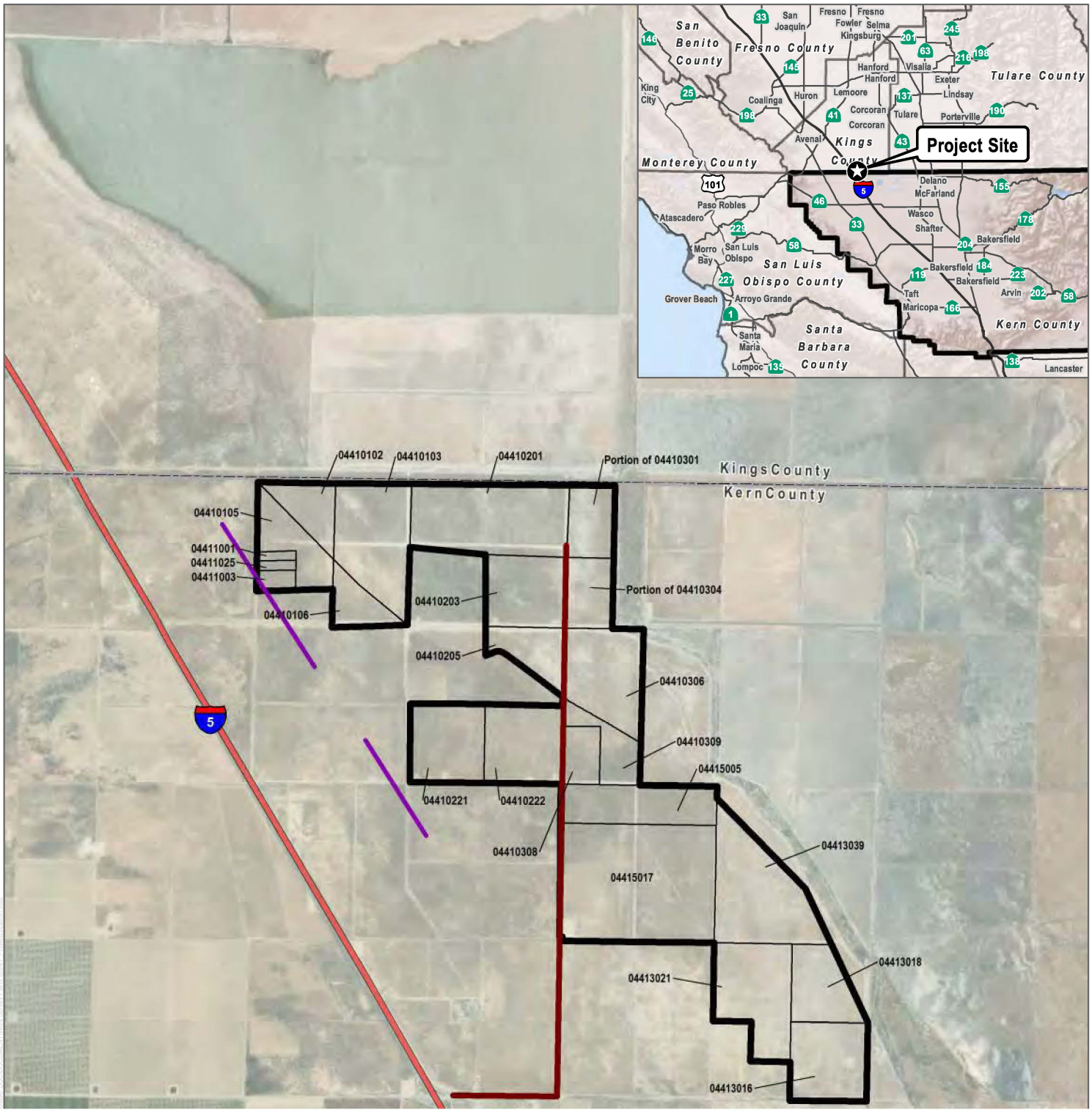
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

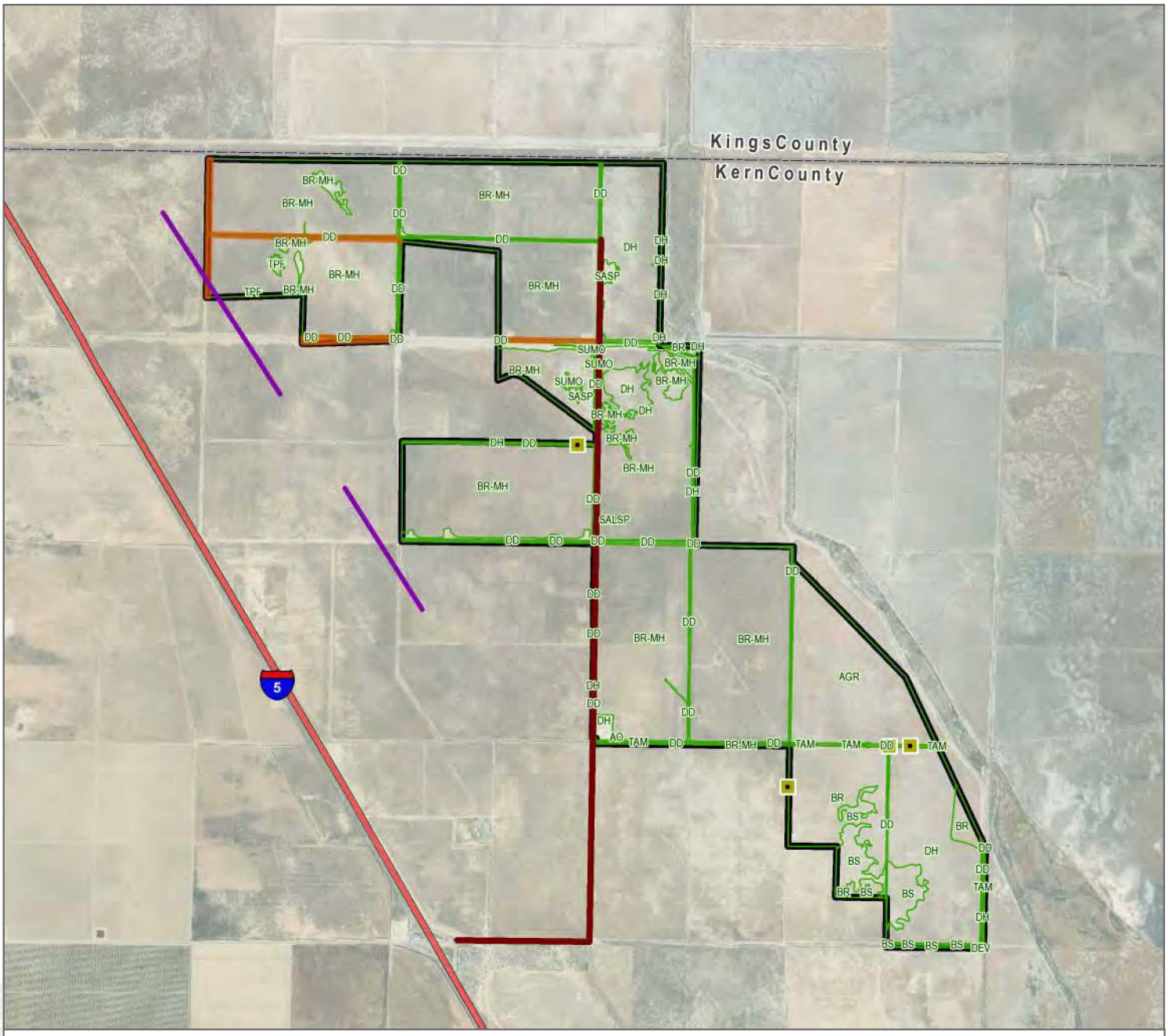
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

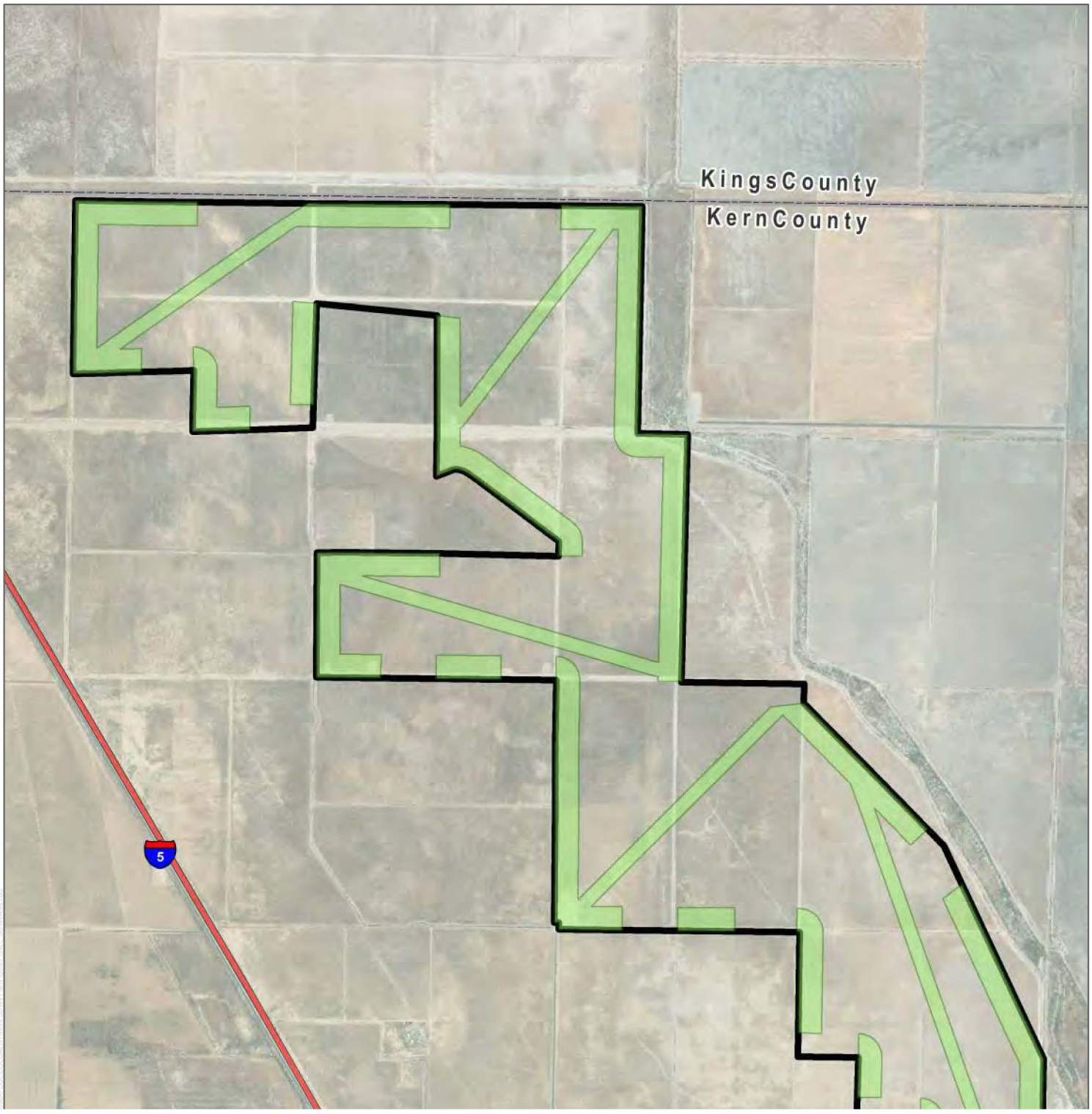
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

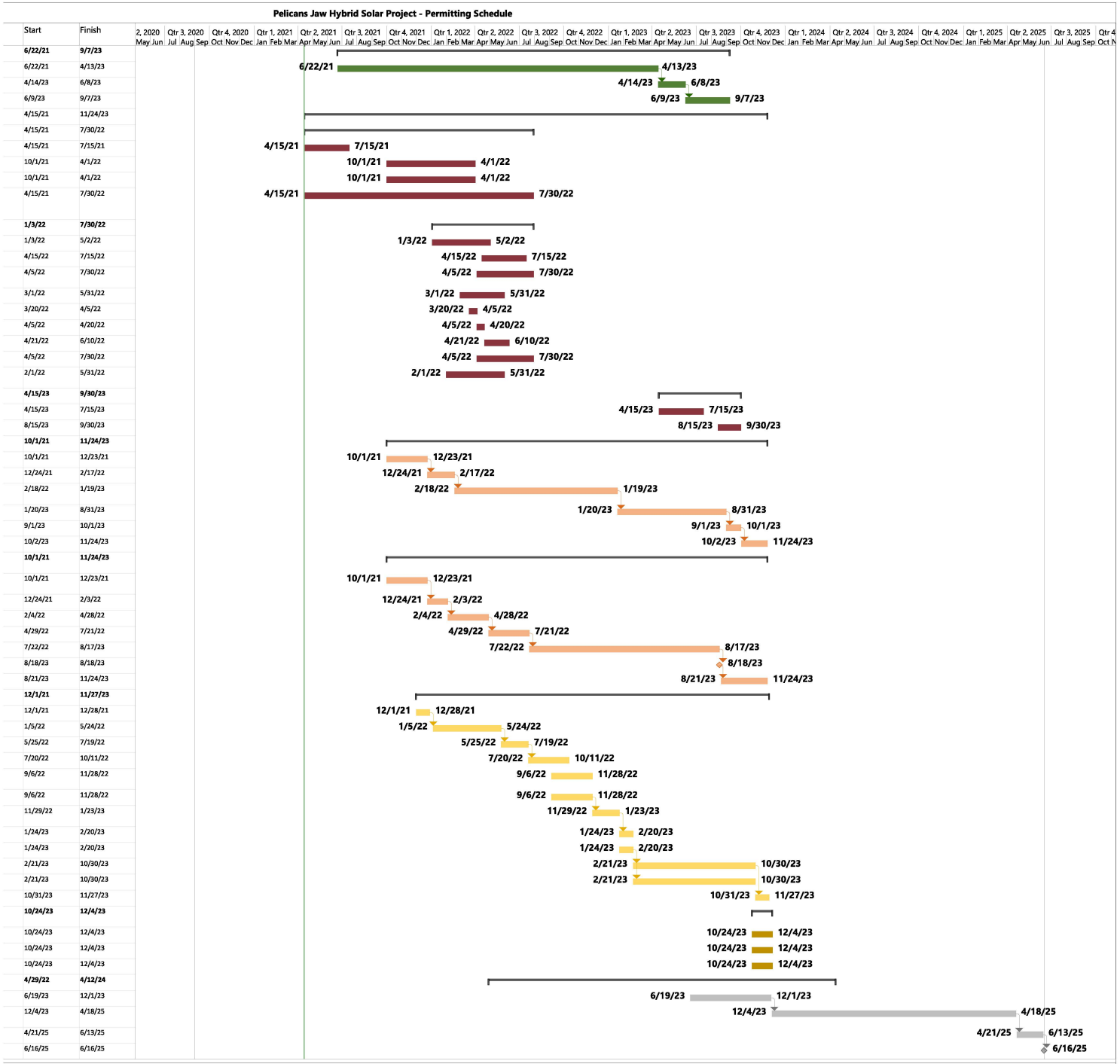
SALSP, Salsola spp. Semi-natural Association


Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

---

From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
www.dudek.com

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment D

Biological Survey Work Plan Addendum

Sapphos environmental inc.

June 7, 2022
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M03

TO: U.S. Fish and Wildlife Service
(Mr. Justin Sloan)

California Department of Fish and Wildlife
(Ms. Carrie Swanberg)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Samsung Solar Energy 2, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, and Mr. Thaer Flieh)

SB Energy Corporation
(Ms. Amy Peterson, Ms. Ariana Solis, Mr. Adolfo Espino, Mr. Ravi Bantu, Ms. Jingqi Yang, Mr. Noel Augustine, Mr. Jackson Salovaara, and Mr. Karl Brutsaert)

Dudek
(Mr. Keith Carwana)

Bell-Kearns, Ltd.
(Mr. Andrew Bell)

Kern County
(Mr. Terrence Smalls)

EXECUTIVE SUMMARY

Samsung Solar Energy 2, LLC, formally known as Pelicans Jaw Solar, LLC (Applicant) has retained Sapphos Environmental Inc, (SEI) to take the lead on the application and processing of environmental authorizations for the Pelicans Jaw Hybrid Solar Project (Project) and to ensure the Environmental Impact Report (EIR) prepared for the Project is consistent with those authorizations. Dudek will continue to prepare selected technical reports for the Project, including a jurisdictional delineation and surveys for biological resources.

This Memorandum for the Record has been prepared to update the US Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) regarding the status of surveys for species for which the Project team may ultimately seek incidental take authorization pursuant to Section 10(a)(1) or Section 7 of the federal Endangered Species Act and Section 2081 of the California Fish and Game Code.

This MFR provides a work plan update related to the Project's evaluations of biological resources:

- Jurisdictional Delineation pursuant to Section 404 of the Federal Clean Water Act and Section 1600 of the California Fish and Game Code
- Habitat Assessment
- Rare Plants
- Tri-colored blackbird
- Burrowing owl
- Swainson's hawk
- Golden eagle
- Blunt-nosed leopard lizard
- San Joaquin antelope squirrel
- Tipton kangaroo rat
- San Joaquin kit fox
- American badger

INTRODUCTION

This Memorandum for the Record (MFR updates USFWS and CDFW on the status of the proposed Project, located in Kern County (County), California. Specifically, this MFR describes an updated project description and the status of surveys for species for which the Project team may ultimately seek incidental take authorization pursuant to Section 10(a)(1) or Section 7 of the ESA and Section 2081 of the California Fish and Game Code. This MFR provides a work plan update related to the Project's evaluations of biological resources:

- Jurisdictional Delineation pursuant to Section 404 of the Federal Clean Water Act and Section 1600 of the California Fish and Game Code
- Habitat Assessment
- Rare Plants
- Tri-colored blackbird
- Burrowing owl
- Swainson's hawk
- Golden eagle
- Blunt-nosed leopard lizard
- San Joaquin antelope squirrel
- Tipton kangaroo rat
- San Joaquin kit fox
- American badger

PROJECT DESCRIPTION

The Project would consist of a solar photovoltaic (PV) generation facility of up to 500 megawatts (MW) and a battery energy storage system (BESS) of between 500 and 1,000 megawatt-hours (MWhr) on approximately 3,260 acres of private property in the County.

The Applicant has applied to the County for use authorization by way of a Conditional Use Permit (CUP) and General Plan Amendment (GPA). Construction of the Project is anticipated to occur in three phases, with construction of the first phase of 300 MW of solar beginning in the fourth quarter 2023 and operations commencing in the second quarter 2025. Construction of the second and third phases of 200 MW of solar and the BESS, respectively, would commence in the second quarter 2026 and commence operation in the third quarter 2027. The anticipated operational life of the Project is anticipated to be 35 years.

The Project would primarily consist of PV panels arrayed on a single-axis tracker system with a centrally housed or distributed BESS, and balance of plant improvements such as inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector

precise location determined after completion of environmental surveys and detailed engineering design.

PROJECT LOCATION

Samsung Solar Energy 2, LLC has revised the Project footprint to be limited within the northwest portion of the County, adjacent to the southern border of Kings County with direct access from Interstate 5 (I-5) located approximately two miles to the west (Attachment 1: Figure 1, *Project Location*). The Project is situated within portions of Sections 4, 5, 6, 8, 9, 15, 16, and 22 of Township 25 South, Range 21 East, San Bernardino Base and Meridian. The Project site is generally bordered by Twisselman Road to the south, Lost Hills Road to the east, the Kern and Kings County line to the north, and I-5 to the west (Attachment 1: Figure 2, *Project Vicinity*).

JURISDICTIONAL DELINEATION

Dudek is in the process of preparing a Jurisdictional Aquatic Resources Delineation Findings Memorandum. A field survey is being proposed to support this effort to assess potential jurisdictional aquatic features identified from the USFWS National Wetland Inventory Maps and verify that there is no remnant aquatic or riparian habitat associated with the trenches within the property boundary for which irrigation waters were terminated more than 10 years ago. Through informal site visits, the inactive irrigation ditches have been observed to be clogged and closed off, and water has not been turned on to the site for at least 10 years (2012–2022). Based on the results of the habitat assessment and species specific sampling surveys conducted in 2021, any areas that are potentially subject to the jurisdiction of the U.S. Army Corps of Engineers under Section 404 of the federal Clean Water Act or the California Department of Fish and Wildlife (CDFW) pursuant to Section 1600 of the California Fish and Game Code will be subject to a 3-parameter test to assess the presence or absence of aquatic or riparian habitats.

SURVEYS

Habitat Assessment

SEI completed an updated habitat assessment of the Project area based on site visits conducted during October 11–12, 2021 that identified a sparsely vegetated Project area with evidence of heavy disturbance to Agriculture, Rangeland, and Alkali Scrub habitat caused primarily by sheep and cattle grazing. The quality of the Project area as habitat for sensitive-status species was determined to be low. Further species-specific surveys are proposed to determine the level of occupancy or foraging use of the Project area by these species.

Rare Plants

Tri-colored blackbird

Surveys for tricolored blackbird (TRBL; *Agelaius tricolor*) are being conducted concurrently with SWHA surveys. No active TRBL nests have been identified to date.

Burrowing owl

Surveys for burrowing owl (BUOW; *Athene cunicularia*) will be conducted concurrently with SJKF surveys. Dudek will map all suitable BUOW burrows and document any anecdotal detections and sign of use by BUOW during these surveys.

Swainson's hawk

Swainson's hawk (SWHA; *Buteo swainsoni*) surveys following the Swainson's Hawk Technical Advisory Committee's Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley are currently in the process of being conducted. To date, two active SWHA nests have been identified within the 0.5-mile survey buffer, but both are located outside the Project area. One is located towards the northeast corner of the Project area, and the other along the southwest corner of the heavily trafficked I-5 and Twisselman Road. Should these nests persist annually to construction in 2024, Project activities are not anticipated to have an effect on these nests as no heavy construction activities would occur within 0.5 mile of the nests, and any light or moderate activities would be proposed to be monitored by a qualified biologist.

Golden eagle

Golden eagle (GOEA; *Aquila chrysaetos canadensis*) surveys were conducted by Dudek in February 2022, and a report is currently in preparation for transmittal to the County. No GOEA nest sites were located within 10 miles from the Project site boundary.

Blunt-nosed leopard lizard

Blunt-nosed leopard lizard (BNLL; *Gambelia sila*) sampling surveys (using a methodology Dudek previously discussed with USFWS and CDFW) were conducted in 2021 with negative results. These results are being used to inform the CEQA analysis with the understanding that full protocol BNLL surveys (following the October 2019 BNLL Survey Methodology) will be performed in 2023 concurrently with preparation of the EIR. This aligns with an anticipated construction start date of first quarter 2024.

San Joaquin antelope squirrel

Tipton kangaroo rat

Tipton kangaroo rat (TKR; *Dipodomys nitratoides nitratoides*) trapping is proposed to be conducted by Dudek this year to determine presence/absence of kangaroo rat species and document them if found. Trapping efforts will follow the protocol and conditions described in the previously submitted April 2021 Biological Survey Work Plan (Attachment 2). A trapping plan will be submitted to USFWS and CDFW prior to implementation.

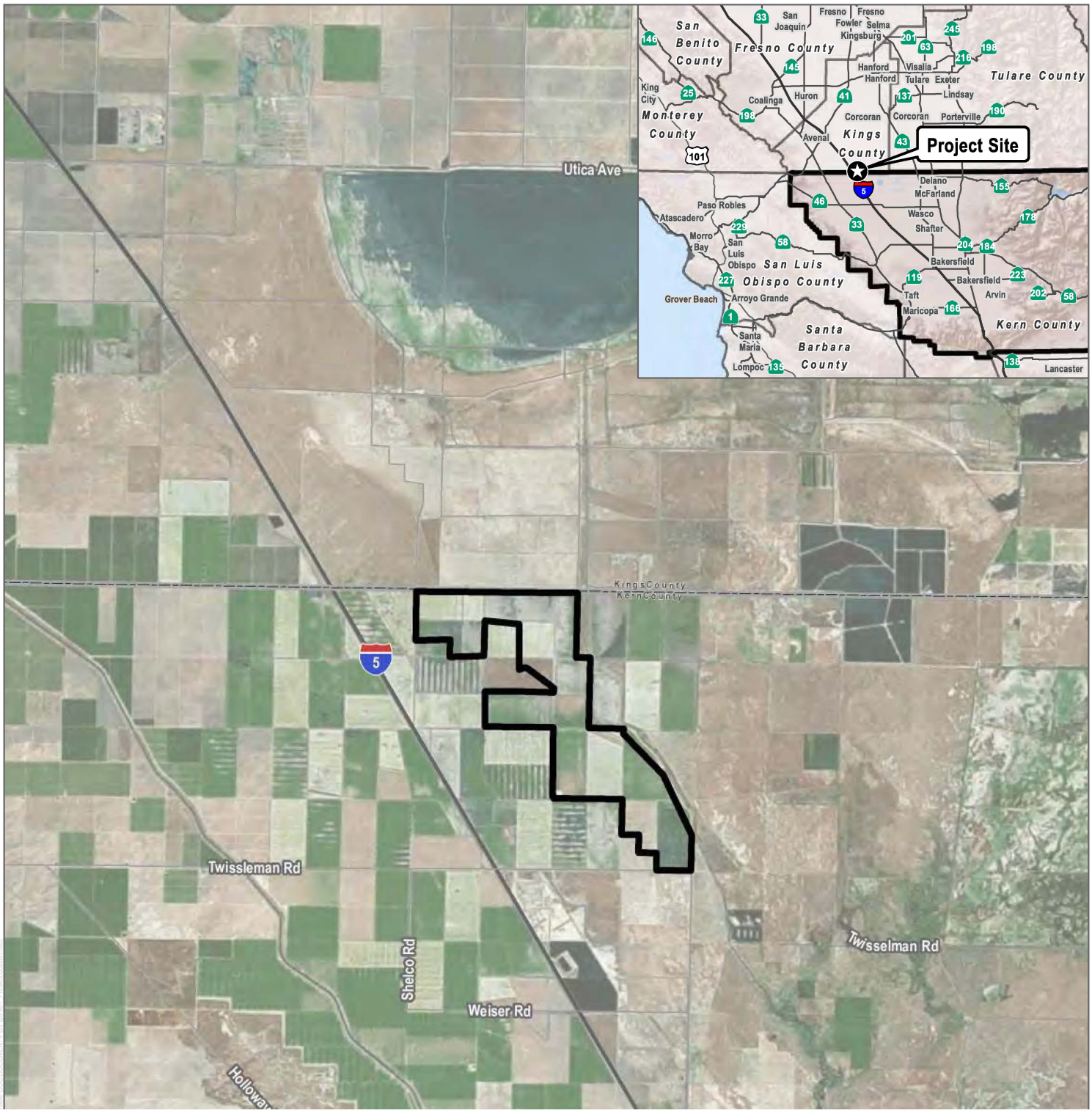
San Joaquin kit fox

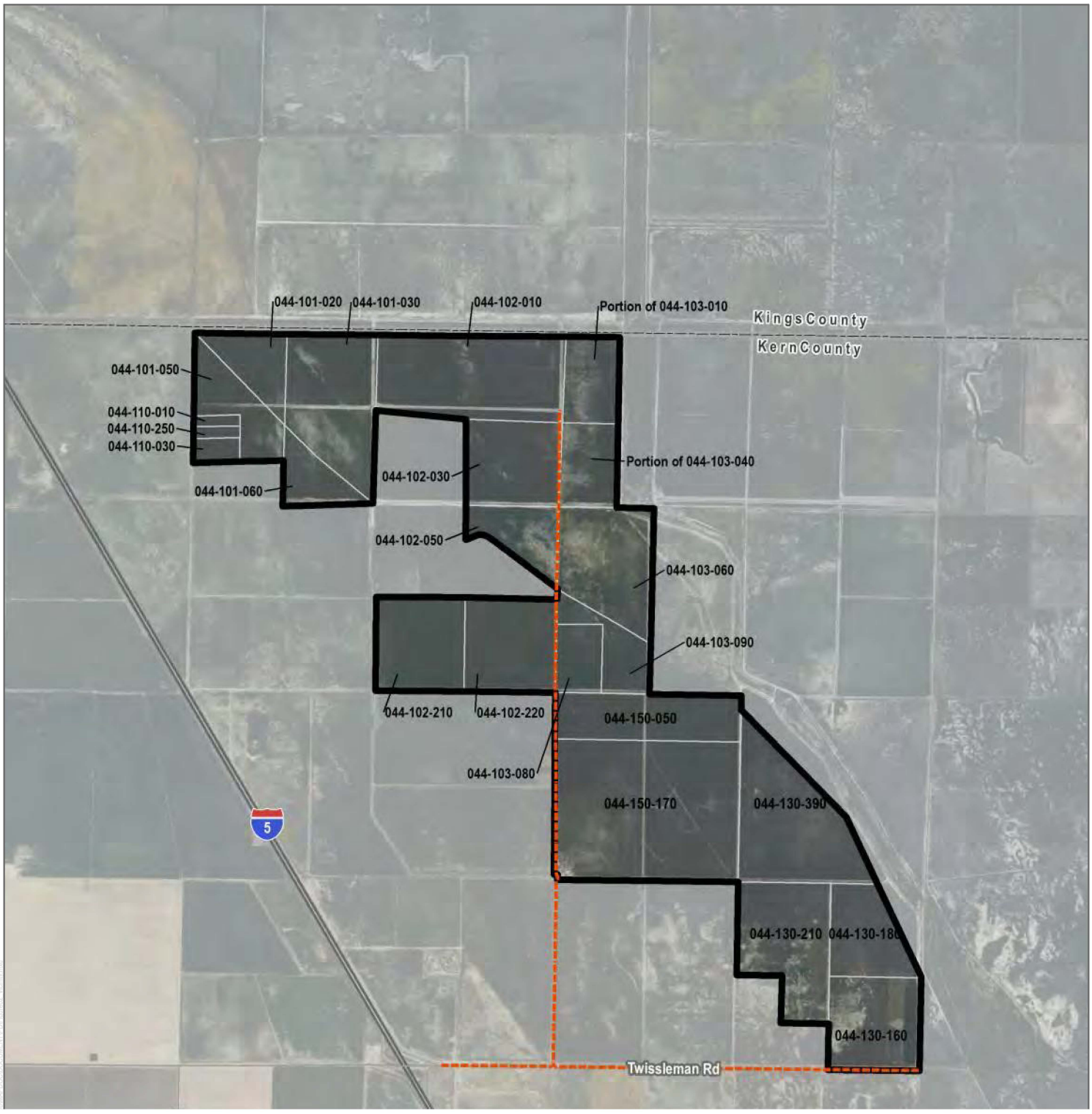
Samsung Solar Energy 2, LLC is proposing to authorize Dudek to initiate surveys for the San Joaquin kit fox (SJKF; *Vulpes macrotis mutica*), and this MFR serves to notify CDFW and USFWS of an amendment to the previously submitted April 2021 Biological Survey Work Plan (Attachment 2). Specifically, Samsung Solar Energy 2, LLC is proposing to conduct modified protocol-level surveys as further described in Attachment 3 (Biological Survey Work Plan: San Joaquin Kit Fox Addendum). Samsung Solar Energy 2, LLC is proposing to proceed with pedestrian transect surveys as defined in the "San Joaquin Kit Fox Survey Protocol for the Northern Range."[2] The proposed modification is to conduct camera monitoring across the entirety of the approximately 3,260-acre Project site rather than spot-lighting survey and scent station studies set forth in sections 2, 3, and 4 of the survey protocol.[3] Samsung Solar Energy 2, LLC is looking to proceed with the pedestrian transect surveys in accordance with the survey protocol to help inform the camera monitoring. Camera monitoring will not begin until Samsung Solar Energy 2, LLC receives USFWS and CDFW concurrence of the proposed modified survey protocol described in Attachment 3. Samsung Solar Energy 2, LLC would like to request USFWS and CDFW concurrence prior to June 24, 2022, to begin camera monitoring.

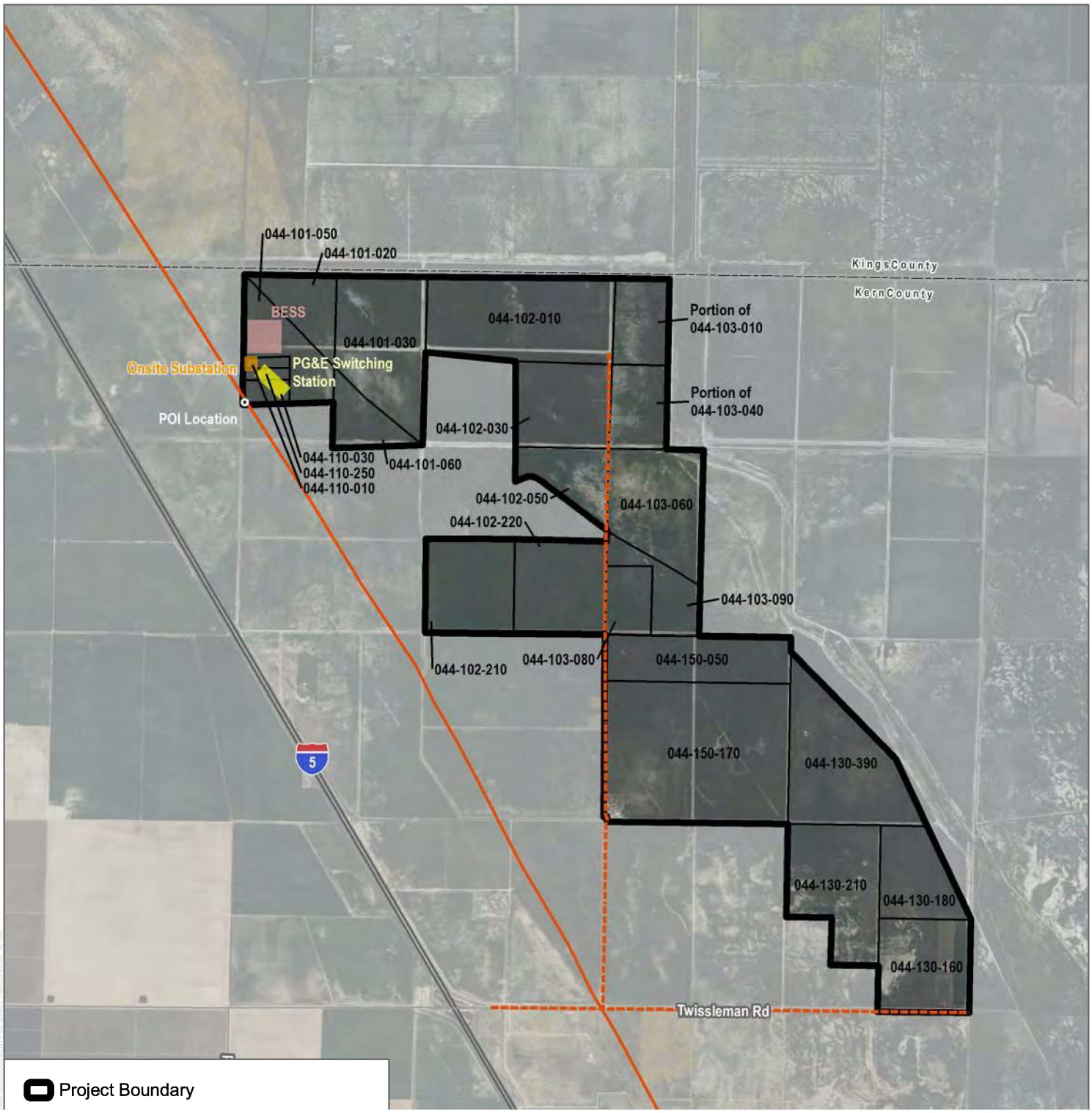
American badger

Surveys for American badger (AMBA; *Taxidea taxus*) will be conducted concurrently with SJKF surveys.

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.


Utica Ave
Kings County
Kern County
5
Twissleman Rd
Shelco Rd
Weiser Rd
Twisselman Rd
Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Fresno
Coalinga
Huron
Avenal
Corcoran
Hanford
Visalia
Tulare
Exeter
Lindsay
Porterville
Delano
McFarland
Wasco
Shafter
Bakersfield
Taft
Arvin
Maricopa
Lancaster
Paso Robles
Atascadero
Morro Bay
San Luis Obispo
Grover Beach
Arroyo Grande
Santa Maria
Lompoc
King City


044-101-020
044-101-030
044-102-010
Portion of 044-103-010
Kings County
Kern County
044-101-050
044-110-010
044-110-250
044-110-030
044-101-060
044-102-030
Portion of 044-103-040
044-102-050
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044-102-220
044-150-050
044-103-080
044-150-170
044-130-390
5
044-130-210
044-130-180
044-130-160
Twissleman Rd


044-101-050
044-101-020
Kings County
Kern County
BESS
044-102-010
Portion of
044-103-010
044-101-030
Onsite Substation
PG&E Switching
Station
Portion of
044-103-040
POI Location
044-102-030
044-110-030
044-110-250
044-110-010
044-101-060
044-102-050
044-103-060
044-102-220
044-103-090
044-102-210
044-103-080
044-150-050
044-150-170
044-130-390
5
044-130-210
044-130-180
044-130-160
Twissleman Rd
Project Boundary

PELICANS JAW HYBRID SOLAR PROJECT

BIOLOGICAL SURVEY WORK PLAN

Date:	April 28, 2021
Time:	3:00-4:00 PM
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Location:	Zoom Video Call
Attendees:	**USFWS** – Justin Sloan
	CDFW – Carrie Swanberg
	Pelicans Jaw Solar, LLC – Hun Kim, Alphonso Jung, Tae Kwak, and Tandy McMannes
	Cox, Castle & Nicholson – Clark Morrison
	Dudek – Brock Ortega, Keith Carwana, and Anna Bischoff

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1. Project Updates

- Dudek described the recently completed habitat assessment, vegetation mapping, and jurisdictional delineation for the Pelicans Jaw Hybrid Solar Project (Project).
    - Based on the results of the on-site surveys, including the presence of hydrophytic vegetation, and greater potential for sensitive species in the Kings County portion of the Project, Pelicans Jaw Solar, LLC decided to remove all Kings County parcels from the Project.
        - With the removal of the Kings County parcels, the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres.

2. Biological Survey Work Plan

- Dudek described the Biological Survey Work Plan dated April 15, 2021 and the proposed surveys to be completed in 2021 and 2022.
    - Pelicans Jaw Solar, LLC is proposing to proceed with blunt-nosed leopard lizard (BNLL) sample surveys in 2021 or 2022 on approximately 955 acres of the approximately 3,260-acre Project site. The BNLL sample surveys are intended to inform the CEQA analysis to be prepared in advance of the required BNLL protocol-level surveys and provide critical site-specific data.

- In addition to BNLL sample surveys, Pelicans Jaw Solar, LLC is anticipated to proceed with concurrent burrow mapping for burrowing owl, San Joaquin kit fox, American badger, and San Joaquin antelope squirrel in 2021.
    - Surveys for large branchipods and western spadefoot toad are anticipated to be initiated during the 2021 wet season.
        - Dudek noted that helicopters will no longer be used to complete large branchipods and western spadefoot toad surveys given the reduction in Project size and vehicle accessibility across the Kern County parcels.
        - USFWS indicated that there was a recent observation of vernal pool fairy shrimp in Kern County.
- Pelicans Jaw Solar, LLC anticipates completing the following surveys in 2022: golden eagle, kangaroo rat trapping, Swainson's hawk, tricolored blackbird, and Buena vista ornate shrew.
    - Dudek noted that a survey work plan will be prepared for Buena vista ornate shrew and small mammal trapping, prior to implementing the surveys and trapping efforts.

3. CDFW and USFWS Discussions

- CDFW recommended conducting full protocol level survey for BNLL but understood the need to conduct sample surveys to support the CEQA analysis in advance of full protocol level surveys within one-year of ground disturbing activities.

    - CDFW was comfortable with the BNLL sample survey area depicted in Figure 3 of the Biological Survey Work Plan.

    - CDFW recommended completing hatchling surveys as part of the proposed BNLL sample surveys.

        - **Action item:** Pelicans Jaw Solar, LLC and Dudek mentioned that they will look into adding hatchling surveys during the BNLL juvenile survey period of August 15 to September 30.

    - Dudek inquired if there is any leeway to begin ground disturbing activities slightly after the one-year BNLL survey period has expired.

        - CDFW indicated that it is their preference to have ground disturbing activities begin

        - CDFW offered to assist and answer any questions that may arise regarding a Streambed Alteration Agreement.

- USFWS inquired about the species anticipated to be included in the Habitat Conservation Plan (HCP)
    - Cox, Castle & Nicholson indicated that that the species to be included will be dependent on the results of the anticipated biological surveys.
    - Cox, Castle & Nicholson asked if USFWS can provide a sample HCP that covers similar species to those with the potential to occur on the Project site.
        - **Action item:** USFWS to provide HCP sample(s).
- In regard to compensatory mitigation, USFWS will request mitigation to the maximum extent practical.
    - USFWS did not want to provide a mitigation ratio at this time until the full suite of impacts is known.

4. Next Steps

- Pelicans Jaw Solar, LLC is anticipated to implement the Biological Survey Work Plan dated April 15, 2021. Pelicans Jaw Solar, LLC will inform CDFW and USFWS of any major changes to be implemented to the Biological Survey Work Plan.

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MEMORANDUM

To:	Justin Sloan – USFWS Carrie Swanberg – CDFW
From:	Brock Ortega, Keith Carwana, and Randi Busse – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan: San Joaquin Kit Fox Addendum
Date:	May 26, 2022
cc:	Tandy McMannes, Amy Peterson, Alphonso Jung, and Hun Kim – Pelicans Jaw Solar, LLC Marie Campbell and Sarah Sperling – Sapphos Environmental, Inc. Andrew Bell – Bell-Kearns
Attachment(s):	Attachment A – Biological Survey Work Plan, April 15, 2021 Attachment B – USFWS and CDFW Meeting Notes, April 28, 2021

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar and battery energy storage facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project located on approximately 3,260 acres in unincorporate Kern County. Pelicans Jaw Solar, LLC submitted a biological survey work plan for the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) review on April 15, 2021 (Attachment A). A subsequent call with USFWS and CDFW occurred on April 28, 2021, to review and discuss the biological survey work plan (Attachment B). Pelicans Jaw Solar, LLC is in the process of implementing the approved work plan. This memorandum is intended to serve as an addendum to the April 15, 2021, work plan to include San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF) surveys.

In accordance with the biological survey work plan, Dudek collected burrow resource data during blunt-nosed leopard lizard (*Gambelia sila;* BNLL) "sample" surveys conducted during the adult and hatchling seasons of 2021. All suitable burrow resources that met the criteria and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), SJKF, and American badger (*Taxidea taxus*; AMBA) within the sample survey areas were recorded. Rather than assume the presence of SJKF in the Project site based on the burrow data and limited camera monitoring data collected to date, Pelicans Jaw Solar, LLC is proposing to conduct modified protocol-level surveys as further described below. Pelicans Jaw Solar, LLC is looking to receive USFWS and CDFW concurrence with the survey protocol prior to commencement of SJKF surveys.

vegetative cover and other visual obstructions. Based on the degree of grazing and drought conditions we expect most areas to be highly visible. Surveys will be conducted between May 1 and September 30 in accordance with the survey protocol (USFWS 1999).

Camera Monitoring

Pelicans Jaw Solar, LLC proposes to conduct camera monitoring across the entirety of the approximately 3,360-acre survey area. Camera monitoring is intended to effectively replace the spot-lighting survey and scent station studies set forth in sections 2, 3, and 4 of the survey protocol (USFWS 1999) and has been approved with agency approval for nearby projects recently. This study will occur after the burrow survey so that the burrow survey can help inform where to deploy cameras.

The 3,360-acre survey area is composed of approximately 5 sections (a section being approximately 640 acres). Dudek will deploy 16 game cameras per section for a total of 80 game cameras throughout the project site. This doubles the usual number of 8 per section for the protocol camera/track-bed surveys. A Dudek species expert will determine the ultimate camera deployment locations based on even distribution, existing potential burrow locations, and other important factors. Dudek will deploy cameras in batches of 40 cameras. Camera stations will be baited and include a scent lure (e.g., Gusto) to maximize detectability of canids and meso-carnivores. Bait stations will include a punctured, but not opened, can of cat food or fish secured to the ground by a 12-inch nail driven through it. Approximately ¼ teaspoon dollops of scent lure will be placed on a small rock next to the bait. Cameras will be set approximately 10 feet from the bait station, focused on the bait station, and will be oriented to minimize false-triggers (e.g., away from direct sun, away from active roads, etc.). Each camera will be deployed on site for a minimum of 10 consecutive nights and the bait stations will be refreshed mid-way through the survey period.

A Dudek qualified biologist will review all accrued camera data for evidence of San Joaquin kit fox presence in the project site and will catalog the number and species by camera station to aid in future agency discussions, CEQA, and permitting. Dudek and Pelicans Jaw Solar, LLC will prepare a letter report documenting the results of transect surveys and camera monitoring for agency review.

Agency Review and Discussion

Pelicans Jaw Solar, LLC would like to begin the modified protocol-level SJKF surveys as soon as possible. We have included our availability in the email to which this memorandum was attached to schedule a brief conference call should USFWS and/or CDFW have any questions. We are also happy to address any comments/questions via email. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts for the

Attachment A

Biological Survey Work Plan

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MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be "marked" using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

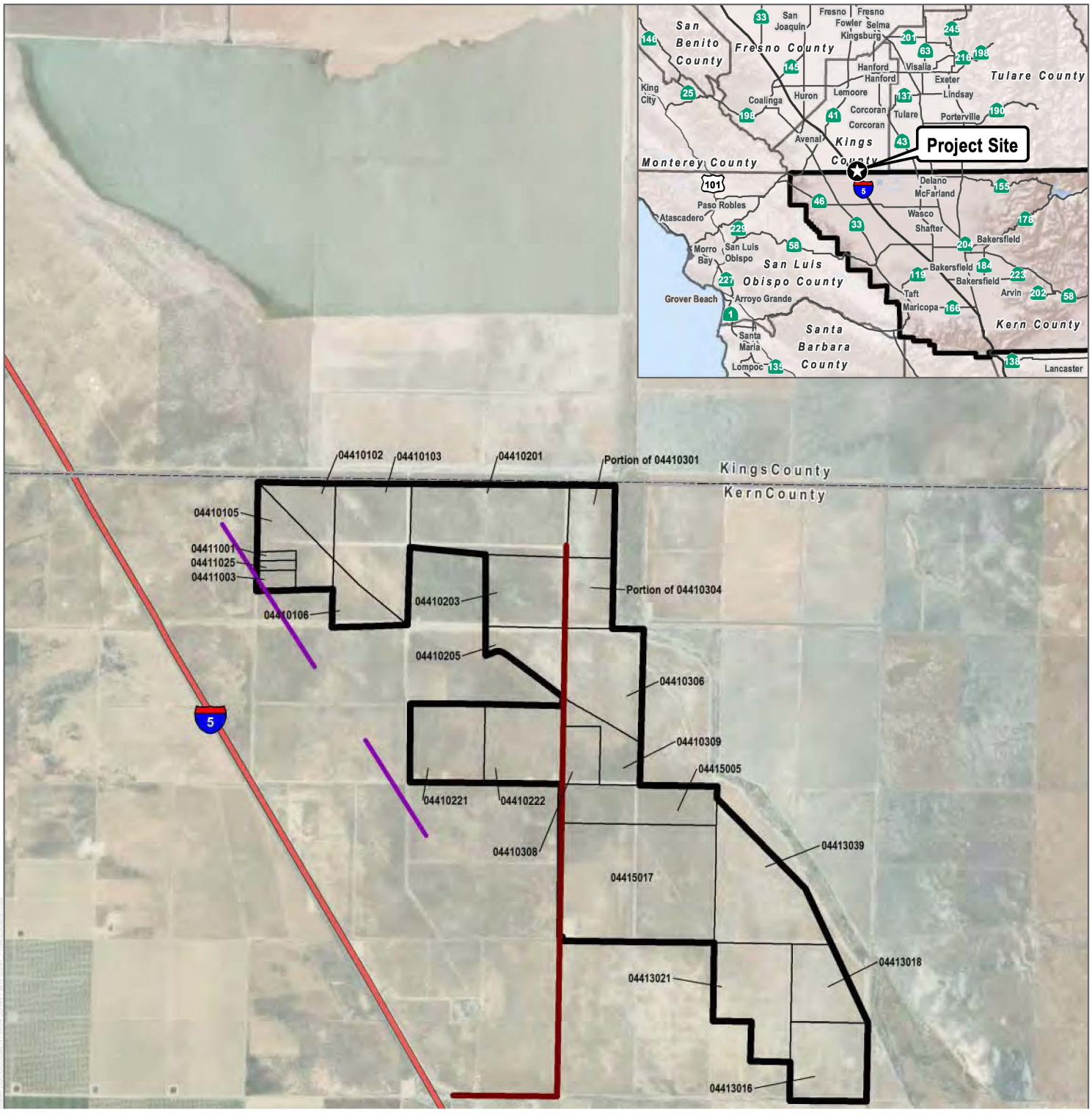
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

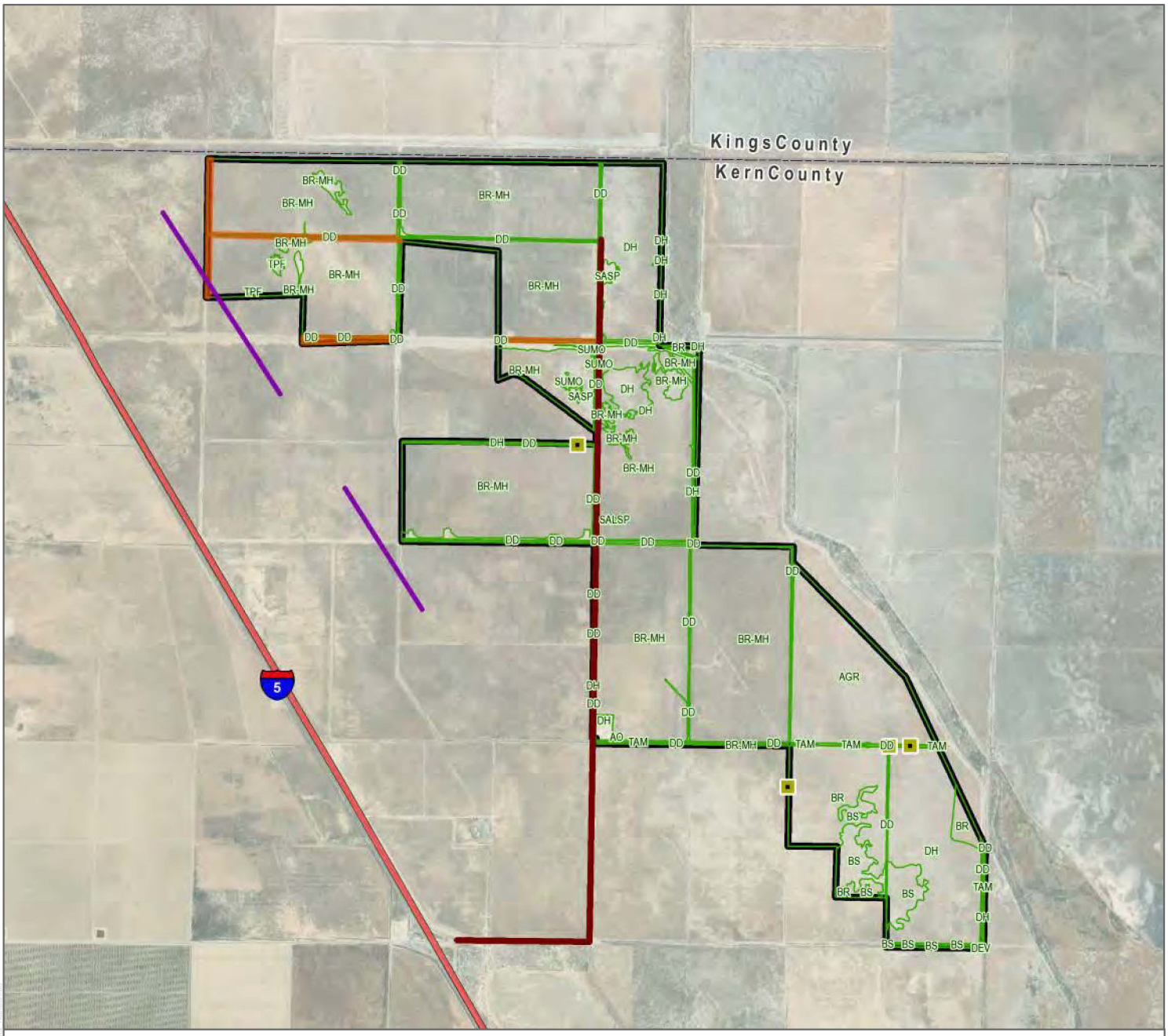
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

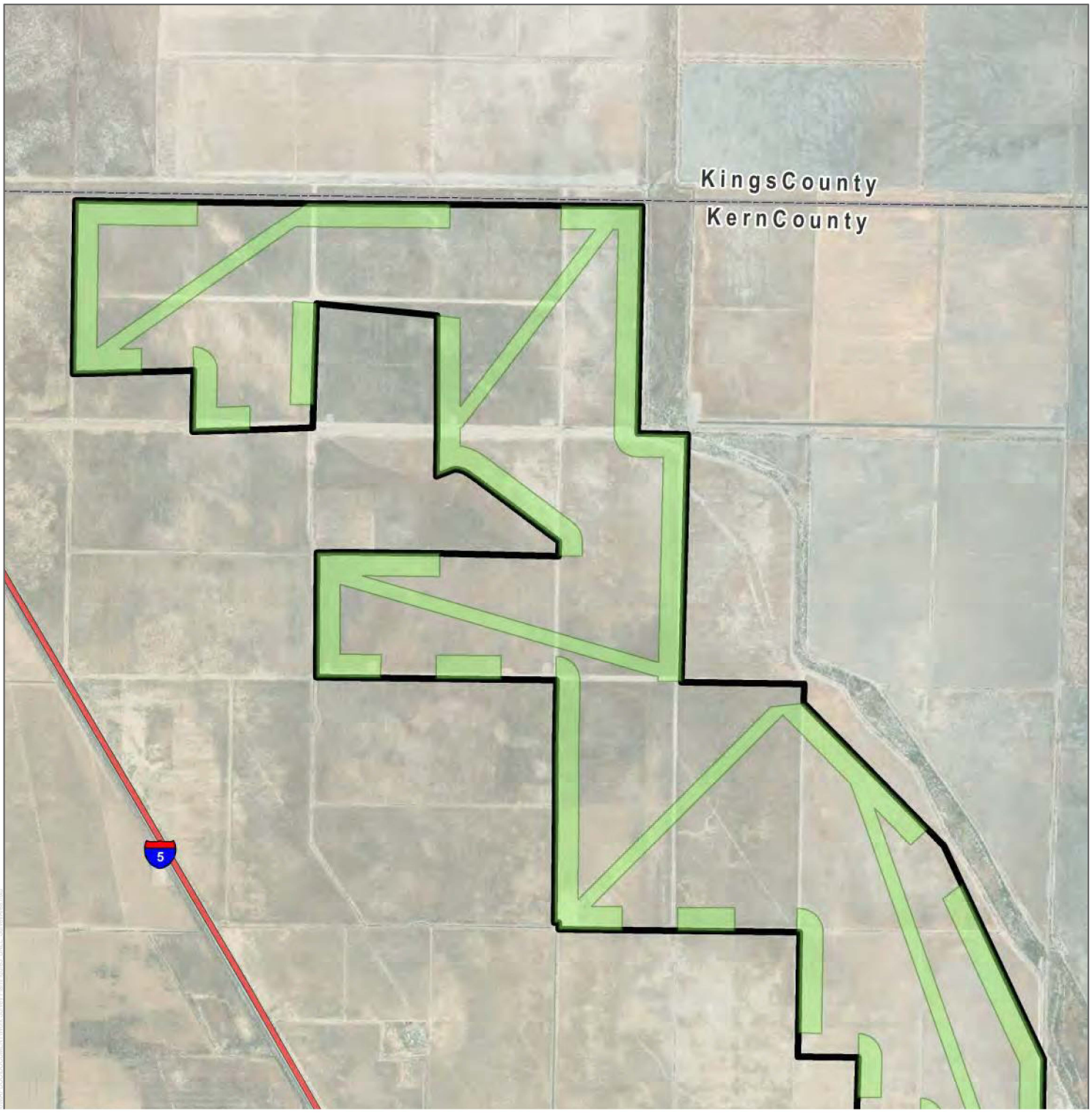
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

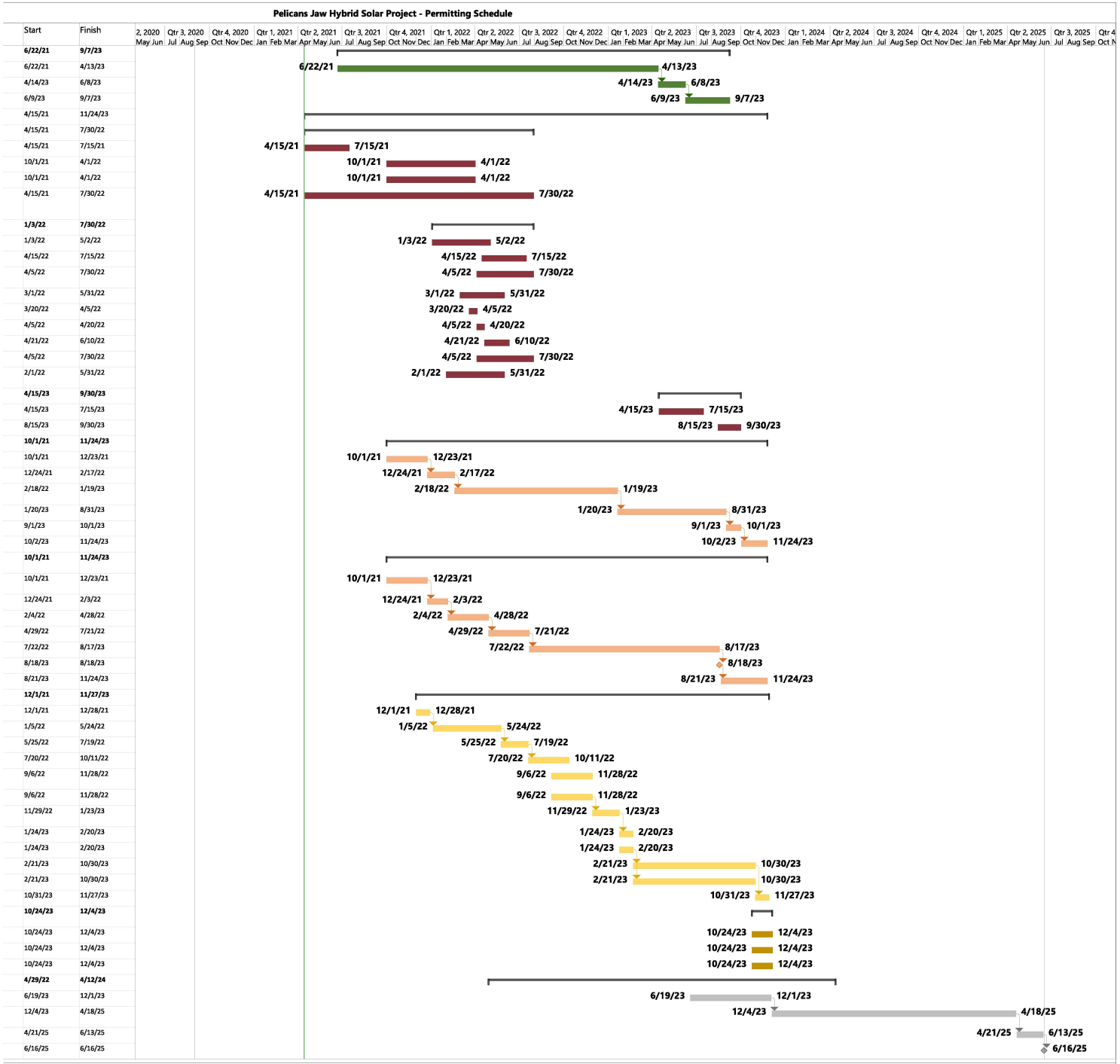
SALSP, Salsola spp. Semi-natural Association


Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

---

From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
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o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
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MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment B

USFWS and CDFW Meeting Notes, April 28, 2021

PELICANS JAW HYBRID SOLAR PROJECT

BIOLOGICAL SURVEY WORK PLAN

Date:	April 28, 2021
Time:	3:00-4:00 PM
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Location:	Zoom Video Call
Attendees:	**USFWS** – Justin Sloan
	CDFW – Carrie Swanberg
	Pelicans Jaw Solar, LLC – Hun Kim, Alphonso Jung, Tae Kwak, and Tandy McMannes
	Cox, Castle & Nicholson – Clark Morrison
	Dudek – Brock Ortega, Keith Carwana, and Anna Bischoff

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1. Project Updates

- Dudek described the recently completed habitat assessment, vegetation mapping, and jurisdictional delineation for the Pelicans Jaw Hybrid Solar Project (Project).
    - Based on the results of the on-site surveys, including the presence of hydrophytic vegetation, and greater potential for sensitive species in the Kings County portion of the Project, Pelicans Jaw Solar, LLC decided to remove all Kings County parcels from the Project.
        - With the removal of the Kings County parcels, the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres.

2. Biological Survey Work Plan

- Dudek described the Biological Survey Work Plan dated April 15, 2021 and the proposed surveys to be completed in 2021 and 2022.
    - Pelicans Jaw Solar, LLC is proposing to proceed with blunt-nosed leopard lizard (BNLL) sample surveys in 2021 or 2022 on approximately 955 acres of the approximately 3,260-acre Project site. The BNLL sample surveys are intended to inform the CEQA analysis to be prepared in advance of the required BNLL protocol-level surveys and provide critical site-specific data.

- In addition to BNLL sample surveys, Pelicans Jaw Solar, LLC is anticipated to proceed with concurrent burrow mapping for burrowing owl, San Joaquin kit fox, American badger, and San Joaquin antelope squirrel in 2021.
    - Surveys for large branchipods and western spadefoot toad are anticipated to be initiated during the 2021 wet season.
        - Dudek noted that helicopters will no longer be used to complete large branchipods and western spadefoot toad surveys given the reduction in Project size and vehicle accessibility across the Kern County parcels.
        - USFWS indicated that there was a recent observation of vernal pool fairy shrimp in Kern County.
- Pelicans Jaw Solar, LLC anticipates completing the following surveys in 2022: golden eagle, kangaroo rat trapping, Swainson's hawk, tricolored blackbird, and Buena vista ornate shrew.
    - Dudek noted that a survey work plan will be prepared for Buena vista ornate shrew and small mammal trapping, prior to implementing the surveys and trapping efforts.

3. CDFW and USFWS Discussions

- CDFW recommended conducting full protocol level survey for BNLL but understood the need to conduct sample surveys to support the CEQA analysis in advance of full protocol level surveys within one-year of ground disturbing activities.

    - CDFW was comfortable with the BNLL sample survey area depicted in Figure 3 of the Biological Survey Work Plan.

    - CDFW recommended completing hatchling surveys as part of the proposed BNLL sample surveys.

        - **Action item:** Pelicans Jaw Solar, LLC and Dudek mentioned that they will look into adding hatchling surveys during the BNLL juvenile survey period of August 15 to September 30.

    - Dudek inquired if there is any leeway to begin ground disturbing activities slightly after the one-year BNLL survey period has expired.

        - CDFW indicated that it is their preference to have ground disturbing activities begin

        - CDFW offered to assist and answer any questions that may arise regarding a Streambed Alteration Agreement.

- USFWS inquired about the species anticipated to be included in the Habitat Conservation Plan (HCP)
    - Cox, Castle & Nicholson indicated that that the species to be included will be dependent on the results of the anticipated biological surveys.
    - Cox, Castle & Nicholson asked if USFWS can provide a sample HCP that covers similar species to those with the potential to occur on the Project site.
        - **Action item:** USFWS to provide HCP sample(s).
- In regard to compensatory mitigation, USFWS will request mitigation to the maximum extent practical.
    - USFWS did not want to provide a mitigation ratio at this time until the full suite of impacts is known.

4. Next Steps

- Pelicans Jaw Solar, LLC is anticipated to implement the Biological Survey Work Plan dated April 15, 2021. Pelicans Jaw Solar, LLC will inform CDFW and USFWS of any major changes to be implemented to the Biological Survey Work Plan.

Attachment E

Survey Field Logs

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23110	
Date	*2022-06-15*
Biologist	*Grace Sanclemente, Shana Carey*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*7:37 AM–12:35 PM*
Conditions	*68–93°F; 0% cloud cover; 0–3 mph wind*
Visit Type	
Notes	*Biologists Grace Sanclemente and Shana Carey began surveying at the SE corner of the site and worked westward. Transects 16 through 14 have been surveyed - a total of 105 acres.* *All possible SJKF, BUOW, AMBA, and active small mammal burrows have been uploaded to Collector. Burrows large enough for SJKF, AMBA, and BUOW have been indicated with a burrow point encased by triangles using the Generic Polygon feature. Large burrows were often found in the ditches running parallel and perpendicular to Twisselman Road. No special-status species were observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:37:00*
TEMPERATURE	*°F*
Air Temp	*68*
Air Temp	*68*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*12:35:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*06151606GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	
Description	*Close-up of north-facing burrow in ditch parallel to Twisselman Road.*

Photos	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*Complex of large burrows within ditch running parallel to Twisselman Road. Burrows face north.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23158	
Date	*2022-06-16*
Biologist	*Grace Sanclemente*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*7:20 AM–3:15 PM*
Conditions	*67–92°F; 0% cloud cover; 1–4 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*Grace S. and Josh M. surveyed transects 118 through 167 in the SE region of the site. A total of 8.5 miles of transects have been surveyed which covered approximately 160 acres.* *All potentially active SJKF, BUOW, AMBA and small mammal burrows have been uploaded in Collector. To differentiate burrows large enough for SJKF, BUOW, and AMBA within Collector, burrow points have been encased by a triangle using the Generic Polygon feature.* *All large burrows observed belonged to AMBA - most of which were located in ditches and were too shallow to consider active. However, there was abundant evidence of kangaroo rat and whiptail lizard activity near the AMBA burrows. No special-status species were directly observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:20:00*
TEMPERATURE	*°F*
Air Temp	*67*
Air Temp	*67*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*15:15:00*
TEMPERATURE	*°F*
Air Temp	*92*
Air Temp	*92*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*06161610GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*Belding's orange-throated whiptail (Aspidoscelis hyperythra beldingi), R-BOWH*
Observation ID (Copy and paste into Collector)	*06161612GS-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*06161613GS-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23188	
Date	*2022-06-17*
Biologist	*Grace Sanclemente, Joshua McLaughlin, Tamara Bryant, Teodora Ungureanu*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*7:00 AM–2:10 PM*
Conditions	*58–70°F; 70–80% cloud cover; 2–8 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:00:00*
TEMPERATURE	*°F*
Air Temp	*58*
Air Temp	*58*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*70*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*14:10:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*80*
WIND	*mph*
Minimum Wind Speed (mph)	*4*

Wildlife List	
Species Name	*black-tailed jackrabbit (Lepus californicus), M-BTJR*
Observation ID (Copy and paste into Collector)	*06170709JM-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*northern mockingbird (Mimus polyglottos), B-NOMO*
Observation ID (Copy and paste into Collector)	*06170709JM-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*mourning dove (Zenaida macroura), B-MODO*
Observation ID (Copy and paste into Collector)	*06170710JM-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*cliff swallow (Petrochelidon pyrrhonota), B-CLSW*
Observation ID (Copy and paste into Collector)	*06171711JM-04-04*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*06171711JM-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*06171711JM-06-06*
Record Lat/Long	

FORMS DUDEK FIELD DATA REPORT

Wildlife List	
Species Name	*loggerhead shrike (Lanius ludovicianus), B-LOSH*
Observation ID (Copy and paste into Collector)	*06171712JM-07-07*
Record Lat/Long	
Federal and State Status	*None/SSC*

Wildlife List	
Species Name	*red-tailed hawk (Buteo jamaicensis), B-RTHA*
Observation ID (Copy and paste into Collector)	*06171712JM-08-08*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23344	
Date	*2022-06-22*
Biologist	*Heather Neldner, Joshua McLaughlin, Madison Bloom, Teodora Ungureanu*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*7:30 AM–3:24 PM*
Conditions	*76–96°F; 20–70% cloud cover; 2–15 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*No kit fox dens were found. However, many American badger burrows were found and documented in Collector. There was a higher concentration of AMBA dens within the trenches for the reservoirs. Small mammal burrows have also documented on Collector.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:30:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*70*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*15:24:00*
TEMPERATURE	*°F*
Air Temp	*96*
Air Temp	*96*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*20*
WIND	*mph*
Minimum Wind Speed (mph)	*8*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*mourning dove (Zenaida macroura), B-MODO*
Observation ID (Copy and paste into Collector)	*06221953TU-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*06221953TU-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*black-tailed jackrabbit (Lepus californicus), M-BTJR*
Observation ID (Copy and paste into Collector)	*06221954TU-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*Kangaroo rat skull that was found while surveying.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23377	
Date	*2022-06-23*
Biologist	*Grace Sanclemente, Heather Neldner, Joshua McLaughlin, Madison Bloom, Randy Thomas, Teodora Ungureanu*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:30 AM–1:19 PM*
Conditions	*72–97°F; 0–10% cloud cover; 1–5 mph wind*
Visit Type	
Notes	*No kit fox dens have been found, only American badger and small mammal burrows which have been documented on Collector.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:30:00*
TEMPERATURE	*°F*
Air Temp	*72*
Air Temp	*72*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*

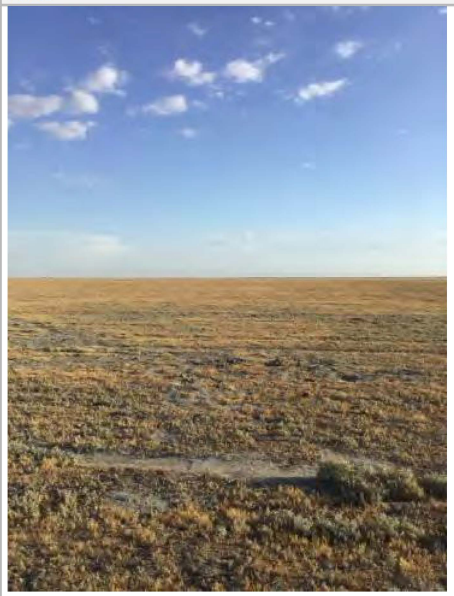
Survey Conditions	
Status	*End*
Time	*13:19:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*3*

FORMS FIELD DATA REPORT

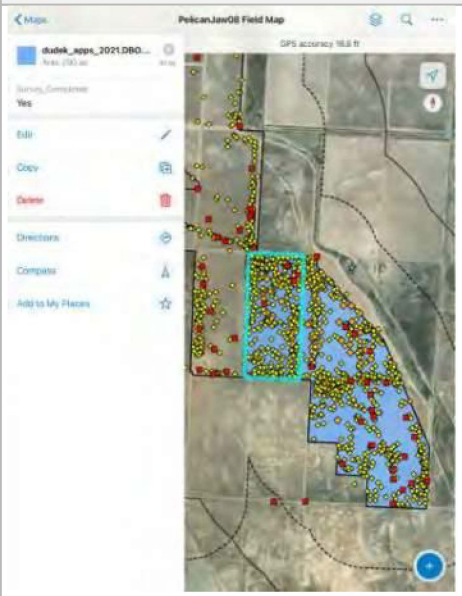
Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*06231627TU-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*06231630TU-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*Tiger whiptail (), B-*
Observation ID (Copy and paste into Collector)	*06231630TU-03-03*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Photos	
Type	*Photo*
Photo	
Description	*Area that was surveyed.*

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23416	
Date	*2022-06-24*
Biologist	*Grace Sanclemente, Joshua McLaughlin, Randy Thomas, Teodora Ungureanu*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:30 AM–1:21 PM*
Conditions	*72–97°F; 0% cloud cover; 3–7 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*No kit fox burrows were found. However, some old kit fox scat was found; pictures are attached.* *American badger and small mammal burrows were found and documented on Collector. Two deceased rodents were collected and taken off site for identification.* *Many juvenile and adult common side-blotched lizards were spotted.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:30:00*
TEMPERATURE	*°F*
Air Temp	*72*
Air Temp	*72*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*3*

Survey Conditions	
Status	*End*
Time	*13:21:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*06241725TU-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*06241725TU-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	
Description	*Kit fox scat.*

Photos	
Type	*Photo*

Photo	
Description	*Kit fox scat at another location. Quarter for size reference.*

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23485	
Date	*2022-06-28*
Biologist	*Teodora Ungureanu*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:22 AM–1:17 PM*
Conditions	*72–100°F; 0% cloud cover; 2–6 mph wind*
Visit Type	
Notes	*No kit fox dens were found. However, there is a high density of small mammal burrow clusters that were recorded on collector for future reference.*
Number of Nests Observed	*0*

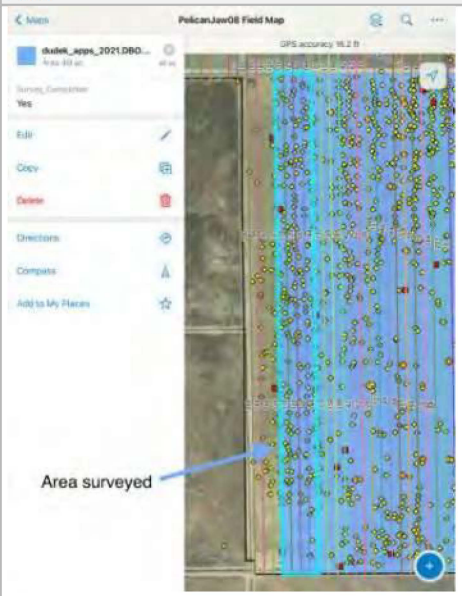
Survey Conditions	
Status	*Start*
Time	*06:22:00*
TEMPERATURE	*°F*
Air Temp	*72*
Air Temp	*72*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*13:17:00*
TEMPERATURE	*°F*
Air Temp	*100*
Air Temp	*100*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*5*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*06281656TU-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*Tiger whiptail (), R-*
Observation ID (Copy and paste into Collector)	*06281702TU-02-02*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed. Yellow diamonds represent small mammal burrow clusters. Large orange diamonds represent large mammal burrows (i.e. American badger, San Joaquin kit fox). No active large mammal burrows were found today.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23551	
Date	*2022-06-29*
Biologist	*Grace Sanclemente, Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:30 AM–1:29 PM*
Conditions	*70–89°F; 0% cloud cover; 1–5 mph wind*
Visit Type	
Notes	*Madison Bloom and Grace Sanclemente surveyed transects 91-174, Approximately 95 acres. Many burrows present, to save time we documented about every 5 small mammal clusters. One observation of kangaroo rat. No San Joaquin kit Fox burrows were found.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:30:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*13:29:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23530	
Date	*2022-06-30*
Biologist	*Grace Sanclemente, Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:45 AM–12:10 PM*
Conditions	*68–91°F; 0% cloud cover; 0–4 mph wind*
Visit Type	
Notes	*Grace and Madison surveyed transects 191 through 52, covering approximately 96 acres.* *All small mammal burrows were updated to Field Maps. Due to high density, one cluster of every five were documented. Density of small mammal burrows decreased as survey moved westward.* *No observations of SJKF, BUOW and AMBA.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:45:00*
TEMPERATURE	*°F*
Air Temp	*68*
Air Temp	*68*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*12:10:00*
TEMPERATURE	*°F*
Air Temp	*91*
Air Temp	*91*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*

FORMS DUDEK FIELD DATA REPORT

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*06300836GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	
Description	*Skeletal remains of kangaroo rat found along transect 168. Generic point dropped at location.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23554	
Date	*2022-07-01*
Biologist	*Grace Sanclemente, Madison Bloom, Shana Carey, Teodora Ungureanu*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:30 AM–11:45 AM*
Conditions	*65–86°F*
Visit Type	
Notes	*Monitors surveyed transects 52-164, and partially 144-200; total of 212 acres.* *All burrows were updated to Field Maps. No observations of special-status species.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:30:00*
TEMPERATURE	*°F*
Air Temp	*65*
Air Temp	*65*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*11:45:00*
TEMPERATURE	*°F*
Air Temp	*86*
Air Temp	*86*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*07011131GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*07011131GS-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*mourning dove (Zenaida macroura), B-MODO*
Observation ID (Copy and paste into Collector)	*07011132GS-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*07011132GS-04-04*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*tiger whiptail (Aspidoscelis tigris), R-TIWH*
Observation ID (Copy and paste into Collector)	*07011133GS-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*Sample of surveyed field. Flat with sparse atriplex - suitable ground for kangaroo rat.*

FORMS FIELD DATA REPORT

Bio Field Data

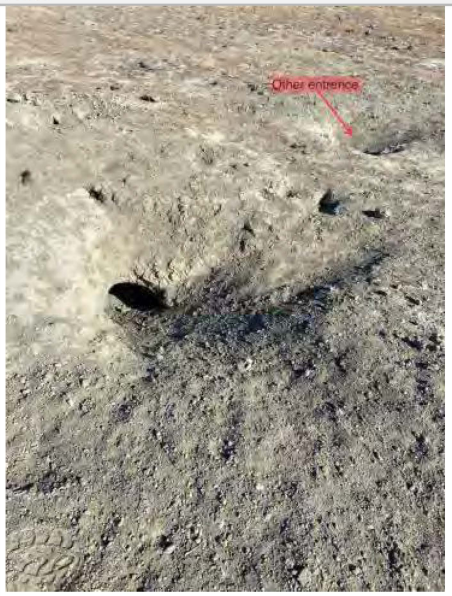
Record: 23653	
Date	*2022-07-07*
Biologist	*Grace Sanclemente, Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:28 AM–12:10 PM*
Conditions	*65–81°F; 0% cloud cover; 1–7 mph wind*
Visit Type	
Notes	*Grace & Madison partially surveyed transects 71 through 108, covering approximately 112 acres. All active small mammal burrows and large burrows suitable for special-status species were uploaded to Field Maps.* *Two large burrows found on transect 48. Presumed to be a SJKF den raided by coyotes - signs of both mammals near burrow entrances. Scat looks very dated, but wildlife cameras will be set up tomorrow (7/08/22) to confirm whether the burrows are inactive.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:28:00*
TEMPERATURE	*°F*
Air Temp	*65*
Air Temp	*65*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*12:10:00*
TEMPERATURE	*°F*
Air Temp	*81*
Air Temp	*81*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*07070908GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	
Description	*Presumed old SJKF den on transect 48. Camera monitoring will confirm status.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23737	
Date	*2022-07-08*
Biologist	*Grace Sanclemente, Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:25 AM–11:04 AM*
Conditions	*68–84°F; 10% cloud cover; 1–5 mph wind*
Visit Type	
Notes	*Grace and Madison surveyed transects 144 through 40 - a total of 108 acres.* *All locations of small mammal burrows and large burrows were uploaded to Field Maps. Observations of BUOW activity were found on transects 26 and 130. One kangaroo rat carcass was found on the apron of the large burrow located along transect 26. No observations of SJKF activity/burrows.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:25:00*
TEMPERATURE	*°F*
Air Temp	*68*
Air Temp	*68*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*11:04:00*
TEMPERATURE	*°F*
Air Temp	*84*
Air Temp	*84*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Wind	

FORMS FIELD DATA REPORT

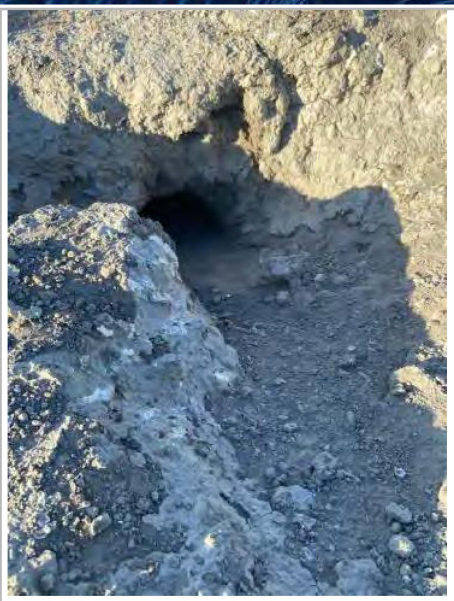
Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*07081837GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*Black-tailed jack rabbit (), B-BTJR*
Observation ID (Copy and paste into Collector)	*07081838GS-02-02*
Record Lat/Long	
Federal and State Status	

Photos	
Type	*Photo*
Photo	
Description	*Kangaroo rat carcass found on transect 26.*

Photos	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*Large burrow (1 of 2) with signs of burrowing owl activity.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23779	
Date	*2022-07-11*
Biologist	*Donovan Rose, Grace Sanclemente, Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*7:30 AM–12:35 PM*
Conditions	*76–95°F; 0% cloud cover; 0–3 mph wind*
Visit Type	
Notes	*Grace, Madison and Donovan finished surveying transects 144-51 & partially surveyed transects 186-60; a total of 155 acres. Surveyed area has been been uploaded using the "SJKF Completed Surveys" layer on Field Maps.* *All locations for active small and large mammal burrows have been uploaded to Field Maps. Large burrows observed did not have signs of SJKF activity, but some SJKF scat was found within the survey area.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:30:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*12:35:00*
TEMPERATURE	*°F*
Air Temp	*95*
Air Temp	*95*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*black-tailed jackrabbit (Lepus californicus), M-BTJR*
Observation ID (Copy and paste into Collector)	*07111236GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*07111237GS-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*07111237GS-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23824	
Date	*2022-07-12*
Biologist	*Donovan Rose, Grace Sanclemente, Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:44 AM–2:00 PM*
Conditions	*73–100°F; 0% cloud cover; 1–5 mph wind*
Visit Type	
Notes	*Grace, Madison & Donovan finished surveying transects 186 through 60, and partially surveyed transects 41 through 200. Total area surveyed: approx. 125 acres.* *All locations of active small/large mammal burrows were uploaded to Field Maps. One potentially active SJKF den observed on transect 208. Wildlife cameras have been deployed on two potentially active SJKF dens - one located on transect 208 and the other located on transect 48. No direct observations of special-status species.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:44:00*
TEMPERATURE	*°F*
Air Temp	*73*
Air Temp	*73*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*14:00:00*
TEMPERATURE	*°F*
Air Temp	*100*
Air Temp	*100*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*

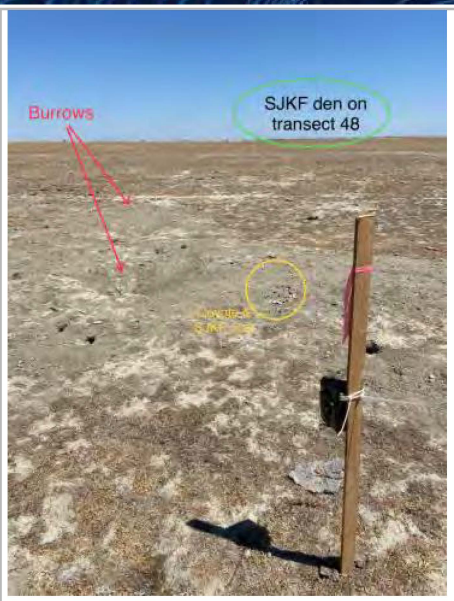
FORMS FIELD DATA REPORT

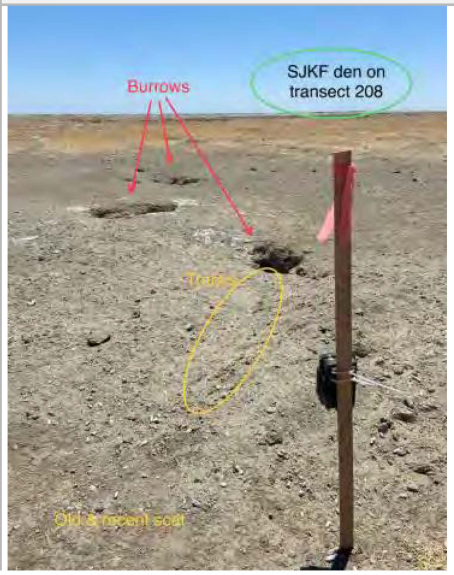
Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*07121435GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*07121435GS-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	
Description	*Surveyed field where new SJKF den was observed (transects 208-200).*

Photos	
Type	*Photo*

Photo	
Description	*Potentially active SJKF den on transect 48.*

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 23839	
Date	*2022-07-13*
Biologist	*Donovan Rose, Grace Sanclemente*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:35 AM–12:30 PM*
Conditions	*69–93°F; 0% cloud cover; 1–6 mph wind*
Visit Type	
Notes	*Grace and Donovan partially surveyed transects 61 through 41 - covering a total of 103 acres.* *Locations of potentially active small & large mammal burrows have been uploaded to Field Maps. One SJKF den observed on transect 15 - wildlife camera will be deployed next week.* *SJKF sighting along transect 194. Kit fox was observed emerging from a burrow within the canal wall. The fox walked around for a few minutes, and then went into another nearby burrow. Wildlife camera will be deployed to affirm that the SJKF is living in the burrow it emerged from. Wildlife, Burrow, and Photo points have been uploaded to Field Maps.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:35:00*
TEMPERATURE	*°F*
Air Temp	*69*
Air Temp	*69*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

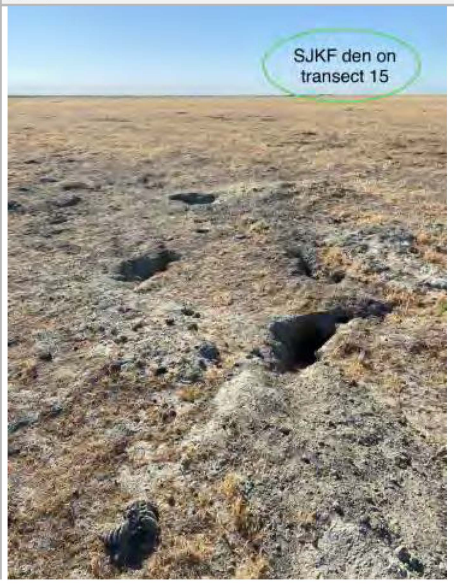
Survey Conditions	
Status	*End*
Time	*12:30:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*0*
Water Temp	*0*
Visibility	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*07131743GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*07131744GS-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*San Joaquin kit fox (Vulpes macrotis mutica), M-SJKF*
Observation ID (Copy and paste into Collector)	*07131744GS-03-03*
Record Lat/Long	
Federal and State Status	*FE/ST*

Photos	
Type	*Photo*
Photo	

FORMS DUDEK FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*SJKF observed in canal perpendicular to transect 194.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 24007	
Date	*2022-07-18*
Biologist	*Grace Sanclemente, Joshua McLaughlin*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:30 AM–1:15 PM*
Conditions	*76–98°F; 10–30% cloud cover; 1–6 mph wind*
Visit Type	
Notes	*Grace and Josh partially surveyed transects 190 through 73, & completed transects 208 through 200, covering a total of approx. 150 acres. Completed survey area has been uploaded to Field Maps.* *All potentially active small/large mammal burrows have been uploaded to Field Maps. Surveyed fields had a significantly lower burrow density compared to all other previously surveyed areas.* *Potentially active SJKF burrows were found in the canal running perpendicular to transect 208. This is the same area/canal where the SJKF was observed last week.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:30:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*13:15:00*
TEMPERATURE	*°F*
Air Temp	*98*
Air Temp	*98*
Soil Temp	*0*
Water Temp	*0*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*07181014GS-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

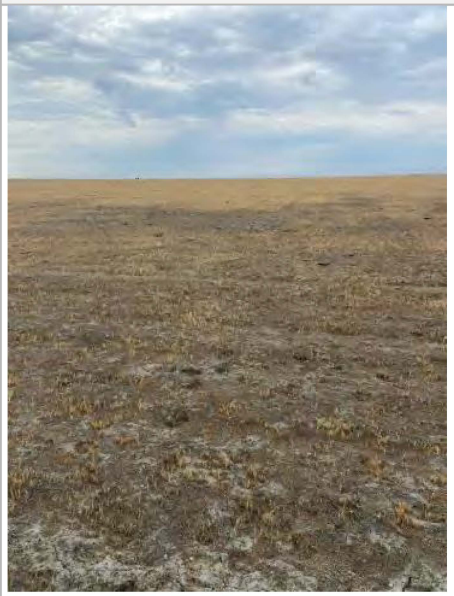
Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*07181014GS-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*07181014GS-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*Surveyed field (transects 190 through 200).*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 24262	
Date	*2022-07-27*
Biologist	*Madison Bloom, Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:44 AM–12:12 PM*
Conditions	*70–89°F; 0–10% cloud cover; 1–4 mph wind*
Visit Type	
Notes	*Tamara Bryant and Madison Bloom surveyed approximately 55 acres from 6 am to 12 pm. There were few small mammal burrows found, one possible badger burrow and no kit fox activity seen.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:44:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*12:12:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*mourning dove (Zenaida macroura), B-MODO*
Observation ID (Copy and paste into Collector)	*07270706MB-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	
Description	*Survey area*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 24271	
Date	*2022-07-28*
Biologist	*Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:33 AM–11:55 AM*
Conditions	*72–92°F; 0–10% cloud cover; 0–3 mph wind*
Visit Type	
Notes	*Madison Bloom surveyed 50 acres from 6:30am to 12 pm. No active kit fox burrows were surveyed today. There were few small mammal burrows observed and one possible burrowing owl burrow with old pellets surrounding it. Likely inactive.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:33:00*
TEMPERATURE	*°F*
Air Temp	*72*
Air Temp	*72*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*11:55:00*
TEMPERATURE	*°F*
Air Temp	*92*
Air Temp	*92*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*Survey area*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 24319	
Date	*2022-07-29*
Biologist	*Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:43 AM–12:05 PM*
Conditions	*71–92°F; 10–20% cloud cover; 1–4 mph wind*
Visit Type	
Notes	*Madison Bloom surveyed 50 acres of Pelicans Jaw Project site. No large mammal burrows were found, no sign of kit fox activity. Few small mammal burrows were observed in this area.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:43:00*
TEMPERATURE	*°F*
Air Temp	*71*
Air Temp	*71*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*20*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	

Survey Conditions	
Status	*End*
Time	*12:05:00*
TEMPERATURE	*°F*
Air Temp	*92*
Air Temp	*92*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*Survey area*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 24406	
Date	*2022-08-01*
Biologist	*Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:48 AM–1:00 PM*
Conditions	*77 °F; 60% cloud cover; 1 mph wind*
Visit Type	
Notes	*Surveyed 65 acres from 6am-1pm. No kit fox burrows found. No active large mammal burrows. Few small mammal burrow clusters observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:48:00*
TEMPERATURE	*°F*
Air Temp	*77*
Air Temp	*77*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*60*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 24460	
Date	*2022-08-03*
Biologist	*Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*American Badger, San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:28 AM–1:01 PM*
Conditions	*70–95°F; 0% cloud cover; 0–2 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*Surveyed 70 acres. No kit fox activity seen today, no active large mammal burrows found.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:28:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*13:01:00*
TEMPERATURE	*°F*
Air Temp	*95*
Air Temp	*95*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*Survey area*

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 24484	
Date	*2022-08-04*
Biologist	*Madison Bloom*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*San Joaquin Kit Fox Pedestrian Surveys*
Time	*6:38 AM–12:01 PM*
Conditions	*72–95°F; 20–70% cloud cover; 0–4 mph wind*
Visit Type	
Notes	*75 acres surveyed from 6-12pm. No large mammal burrows found, no kit fox activity seen. Large concentration of small mammal burrow clusters found.*
Number of Nests Observed	*0*

Attachment F

Photo Log



San Joaquin kit fox activity at a den near the northwest portion of the Project site.





San Joaquin kit fox activity at Position 5-4





San Joaquin kit fox activity at Position 5-7





San Joaquin kit fox activity at Position 5-11





San Joaquin kit fox activity at Position 6-4





San Joaquin kit fox activity at Position 6-7





San Joaquin kit fox activity at Position 6-11





San Joaquin kit fox activity at Position 8-2





San Joaquin kit fox activity at Position 8-5





San Joaquin kit fox activity at Position 8-9





San Joaquin kit fox activity at Position 9-2





San Joaquin kit fox and American badger activity at Position 9-7





San Joaquin kit fox activity at Position 16-3





San Joaquin kit fox activity at Position 16-7





San Joaquin kit fox activity at Position 16-13





San Joaquin kit fox activity at Position 22-5



Appendix D
Golden Eagle Survey Report

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

Tandy McMannes
Project Development Director - West
Pelicans Jaw Solar, LLC

July 7, 2022

Subject: Golden Eagle Surveys for the Pelicans Jaw Hybrid Solar Project, Kern County, California

This letter report summarizes the methods and results of Golden Eagle (GOEA; *Aquila chrysaetos*) surveys at the Pelicans Jaw Hybrid Solar Project (Project). This letter report has been prepared in support of an application submitted by Pelicans Jaw Solar, LLC for the proposed development of the Project located on unincorporated lands in northwestern Kern County, California. The Project site is located adjacent, and to the south of the border of Kern County with Kings County, approximately two miles east of the U.S. Interstate 5.

Ground surveys were completed pursuant to the Project's Biological Resources Work Plan, dated April 2021, which was transmitted to the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) on November 15, 2021, as well as the USFWS' *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations* (Interim Protocols; Pagel et al. 2010).

Regulatory Framework

GOEA are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, both of which prohibit take.

Migratory Bird Treaty Act: The Migratory Bird Treaty Act (MBTA), first enacted in 1918, is a series of treaties that the United States has with Great Britain (on behalf of Canada), Mexico, Japan, and the former Soviet Union that provide for international migratory bird protection. The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it shall be unlawful, except as permitted by regulations, "to pursue, take, or kill any migratory bird, or any part, nest or egg of any such bird" (U.S. Code Title 16, Section 703). The MBTA currently includes several hundred species and includes all native birds.

Bald and Golden Eagle Protection Act*:* The Bald and Golden Eagle Protection Act (BGEPA) of 1940 protects bald eagles (*Haliaeetus leucoephalus*) and golden eagle (*Aquila chrysaetos*) by prohibiting the taking, possession, and commerce of these species and established civil penalties for violation of this act. Take of bald and golden eagles includes to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." To disturb means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific

Literature Review

GOEA is a USFWS Bird of Conservation Concern and Fully Protected by CDFW. GOEA typically nest in canyons on cliffs and large trees in open habitats, although it has been observed nesting on transmission towers in the Central Valley, California. GOEA forages for mammalian prey in grasslands and over open areas.

Based on a review of the CDFW California Natural Diversity Database (CNDDB), there are no previously recorded GOEA occurrences (i.e., sitings) within 5 miles of the Project site. The nearest previously recorded siting is located approximately 6.1 miles south of the Project (CDFW 2022). The Project site is located within a winter (non-breeding) range area for GOEA. The Project site is located approximately 4.5 miles east of the coastal yearlong range, as shown in **Attachment A - Figure 1** (CDFW 2004).

Methods

The Interim Protocols provide guidance for aerial and ground GOEA surveys. GOEA nesting surveys were conducted in accordance with the Interim Protocols, specifically section VII.c., Ground surveys of potential habitat.

GOEA nesting surveys were conducted by Dudek experienced raptor biologist Russell Sweet on February 21, 2022, via ground survey. Surveys were conducted within the approximately 3,260-acre Project area and within one-mile of the Project area, herein referred to as the survey area. The survey area is shown in **Attachment B - Figure 2.** Mr. Sweet was joined by Dudek biologist Emma Hansen-Smith who accompanied Mr. Sweet as he searched for GOEA. Biologist resumes are provided in **Attachment C.** Pagel et al. (2010) and aerial imagery were reviewed to determine where suitable GOEA nesting habitat (i.e., areas with hills and slopes) occurred within the Project area and one-mile survey buffer to establish observations points to observe areas on cliffs, utility towers, or in trees suspected to be nesting habitat. Based on review of aerial imagery and fieldwork completed prior to the GOEA survey, it was determined there is little if any suitable nesting habitat expected on the Project site and within one mile. There are no cliffs or large trees in the survey area; therefore, no observation points were established. Transmission towers and other smaller trees within the survey area were visually scanned for potential nest presence. There are no cliffs located in the survey area and the area is not a known nest territory, therefore only one observation period (i.e., the survey conducted on February 21, 2022) was needed for this effort in compliance with the Interim Protocol.

Surveys within the one-mile buffer were conducted via public access roads and through the use of binoculars. Mr. Sweet recorded territory status, total number of GOEA, locations of GOEA observations, age class of GOEA, flight directions, and behaviors. For each observation, the following data, if applicable, were recorded: species, length of time of observation, approximate location, age, sex, morphology, subspecies, habitat, and behavior (HMANA 2014).

Weather and time of day conditions were suitable for conducting GOEA surveys as shown in Table 1, Survey Information.

Results

During the survey no active raptor nests or GOEA nests were observed. Little suitable nesting habitat was identified within the survey area. No large trees or cliffs were observed in the survey area. Several electrical transmission towers were present within the survey area, but no eagles were observed nesting within the electrical transmission towers. A few of the towers had remnants of nests and an unoccupied common raven (*Corvus corax*) nest. No potential GOEA nests were observed within the survey area.

Three GOEA individuals were observed along the east edge of the Project site during the surveys. One adult GOEA of unknown sex was observed perched on a wooden power pole within the eastern edge of the Project site; there was no sign of a nest on the wooden power pole; therefore, it was determined that this individual was likely hunting on site. The GOEA was observed perched for approximately 20 minutes before it flew off heading east out of the surveyor's vision. In addition, two adult GOEA (unknown sex) were observed soaring together over the eastern edge of the Project site. Surveyors were unable to determine if one of the soaring GOEA was the same GOEA that was perched on the wooden power pole earlier in the day. The two GOEA were observed for approximately 15 minutes as they started to soar higher to the west of the Project area and out of sight. Based on the distance these two were soaring overhead, it is difficult to determine whether they were hunting in the Project area or capturing thermals.

Three additional raptor species were observed during surveys, including great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and turkey vulture (*Cathartes aura*). No active nests were identified.

Other bird species observed during surveys included Western meadowlark (*Sturnella neglecta*), common raven, white-crowned sparrow (*Zonotrichia leucophrys*), black phoebe (*Sayornis nigricans*), mourning dove (*Zenaida macroura*), and northern mockingbird (*Mimus polyglottos*). No active nests were identified.

Conclusion

Because the GOEA observed on site during the survey appeared to be foraging and/or passing through and no nesting GOEA habitat or GOEA nests were observed in the survey area, take of GOEA is not expected to occur as a result of the Project. A pre-construction nesting bird survey would be conducted prior to the start of construction to ensure no take of any active nests occurs pursuant to the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.

If you have any questions regarding the contents of this letter report, please contact me at 760.479.4254 or bortega@dudek.com.

Sincerely,

Literature Cited

CDFW (California Department of Fish and Wildlife). 2004. California Wildlife Habitat Relationships System, California Interagency Wildlife Task Group, Golden Eagle *Aquila chrysaetos* B126. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=1682&inline

CDFW. 2022. California Natural Diversity Database. Search conducted in June 2022.

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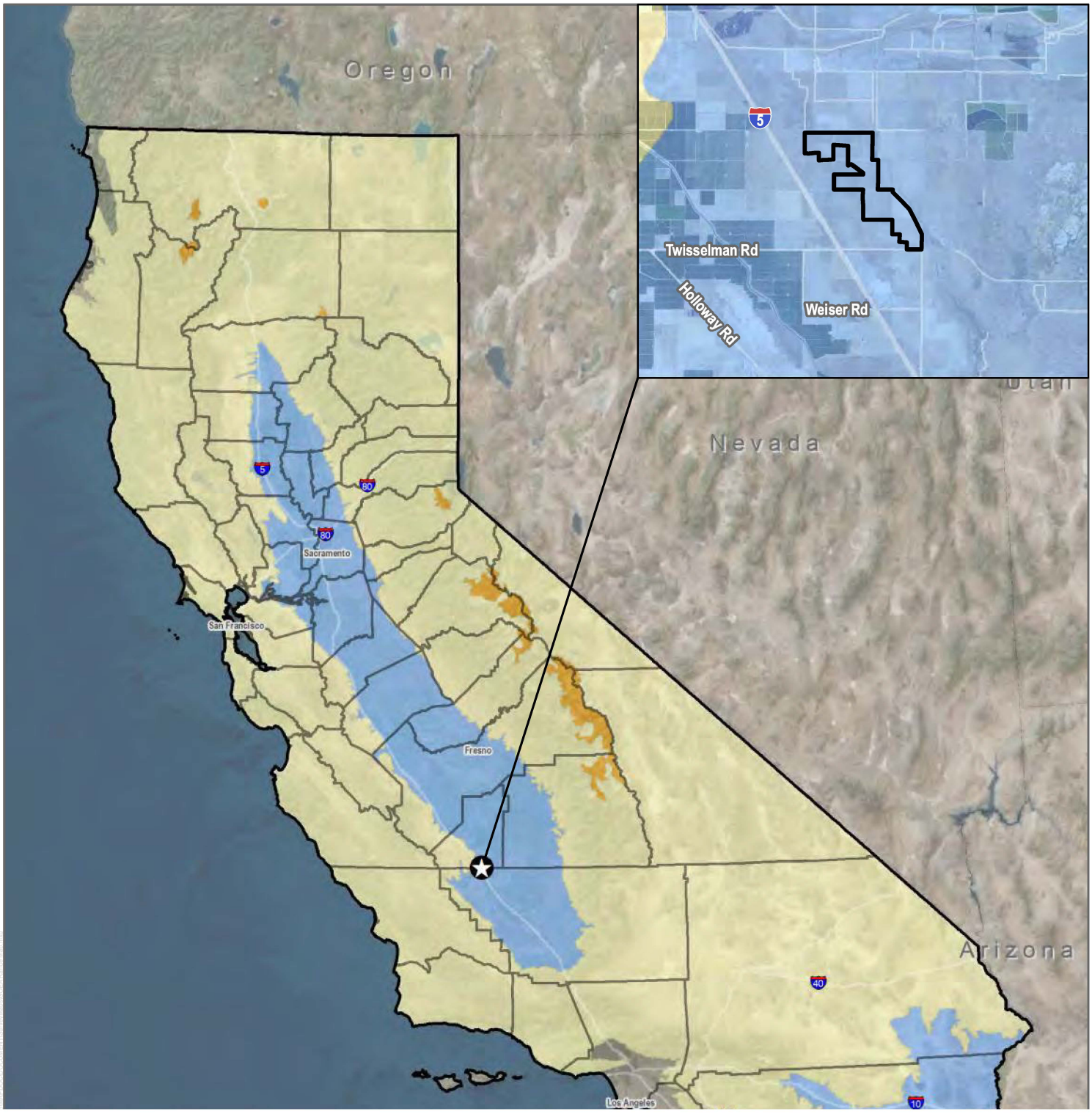
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USFWS. 2013. Eagle Conservation Plan Guidance, Module 1 – Land Based Wind Energy Version 2. April 2013. https://www.fws.gov/sites/default/files/documents/eagle-conservation-plan-guidance.pdf

USFWS. 2021. Eagle Permits; Incidental Take. A Proposed Rule by the Fish and Wildlife Services on 9/14/2021. https://www.federalregister.gov/documents/2021/09/14/2021-19717/eagle-permits-incidental-take

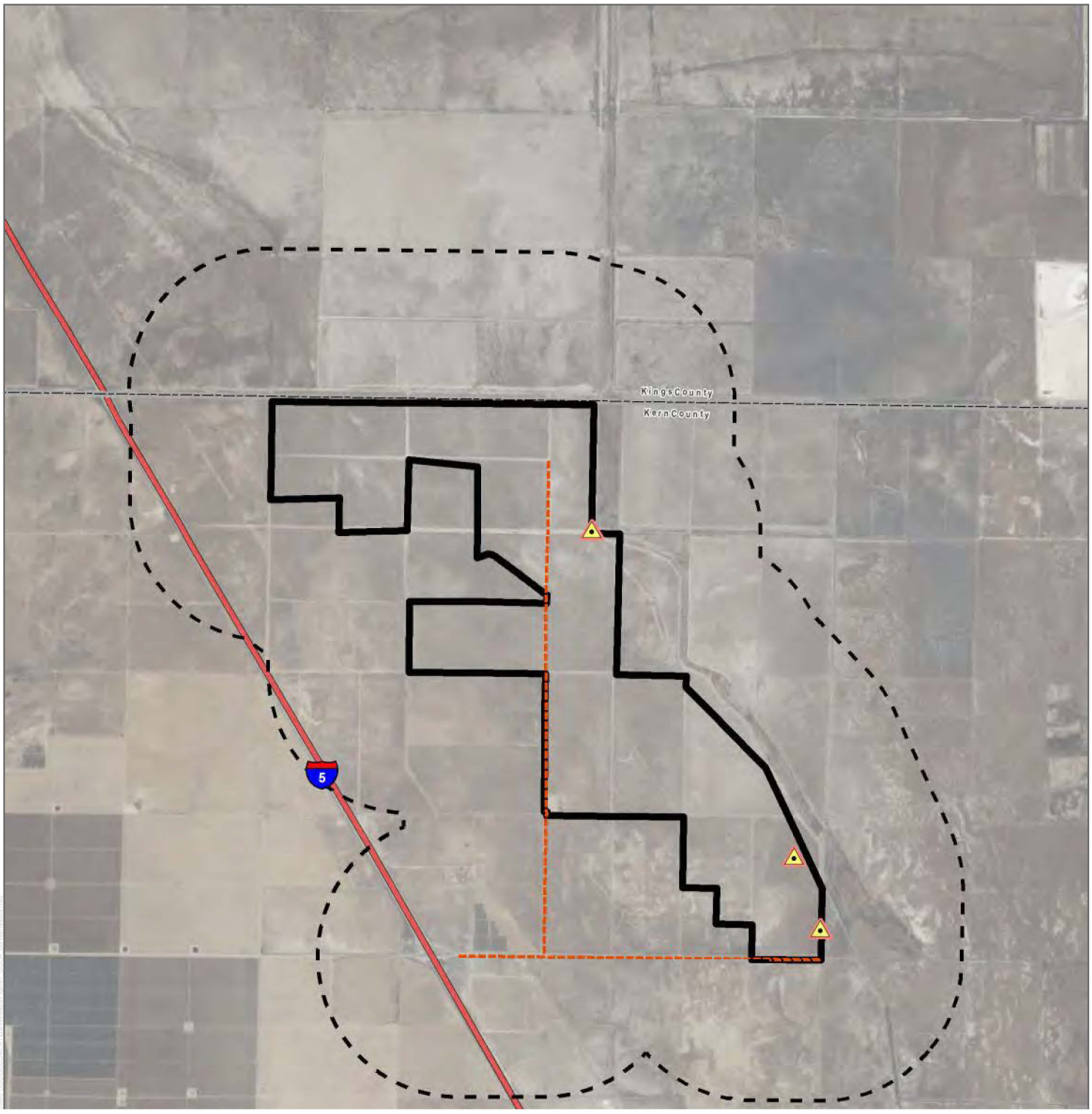
Attachment A

Figure 1 – Golden Eagle Range Map


Oregon
Nevada
Utah
Arizona
Sacramento
San Francisco
Fresno
Los Angeles
Twisselman Rd
Holloway Rd
Weiser Rd
5
80
40
10

Attachment B

Figure 2 – Golden Eagle Survey Results


Kings County
Kern County
5

Attachment C
Biologist Resumes

Russel Sweet

SENIOR BIOLOGIST

Russell Sweet is a biologist with over 22 years' professional experience working with special-status and endangered species throughout California, with an emphasis on species in the Central Valley. He is responsible for biological survey data collection and plant and animal species identification, with an emphasis on rare, threatened, endangered, and sensitive species and vegetative communities. He has conducted numerous common and special-status species surveys and habitat impact analyses in Kern, Kings, Tulare, Fresno, San Bernardino, Orange, Riverside, Inyo, and Los Angeles Counties, and performed focused surveys for San Joaquin kit fox (*Vulpes macrotis mutica),* burrowing owl (Athene cunicularia), San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), blunt-nosed leopard lizard (*Gambelia sila*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), giant kangaroo rat (*Dipodomys ingens*), least Bell's vireo (*Vireo bellii pusillus*), golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), and California gnatcatcher (*Polioptila californica californica*).

Mr. Sweet has written numerous environmental impact reports (EIRs), environmental impact statements (EISs), biological assessments (BAs), and natural environment studies in accordance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). He has also authored wetland delineation documents.

His project management experience includes overseeing budgets and personnel, coordinating schedules, and liaising with agencies, such as the California Department of Fish and Wildlife (CDFW), the U.S. Fish and Wildlife Service (USFWS), and the Bureau of Land Management (BLM).

Nesting Bird Survey Experience

Gonzaga Ridge Wind Farm, Merced County, California. Conducted biological surveys, including eagle and raptor surveys, to provide Scout and DPR with information to minimize the environmental impacts of replacing 30-year-old wind energy turbines with modern generation equipment. In 2018 and 2019,

Education

California State University, Bakersfield

BS, Biology, 1999

Institution
Degree(s), Year of Completion

Certifications

- *CDFW Plant Voucher Collecting Permit No. 2081(a)-22-095-V*
- *CDFW, Metropolitan Bakersfield HCP Incidental Take Permit approved San Joaquin kit fox surveyor*
- *Southwestern Willow Flycatcher Workshop Certificate, Southern Sierra Research Station, 2008*
- *Clean Water Act, Section 404, Nationwide, and Other Specialized Permits (University of California, Davis, 2005)*
- *Desert Tortoise Council 10th Annual Surveying, Monitoring, and Handling Techniques Certificate, 2001*

Professional Affiliations

Confidential Wind Project, Santa Barbara County, California. Conducted all-day golden eagle nest surveys; 800-meter raptor surveys; positively identify all raptors nesting, foraging, and migrating through the project site using visual and auditory cues. Worked with lead biological staff, GIS analysts, and IT technical team in standardizing data to be collected and implemented into electronic survey forms for analysis. Identified GOEA (fledglings, juveniles, sub-adults, and adults). Conducted over 40 hours of surveying, with eight individuals observed and one nest.

Proxima Solar Development Project, Stanislaus County, California. Focused Swainson's hawk surveys were conducted according to the CDFW-endorsed protocol for the Central Valley, developed by the Swainson's Hawk Technical Advisory Committee (SHTAC 2000). Three surveys were conducted in each of two survey periods: April 5 to April 20 Period III) and June 10 to July 31 (Period V). Visits to monitor progress at known nest sites were conducted during Period IV (April 20 to June 10). Because surveys began late, none were conducted during Period II of the protocol (March 20 to April 5). Surveys focused on nest building, breeding behavior, territory displays, and locating nest structures. Two occupied nest sites were documented on the project site, one of which was observed in an almond orchard, the other in a willow adjacent to a man-made pond. Monitoring visits were conducted within the protocol; however, some very brief based on displaying behaviors by the adults (agitation, calling from nest, etc.). One nest was able to be verified for young. The second nest was within dense foliage of a black willow and could not be seen during once leafed out. Based on behavior of adults, it was determined young were present at the time of the surveys. Mr. Sweet conducted approximately 30 survey hours on nest monitoring. Several SWHA were also observed foraging about the project site and in the vicinity. Conducted over 60 hours of surveying, with eight individuals observed and two nests.

California Department of Water Resources, San Joaquin Branch, California. Conducted protocol-level Swainson's hawk surveys throughout Kern, Kings, Merced, San Joaquin, and Stanislaus Counties, following the California Department of Fish and Wildlife (CDFW) endorsed protocol for the Central Valley. Conducted reconnaissance-level burrow mapping surveys for the San Joaquin branch of the California Aqueduct, spanning Kern and Kings Counties. Species surveyed for include American badger (*Taxidea taxus*), burrowing owl (*Athene cunicularia*), giant kangaroo rat (*Dipodomys ingens*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), blunt-nosed leopard lizard (*Gambelia sila*) and San Joaquin kit fox (*Vulpes macrotis mutica*). Survey lead for San Joaquin kit fox and Buena Vista Lake ornate shrew (*Sorex ornatus relictus*) camera studies.

Confidential Solar Project, Kern County, California. Focused Swainson's hawk surveys were conducted according to the CDFW-endorsed protocol for the Antelope Valley. A total of ten surveys were conducted as per the protocol. One survey, January to March 31 (Period I), three surveys were conducted on April 1 to April 30 (Period II), again in May 1 to May 30 (Period III) and June 1 to July 15 (Period IV). Surveys focused on nest building, breeding behavior, territory displays, and locating nest structures. The project site and a 5-mile buffer were surveyed in accordance with protocol covering approximately 144-miles of mixed Joshua tree woodland and ornamental trees associated with residential housing. Conducted over 130 hours of surveying, with no individuals observed and no nests.

incubating on the nest while one male was observed foraging within the area. Two additional observations of Swainson's hawks were observed in the survey area of approximately 1-mile radius of Ash Slough. No additional nests were observed. Conducted eight hours of nest monitoring on identified nest pre-construction and during construction activities. Conducted over 50 hours of surveying, with four individuals observed and one nest.

Cardno-Entrix (prime) SCE On-call Biological Surveys, Counties of Kern, Fresno, Los Angeles and Tulare, California. Conducted surveys for woodpeckers, passerines, raptors and other potentially occurring bird species on electrical distribution projects in Kern, Tulare, Los Angeles and Fresno Counties, California. Surveys consisted of identifying project locations using ArcGIS or Google Earth mapping, observation of poles to be removed, and identification of potential breeding/nesting activity within the vicinity of each work location. Responsible for identifying birds to species, estimating fledge dates and reporting field data using Survey123 and ArcGIS Collector. Conducted construction monitoring when active nests or special-status species may be present near work areas. Conducted over 200 hours of surveys.

Pacific Valley Solar, LLC, Fresno County, California. Conducted Swainson's hawk nest surveys for Pacific Solar project in City of Huron, Fresno County, California. No nests or Swainson's hawk were observed. Conducted 16 hours of nest monitoring on identified nest pre-construction and during construction activities.

TRTP Biological Consulting Services, SCE, Counties of Kern, San Bernardino, and Los Angeles, California. As lead biological monitor, provided biological resources services for the construction of segments 4 through 11 of the TRTP, an approximately 174-mile transmission line project. Liaised between client/owner and biological monitors in the field; scheduled biologists in the field; and managed daily logs, special-status animal reporting, and weekly meetings with biology staff and client. Led focused surveys for a number of key species, including burrowing owl, and provided support for surveys for coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher (*Empidonax traillii extimus*), and rare plants. Provided input for client team working within desert kit fox (*Vulpes macrotis arsipus*) habitat, including survey techniques, den monitoring, den scoping, and excavation.

- **Burrowing Owl Surveys.** Provided biological resources services for the construction of segments 4 through 11 of the TRTP. Led focused surveys for a number of key species, including the burrowing owl, with approximately 25+ owls observed during duration of burrowing owl surveys conducted over 2 years throughout the project.
- **California Gnatcatcher Surveys.** Montebello Hills Oilfield is densely populated with California gnatcatchers and is considered critical habitat for the species. Provided support for protocol and focused California gnatcatcher surveys with a permitted biologist. Surveyed during the day and included playback of California gnatcatcher calls. Used auditory and visual clues to locate and identify the species. Made incidental observations while monitoring or conducting other surveys. Observed more than 40 California gnatcatchers over the 2.5 years of construction in the area.
- **Nesting Bird Surveyor.** As lead nesting bird surveyor, conducted morning surveys to search for nesting birds. Used visual and auditory clues to locate and identify nests. Monitored nests to determine the status of the nests at various stages. Surveyed during the day and included various methods, including meandering transects and watching and

Biological Species Surveys for the Tehachapi Renewable Transmission Project, Southern California Edison, Counties of Kern, San Bernardino, and Los Angeles, California. Conducted nesting bird surveys as a nesting bird support as part of the Tehachapi Renewable Transmission Project (TRTP) segments 7 and 8. Morning surveys were conducted to search for nesting birds. This included using visual and auditory clues to locate and identify nests. In addition, nests were monitored to determine the status of the nests at various stages. These surveys were conducted during the day and included various methods including meandering transects and watching and listening for signs of active nests. Known nests were often monitored using binoculars and scopes. Numerous common species nests, such as mourning dove (5), lesser goldfinch (5+), house finch (5+), Anna's hummingbird (2), Bullock's oriole (2), bushtit (2), and numerous colonial-nesting red-winged blackbird species were observed.

Southern California Gas Company, San Joaquin Valley Road Betterment Tulare River Bore, Tulare, California. Conducted special-status species, common species and nesting bird surveys, and habitat surveys prior to project implementation. Bird surveys were conducted on three separate visits for potential nesting cliff and barn swallows under the Tulare River Bridge prior to pipeline bore. Numerous nests were observed for both cliff (5) and barn swallow (10) species. Mr. Sweet was the lead monitor during the bore project monitoring bird activity during construction.

Occidental Gas and Petroleum: Elk Hills Oil Field Environmental Services and Other Owned Leases, Kern County, California. Conducted 7 years as part of overall survey effort for construction and annual monitoring for OEHI conservation area, annual monitoring for burrowing owl, including nesting birds for pipeline and well-pad development and various construction activities. Observed numerous juvenile and adult burrowing owls, burrows, tracks, and other sign during monitoring. Observed numerous juvenile and adult burrowing owls, burrows, tracks, and other sign during monitoring and survey efforts. Numerous nests for mourning dove (30+), poorwill (6), raven (15+), red-tailed hawk (10+), western meadowlark (10+), house finch (50+), mockingbird (10+), hummingbird (10+), yellow-rumped warbler (5+), black phoebe (2), etc. were observed during monitoring and field surveys. In addition, conducted raven surveys as part of deprivation permit, for nesting ravens on pumping units. Nests round on pumping units were removed; approximately 5 nests. Surveys were conducted in several habitat areas such as saltbush scrub, alkali sink, mesquite scrub, vernal pools, and valley and foothill grasslands. Nesting bird surveys were conducted in conjunction other biological resource survey efforts during the nesting bird season.

Coles Levee Ecosystem Preserve, Aera Energy, Kern County, California. Conducted 7 years of annual monitoring and surveys for burrowing owl, including nesting birds for pipeline and well-pad development and various construction activities as part of the CLEP conservation area, a California Department of Fish and Game Preserve. Observed numerous juvenile (30+) and adult burrowing owls (20+), burrows, tracks and other sign during monitoring and survey efforts. Observed numerous nests for red-tailed hawk (2), mourning dove (10+), poorwill (2), raven (5+), house finch (10+), mockingbird (5+), and one tri-colored blackbird colony, were observed during monitoring and field surveys. Surveys were conducted in several habitat areas such as saltbush scrub, alkali sink,

Elk Hills Power Plant, Kern County, California. Conducted nesting birds as part of the overall survey effort for the project, over a 10-mile water supply line, 8-mile transmission line, and a 6-mile natural gas line. Focused surveys were performed on potential and known burrows of burrowing owls. Observed numerous juvenile and adult burrowing owls (5+), burrows, tracks, and other sign, as well as numerous mourning dove (20+), California quail, red-tailed hawk (5+), common raven (5+), and western meadowlark (3) nests during the 3-year duration of the project. Nesting bird surveys were conducted in conjunction other biological resource survey efforts during the nesting bird season.

City of Taft Prison Expansion Project, Taft, Kern County, California. Conducted and oversaw formal protocol burrowing owl surveys as part of the Taft Prison Expansion. Pedestrian surveys were conducted over approximately 180 acres of saltbush scrub was conducted. Approximately 5+ owls were observed during burrowing owl surveys conducted.

North of the River Park and Recreation District, Bakersfield, Kern County, California. Conducted numerous burrowing owl surveys on three large park projects where burrowing owls were residents. Surveys included walking throughout known areas, burrow dusting, and photo stations. Mr. Sweet has extensive experience in burrowing owl passive relocation methods. Observed numerous juvenile and adult burrowing owls, burrows, tracks, and other sign during monitoring. Conducted passive relocation methods prior to construction. Burrows were excavated using hand tools and scoping methods. Consultation with California Department of Fish and Game was made prior to excavation. Approximately 15+ owls were observed over one nesting season.

Hageman Road Extension Environmental Documentation, Bakersfield, Kern County, California. Conducted habitat assessment for burrowing owl, including mapping of suitable burrows within the study area. Pedestrian surveys were conducted over approximately 5 miles of linear corridor for the highway widening.

I-15 Widening from San Bernardino to I-215, Riverside County California. Conducted habitat assessment for burrowing owl, including mapping of suitable burrows within the study area. Pedestrian surveys were conducted over approximately 10 miles of linear corridor for the highway widening.

Wal-Mart Distribution Center, San Bernardino County, California. Conducted formal protocol pedestrian burrowing owl surveys for the Wal-Mart distribution center in Barstow, CA. Potential burrowing owl burrows were dusted and visually tracked for four nights. Burrows were excavated using hand tools and scoping methods. Consultation with California Department of Fish and Game was made prior to excavation. Survey areas consisted of Creosote bush scrub and rubber-rabbit bush. One burrowing owl was observed.

SR-178 Widening Biological Surveys, City of Bakersfield, Kern County, California. Conducted habitat assessment for burrowing owl, including mapping of suitable burrows within the study area. Pedestrian surveys were

- Rare Pond Species Survey Techniques Workshop, California Tiger Salamander (Ambystoma californiense), Western Pond Turtle (Actinemys marmorata), California Red-Legged Frog (Rana draytonii), Laguna de Santa Rosa Foundation and The Wildlife Project, 2013
- Ecology and Conservation of California Bats, San Francisco State University, Sierra Nevada Field Campus, 2012
- New Zealand Mud Snail (Potamopyrgus antipodarum) Workshop, Santa Monica Baykeeper, 2007
- Wetland Delineation and Management, Wetland Training Institute, 2007 and 2022
- Habitat Enhancement and Management for Waterfowl Areas, University of California, Davis, 2004
- Habitat Conservation Planning, University of California, Davis, 2002
- Endangered Species Regulation and Protection, University of California, Davis, 2002

Emma Hansen-Smith

ENVIRONMENTAL COMPLIANCE SPECIALIST



Emma Hansen-Smith (*EH-muh HAN-sen smith; she/her*) is an environmental compliance specialist with 5 years' professional experience working in public and private sectors in natural resources management, compliance, and infrastructure development. Ms. Hansen-Smith has served as task manager in charge of coordinating teams of biologist and compliance monitors for pre and during construction projects in Fresno, Kings, and Tulare Counties. Other experience includes geographic information systems mapping and analysis and leading crews in the fields of conservation and habitat restoration. She provides compliance management support to project managers throughout the central valley of California.

Ms. Hansen-Smith has supported the drafting of critical issue analyses, compliance reports, and technical reports. Ms. Hansen-Smith has also managed blunt-nosed leopard lizard (*Gambelia sila*) protocol surveys and reporting. In addition, Ms. Hansen-Smith has worked as a biologist and environmental compliance monitor for Dudek assisting in hazardous tree assessments, stormwater pollution prevention plan (SWPPP) inspections, compliance monitoring, and protocol-level surveys for blunt-nosed leopard lizard and least Bell's vireo (*Vireo bellii pusillus*).

Education

University of California, Davis
BS, Environmental Science and Management, 2017

University of California, Davis
Minor, Geographic Information Systems, 2017

Dudek Project Experience

California High-Speed Rail, Dragados-Flatiron Joint Venture, Fresno, Kings, and Tulare Counties, California. Provided compliance management for California High-Speed Rail CP2-3, a 69-mile-long route located within Fresno, Kings, and Tulare Counties. Coordinated with California High-Speed Rail environmental managers daily in identifying upcoming project activities and worked with sub-consultants to provide biological monitors based on species-specific mitigation measures. Maintained Migratory Bird Treaty Act and Swainson's hawk (*Buteo swainsoni*) nest data sheets and provided client with weekly summary of environmental constraints. Coordinated scheduling of Swainson's hawk surveys, as well the implementation of trapping and excavation plan for potential Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*) and San Joaquin antelope squirrel (*Ammospermophilus nelsoni*). Assisted in monitoring of potential San Joaquin kit fox (*Vulpes macrotis mutica*) burrows under

American Kings Solar Project, Kings County, California. Conducted weekly SWPPP inspections during the construction of a substation.

Tranquility Battery Energy Storage Project, Rosendin, Fresno County, California. Conducted weekly SWPPP inspections for a 72 megawatt battery storage project.

CZU Fire Complex Wildfire Reduction Program, California Department of Transportation, Santa Cruz County, California. Identified, evaluated, and mapped post-fire hazard trees along Highway 236 in the Santa Cruz Mountains to determine the likelihood of failure in a 5-year time frame for local and state agencies. Assisted in determining the risk of failure of old-growth trees within Big Basin State Park to mitigate imminent threats to the public while preserving the park's natural condition. Performed quality control to ensure that the work of field tree contractors met the client's specifications.

Fresno County Fire Hazard Abatement Program, Fresno County, California. Identified, marked, and recorded dead and dying trees and fuel loads along Fresno County roads and emergency escape corridors in the Shaver Lake area. After the Creek Fire, scope also included removing hazardous trees and post-fire debris along vital roadways in the Shaver Lake area in accordance with County specifications. Met with Fresno County and state officials to discuss vegetation clearing along emergency escape corridors and provided training and quality control for California Conservation Corps crews conducting vegetation removal along escape corridors.

Confidential Project, Los Angeles Department of Water and Power, City of Los Angeles, California. Assisted in least Bell's vireo protocol-level surveys for an approximately 200-acre site.

Relevant Previous Experience

San Joaquin River Parkway and Conservation Trust, Fresno, California Supervised and led Local Conservation Corps and California Conservation Corps members in habitat restoration projects along a 22-mile reach of the San Joaquin River between Friant Dam and Highway 99, with the purpose of creating accessible natural spaces for public use. Acting field manager for projects including invasive plant removal (both mechanical and chemical), drip irrigation maintenance, and the planting of more than 10,000 native trees and shrubs. Implemented a California Department of Water Resources floodplain revegetation plan and ensured compliance with plan parameters. Daily project mapping and monitoring of both native and invasive flora along with remote data collection and geographic information system mapping of project sites.

Central Valley Regional Water Quality Control Board, Fresno, California. Supported the Compliance and Enforcement unit by reviewing monitoring reports for wastewater dischargers to ensure they were compliant with state policy orders and permits. Identified violations and prepared Notices of Violation for non-compliant dischargers and wrote internal memos to brief supervisors on review findings. Assisted in facility SWPPP

Appendix E

Swainson's Hawk Survey Report

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Tandy McMannes
Project Development Director - West
Pelicans Jaw Solar, LLC

June 28, 2022

Subject: Swainson's Hawk and Tricolored Blackbird Surveys for the Pelicans Jaw Hybrid Solar Project, Kern County, California

This Swainson's hawk (SWHA; *Buteo swainsoni*) and tricolored blackbird (*Agaelaius tricolor*) report was prepared in support of an application submitted by Pelicans Jaw Solar, LLC for the proposed development of the Pelicans Jaw Hybrid Solar Project (Project) located on unincorporated lands in northwestern Kern County, California. The Project site is located adjacent, and to the south of the border of Kern County with Kings County, approximately two miles east of the U.S. Interstate 5.

Based on their experience with other comparable projects, Kern County has determined that, pursuant to the California Environmental Quality Act (California Public Resources Code Sections 21000 et seq.), review of the Project should take the form of an Environmental Impact Report (EIR) including, among other things, an assessment of the potential for the Project to result in impacts to special status species of birds.

This letter report summarizes the methods and documents the results of one of several surveys being undertaken to assess the presence or absence of special status species at the Project site, all of which will ultimately be compiled into a Biological Resources Technical report that will support the Project EIR.

Mr. Pedro Garcia, a wildlife biologist with the environmental consultancy Dudek, served as the principal investigator for this survey. A total of 10 surveys were conducted between March 2022 and June 2022. Surveys were conducted within the approximately 3,260-acre Project area and within 0.5-mile of the Project area, herein referred to as the survey area.

One active and one inactive Swainson's hawk nest were observed during the surveys. Both nests were observed in the 0.5-mile buffer area but more than 500 feet from the Project boundary and are therefore not anticipated to be adversely affected by Project construction activities. No tricolored blackbird breeding habitat was observed during the surveys.

Introduction

The purpose of the surveys discussed in this report was to determine the presence or absence of Swainson's hawks

Background

Swainson's Hawk

The Swainson's hawk was listed as a California state threatened species by the California Fish and Game Commission in 1983 due to loss of nesting habitat and decreased numbers throughout the state. The majority of the remaining breeding pairs of SWHA in California occur in the Central Valley and on the northeastern plateau. This species breeds in the western United States and Canada and winters in Central and South America, sometimes as far south as Argentina. The biggest threats to SWHA include the loss of foraging and breeding habitats due to development, climate change, disease, pesticide poisoning, and electrocution (USFWS).

Tricolored Blackbird

The tricolored blackbird was listed as a California state threatened species in 2019. In order to forage and breed, this species requires a nearby source of water, suitable nesting substrate, and natural grassland, woodland, or agricultural croplands. Over 99% of tricolored blackbird populations are reported in California's Central Valley and surrounding foothills, though their range can extend to northeast California and into southern Oregon (USFWS). Because of their dependence on freshwater wetland habitats for breeding and a reliance on precipitation-driven insect prey populations, this species is highly vulnerable to drought (CDFW).

Methods

Swainson's Hawk

Focused surveys for SWHA following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC 2000) were conducted on March 23, March 24, March 31, April 7, April 11, April 18, April 19, May 5, May 25, and June 3, 2022. The survey area is shown in Figure 1. Pursuant to this protocol, Dudek experienced raptor biologist Pedro Garcia, assisted by Dudek biologists Heather Moine, Tamara Bryant, and Eric Nicholson, surveyed all suitable nesting habitat within the approximately 3,260-acre Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible with the aid of binoculars and spotting scopes from the Project area or public roads within 0.5 miles of Project area. During each survey, Mr. Garcia inspected individual trees, tree clusters, and riparian areas for suitable nest structures. Mr. Garcia also conducted searches for individual Swainson's hawks and recorded information regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

Tricolored Blackbird

Habitat assessment and surveys for tricolored blackbird (*Agelaius tricolor*) were completed concurrently with the

Results

Swainson's Hawk

Suitable nesting habitat was identified within the survey area including nearby large trees. During the surveys, two potential SWHA nests were observed and monitored. One of the potential SWHA nests (Nest #2 at 37.731203, -119.739486) became inactive (presumed to not have proceeded past the nest building/egg laying stage) and one SWHA nest (Nest #1 at 35.760280, -119.702602) remains active and presumably in the incubating phase as of the last survey conducted on June 3, 2022.

Approximately eight SWHA individuals were observed within the Project area during the surveys. One light morph adult and one intermediate morph adult SWHA were observed flying in the northeastern section of the survey area during the March 23, 2022 survey. No SWHA or nests were observed during the March 24, 2022 survey. Two adult SWHA were observed flying overhead to the northwest of the Project area on April 7, 2022. A pair of SWHA have been repeatedly observed near Nest #1: both observed copulating near Nest #1 on March 31, 2022; one observed briefly perched on Nest #1 before flying to the west on April 11, 2022; both observed nest building, courting, and copulating by Nest #1 on April 18 and 19, 2022; one observed on Nest #1 for over an hour, presumably incubating, on May 5, May 25, and June 3, 2022, with the second SWHA observed hunting and bringing the nesting SWHA food on June 3, 2022. A second SWHA nest (Nest #2) was observed on May 5, 2022 with one SWHA observed foraging nearby and one sitting on the nest. However, by May 25 and June 3, 2022 no SWHA were observed near Nest #2 and the nest appeared to be slightly askew and empty and was determined by Mr. Garcia to no longer be active.

Tricolored blackbird

No suitable tricolored blackbird breeding habitat was observed during these surveys. The entire Project site consisted of inactive agriculture and grazed pastures that had been overgrazed down to bare dirt. A dry canal, which is part of the Kern River Channel, runs north-to-south along the eastern edge of the Project boundary. The dry channel contained sparse patches of ruderal vegetation, alkali scrub plants including *Atriplex lentifomis*, and non-native grasses and shrubs including T*amarix ramosissima*. Adjacent habitat to the Project site consisted of overgrazed and inactive agriculture as well as already harvested wheat and hay. On March 24, 2022, one male red-winged blackbird was briefly observed passing by the northeastern portion of the Project boundary. No tricolored blackbirds were observed during the survey passes or subsequent site visits.

Other Birds Observed

One additional raptor species, red-tailed hawk (*Buteo jamaicensis*), was observed during surveys. One active red-tailed hawk nest within the survey area was identified. The active red-tailed hawk nest is located outside of the Project boundary, but within the 0.5-mile buffer area. The active red-tailed hawk nest is located approximately 0.3-

Swainson's Hawk Surveys Summary

Date	Staff	Site Conditions	SWHA Observations
3/23/22	Pedro Garcia	7:30 AM–10:00 AM; 54.3–72°F; 0% cloud cover; 1–4 mph wind	2 adults flying overhead; no nests
3/24/22	Pedro Garcia	7:21 AM–10:00 AM; 57.5–75°F; 0–20% cloud cover; 1–4 mph wind	No SWHA or nests
3/31/22	Pedro Garcia	7:15 AM–10:00 AM; 54.5–58°F; 0–70% cloud cover; 0–6 mph wind	2 adults copulating near incomplete nest (Nest #1); female remained perched near nest, male flew to the south
4/07/22	Pedro Garcia, Heather Moine, and Tamara Bryant	9:00 AM–5:00 PM; 70–87°F; 0% cloud cover; 0–3 mph wind	2 adults flying overhead
4/11/22	Pedro Garcia and Tamara Bryant	8:00 AM–5:00 PM; 55–58°F; 0–80% cloud cover; 0–5 mph wind	1 adult perched on Nest #1 briefly before flying away
4/18/22	Pedro Garcia, Tamara Bryant, and Eric Nicholson	8:30 AM–5:00 PM; 60–79°F; 20–50% cloud cover; 1–7 mph wind	2 adults nest building, courting, copulating at Nest #1
4/19/22	Pedro Garcia, Tamara Bryant, and Eric Nicholson	8:30 AM-5:00 PM; 60-79°F; 20-50% cloud cover; 1-7 mph wind	2 adults nest building, courting, copulating at Nest #1
5/05/22	Pedro Garcia	9:00 AM–11:30 PM; 80–82°F; 20% cloud cover; 0–2 mph wind	1 adult sitting on Nest #1, presumably incubating; 2 adults by a second nest (Nest #2) sitting on nest and foraging nearby
5/25/22	Pedro Garcia	8:00 AM–10:30 AM; 82–92°F; 10% cloud cover; 0–2 mph wind	1 adult sitting on Nest #1, presumably incubating; no activity at Nest #2
6/03/22	Pedro Garcia	12:10 PM–1:30 PM; 90°F; 10–20% cloud cover	2 adults at Nest #1: 1 sitting on nest, presumably incubating, and 1 hunting and bringing food to the incubating SWHA; no activity at Nest

Due to the lack of breeding habitat observed during the surveys and negative incidental tricolored blackbird observations, a less than significant impact is expected on the tricolored blackbird as a result of Project construction activities.

If you have any questions regarding the contents of this letter report, please contact me at 760.479.4254 or bortega@dudek.com.

Sincerely,



Brock A. Ortega
Principal/Senior Wildlife Biologist

Att.: *A – Figure 1 – Swainson's Hawk Nest Locations*
B – Field Data Reports
C – Biologist Resumes

Literature Cited

Beedy, E. C., W. J. Hamilton, III, R. J. Meese, D. A. Airola, and P. Pyle (2018). Tricolored Blackbird (Agelaius tricolor), version 3.1. In The Birds of North America (P. G. Rodewald, Editor). Cornell Lab of Ornithology, Ithaca, NY, USA. https://doi.org/10.2173/bna.tribla.03.1.

California Department of Fish and Wildlife (CDFW). Drought Stressor Monitoring Case Study: Conserving the Tricolored Blackbird Through Monitoring, Breeding Colony Protection, and Habitat Restoration. https://wildlife.ca.gov/Drought/Projects/Tricolored-Blackbird. Accessed June 2022.

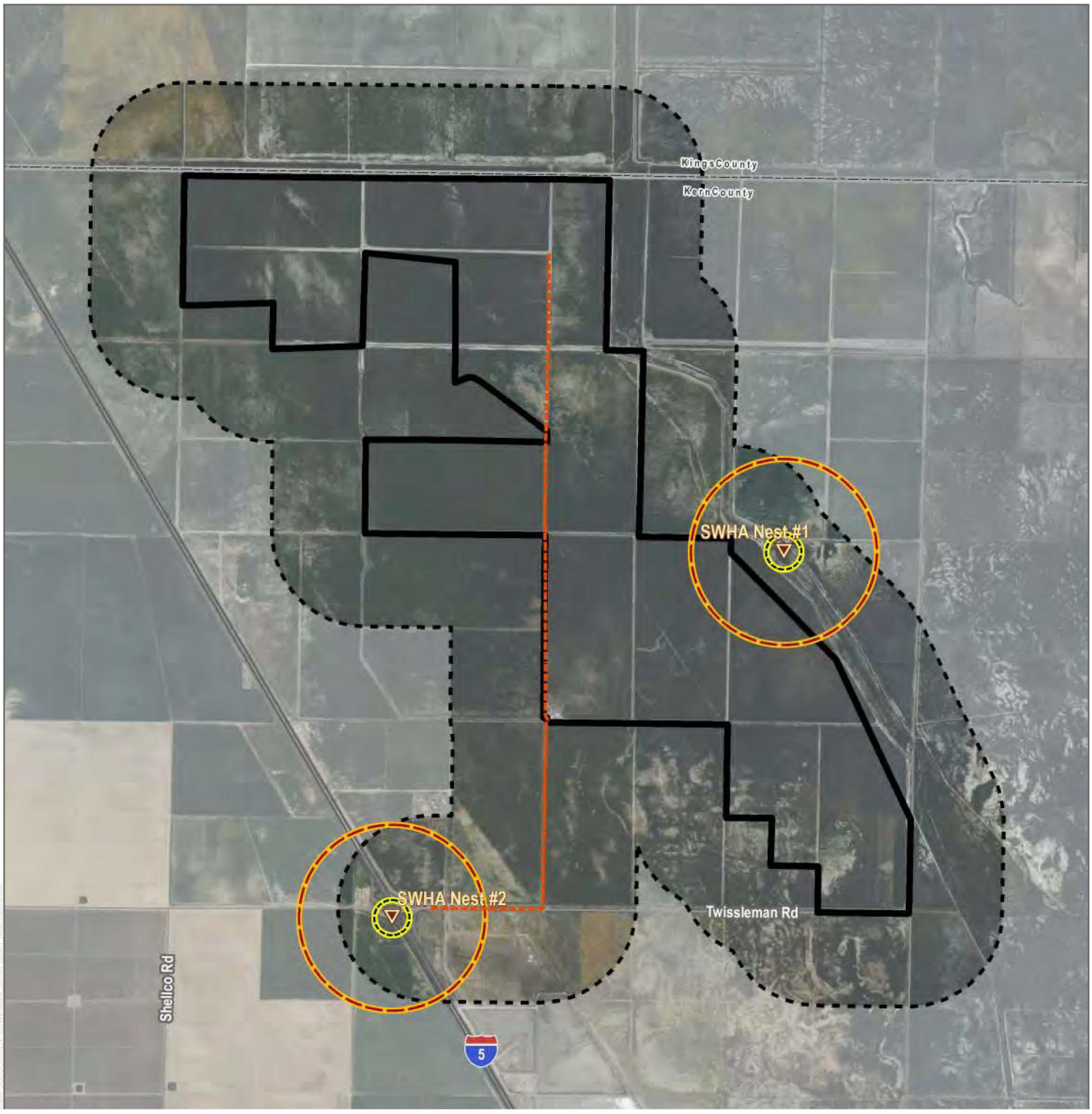
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SHTAC (Swainson's Hawk Technical Advisory Committee). 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83990. Accessed March 2022.

United States Fish and Wildlife Service (USFWS). Environmental Conservation Online System: Tricolored Blackbird. https://ecos.fws.gov/ecp/species/3910. Accessed June 2022.

Attachment A

Figure 1 – Swainson's Hawk Nest Locations


Kings County
Kern County
SWHA Nest #1
SWHA Nest #2
Twissleman Rd
Shellco Rd
5

Attachment B
Field Data Reports

FORMS FIELD DATA REPORT

Bio Field Data

Record: 20601	
Date	*2022-03-23*
Biologist	*Pedro Garcia*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*Swainson's Hawk*
Time	*7:30 AM–10:00 AM*
Conditions	*54.3–72°F; 0% cloud cover; 1–4 mph wind*
Visit Type	
Notes	*Biologist Pedro Garcia conducted Swainson's hawk (SWHA) surveys for Pelican's Jaw, including a 1/2-mile buffer where accessible, following the Swainson's hawk survey protocol for the Central Valley. Active red-tailed hawk and common raven nests were observed and recorded. One light morph and one intermediate morph adult SWHA were observed flying along the north eastern section of the survey area. No nesting behavior was observed. No SWHA nest was observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:30:00*
TEMPERATURE	*°F*
Air Temp	*54.3*
Air Temp	*54.3*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*10:00:00*
TEMPERATURE	*°F*
Air Temp	*72*
Air Temp	*72*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*

Wildlife List	
Species Name	*loggerhead shrike (Lanius ludovicianus), B-LOSH*
Observation ID (Copy and paste into Collector)	*03230758PG-01-01*
Record Lat/Long	
Federal and State Status	*None/SSC*

Wildlife List	
Species Name	*California quail (Callipepla californica), B-CAQU*
Observation ID (Copy and paste into Collector)	*03230851PG-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*northern mockingbird (Mimus polyglottos), B-NOMO*
Observation ID (Copy and paste into Collector)	*03230852PG-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*mourning dove (Zenaida macroura), B-MODO*
Observation ID (Copy and paste into Collector)	*03230852PG-04-04*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*western meadowlark (Sturnella neglecta), B-WEME*
Observation ID (Copy and paste into Collector)	*03230852PG-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*song sparrow (Melospiza melodia), B-SOSP*
Observation ID (Copy and paste into Collector)	*03231027PG-06-06*
Record Lat/Long	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*Swainson's hawk (Buteo swainsoni), B-SWHA*
Observation ID (Copy and paste into Collector)	*03231027PG-07-07*
Record Lat/Long	*Latitude:35.781849, Longitude:-119.712819, Altitude:0.000000, Speed:-1.000000, Horizontal Accuracy:0.000000, Vertical Accuracy:-1.000000, Time:03/23/2022 10:28:52 PDT*
Federal and State Status	*None/ST*

Wildlife List	
Species Name	*black-tailed jackrabbit (Lepus californicus), M-BTJR*
Observation ID (Copy and paste into Collector)	*03231029PG-08-08*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 20604	
Date	*2022-03-24*
Biologist	*Pedro Garcia*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*Swainson's Hawk*
Time	*7:21 AM–10:00 AM*
Conditions	*57.5–75°F; 0–20% cloud cover; 1–4 mph wind*
Visit Type	
Notes	*Biologist Pedro Garcia conducted Swainson's hawk (SWHA) surveys for Pelican's Jaw, including a 1/2-mile buffer where accessible, following the Swainson's hawk survey protocol for the Central Valley. Active red-tailed hawk and common raven nests were observed and recorded. No SWHA or their nest was observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:21:00*
TEMPERATURE	*°F*
Air Temp	*57.5*
Air Temp	*57.5*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*10:00:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*20*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*mourning dove (Zenaida macroura), B-MODO*
Observation ID (Copy and paste into Collector)	*03240723PG-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*03240723PG-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*03240829PG-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*northern mockingbird (Mimus polyglottos), B-NOMO*
Observation ID (Copy and paste into Collector)	*03240829PG-04-04*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*California quail (Callipepla californica), B-CAQU*
Observation ID (Copy and paste into Collector)	*03240830PG-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*desert cottontail (Sylvilagus audubonii), M-DECO*
Observation ID (Copy and paste into Collector)	*03240830PG-06-06*
Record Lat/Long	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*03240831PG-07-07*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*red-tailed hawk (Buteo jamaicensis), B-RTHA*
Observation ID (Copy and paste into Collector)	*03240831PG-08-08*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*03241007PG-09-09*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*white-crowned sparrow (Zonotrichia leucophrys), B-WCSP*
Observation ID (Copy and paste into Collector)	*03241007PG-10-10*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*red-winged blackbird (Agelaius phoeniceus), B-RWBL*
Observation ID (Copy and paste into Collector)	*03241007PG-11-11*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 20760	
Date	*2022-03-31*
Biologist	*Pedro Garcia*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*Swainson's Hawk*
Time	*7:15 AM–10:00 AM*
Conditions	*54.5–58°F; 0–70% cloud cover; 0–6 mph wind*
Visit Type	
Notes	*Biologist Pedro Garcia conducted Swainson's hawk (SWHA) surveys for Pelican's Jaw, including a 1/2-mile buffer where accessible, following the Swainson's hawk survey protocol for the Central Valley. Active red-tailed hawk and common raven nests were observed and updated.* *At 0915 A pair of SWHA observed perched on a ~15ft tall tamarisk approximately 0.20-miles northeast of the project boundary (35.760391, -119.702369). An incomplete stick nest was observed in the center of the tree. One SWHA flew to a nearby tamarisk ~100ft to the south, and the second SWHA followed. The pair of SWHA were observed copulating. Both SWHA remained perched on the tree for 10 minutes, then the male (intermediate morph) took off and began flying to the south. The female remained perched for the remainder of the survey.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:15:00*
TEMPERATURE	*°F*
Air Temp	*54.5*
Air Temp	*54.5*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*10:00:00*
TEMPERATURE	*°F*
Air Temp	*58*
Air Temp	*58*
Soil Temp	*0*

FORMS FIELD DATA REPORT

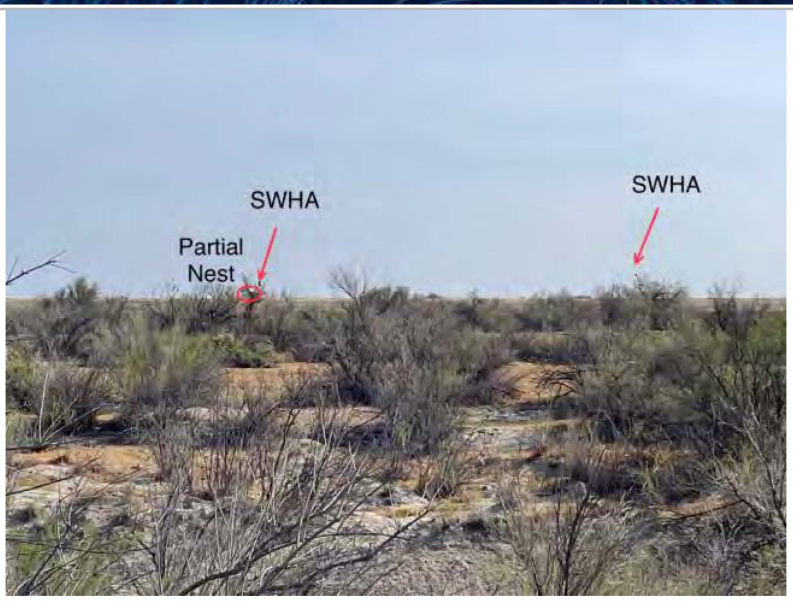
Wildlife List	
Species Name	*Swainson's hawk (Buteo swainsoni), B-SWHA*
Observation ID (Copy and paste into Collector)	*03310925PG-01-01*
Record Lat/Long	*Latitude:35.760385, Longitude:-119.702348, Altitude:0.000000, Speed:-1.000000, Horizontal Accuracy:0.000000, Vertical Accuracy:-1.000000, Time:03/31/2022 10:57:02 PDT*
Federal and State Status	*None/ST*

Wildlife List	
Species Name	*Bewick's wren (Thryomanes bewickii), B-BEWR*
Observation ID (Copy and paste into Collector)	*03311103PG-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*black-throated sparrow (Amphispiza bilineata), B-BTSP*
Observation ID (Copy and paste into Collector)	*03311103PG-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*black-tailed jackrabbit (Lepus californicus), M-BTJR*
Observation ID (Copy and paste into Collector)	*03311103PG-04-04*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*

Photo	
	
Description	*Pair of SWHA perched near an incomplete nest, 0.2-miles east of the project boundary.*

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*Pair of SWHA copulating approximately 100-feet south of the nest tree.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 20988	
Date	*2022-04-07*
Biologist	*Pedro Garcia, Heather Moine, and Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*Swainson's Hawk*
Time	*9:00 AM–5:00 PM*
Conditions	*70–87°F; 0% cloud cover; 0–3 mph wind*
Visit Type	
Notes	*Biologist Pedro Garcia, Heather Moine, and Tamara Bryant conducted Swainson's hawk (SWHA) surveys for Pelican's Jaw, including a 1/2-mile buffer where accessible, following the Swainson's hawk survey protocol for the Central Valley. Active red-tailed hawk and common raven nests were observed and updated.* *The stick nest at 35.760391, -119.702269 was monitored for over one hour, and no sign of nesting was observed. Two adult SWHAs were observed flying overhead and then over the adjacent fields to the northwest.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*5:00:00*
TEMPERATURE	*°F*
Air Temp	*87*
Air Temp	*87*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*lesser nighthawk (Chordeiles acutipennis), B-LENI*
Observation ID (Copy and paste into Collector)	*04070935PG-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 21090	
Date	*2022-04-11*
Biologist	*Pedro Garcia and Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*Swainson's Hawk*
Time	*8:00 AM–5:00 PM*
Conditions	*55–58°F; 0–80% cloud cover; 0–5 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*Biologists Pedro Garcia and Tamara Bryant conducted Swainson's hawk (SWHA) surveys for Pelicans Jaw, including a 1/2-mile buffer where accessible, following the Swainson's hawk survey protocol for the Central Valley. Active red-tailed hawk and common raven nests were observed and updated.* *At 0800 a SWHA was observed flying within the tamarisk corridor, directly east of the project area. It perched on the nest at 35.760280, -119.702602 for a few minutes, then flew off to the west. The nest was monitored for two 1-hour increments and remained empty for the remainder of the survey.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:00:00*
TEMPERATURE	*°F*
Air Temp	*55*
Air Temp	*55*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*5:00:00*
TEMPERATURE	*°F*
Air Temp	*58*
Air Temp	*58*
Soil Temp	*0*
Water Temp	*0*
Visibility	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*greater roadrunner (Geococcyx californianus), B-GRRO*
Observation ID (Copy and paste into Collector)	*04111107PG-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 21275	
Date	*2022-04-18 and 2022-04-19*
Biologist	*Pedro Garcia, Tamara Bryant, and Eric Nicholson*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*Swainson's Hawk*
Time	*8:30 AM–5:00 PM*
Conditions	*60–79°F; 20–50% cloud cover; 1–7 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*Biologists Pedro Garcia, Tamara Bryant, and Eric Nicholson conducted Swainson's hawk (SWHA) surveys for Pelican's Jaw, including a 1/2-mile buffer where accessible, following the Swainson's hawk survey protocol for the Central Valley.Active red-tailed hawk and common raven nests were observed and updated. The nest at 35.760280, -119.702602 was monitored from 0900-1200. The nest appeared larger since first observed earlier this month. A pair of SWHA were observed approaching the nest at 1000, 1100, and 1200,nest building. The SWHAs were observed flying together, courting and copulating a couple of times nearby.One of the hawks was observed chasing off a pair of CORA at 1030. Most of the time the SWHAs were observed foraging 0.5-1 mile to the east. No evidence of incubating was observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*60*
Air Temp	*60*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*20*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*3*

Survey Conditions	
Status	*End*
Time	*5:00:00*
TEMPERATURE	*°F*
Air Temp	*79*
Air Temp	*79*
Soil Temp	*0*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 21789	
Date	*2022-05-05*
Biologist	*Pedro Garcia*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*Swainson's Hawk*
Time	*9:00 AM–11:30 PM*
Conditions	*80–82°F; 20% cloud cover; 0–2 mph wind*
Visit Type	
Notes	*Biologist Pedro Garcia conducted Swainson's hawk (SWHA) surveys for Pelican's Jaw, including a 1/2-mile buffer where accessible, following the Swainson's hawk survey protocol for the Central Valley. Active red-tailed hawk and common raven nests were observed and updated.* *The stick nest at 35.760280, -119.702602 was monitored for one hour. An adult SWHA was observed sitting on the nest, presumably incubating, for the entire observation.* *A second SWHA nest was observed on a tamarisk tree on the southwest corner of Interstate 5 and Twisselman Rd (35.731203, -119.739486). An adult SWHA was observed perched on one of the branches, and then began foraging in the adjacent field to the south. A well hidden nest was observed 35 feet up the southern side of the tamarisk tree. A second adult SWHA was observed sitting on the nest. The nest was monitors for 45 minutes. The hawk briefly left the nest to join the first hawk in the field, then returned to the nest a couple minutes later, presumably incubating. The hawks did not appear agitated by passing vehicles on either Interstate 5 or Twisselman Rd, or by (CalTrans?) workers driving on the off-ramp adjacent to the nest. An active raven nest is in the same set of trees, but on the north side, approximately 20ft away.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*80*
Air Temp	*80*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*20*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*23:30:00*

FORMS FIELD DATA REPORT

Swainson's Hawk Observations	
ID (date-observer-consecutive number)	*202255-PG-1*
Number of SWHA Observed	*2*
Age(s)	*adult*
Nest?	*Yes*
Existing or New?	*New*
Other Nest Status	

Photos	
Type	*Photo*
Photo	
Description	*Adult SWHA first observed on a tamarisk on the SW corner of I-5 and Twisselman Rd.*

Photos	
Type	*Photo*

Photo	
Description	*Nest location, well hidden on the south side of the tree, approximately 35 feet up.*

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*Adult SWHA sitting in the nest near the east side of the project site.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 22398	
Date	*2022-05-25*
Biologist	*Pedro Garcia*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*Swainson's Hawk*
Time	*8:00 AM–10:30 AM*
Conditions	*82–92°F; 10% cloud cover; 0–2 mph wind*
Visit Type	
Notes	*Biologist Pedro Garcia conducted Swainson's hawk (SWHA) surveys for Pelican's Jaw, including a 1/2-mile buffer where accessible, following the Swainson's hawk survey protocol for the Central Valley. Active red-tailed hawk and common raven nests were observed and updated.* *The stick nest at 35.760280, -119.702602 , east of the project site, was monitored for 1.5hrs. An adult SWHA was observed sitting on the nest, presumably incubating, for the entire observation. The second adult SWHA was not observed.* *The stick nest at 37.731203, -119.739486, southwest of the project, was monitored for 1 hour. No SWHAs were observed during the entire observation. The nest was difficult to see entirely, but appeared empty. The off-ramp adjacent to the nest is now open/no longer under construction, but it is uncertain the level of activity that takes place. Additional observations recommended to determine the status of the nest.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:00:00*
TEMPERATURE	*°F*
Air Temp	*82*
Air Temp	*82*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*10:30:00*

FORMS FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*Adult SWHA perched on the nest located east of the project boundary.*

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 22732	
Date	*2022-06-03*
Biologist	*Pedro Garcia*
Project	*Pelicans Jaw Hybrid Solar Project*
Survey Area	*Entire Site*
Survey Type	*Swainson's Hawk*
Time	*12:10 PM–1:30 PM*
Conditions	*90°F; 10–20% cloud cover*
Visit Type	
Wildlife Species Count Summary	
Notes	*Biologist Pedro Garcia conducted Swainson's hawk (SWHA) surveys for Pelican's Jaw, including a 1/2-mile buffer where accessible, following the Swainson's hawk survey protocol for the Central Valley. Active red-tailed hawk and common raven nests were observed and updated.* *The stick nest at 35.760280, -119.702602 , east of the project site, was monitored for 40 minutes. An adult SWHA was observed sitting on the nest, presumably incubating, for the entire observation. The second adult SWHA delivered food to its mate, then took off hunting in the adjacent field to the northeast. No chicks observed.* *The stick nest at 37.731203, -119.739486, southwest of the project, was monitored for 40 minutes. No SWHAs were observed during the entire observation. The nest appeared slightly askew, possibly from the wind, and no hawk activity was observed on or nearby the nest. The nest status is updated to inactive, and appears to have no gotten past the egg laying/incubation stage, potentially stopping at the nest building stage.* *Since the creation of the nest, the off-ramp adjacent to the nest has opened up and is no longer under construction. It is uncertain the level of activity that takes place. An active CORA nest with fledglings is located on the same tamarisk tree, approximately 15 feet to the northeast.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*12:10:00*
TEMPERATURE	*°F*
Air Temp	*90*
Air Temp	*90*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Survey Conditions	
Status	*End*
Time	*13:30:00*
TEMPERATURE	*°F*
Air Temp	*90*
Air Temp	*90*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*20*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Photos	
Type	*Photo*
Photo	
Description	*Pair of adult SWHAs sitting in the nest located east of the project boundary. The second adult delivered food to the mate, then continued hunting nearby.*

Photos	
Type	*Photo*

Photo	
Description	*Presumably male SWHA that delivered food to its mate on the nest, east of the project site.*

Photos	
Type	*Photo*
Photo	

Attachment C
Biologist Resumes

Pedro Garcia

ENVIRONMENTAL COMPLIANCE SPECIALIST

Pedro Garcia is an environmental compliance specialist with 8 years' experience working in the public and private sectors in environmental research, natural resources management, and infrastructure development. Mr. Garcia has served as task manager and field lead in charge of coordinating teams of biologist and compliance monitors for pre-, during, and post-construction projects in Fresno, Kings, Tulare, Kern, Santa Barbara, and San Bernardino Counties. Other experience includes urban noise monitoring, geographic information system (GIS) mapping and analysis, and 10 years' experience leading and conducting urban and rural avian point counts and raptor surveys and leading crews in the fields of outdoor education, conservation, and habitat restoration. He provides compliance management support to project managers working on energy and transportation projects throughout the central valley and central coast of California.

In addition, Mr. Garcia has worked as a biologist for Dudek conducting reconnaissance-level, protocol-level, and pre-construction surveys, as well as conducting biological and compliance monitoring for construction projects. His field experience includes surveys for blunt-nosed leopard lizard (*Gambelia sila*), San Joaquin kit-fox (*Vulpes macrotis mutica*), nesting birds, burrowing owl (*Athene cunicularia*), American badger (*Taxidea taxus*), tri-colored blackbird (*Agelaius tricolor*), Swainson's hawk (*Buteo swainsoni*), and golden eagle (*Aquila chrysaetos*).



Education

California State University, Fresno
MS, Biology: Reconciliation Ecology, 2015
BS, Biology: Ecology, Evolution, and Organismal Science, 2010

Certifications

Geographic Information System (GIS)

WILD C.A.T.

eDNA: A Practical Workshop Certificate

Professional Affiliations

The Wildlife Society: Central Coast Chapter, San Joaquin Chapter, Western Section

Project Experience

Development

101 Garden Street, Woodbridge Capital Partners LLC, Santa Barbara, California. Conducted traffic and urban noise monitoring surveys to establish baseline data for addressing transportation-related noise sources for a future mix-use development project.

Bakersfield Metropolitan Sanitary Landfill Mod4 Expansion Project, County of Kern, California. Conducted multiple single-pass pedestrian transects with the goal of determining potential absence/presence of San Joaquin kit fox and to locate any active and inactive dens. Documented burrows of other species such as American badger, coyote (*Canis latrans*), and burrowing owl.

Energy

Desert Tortoise Nesting Bird Monitoring, San Bernardino County Public Works, California. Task manager in charge of scheduling and coordinating qualified biologists to conduct pre-construction surveys and biological monitoring on an as-needed basis for various countywide road improvement projects. In charge of submitting deliverables, billing drafts, and coordinating project needs with the assigned environmental management division manager.

California Department of Water Resources, San Joaquin Delta Branch, California. Served as a field lead in charge of conducting reconnaissance-level burrow mapping surveys for the San Joaquin and Delta branch of the California Aqueduct, spanning Kern and Kings Counties. Species surveyed for include American badger, burrowing owl, giant kangaroo rat (*Dipodomys ingens*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), and San Joaquin kit fox. Conducted protocol-level Swainson's hawk surveys throughout Kern, Kings, Merced, San Joaquin, and Stanislaus Counties, following the California Department of Fish and Wildlife (CDFW) endorsed protocol for the Central Valley.

Confidential Solar Project, Kern County, California. Served as field lead in charge of a team tasked with completing a Joshua tree (*Yucca brevifolia*) census survey of the 5,686-acre project area. Also served as biological/compliance monitor tasked with conducting pre-work sweeps for special-status species and nesting birds.

Confidential Solar Project, Fresno County, California. Conducted focused Swainson's hawk surveys for a nearly 2,000-acre project following the CDFW-endorsed protocol for the Central Valley, developed by the Swainson's Hawk Technical Advisory Committee. Surveys focused on locating nest structures and observing nest building, territorial and courtship displays, and copulating within a 1-mile and 5-mile buffer of the project boundary.

Confidential Wind Project, Merced County, California. Worked as a field biologist conducting all-day golden eagle and bald eagle (*Haliaeetus leucocephalus*) surveys, as well as 30-minute avian and raptor point count surveys, within a 2,100-acre project site. Completed quality assurance and quality control of the 2017 100-meter/800-meter/all-day survey reports and transcribed to updated digital (Kerata) format for data analysis.

Confidential Solar Projects, California. Conducted pre-construction site surveys for multiple projects in Fresno, Kings, and Merced Counties. Surveys focused on potential use by American badger, burrowing owl, San Joaquin kit fox and tri-colored blackbird. Monitored and hand excavated burrows potentially suitable for burrowing owl, desert kit fox (*Vulpes macrotis arsipus*), and San Joaquin kit fox.

(*Rana draytonii*). Additional field activities include construction monitoring and conducting all-day golden eagle nest surveys; 800-meter raptor surveys; special-status species pre-construction surveys for American badger, burrowing owl, California red-legged frog, and San Diego desert woodrat (*Neotoma lepida*); and general nest surveys. Working with lead biological staff, GIS analysts, and IT technical team in standardizing data to be collected and implemented into electronic survey forms for analysis.

Confidential Energy Project, Kern County, California. Served as compliance monitor tasked with conducting pre-construction surveys for special-status and general wildlife species, including American badger, desert kit fox, desert tortoise (*Gopherus agassizii*), golden eagle, and nesting birds for the 2,987-acre project area. Implemented passive relocation of burrowing owls along the project footprint, following the project's burrowing owl passive relocation plan. Served as a project-approved Swainson's hawk biologist and conducted protocol-level Swainson's hawk surveys following the CDFW-endorsed protocol for the Antelope Valley of Los Angeles and Kern Counties.

Tranquility Solar Power Project Avian Deterrent Study, Southern Power Company, Tranquility, California. Served as field biologist, conducting 30-minute avian point count surveys two times per week over a 3-month monitoring period. Coordinated with compliance management and project biologist in installing avian deterrents throughout four 50-acre blocks within a 2,000-acre project area to determine the effectiveness of avian and fatality avoidance strategies in relationship to panel performance. Worked closely with compliance management and project biologist in identifying necessary data to be collected and implemented into monitoring form for future analysis. Coordinated with compliance management, project biologist, and client operations and maintenance staff when new constraints were identified on the project and implemented appropriate monitoring strategies. Camera-monitored and hand excavated two inactive American badger dens that were voluntarily vacated. Compiled and conducted preliminary analysis of survey data. Collaborated in writing the final mitigation report for CDFW/Fresno County and Southern Power Company.

Transportation

California High-Speed Rail, Dragados–Flatiron Joint Venture, Fresno, Kings, and Tulare Counties, California. Providing compliance management and construction monitoring support for California High-Speed Rail CP2-3, a 69-mile-long route located within Fresno, Kings, and Tulare Counties. Coordinating with California High-Speed Rail environmental managers daily in identifying upcoming project activities and working with sub-consultants to provide biological monitors based on species-specific mitigation measures. Responsible for standardizing the weekly and daily biological monitoring schedule based off construction activities and environmental constraints outlined in the project BO and Incidental Take Permit. Conducting project-wide quality assurance and control of Environmentally Sensitive Area records by cross-referencing ArcCollector and Kerata/iForm Builder databases and following through with compliance management and lead project GIS personnel. Created standardized Migratory Bird Treaty Act and Swainson's hawk nest data sheets and providing client with weekly summary of environmental constraints. Coordinating scheduling of blunt-nosed leopard lizard (*Gambelia sila*) and

Relevant Previous Experience

ULTRA-FACES, California State University, Fresno, California. Project lead for the Urban Long-term Research Area - Fresno and Clovis Eco-social Study (ULTRA-FACES), a National Science Foundation and U.S. Forest Service funded project that studied the relationships between socioeconomic/political factors, disturbance regimes, and ecological factors and how these feedback into ecosystem services. Worked on GIS-based models analyzing bird species richness and abundance within the Fresno-Clovis Metropolitan Area against residential irrigation practices, tree diversity, urban noise, and community property values.

San Joaquin River Parkway and Conservation Trust, Fresno, California. Supervised and led Local Conservation Corps and California Conservation Corps members in habitat restoration projects along a 22-mile reach of the San Joaquin River between Friant Dam and Highway 99, with the purpose of creating accessible natural spaces for public use. Project lead and acting field manager for projects including invasive plant species removal (both mechanical and chemical), drip irrigation system installation/maintenance, raptor perch installation, and the planting of more than 10,000 native trees and shrubs. Daily project mapping and monitoring of both native and invasive flora along with remote data collection and GIS mapping of project sites. Monitoring of foraging Swainson's hawk and nesting bald eagle within the project boundary.

California Conservation Corps, Fresno, California. Worked as a special corpsmember to develop, teach and facilitate all California Conservation Corps member development programs: C.O.M.E.T. (orientation), Conservation Awareness Program, Career Development Transition, Blue Card State Driver Program, and Corps Member Advisory Board. Evaluated daily performance of twelve to thirty 18–25-year-old recruits of diverse cultures and backgrounds during monthly, week-long C.O.M.E.Ts. Networked with outside agencies and non-profit organizations to set up community volunteer opportunities; developed and maintained monthly member education, evaluation, and competency files; and managed the center's AmeriCorps Education Award Program scholarship files for all members.

Fresno Bird Count, Fresno, California. Helped create and manage the Fresno Bird Count, a citizen science based long-term monitoring program containing 460 survey sites with the purpose of gathering data on the abundance and richness of bird species in the Fresno-Clovis Metropolitan Area. Led bi-annual protocol training for more than 20 community volunteers assisting with point counts. Conducted 8 years of bird point count surveys with concurrent urban noise monitoring during peak breeding season and winter migration season.

Specialized Training

- **AEP 2018 CEQA Essentials Workshop, Fresno, California, November 2018.** Workshop that covered overview, case studies, and fundamentals of the California Environmental Quality Act and State Guidelines.
- **Wildlife Biologist Construction Awareness Training, Fish Camp, California, February 2019.** Completed the WILD C.A.T. training at the Western Section of The Wildlife Society Annual Meeting in Fish Camp,

demonstration and visual encounter survey. California red-legged frog evening spotlight survey. Observed 428 and handled 35 CTS larvae, observed 8 and handled 1 western pond turtle adult(s), and observed 8 and handled 3 California red-legged frog adults.

- **Environmental DNA: A Practical Workshop, Jack and Laura Dangermond Preserve, Santa Barbara County, California, July 2019.** Three-day lecture and field-based training workshop on the fundamentals and use of environmental DNA. Lecture focused on an overview of the basis, function, application, and parameters of the technology. Field component focused on collection of water and dirt samples in/near ponds testing for presence of sensitive species. Species observed include western pond turtle and California red-legged frog.
- **Fletcher Conservation Lands Conservation and Mitigation Banks. Alameda County, California, June 2019.** Under the supervision of qualified biologist Joseph DiDonato, conducted Fletcher Conservation Lands aquatic species surveys via seining for CTS in several ponds throughout the property. Species observed include CTS, California red-legged frog, Sierran treefrog (*Pseudacris sierra*), and California newt (*Taricha torosa*). Observed and handled 206 CTS larvae, 406 California newt larvae, and 80 California red-legged frog larvae and 1 adult.
- **San Joaquin Kit Fox Workshop, California Central Coast Chapter of The Wildlife Society, Carrizo Plains/Chimeneas Ranch, California, October 7–10, 2019.** Three-day lecture and field-based workshop that covered the life history, ecology, conservation status, and survey techniques for the San Joaquin kit fox in the Carrizo Plains core habitat area. Lectures were taught by knowledgeable professionals from state, federal, private, and non-profit organizations experienced with research, protection, and mitigation of the species. The field component included hands on experience monitoring known dens via camera traps, bait/scent stations, and diatomaceous earth; participating in the CDFW historic spotlighting surveys of Elkhorn Road and Soda Lake Road; and observing San Joaquin kit fox's main prey, giant kangaroo rat (*Dipodomys ingens*). Observed 114 individuals, 4 known dens, and 1 historic natal den.
- **San Joaquin Kit Fox Artificial Den Installation, Windwolves Preserve, Kern County, California, February 3, 2020.** Assisted in installing three artificial dens in and near known suitable habitat for San Joaquin kit fox at Windwolves Preserve to enhance satellite and linkage habitats.
- **Sonoma State University CTS Survey, Alton Preserve, Santa Rosa, California, February 14–15, 2020; March 15, 2020.** Assisted in graduate research on known populations of CTS within the Alton Preserve. Work included checking more than 300 pit fall traps for adult CTS migrating from upland habitat to breeding habitat and vise-versa. Species observed include CTS, California slender salamander (*Batrachoseps attenuatus*), and Sierran treefrog. Observed and handled 2 adult CTS.
- **California Spotted Owl Study, Sequoia and Kings Canyon National Parks, 2021.** Currently volunteering with the California spotted owl *(Strix occidentalis)* study, which includes locating, capturing, and color banding all spotted owls within the study area with the purpose of providing information on owl survival, reproduction, and diet in areas not managed for timber production.

Heather Moine

ENVIRONMENTAL SCIENTIST/BIOLOGIST



Heather Moine is an environmental scientist/biologist with 14 years' experience performing special-status species surveys, nesting bird surveys, general biological assessments, biological monitoring, habitat restoration, construction monitoring, wetlands delineations, water quality sampling, permit preparation and implementation, and California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) document preparation. In addition, Ms. Moine has experience preparing habitat restoration plans, U.S. Fish and Wildlife Service (USFWS) biological assessments, biological technical reports, due diligence/biological constraints reports, initial study biological assessments specific to the County of Ventura, nesting bird letter reports, watershed plans, annual restoration monitoring reports, invasive species management reports, focused special-status species reports. She has performed wetland delineations for the U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and California Coastal Commission jurisdictions, and prepared associated wetland delineation reports.

Project Experience

Development

Rare Plant Surveys, Seed Collection, and Biological Construction Monitoring, Cabrillo Business Park, Goleta, California. Performed rare plant surveys, seed collection, and biological construction monitoring in support of the Los Carneros Road Widening portion of the Cabrillo Business Park project. Seeds were preserved for incorporation into the on-site wetland and upland restoration. Surveys followed the City of Goleta Conditions of Approval, CDFW 1600 permit, RWQCB 401 permit, ACOE 404 permit, and Conceptual Wetland and Upland Restoration and Mitigation Plan.

Vegetation Mapping, Rare Plant Surveys, Burrowing Owl, and American Badger

Education

University of California (UC), Santa Barbara
BS, Environmental Studies, 2005

Certifications

Section 10(a)(1)(A) USFWS Recovery Permit No. TE-60147A-0 to Handle Listed Vernal Pool Branchiopod Species

CDFW Voucher Collecting Permit No. 2081(a)-12-08-V to Collect Voucher Specimens of State-Listed Plants

CDFW Scientific Collecting Permit No. SC-11327 to Collect Voucher Specimens of Listed Vernal Pool Branchiopods

Professional Affiliations

California Native Plant Society

The Wildlife Society

environmental studies including vegetation mapping, grassland mapping, and jurisdictional wetland delineation reporting for biological resources involving the California Coastal Commission.

Oak Tree Survey, Nextel Communications, Templeton, California. Performed a general biological survey of the project area focusing on oak tree driplines and impacts on oak trees in relation to proposed construction activities. A letter report was prepared for Nextel Communications to present to the County of San Luis Obispo to evaluate the proposed placement of a communications shelter and underground conduit lines relative to existing oak trees.

Nesting Bird Surveys, Jet Propulsion Laboratory, Pasadena, California. Performed a pre-construction nesting bird survey for a building site in Pasadena that required tree removals. Results of the nesting bird surveys were transmitted immediately following the survey verbally and over email, and a letter report was developed to provide formal documentation.

Oak Tree Impact Assessment and Construction Monitoring, Nextel, San Luis Obispo County, California. Assessed the impacts of a proposed project on oak trees and developed recommendations that were later incorporated into the project to ensure that oak trees would not be adversely affected by the proposed project. Performed follow-up construction monitoring to ensure that all protection measures were followed. Generated pre- and post-construction reports.

Pre-Construction Survey for California Red-legged Frog along Highway 154, Granite Construction, Santa Barbara County, California. Performed a daytime survey and habitat assessment for California red-legged frogs (*Rana draytonii*) along a portion of Highway 154 prior to construction. California red-legged frogs had been historically found within a 10-mile radius of the construction site.

Wetlands Delineation for a Proposed Development, John Brandeis, Ventura County, California. Completed a wetlands delineation in order to classify jurisdictional wetlands within a proposed development site. Federal, state, and county jurisdictions were delineated concurrently. Performed extensive fieldwork and prepared the wetlands delineation report.

Wetlands Delineation for a Proposed Development, Storke Ranch, Santa Barbara County, California. Completed a wetlands delineation in order to classify jurisdictional wetlands within a proposed development site. Federal, state, and county jurisdictions were delineated concurrently. Performed extensive fieldwork and prepared the wetlands delineation report. Delineation was completed in support of a Section 404 Clean Water Act permit from ACOE, a water quality certification or waiver from RWQCB, and a streambed alteration agreement from CDFW.

Education

Raptor and Bird Nesting Surveys for UCSB, Santa Barbara, California. Provided biological services involving Raptor and Bird Nesting Surveys for its Long Range Development Plan Environmental Impact Report (LRDP EIR) and in accordance with standards established by the California Coastal Commission (CCC).

Environmental Impact Report (EIR) for the Central Region MacArthur Park Elementary School Addition, Los Angeles Unified School District, Los Angeles County, California. Prepared the initial study for the MacArthur Park Elementary School Project. Analyzed the potentially significant impacts found in the initial study in the EIR. The project consisted of the addition of 400 new classroom seats, a multipurpose building, a library, a food service building with a food shelter, and a playfield.

Supplemental EIR for the Human Resources Department/Professional Development Center at the Central Los Angeles New High School (CLAHS) No. 11, Los Angeles Unified School District, Los Angeles County, California. Prepared the supplemental EIR for the proposed project, which would be part of the CLAHS No. 11 site but separate from student facilities. CLAHS No. 11 was completed and occupied by the third quarter of 2008. The project consisted of two components: a new parking structure and use of 65,000 square feet of existing street-level office/conference space for the Human Resources Department/Professional Development Center. Prepared the supplemental EIR in support of the parking structure and use of office space.

Initial Study for South Region Elementary School No. 10, Los Angeles Unified School District, Los Angeles County, California. Prepared the initial study for the South Region Elementary School No. 10. The project involved demolition of eight single-family and 55 multifamily residences and the construction of an elementary school. The school would provide 650 seats and 26 classrooms for kindergarten through fifth grade. The EIR analyzed the project's potential adverse impacts on air quality, biological resources, cultural resources, hazards and hazardous materials, noise, pedestrian safety, public services, and transportation and traffic.

MND for the Delta High School Expansion Project, Santa Maria Joint Union High School District, Santa Maria, California. Contributed to an MND for the Delta High School Expansion Project. The project would relieve overcrowding, replace dilapidated structures, and allow for enrollment growth at Delta High School. The project would demolish the current high school and construct three one-story buildings for the new high school. The school would provide an additional 112 seats and 11 new classrooms for grades 9 through 12. Assisted in the preparation of the MND, which included mitigation measures for aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, noise, traffic and transportation, and utilities and service systems to reduce impacts to a less-than-significant level.

Nesting Bird Survey, UCSB, Santa Barbara, California. Performed multiple pre-construction nesting bird surveys on the campus of UCSB. Surveyed trees and vegetation planned for removal. Survey included visually observing trees and vegetation by eyesight and with binoculars. Areas surrounding the trees and vegetation were surveyed for

Tidewater Goby Survey and Construction Monitoring, UCSB, Santa Barbara, California. Completed a survey primarily for presence/absence and extent of distribution of tidewater gobies within Devereux Slough and an upstream tributary, Phelps Creek. Seining was completed with Entrix biologist Dr. Camm Swift. Other aquatic organisms and habitats present were also recorded. Assisted Dr. Swift during the survey and in the preparation of the survey report for USFWS. Tidewater gobies were found within all three project areas surveyed. Authorized under the biological opinion issued by USFWS to relocate tidewater gobies outside of the construction area. Relocation activities were performed in all three project locations. Exclusion nets were set up outside the project area and tidewater gobies were relocated outside the exclusion nets prior to the start of construction. Monitoring included ensuring tidewater gobies were not harmed and did not reenter the project site. Performed daily biological monitoring within Devereux Slough and an upstream tributary, Phelps Creek, during construction. Blocknets were monitored to ensure wildlife was not impacted.

Biological Survey and Wetlands Delineation for the Storke Ranch Project, UCSB, Santa Barbara, California. Performed a biological survey for a project at UCSB. The entire project site and 250-foot buffer were walked and visually surveyed. Dominant plant species and habitats were identified and recorded. A wetlands delineation was performed, following the methods described in ACOE's Wetlands Delineation Manual. Three wetlands criteria—hydrophytic vegetation, soil, and hydrology—were analyzed and recorded. Federal and state jurisdictions were delineated concurrently. Wrote the letter report summarizing the results of the biological analysis and wetlands delineation for submittal to the client.

North Campus Faculty Housing Project, Phelps Creek Layback, Phelps Creek Bridge, and Devereux Bridge, UCSB, Santa Barbara, California. UCSB planned to expand its faculty housing on an approximately 26-acre site located on North Campus. As mitigation for the biological impacts, the California Coastal Commission required UCSB to widen and increase the capacity of Phelps Creek, install an emergency access bridge over Phelps Creek, and improve a bridge over Devereux Slough. These improvements would enhance the riparian habitat along Phelps Creek and improve fish passage from Devereux Slough into Phelps Creek. Prepared and assisted UCSB in obtaining permits required under the Clean Water Act for the North Campus Faculty Housing Project, including Section 401 certification from the RWQCB, a Section 404 permit from ACOE, and a streambed alteration agreement from CDFW.

Energy

Calle Real Photovoltaic Habitat Restoration Plan, Endelos Energy, Santa Barbara County, California. Prepared a coastal sage scrub habitat restoration plan required under the Calle Real Photovoltaic Project MND mitigation monitoring and reporting program for project-related impacts to the native shrub habitat. Coastal sage scrub habitat within the project boundary is considered environmentally sensitive habitat under the Goleta Community Plan and requires mitigation. The habitat restoration plan was developed to identify coastal sage scrub replacement areas, methods for installation, maintenance, and monitoring, as well as success criteria to achieve

issue at most sites, although San Joaquin kit fox (*Vulpes macrotis mutica*) and several bird species designated as California Species of Concern were also important in the analysis.

Bark Beetle Infestation Project, Southern California Edison, San Bernardino and Riverside Counties, California. Served as biological monitor for tree removal and pole maintenance activities in biologically sensitive areas to ensure avoidance of impacts to potentially occurring USFS threatened, endangered, and sensitive species.

Military

Special-Status Plant Surveys, Vandenberg AFB, Santa Barbara County, California. Conducted special-status plant surveys to identify avoidance areas in support of proposed remediation activities. Conducted surveys for Gaviota tarplant, seacliff buckwheat, Gambel's watercress, La Graciosa thistle, and marsh sandwort.

Special-Status Plant Surveys, Vandenberg AFB, Santa Barbara County, California. Conducted special-status plant surveys of black-flowered figwort (*Scrophularia atrata*), La Graciosa thistle, Gaviota tarplant, and seacliff buckwheat. Mitigation measures were established to avoid impacts to special-status species during remediation activities.

Special-Status Plant Surveys, Camp Pendleton, San Diego County, California. Completed rare plant surveys at Camp Pendleton. The primary scope of this project is to representatively sample each vegetation community occurring within a recently burned area for the occurrence of sensitive plant species. Multiple surveys were performed to inventory populations and update the geographic information system (GIS) database.

Special-Status Plant Survey for the Thread-leaved Brodiaea, Camp Pendleton, San Diego County, California. Completed surveys for the federally threatened and state-endangered thread-leaved brodiaea at Camp Pendleton. Surveys were required for 6 weeks. A protocol survey was completed, which required 100% visual survey of all project areas. As a field team leader, project responsibilities included extensive coordination, supervision, and management of 20 field personnel and significant data management and data quality control.

Post-Fire Invasive Species Management and Monitoring, Camp Pendleton, San Diego County, California. Mapped areas of fennel, using the Trimble Geo XH GPS unit, to be treated and removed from riparian and upland habitat located in the Ammo Fire boundary, burned in 2007. Photo points were established, and fennel coverage of each photo point was designated a specific cover class. Performed monthly monitoring of treated areas, returning to established photo points, and designated the cover class of each area. Prepared annual reports to document non-native species removal and status of meeting success criteria.

Surveys for the Gaviota Tarplant in Support of the Kinetic Energy Interceptor Project, Vandenberg AFB, Santa Barbara County, California. Completed surveys for the Gaviota tarplant, host plant for the El Segundo blue butterfly, at Test Pad 01 on Vandenberg AFB. The surveys were required in support of the NEPA document for the

Vandenberg AFB. The surveys were required in support of a proposed anti-terrorism barrier. Surveys were completed and a report was provided to Teledyne Solutions. Completed the required field surveys.

Coastal Sage Scrub Restoration Project, Camp Pendleton, San Diego County, California. Completed site preparation activities at a proposed coastal sage scrub restoration site on Camp Pendleton. The project required an assessment of the baseline condition of the site and comparison of this condition to a reference site. Removal of non-native, invasive plant species was also performed. Conducted soils analysis and mapping of the restoration site.

Surveys for the Gaviota Tarplant, Lompoc Yerba Santa, and Beach Layia for the Missile Defense Agency Diverse Power Project, Vandenberg AFB, Santa Barbara County, California. Completed surveys for the Gaviota tarplant, Lompoc yerba santa, and beach layia at three locations on Vandenberg AFB. The surveys were required for a Missile Defense Agency project that required trenching to install conduit lines. Surveys were completed and a report was provided to Teledyne Solutions. Completed the required field surveys.

Environmental Assessment for Hypersonic Corridors, Edwards AFB, Kern County, California. Composed various portions of the environmental assessment to evaluate the effects of establishing four flight corridors for air-launched, hypersonic vehicle test flights that land at Edwards AFB. Responsibilities included research on the existing environment and analysis of impacts generated in various issue areas, including geology and soils, infrastructure, land use, natural resources, socioeconomics, and water resources.

Habitat Enhancement and Post-Enhancement Monitoring of Stephens' Kangaroo Rat, Camp Pendleton, San Diego County, California. Performed pre-control burn vegetation monitoring at Marine Corps Base Camp Pendleton for the Stephens' kangaroo rat (*Dipodomys stephensi*) habitat enhancement project. Identified native and non-native species in non-native grassland habitat. Surveyed five 1-meter by 1-meter quadrats along each of the total 20 transects. For each quadrat, estimated percent cover of bare ground, annual grasses, perennial grasses, forbs, shrubs, and trees. Took slope, aspect, and photo points of each transect. Performed follow-up semi-annual vegetation monitoring to quantify vegetation cover and diversity.

California Red-Legged Frog Day and Night Surveys, Vandenberg AFB, Santa Barbara County, California. Performed day and nighttime surveys in accordance with the USFWS "Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog" (August 2005). A total of six presence/absence surveys for California red-legged frogs and egg masses were performed.

Survey for California Red-Legged Frogs, Vandenberg AFB, Santa Barbara County, California. Authorized in a final USFWS biological opinion to independently survey for, monitor, capture, and relocate California red-legged frogs for a proposed Missile Defense Agency project at Vandenberg AFB. Surveys of the three potential California red-legged frog habitats were conducted during early 2009. Completed several surveys to identify biological constraints and potential project impacts during development of a biological assessment. The biological

California Red-Legged Frog Habitat Assessment, Pre-Construction Survey, and Construction Monitoring, Vandenberg AFB, Santa Barbara County, California. Performed a California red-legged frog habitat site assessment of the proposed project area and surrounding 1-mile radius. Mapped California red-legged frog habitat areas on Vandenberg AFB, and assessed other potential habitat areas for maximum depth of ponding, presence of water, vegetation type, and substrate. Conducted day and night pre-construction surveys, and performed on-site monitoring during excavation and disturbance activities.

Wetlands Delineation, Vandenberg AFB, Santa Barbara County, California. Performed multiple wetlands delineations on Vandenberg AFB to identify jurisdictional wetlands and minimize impacts of proposed projects. The criteria for ACOE's Section 404 Clean Water Act permit were followed.

Construction Monitoring for the Diverse Communications Project, Vandenberg AFB, Santa Barbara County, California. Provided natural and cultural resources services for the Missile Defense Agency's Diverse Communications project. Conducted field surveys for threatened and endangered species, prepared a biological assessment required for Section 7 consultation, and implemented the biological opinion during construction. Worked with Vandenberg AFB biologists to develop minimization and avoidance measures to reduce impacts to threatened and endangered species. The biological assessment provided sufficient detail to support a determination that the Missile Defense Agency Diverse Communications project would not adversely affect the California red-legged frog, El Segundo blue butterfly, unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), or Gaviota tarplant. In addition, the proposed project was found to have no effect on the vernal pool fairy shrimp (*Branchinecta lynchi*). A biological opinion was obtained from USFWS that allowed the project to proceed with the avoidance and minimization measures developed in the biological assessment for the project. Pre-construction surveys and biological monitoring activities were completed for the California red-legged frog, El Segundo blue butterfly, and Gaviota tarplant. Authorized within the biological opinion to handle California red-legged frogs. Construction monitoring was successfully completed for several months and final reports were submitted.

Tarplant Survey and Management Practices at a Contaminated Site, Vandenberg AFB, Santa Barbara County, California. Worked with Vandenberg AFB at a site with the federally and state-endangered Gaviota tarplant. Designed and implemented a field survey to estimate the demographic parameters of the species within the site. Results of the survey were used to prepare a biological assessment in support of formal Section 7 consultation with USFWS. The biological assessment reviewed site activities in sufficient detail to determine if they may affect any federally or state-listed species and developed measures to minimize impacts to the species. Designated groundwater sampling access routes at the site as requested in the final biological opinion from USFWS in order to minimize impact on the Gaviota tarplant. Activities also included periodic on-site monitoring.

Environmental Assessment for Hypersonic Corridors, Edwards AFB, California. Composed various portions of the environmental assessment to evaluate the effects of establishing four flight corridors for air-launched, hypersonic vehicle test flights that land at Edwards AFB. Responsibilities included research on the existing environment and

Integrated Natural and Cultural Resources Management Plan, Lajes Field, Azores, Portugal. Project consisted of updating the Integrated Natural and Cultural Resources Management Plan for Lajes Field. Existing documents were gathered as baseline information, setting a platform for the plan. Data collection required coordination with both Portuguese and American personnel, as well as various Lajes Field personnel. Reviewed and compiled the data collected and coordinated with a graphic designer to develop a GIS application. The documents and GIS application were used to develop the Integrated Natural and Cultural Resources Management Plan.

Integrated Natural Resources Management Plan, Ramstein Air Base, Germany. Assisted in updating the Integrated Natural Resources Management Plan for Ramstein AFB. Tasks included data verification, proofreading, and assemblage of the final document. The report is a guide for the base on how to minimize the impacts on natural resources during future development on base.

Municipal

Regional Water Quality Control Board 401 Permitting for Kern County Waste Management Department, Ridgecrest Recycling and Sanitary Landfill, Ridgecrest, California. Assisted in preparing a RWQCB 401 Permit for the Kern County Waste Management Department in support of the Ridgecrest Recycling and Sanitary Landfill project. The project includes expanding the Ridgecrest Recycling and Sanitary Landfill in an area with isolated waters of the state under the jurisdiction of the RWQCB.

Wetlands Inventory and Special-Status Species Inventory, Santa Barbara Municipal Airport, California. Dudek provided environmental support services for the City of Santa Barbara's Airport Master Plan/Aviation Facilities Plan project. Performed a wetland inventory and special-status species inventory to identify resources to assist in developing the Airport Master Plan/Aviation Facilities Plan to reduce impacts to sensitive biological resources.

Delineation of Jurisdictional Waters for the El Toro Water District Recycled Water Distribution System Expansion Project, Orange County, California. Assisted in preparing a Delineation of Jurisdictional Waters letter report to describe the existing conditions of jurisdictional waters within the project site, quantify impacts to jurisdictional waters that would result from implementation of the proposed project and describe those impacts in terms of significance in view of federal, state, and local laws and policies, and recommended mitigation measures for impacts to jurisdictional waters.

Habitat Mitigation and Monitoring, Pre-Construction Monitoring, and Construction Monitoring, Borchard Road and Route 101 Drainage, City of Thousand Oaks, California. Dudek is on contract with the City of Thousand Oaks for on-call professional engineering and environmental services. For the Borchard Road and Rout 101 Drainage project Dudek conducted pre-construction nesting bird surveys and habitat surveys prior to the start of construction to identify protected resources. Surveys were conducted in accordance with the California Department of Fish and Wildlife Streambed Alteration Agreement. Coordination was performed with the City of

previous site findings, a burrowing owl survey and letter report were prepared and presented to CDFW in order to satisfy the Phase IV reporting requirements of the burrowing owl survey protocol and mitigation guidelines. In addition, a survey was conducted to map potential kit fox (*Vulpes macrotis*) habitat.

Wetlands Delineation and General Biological Assessment for Peck Park, Los Angeles County, California. Completed a wetlands delineation within two canyons of Peck Park. Quantified the amount of ACOE, RWQCB, and CDFW jurisdiction. Calculated project impacts to jurisdictional areas and worked with project engineers to minimize the impacts.

Resource Management

Rare Plant Surveys, County of Santa Barbara, California. Conducted rare plant surveys at two proposed development sites within Santa Barbara County. Surveys were conducted over several days and required identification of all plant species within each site. Contributed to reports generated for the projects, including plant identification and impacts assessment.

Completion of Biological Surveys and Analysis for Various Initial Studies, County of Ventura, California. Completed the biological resources section of the initial study for numerous projects for the County of Ventura. Completion of the initial study biological assessment biological analysis required the review of existing data and a mapping packet provided by the County of Ventura, completion of a site visit and general biological survey, a completeness determination, and completion of the initial study. During completion of the initial study, the project's impacts on wetlands, special-status species, wildlife migration corridors, protected tree species, coastal habitat, and locally important species and communities were analyzed. A cumulative impacts analysis was also performed. For many projects, additional studies were required before the initial study could be completed. Completed floristic rare plant surveys, tree assessments, wetlands delineations, rare plant identification and relocation, and burrowing owl protocol surveys for several of these projects.

Completion of a Watershed Plan for Rincon Creek, County of Santa Barbara, California. Prepared the Rincon Creek Watershed Plan for the County of Santa Barbara. Specific objectives of the plan were to provide an overview of the baseline physical conditions in the watershed, identify key issues affecting watershed health, develop and prioritize projects to remedy the identified problems, and improve stewardship of the watershed's natural resources. One aspect of the project involved the assessment of steelhead habitat and upstream migration barriers. Another important issue within the creek is the presence of non-native, invasive plant species. A field survey was completed in May 2006 to assess steelhead habitat and barriers, non-native invasive plant species, the geomorphology of the creek, and riparian function. Results of this assessment were used to help design an implementation strategy for high-priority restoration projects. The Rincon Creek Watershed Plan developed 24 projects to address the key issues within the watershed.

Bank Protection Project, San Roque Creek, Channel Islands YMCA, Santa Barbara County, California. This project was part of the streambed alteration agreement between CDFW and the Channel Islands YMCA. Part of the updated annual report included monitoring the progress of revegetated plants along the streambed by reporting species type, quantity, height, and percent cover. This data was analyzed, compared to last year's data, and used to help write the annual restoration monitoring report.

Water/Wastewater

Water Quality Monitoring/Biological and Best Management Practice (BMP) Compliance at Moon Ditch and Wason Barranca, Ventura County Watershed Protection District, Ventura, California. Performed water quality monitoring, biological and BMP compliance, and reporting required under the Los Angeles (Region 4) RWQCB Clean Water Act Section 401 Water Quality Certification for the Moon Ditch and Wason Barranca project. The purpose of the project was to repair and replace the damaged concrete trapezoidal channel walls, repair cracks, and improve drainage systems behind the channel walls. Since surface water was present in the project area, upstream and downstream monitoring was implemented for the following: pH, temperature, dissolved oxygen, turbidity, and total suspended solids. In addition, the project site was regularly checked for biological and BMP compliance and results were discussed with the on-site Ventura County Watershed Protection District inspector. Monitoring results were incorporated into monthly monitoring reports for submittal to the RWQCB.

Biological Surveys and Impact Analysis, Solvang Wastewater Treatment Plant, Solvang, California. Performed a general biological survey, vegetation mapping, and wetlands delineation in support of the City of Solvang's Wastewater Treatment Plant and Well 7A Reinforced Vegetated Slope Protection Project. Assisted in preparation of a biological assessment and jurisdictional determination report to assess impacts and propose measures to reduce impacts to sensitive biological resources.

Morro Bay-Cayucos Wastewater Treatment Plant Upgrade, City of Morro Bay, California. Provided review and analysis of potential biological constraints during the evaluation of alternatives for the upgrade of the treatment plant. During the fine-screening process, which focused on four sites that remained in consideration, reviewed the observed and potential biological resources and assisted in a report on the biological constraints associated with each of them, including special-status plant and wildlife species and their habitats, sensitive natural communities, other native vegetation communities, and jurisdictional resources. The analysis focused on resources highlighted in the County of San Luis Obispo and City of Morro Bay Local Coastal Programs.

Initial Study/MND for a Wastewater Treatment Plant Upgrade, Goleta Sanitary District, Goleta, California. Contributed to an MND for a proposed project to upgrade the liquids treatment system for the Goleta Sanitary District. The implementation of the proposed project would result in secondary treatment of the discharge to the Pacific Ocean. Special studies completed for the MND include air quality, noise, traffic, and a human health risk assessment. Focused studies were performed in order to identify potentially significant impacts, assess potential

Water Quality Monitoring for the Pillar Point Stormwater Diversion Project, Vandenberg AFB, Half Moon Bay, California. Established a water quality monitoring program to establish a baseline monitoring dataset of the Pillar Point Air Force Station stormwater runoff. The baseline monitoring dataset supported appropriate design of future low-impact development retrofits. Samples were collected during storm events to capture the first stormwater from the site. Grab samples were collected from the ocean and concrete stormwater conveyance channel for lab analysis (acute toxicity, total coliform, fecal coliform, total metals, chromium VI, mercury, nitrogen, ammonia, oil and grease, and human gene biomarker). In addition, collected in-field parameters with a Hydrolab instrument (pH, dissolved oxygen, specific conductivity, temperature, salinity, total dissolved solids, and turbidity).

Basewide Groundwater Monitoring Program, Vandenberg AFB, Santa Barbara County, California. The basewide groundwater monitoring program involved the sampling of up to 320 groundwater monitoring wells, groundwater seeps, and surface water locations quarterly throughout 29 installation restoration program sites at Vandenberg AFB. Quarterly sampling events involved three two-person crews to use MicroPurge and Grundfos pumps to purge and sample designated groundwater wells on base. Samples were sent to a lab and results were used for quarterly sample reports written for Vandenberg AFB.

Development of Drinking Water Master Plan. This project analyzed the current infrastructure for drinking water and recommends a future plan for maintenance and programs to implement in the future. Compiled data into tables and used Microsoft Excel to construct graphs and figures. The development of drinking water master plans included Davis-Monthan AFB, Arizona; Holloman AFB, New Mexico; Whiteman AFB, Missouri; Dyess AFB, Texas; Nellis AFB, Nevada; Creech AFB, Nevada; Minot AFB, North Dakota; and Offutt AFB, Nebraska.

Stormwater Pollution Prevention Plans, Los Angeles and Orange Counties, California. Executed the preparation, delivery, and clarification of detailed stormwater plans for the 2004–2005 rainy season. Stormwater pollution prevention plans were prepared to provide a complete description of activities and associated pollutants of concern. Site-specific BMPs were developed to address potential pollutants and their sources. The monitoring plan was also updated to thoroughly describe sample points and sampling methodology. Personnel updates were included, as were the site maps. To complete these tasks, performed site visits and interviewed staff to accurately portray all activities at the site and ensure full permit compliance.

Relevant Previous Experience

Wildlands Studies, Field Study Program, Costa Rica, Summer 2004. Completed an intensive, 6-week backpacking course that examined the local flora, fauna, and ecology of Costa Rica.

Specialized Training

- Rare Pond Species Survey Techniques Workshop, Laguna de Santa Rosa Foundation and the Wildlife Project, April 2011

- 40-hour, Occupational Safety and Health Administration Health and Safety Training for Hazardous Materials; Hazardous Waste Operations and Emergency Response (HAZWOPER)–certified
- CPR-certified, American Red Cross, 2009
- Confined-space-entry-trained, Environmental Training and Compliance, 2009.

Tamara K. Bryant

BIOLOGIST

Tamara K. Bryant is a Biologist with 11 years of biological monitoring experience in California, working with a variety of species including blunt-nosed leopard lizard, desert tortoise, desert kit fox, orange-throated whiptail, arroyo toad, spadefoot toad, California tiger salamander, and California red-legged frog. Ms. Bryant has worked in several riparian and desert habitats and responsibilities have included conducting species presence/absence and pre-construction surveys, assisting clients in maintaining environmental compliance, monitoring sites for hazardous materials/sediment erosion control, and construction monitoring.

Education

Coastal Carolina University, Conway, South Carolina

BS, Marine Science and Biology

Certifications

CDFW Flat-Tailed Horned Lizard Handling Permit, El Centro, CA, 2011

Hazardous Waste Operations and Emergency Response (OSHA HAZWOPER) Certification, 2010

Transportation Worker Identification Credential (TWIC), 2010

Project Experience

Solar Power Project, Confidential Client, Riverside County, California. Surveyed, monitored, and protected natural resources and delineated environmental constraints during the construction of a solar field within desert tortoise, desert kit fox, and burrowing owl habitat. Monitored surveillance cameras and documented sensitive species during construction activities. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, CDFW, CEQA, NEPA, and ESA.

San Gabriel Reservoir Project, Los Angeles County, California. Surveyed, monitored, and protected natural resources and delineated environmental constraints during the cleanout of the San Gabriel Reservoir within Santa Ana sucker and riparian habitat. Monitored surveillance cameras and documented sensitive species during construction activities. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, CDFW, CEQA, NEPA, ESA, and Public Works.

Pelicans Jaw Hybrid Solar Project, Kern County, California. Conducted blunt-nosed leopard lizard hatchling and adult surveys to provide biological findings/constraints in previously disturbed habitat for the proposed construction of a solar field. Surveys were conducted in accordance with CDFW Survey Protocol Guidelines. Observed and documented other sensitive wildlife within the San Joaquin Valley.

lines within riparian areas and other sensitive habitat. Monitored hazardous tree removals. Coordinated monitoring schedule, documented and reported oil spills/hazardous releases, and conducted SWPPP inspections. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, NEPA, ESA, and the Reporting Program for Liberty Utilities.

San Diego Gas & Electric and Sempra Utilities Cleveland National Forest Wood to Steel Project, San Diego County, California. Lead Biological Monitor. Monitored and protected natural resources and endangered species during the underground installation of 230 kV transmission lines and overhead installation of 12 kV and 69 kV transmission lines within arroyo toad and other sensitive habitat. Coordinated monitoring schedule. Submitted daily environmental field inquiries on mitigation actions in accordance with the Migratory Bird Treaty Act, CPUC, USFWS, BLM, CDFW, ESA, and the Reporting Program for the SDG&E Powerlink.

SCE Santa Barbara County Reliability Project, Riverside County, California. Biological Monitor. Monitored and protected natural resources and delineated environmental constraints during the construction of substations and the installation of 500 kV transmission lines. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, NEPA, and ESA.

Panoche Valley Solar Project, San Benito County, California. Conducted blunt-nosed leopard lizard hatchling and adult surveys to provide biological findings/constraints in previously disturbed habitat for the construction of a solar field. Surveys were conducted in accordance with CDFW Survey Protocol Guidelines. Observed and documented other sensitive wildlife within San Benito County.

California Department of Transportation Freeman Gulch Widening Project, Kern County, California. Biological Monitor. Surveyed, monitored, and protected natural resources and delineated environmental constraints during the widening of State Route 14 and State Route 178 within Mojave ground squirrel, desert tortoise, desert kit fox, and burrowing owl habitat. Monitored surveillance cameras and documented sensitive species progress during construction. Attended construction meetings and provided biological updates and concerns to construction personnel. Coordinated monitoring schedule. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, CEQA, NEPA, and ESA.

SCE Tehachapi Renewable Transmission 500 kV Underground East and West Transition Stations Project, San Bernardino County, California. Biological Monitor. Provided general environmental compliance coordination and support for project construction activities. Acted as onsite environmental compliance monitoring liaison. Coordinated construction activities with Professional Electric Construction Services (PECS) for compliance with environmental related measures identified in the project's environmental permits and other mitigation requirements. Made recommendations about mitigating actions to alleviate non-compliance issues. Attended the daily tailboard briefings and discussed any potential impacts that may constrain the day's construction activities.

sensitive biological resources. Provided WEAP trainings as needed. Submitted daily environmental field inquiries on mitigation actions in accordance with environmental regulations.

SCE DPV2 Transmission Line, Riverside County, California. Desert Tortoise/Biological Monitor. Monitored and protected natural resources and delineated environmental constraints during the construction of substations and the installations of 500 kV transmission lines within desert tortoise, desert kit fox, Mojave fringe-toed lizard, and burrowing owl habitat. Submitted daily field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, NEPA, ESA, and the Reporting Program for SCE Devers-Palo Verde 2 Transmission Line.

McCoy Solar Project and SCE DPV2 Transmission Line Project, Riverside County, California. BLM Compliance Monitor. Monitored and documented the level of compliance on BLM land during the construction of the McCoy Solar Farm. Interacted directly with BLM representatives and on-site biologists and submitted daily environmental compliance inquiries on construction activities, compliance issues, and mitigation resolutions. Monitored and protected natural resources and delineated environmental constraints during the construction of substations and the installation of 500 kV transmission lines.

SDG&E and Sempra Utilities Sunrise Powerlink, San Diego County, California. Monitored and protected natural resources and endangered species during the underground installation of 230 kV transmission lines within sensitive habitat. Submitted daily environmental field inquiries on mitigation actions in accordance with the MBTA, CPUC, USFWS, BLM, CDFW, NEPA, ESA, and the Reporting Program for the SD&E Powerlink.

Marine-Related Project Experience

Offshore Desalination Reactivation Project, Santa Barbara, California. Global Diving Sensitive Marine Species and Turbidity Monitor. Conducted sensitive marine species monitoring (SMSM) during all offshore construction. Notified crew of Marine Mammal Species that enter the project area in accordance with the CCC and City of Santa Barbara. Prior to the day's activities, conducted a pre-activity visual survey of the area directly associated with the vessel transit corridor and offshore project area. Documented and reported Marine Species sightings and notified the crew of observations within the 30 ft. work zone. Collected turbidity readings during various underwater activities.

British Petroleum MC 252 Deepwater Horizon Spill Response, Louisiana Department of Wildlife and Fisheries (LDWF) Monitoring Program, Bourg, Louisiana. Environmental Field Technician. Conducted site assessments of potentially oiled areas in marsh environments while obtaining and preserving water, sediment and tissue samples for analysis using Standard Operating Procedures. Documented and monitored field locations and submitted daily inquires on observed site conditions, activities, and incidents.

National Oceanic and Atmospheric Administration (NOAA) Vessel Pisces Water Quality Cruise. Operated the CTD

National Marine Fisheries Service, Northwest Observers, Dutch Harbor, Alaska. North Pacific Groundfish Observer. Managed the North Pacific fisheries through the independent data collection of unsorted catch obtained on commercial fishing vessels. Performed vessel safety inspections to ensure all equipment and permits are up to date. Recorded vessel fishing locations and identify and account for all catch. Submitted daily inquiries on sampled catch, vessel wildlife interactions and field incidents.

Specialized Training

- Fish and Wildlife Service Desert Tortoise Authorized Biologist Training Course, Primm, NV, 2017
- The Southern California Wildlife Society Arroyo Toad Field Ecology Workshop, San Diego, CA, 2017
- Laguna de Santa Rosa Foundation Amphibians and Reptiles Monitoring Workshop, Santa Rosa, CA, 2014
- Wetland Delineation Course, San Diego, CA, 2013
- Hazard Analysis Training for work in Energized Substations, 2012
- Fish and Game Desert Tortoise Training Workshop, Riverside County, CA, 2011

Eric Nicholson

BIOLOGIST

Eric Nicholson is a biologist with 10 years' experience conducting protocol level surveys and monitoring construction in sensitive habitats. Mr. Nicholson is familiar with flora and fauna throughout the state of California. Other species experience includes arroyo toad, snowy plover, California least tern and western pond turtle, flat-tailed horned lizard, and Western burrowing owl.

Project Experience

Solar Project, Confidential Client, Kern County, California. Approximately 760 MW of Photovoltaic Solar, Wildlife Biologist/Biological Monitor, near Mojave, CA. Conducted line transect and clearance surveys for sensitive species including desert tortoise, kit foxes, and burrowing owl prior to construction activities. Monitored and recorded breeding/nesting behavior of avian species during construction activity according to the Migratory Bird Treaty Act and associated permit requirements. Monitored known desert tortoise habitat during construction activities to minimize and avoid adverse impacts to sensitive species and associated habitat. Facilitated construction personnel compliance with federal, state, and local environmental regulations and associated permits.

Pelican's Jaw Hybrid Solar Project, Kern County, California. Conducted blunt-nosed leopard lizard hatchling and adult surveys to provide biological findings/constraints in previously disturbed habitat for the proposed construction of a solar field. Surveys were conducted in accordance with CDFW Survey Protocol Guidelines. Observed and documented other sensitive wildlife within the San Joaquin Valley.

Plains All American Pipeline, L.P., Angeles National Forest, California.
Performed habitat restoration. Monitored construction and restoration crews during soil tilling, BMP installation, hydro-seeding, herbicide treatment, and hand weeding treatment.

Southern California Gas Company Line 85 Valve Replacement, Angeles National Forest, California. Conducted

Education

University of California San Diego

BS, Environmental Systems; Ecology, Behavior, and Evolution, 2009

University of California Education Abroad Program

Costa Rica Tropical Biology Program, Monteverde, Costa Rica, 2008

Certifications

Recycled Water Site Supervisor Certification, City of San Diego (2016)

Flat-tailed horned lizard handling permit

Quino Checkerspot Surveying Permit, USFWS (2012)

Wilderness First Responder (2008)

Open Water Scuba Certification (PADI, 2007)

San Diego Gas & Eletric (SDG&E) Cleveland National Forest Power Line Replacement Project, San Diego County, California. Performed environmental inspection on San Diego Gas and Electric (SDG&E) Cleveland National Forest Power Line Replacement Project (CNF PLRP), a Fire Risk Mitigation Initiative that includes the replacement of nine 12- and 69-kilovolt (kV) electric facilities spread throughout an approximately 880 square mile area in eastern San Diego County. Conducted pre-construction wildlife clearance surveys, relocated sensitive wildlife, and inspected and performed documentation on all biological and environmental resources, cultural and paleontological resources, erosion and sediment, dust, waste, and hazardous substances for compliance with Project mitigation measures and for submittal to clients and regulatory agencies like the California Public Utilities Commission (CPUC).

Pipeline Safety Enhancement Project (PSEP), Southern California Gas Company. Provided environmental field support for natural gas pipeline construction for the Pipeline Safety Enhancement Plan (PSEP) Project, which identified various pipeline sections throughout both San Diego Gas and Electric and Southern California Gas Company service territory without a record of a pressure test and slated them to be pressure tested or replaced. PSEP included provisions to upgrade, replace, or retrofit hundreds of mainline valves in the system with remote system operating technology. Implemented project environmental management procedures to ensure compliance with regulatory reporting and record keeping requirements. Compiled data and supporting materials to file reports, pay environmental fees and obtain/renew permits, licenses and variances. Conducted routine and specialized environmental trainings. Performed field sampling as needed for water, soil, and pipes. Conducted field studies and investigations including determination and disposal of non-routine wastes encountered or generated in the field.

Marine Corps Base Camp Pendleton, Harris Environmental, Land Management Branch, San Diego County, California. Conducted rare plant surveys for *Phacelia stellaris* and *Acmispon prostratus* (*Lotus natallianus*) at Marine Corps Base Camp Pendleton for 2015 field season. Identified additional rare plants such as *Abronia maritima, Abronia villosa* var. *aurita*, *Calystegia soldanella, Centromadia parryi* ssp. *australis*, *Juncus acutus* ssp. *leopoldii*, and *Nemacaulis denudata* var. *denudata* in the field. Performed survey transects in coastal dunes and sandy washes along the Santa Margarita River using GPS Trimble Geo XT to map rare plant points and polygons of populations.
Observed sensitive wildlife such as arroyo toad, burrowing owl, snowy plover, California least tern and western pond turtle.

Borcher Environmental Management, Insignia Environmental, San Diego, California. Biologist. Performed Arroyo Toad (*Anaxyrus californicus*) surveys along a 20-mile stretch in the vicinity of Interstate 15 from Rainbow south to Scripps Ranch. Protocol focused surveys included San Luis Rey River and several other perennial and intermittent water courses. The work included surveys for rare, threatened, and endangered species to support environmental impact analysis for Pipeline Safety Enhancement Plan (PSEP) Line 1600.

surveys, surveyed for new and existing bird nests, relocated flat-tailed horned lizard (*Phyrnosoma mcallii)*, monitored for erosion and sediment, dust, waste, and hazardous substances, completed daily monitoring reports.

San Diego Gas & Electric (SDG&E) East County (ECO) Substation Project, San Diego County, California. Conducted environmental inspection on a 500/230/138 kV substation and 138 kV rebuild substation connected by a 13 mile, 138 kV overhead and underground transmission line. Conducted pre-construction wildlife clearance surveys, relocated sensitive wildlife, and inspected and performed documentation on all biological and environmental resources, cultural and paleontological resources, erosion and sediment, dust, waste, and hazardous substances for compliance with Project mitigation measures and for submittal to clients and regulatory agencies like the California Public Utilities Commission (CPUC). United States Fish and Wildlife Service (USFWS) approved Quino Checkerspot Butterfly (*Euphydryas editha quino*) Monitor. Conducted biological monitoring in critical habitat during the periods of the flying season and larval diapause.

Relevant Previous Experience

Forevergreen Forestry, Los Angeles, California. GIS Technician. Supported the lead consultant in the preparation of a community wildfire protection plan for the Santa Monica Mountains area. Responsibilities included GIS mapping and digitization of map planning units. Collaborated with the National Park Service and Fire Plan Unit for the Los Angeles County Fire Department.

Tijuana River National Estuarine Research Reserve, San Diego, California. Wildlife Biologist (Internship). Assisted with various ongoing research projects by performing avian, fish, and vegetation surveys, and soil salinity sampling within a number of San Diego County estuaries. Conducted senior thesis on the breeding phenology of the California Least Tern (*Sternula antillarum browni*) at the Tijuana estuary.

Specialized Training

- Railroad Safety Training Course, San Diego MTS. 2016.
- 40-hour OSHA HAZWOPER training, Compliance Solutions. 2015.
- Introduction to Surveying, Monitoring, and Handling Techniques Workshop, Desert Tortoise Council. 2011.

Appendix F

2021 Blunt-Nosed Leopard Lizard Survey Report

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
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MEMORANDUM

To:	Justin Sloan – U.S. Fish and Wildlife Service (USFWS) Carrie Swanberg – California Department of Fish and Wildlife (CDFW)
From:	Brock Ortega and Keith Carwana– Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results
Date:	August 18, 2022
cc:	Alphonso Jung, Tandy McMannes, Hun Kim, JungWoo Kim, and Karl Brutsaert – Pelicans Jaw Solar, LLC Andrew Bell – Bell-Kearns, Ltd. Marie Campbell and Sarah Sperling – Sapphos Environmental, Inc.
Attachment(s):	Figure 1 – Project Location Figure 2 – Blunt-nosed Leopard Lizard Survey Overview Figure 3A - Blunt-nosed Leopard Lizard – Survey Results Figure 3B - Blunt-nosed Leopard Lizard – Survey Results Attachment A – Project Schedule Attachment B – Biological Survey Work Plan Attachment C – Resumes of Principal Investigators Attachment D – Reference Sightings for the Blunt-Nosed Leopard Lizard 2021 Sample Survey Results Attachment E – Monitoring Logs Attachment F – Wildlife Observations

Executive Summary

This memorandum provides results of adult and hatchling season sample surveys for blunt-nosed leopard lizard (BNLL; *Gambelia silus*) undertaken in support of the Pelicans Jaw Hybrid Solar Project (Project), located in the unincorporated territory of Kern County, California. The sample surveys conformed to the Biological Survey Work Plan submitted to the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) on April 15, 2021, and reviewed via teleconference on April 28, 2021. Emme Nix served as the Principal Investigator for the adult surveys. Nicole Gaudenti served as the Principal Investigator for the hatchling

the Kern County Board of Supervisors in Fall 2023. The anticipated schedule would allow the surveys to be completed within one year of construction in accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW 2019).

Introduction

The purpose of this memorandum is to provide results of adult and hatchling season sample surveys for blunt-nosed leopard lizard ([BNLL] *Gambelia silus*), undertaken in support of the Project. The goal in undertaking the investigation is to assess the potential presence or absence of BNLL at the Project, for which the Applicant is seeking a CUP and GPA for the development of a photovoltaic solar facility. BNLL is listed as "endangered" pursuant to the federal Endangered Species Act (ESA) and is afforded "fully protected" status pursuant to the California Fish and Game Code. A sampling survey was performed during the BNLL adult and hatchling season of 2021 to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and to provide additional critical site-specific data.

The sample surveys are intended to inform the CEQA lead agency of the presence, potential presence, or absence of BNLL. This survey will be used to inform the Biological Resources Technical Report (BRTR) that will be submitted by the Applicant to Kern County to provide information characterizing the baseline conditions at the Project site, in relation to BNLL. The sample surveys will also support an assessment of the need for an incidental take permit under Section 10(a)(1) of the federal ESA. There are no "take" provisions for fully protected species, pursuant to the California Fish and Game Code, so if determined present, the Project would need to evaluate avoidance and minimization measures. This memorandum will also be used by the Applicant and the County to determine if there is a nexus for requiring compensatory mitigation, and where compensatory mitigation is determined to be warranted, quantifying the aerial extent of impact and the appropriate mitigation ratio.

Project Description

The Project will include up to 500-megawatt (MW) of photovoltaic solar generation and a battery energy storage system (BESS) with a capacity of up to 2,000 megawatt-hours (MWhr). The Project will primarily consist of photovoltaic (PV) solar panels, a single-axis tracker system, inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector substation, generation interconnection (gen-tie) line, access roads, security fence, an operations and maintenance (O&M) facility, and a supervisory control and data acquisition (SCADA) system. The Project will also include a Pacific Gas and Electric (PG&E) switching station that would interconnect with the existing PG&E 230-kilovolt (kV) overhead transmission lines that traverse the Project site. The PG&E switching station will be located on-site.

Two points of access are being proposed from Twisselman Road to provide ingress/egress to the Project site including:

- An approximately one-mile-long access road extending north from Twisselman Road to the southwest corner of APN 044-150-170.
- An access road extending from the intersection of Twisselman Road and the southeast corner of APN 044-130-160.

Each access road would include a 24-foot-wide unpaved driveway with up to 5-foot shoulders on either side, for a total width of 34-feet.

Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A).

Location

The Project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5, located approximately 2 miles to the west. The Project site and surrounding properties are currently vacant and have historically been used for livestock grazing.

Project location details were recorded from USGS topographic quadrangle and the County Assessor's Parcel Maps:

- **County**: Kern
- **U.S. Geological Survey (USGS) 7.5-Minute Quadrangle (Quad)**: West Camp and Lone Tree Well
- **Latitude, Longitude**: 38.473731, -121.184568 (centroid, decimal degrees).
- **Assessor Parcel Numbers (APNs)**: 044-101-020, 044-101-030, 044-101-050, 044-101-060, 044-102-010, 044-102-030, 044-102-050, 044-130-390, 044-102-220, 044-103-010, 044-103-040, 044-103-060 (portion of), 044-103-080, 044-150-050, 044-150-170, 044-103-090 (portion of), 044-110-030, 044-110-250, 044-130-160, 044-130-180, 044-130-210, 044-102-210, and 044-110-010.

It is important to note that since the adult and hatchling season sample surveys for BNLL were completed, approximately 13 acres have been added to the Project to accommodate an alternate point of interconnection and an above or below ground 34.5-kV collector line to connect the central portion of the Project site to the northwest

BNLL in the area. Additionally, the USFWS and CDFW BNLL range mappers place the Project within the current range of the species (CDFW 2021; USFWS 2022).

Methods

To meet the proposed commercial operation date of the fourth quarter 2024, Dudek has prepared a Biological Survey Work Plan (Attachment B) that was submitted to USFWS and CDFW on April 15, 2021, and discussed and accepted by USFWS and CDFW during a subsequent conference call on April 28, 2021.

The sample surveys included a perimeter sample area, and five internal band transects equating to approximately 964 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 2). The perimeter sample area consisted of an approximate 500-foot-wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional diagonal band transects were surveyed across the site as shown in Figure 2. These transects were intended to supplement the perimeter area and were 300-feet wide. The sample areas were chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation mapping was completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas were designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Sampling surveys were performed using a five-visit survey protocol for the adult season and two-visit survey protocol for the hatchling season. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within five days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys were performed sequentially across the site; beginning with the perimeter and progressing from transects 1 through 5. Each subsequent survey pass used the same sequence.

For the adult season sample surveys, three initial passes were completed within the original transect layout from May 23, 2021 through June 16, 2021. After these initial passes, some areas were classified as low-quality habitat for BNLL due to a lack of rodent burrows or vegetation canopy to provide refugia. After consultation with CDFW on June 23, 2021, modifications were made to the sample areas and additional transects were added, focusing on areas with a higher likelihood of BNLL occurrence and to provide additional coverage of the Project site (Figure 2). Passes four and five were completed using these new survey areas rather than the original areas, per consultation with CDFW. Passes four and five were completed from June 28, 2021, through July 8, 2021.

The sample surveys conformed to the Biological Survey Work Plan submitted to USFWS and CDFW. Emme Nix served as the Principal Investigator for the adult surveys (please see Appendix C for resume). Ms. Nix has coauthored two peer reviewed articles on the species and has previously performed protocol surveys for BNLL with the Bureau of Land Management, including studying the thermal ecology of the species. Ms. Nix has performed approximately 1,000 hours of BNLL protocol level surveys and has handled over 120 individual BNLLs (Attachment C, Principal Investigator Resumes).

Nicole Gaudenti served as the Principal Investigator for the hatchling surveys . Ms. Gaudenti has authored and coauthored several peer reviewed articles on BNLL and has performed protocol level surveys including over 900 hours of BNLL surveys and handled over 80 individual BNLLs (Attachment C, Principal Investigator Resumes).

In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team consisted of one Level II biologist for every three Level I biologists, all walking each transect in parallel and visually surveying for BNLL. Although the original survey design called for surveyors to be spaced at 17 meters apart when walking the transects, many of the survey areas had been recently grazed by cattle and had very little vegetation cover. In these instances, surveyors increased transect widths to 20 meters.

Surveys were not conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeded 10 mph. Surveys were limited to periods during the optimal temperature range for detecting BNLL, which is approximately 77 F to 95 F (25 C – 35 C). Minor exceptions to the temperature constraints were made for the sample surveys. For example, start temperatures of 75 F and end temperatures of 97 F occurred in some instances. In these cases, the Level II biologist used their extensive field experience with BNLL to make their best professional judgment regarding whether to continue surveying. Surveyors also looked for aboveground presence of the common, smaller-bodied side-blotched lizard (*Uta stansburiana*) to assess whether the larger-bodied BNLL would be aboveground as well.

Surveyors recorded the following observations daily:

- Time of day, cloud cover, wind speed, soil temperature, and air temperature; and
- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect.

In addition to surveying for BNLL, all surveyors opportunistically surveyed for other sensitive species.

BNLL Reference Sightings

119.401520) and one sub-adult directly adjacent within the annual grassland habitat (35.777785, -119.401645). Both sightings were adjacent to each other, approximately 16.5 miles east of the Project.

BNLL Adult Season Sample Surveys Results

No blunt-nosed leopard lizards were detected within the sample survey areas during the adult season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects per survey pass were evaluated within the Project boundaries during the first three passes with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects per survey pass were evaluated during the final two passes within the revised transect areas. Other reptile species observed during surveys included: side-blotched lizards, California whiptails (*Aspidoscelis tigris*), gopher snakes (*Pituophis catenifer*), and western rattlesnakes (*Crotalus oreganus*).

Copies of the monitoring logs have been included as Attachment E and are summarized in Table 1, below. Please note that adult season survey pass #1 required five days of surveys whereas all subsequent surveys required four days of survey to cover all areas within the sample survey area. The additional day of surveys was primarily related to the surveyors becoming oriented with the Project site and how to access each of the survey areas.

Table 1. Summary of BNLL Adult Season Sample Surveys

Survey Date	Time		Air Temperature (°F)		Surveyors (**Bold = Level II**; Plain text = Level I)	BNLL Observations
	Start	End	Start	End		
Adult Season (Sample Survey Pass #1)						
5/23/2021	7:45 am	1:56 pm	75.5	92.2	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, Josh McLaughlin, and Sophia Weber (site orientation)	0
5/24/2021	8:05 am	2:00 pm	77	93	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0

5/27/2021	8:59 am	12:05 pm	75	93.5	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
Adult Season (Sample Survey Pass #2)						
5/30/2021	7:20 am	1:21 pm	72.5	95.2	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
5/31/2021	7:19 am	11:32 am	81.8	97.4	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
6/1/2021	6:54 am	10:29 am	78.4	97	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
6/2/2021	7:00 am	10:23 am	75.4	97.4	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Jakob Dewhurst	0
Adult Season (Sample Survey Pass #3)						
6/13/2021	7:25 am	1:33 pm	75	97	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
6/14/2021	7:54 am	12:59 pm	75.7	96	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
					Emme Nix, Grace Sanclemente,	

Adult Season (Sample Survey Pass #4, Revised Survey Area)						
6/28/2021	7:15 am	11:30 am	78	93	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
6/29/2021	8:00 am	10:01 am	75.2	89.6	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
6/30/2021	7:42 am	11:07 am	77.1	92.3	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
7/1/2021	7:47 am	9:37 am	75.9	91	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
Adult Season (Sample Survey Pass #5, Revised Survey Area)						
7/6/2021	7:22 am	11:32 am	75.5	88.6	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0
7/7/2021	8:03 am	12:08 pm	75.9	97.9	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0
7/8/2021	7:48 am	11:09 pm	76.7	97.9	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0

BNLL Hatchling Season Sample Surveys Results

No blunt-nosed leopard lizards were detected within the sample survey areas during the hatchling season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects were evaluated within the Project boundaries during the first pass with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects were evaluated during the second pass within the revised transect areas. Other reptile species observed during surveys included: side-blotched lizards and western rattlesnakes

Table 2. Summary of BNLL Hatchling Season Sample Surveys

Survey Date	Time		Air Temperature (°F)		Surveyors (**Bold = Level II**; Plain text = Level I)	BNLL Observations
	Start	End	Start	End		
Hatchling Season (Sample Survey Pass #1)						
9/19/2021	8:30 am	12:30 pm	75	89	**Nicole Gaudenti, Tamara Bryant**, Teodora Ungureanu, Garry Turner	0
9/20/2021	9:00 am	1:30 pm	76	89	**Nicole Gaudenti**, Teodora Ungureanu, Sarah Mendez, Garry Turner	0
9/21/2021	9:00 am	1:00 pm	78	91	**Nicole Gaudenti,** Teodora Ungureanu, Sarah Mendez, Garry Turner	0
9/22/2021	8:30 am	1:00 pm	76	93	**Nicole Gaudenti,** Teodora Ungureanu, Garry Turner, Sarah Mendez	0
Hatchling Season (Sample Survey Pass #2)						
9/26/2021	8:30 am	12:30 pm	75	90	**Nicole Gaudenti, Tamara Bryant**, Sophia Weber, Teodora Ungureanu	0
9/27/2021	8:30 am	12:00 pm	70	87	**Nicole Gaudenti, Tamara Bryant**, Sophia Weber, Jakob Dewhurst	0
9/28/2021	9:51 am	1:00 pm	70.6	75.8	**Tamara Bryant**, Andrea Dransfield,	0

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek collected burrow resource data during the BNLL adult and hatchling season sample surveys in 2021, noting all suitable burrow resources that met the criteria and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figures 2, 3A, and 3B; Attachment F). While walking the BNLL transects, surveyors recorded all burrows larger than 4-inch in diameter that appeared active. A burrow was considered active if it was observed to continue into the ground as far as the observer could see and if there were no spider webs in the entrance.

Surveyors were conservative when considering a burrow active and unless there was fresh dirt piled outside, fresh scat, or paw prints, most burrows were marked as "unknown" when collecting data. Surveyors were also conservative when determining the species that created the burrow. Kit fox burrows were definitively mapped only when kit fox scat piles were found within the immediate nearby area. Burrowing owl burrows were mapped only when the distinct "white cast" or owl pellets were found in the immediate nearby area or burrow mouth. Badger burrows were marked when claw marks were seen on each of the rounded lateral sides of a burrow entrance.

Five wildlife cameras during the adult season surveys and three wildlife cameras during the hatchling season surveys were deployed to areas with high concentrations of potentially active burrows in different locations to document the species that occupied each of these areas. The cameras were left in place to passively see what was using the burrow. The locations of the wildlife cameras are shown in Figure 2 and photos of wildlife captured are shown in Attachment F. Photos were captured of an active American badger burrow during adult season surveys and photos of San Joaquin kit fox were captured during both adult and hatchling season surveys.

A desiccated kangaroo rat (*Dipodomys sp.*) carcass was discovered during hatchling season surveys on September 27, 2021, in APN 04415017. The carcass could not be identified to species level due to the deteriorated condition of the carcass.

No nesting birds were observed on-site. A single Swainson's hawk (*Buteo swainsoni*) was observed flying overhead (Attachment F) during the surveys on June 14, 2021, but no active nests were identified within the Project site and no other observations were made during subsequent surveys. Protocol level Swainson's hawk surveys were conducted March 2022 through June 2022 and have been reported separately.

A single Golden Eagle (*Aquila chrysaetos*) was observed flying overhead during surveys on September 22, 2021. No active nests were identified within the Project site and no subsequent observations were made. Surveys for golden eagle were completed in January 2022 and have been reported separately.

investigation was completed at the Burrow Points such as setting up and monitoring the burrows with wildlife cameras (apart from the eight wildlife cameras discussed above), using tracking medium such as diatomaceous earth, or other methods.

Additional BNLL burrow resource data will also be collected during surveys anticipated to be conducted in 2022, including surveys for SJKF. The data collected in 2022 will cover additional Project areas beyond those included in the BNLL sample survey areas. Dudek is conducting SJKF survey including transect surveys and camera monitoring in accordance with the Biological Survey Work Plan Addendum submitted to USFWS and CDFW on June 7, 2022.

Next Steps

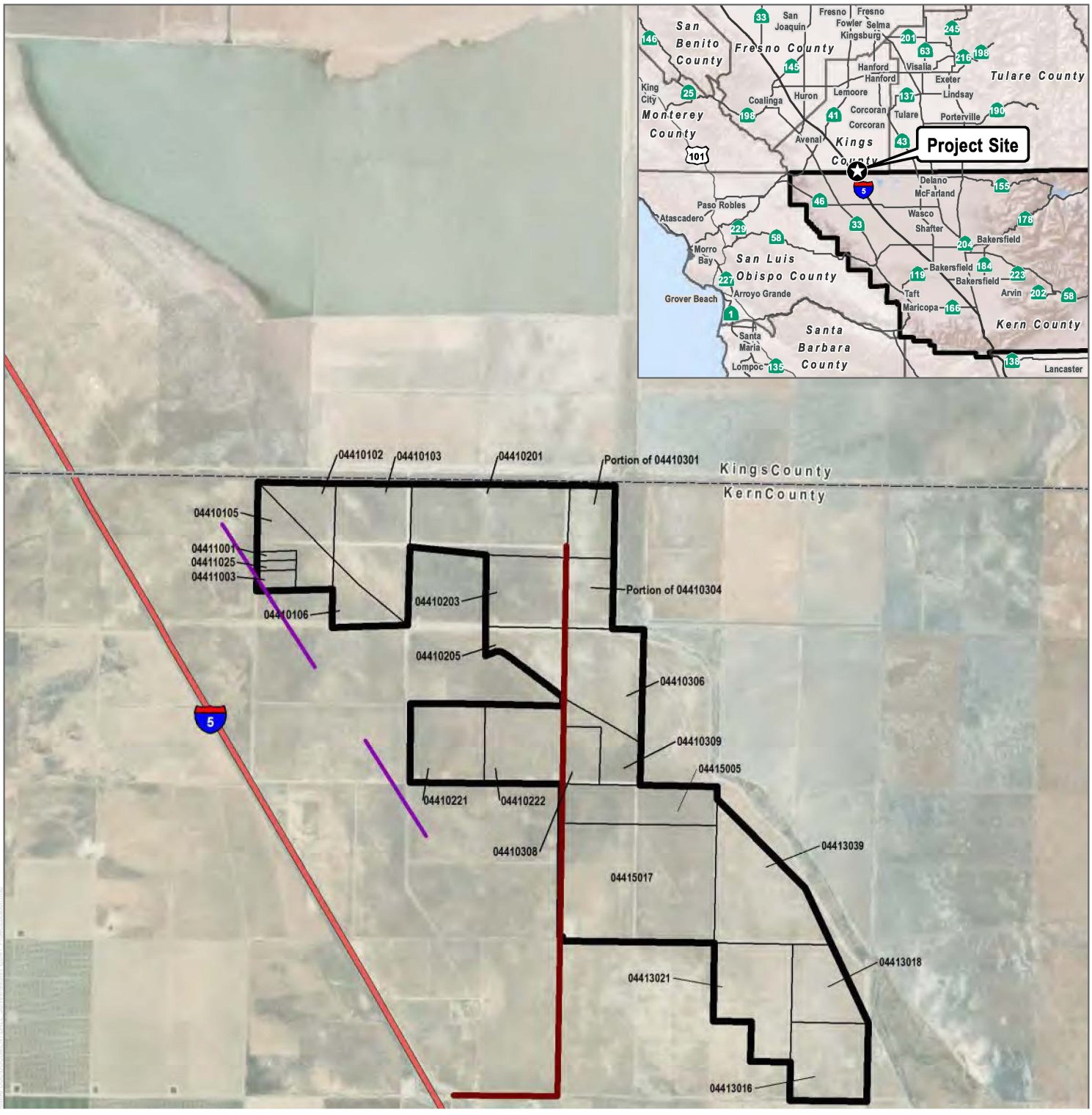
Pelicans Jaw Solar, LLC is anticipated to conduct full protocol-level surveys for BNLL during both the adult and hatchling seasons during preparation of the environmental impact report being prepared in support to of the consideration of approval of the CUP and GPA, by the Kern County Board of Supervisors, in Fall 2023. The anticipated schedule would allow the surveys to be completed within one year of construction in accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019).

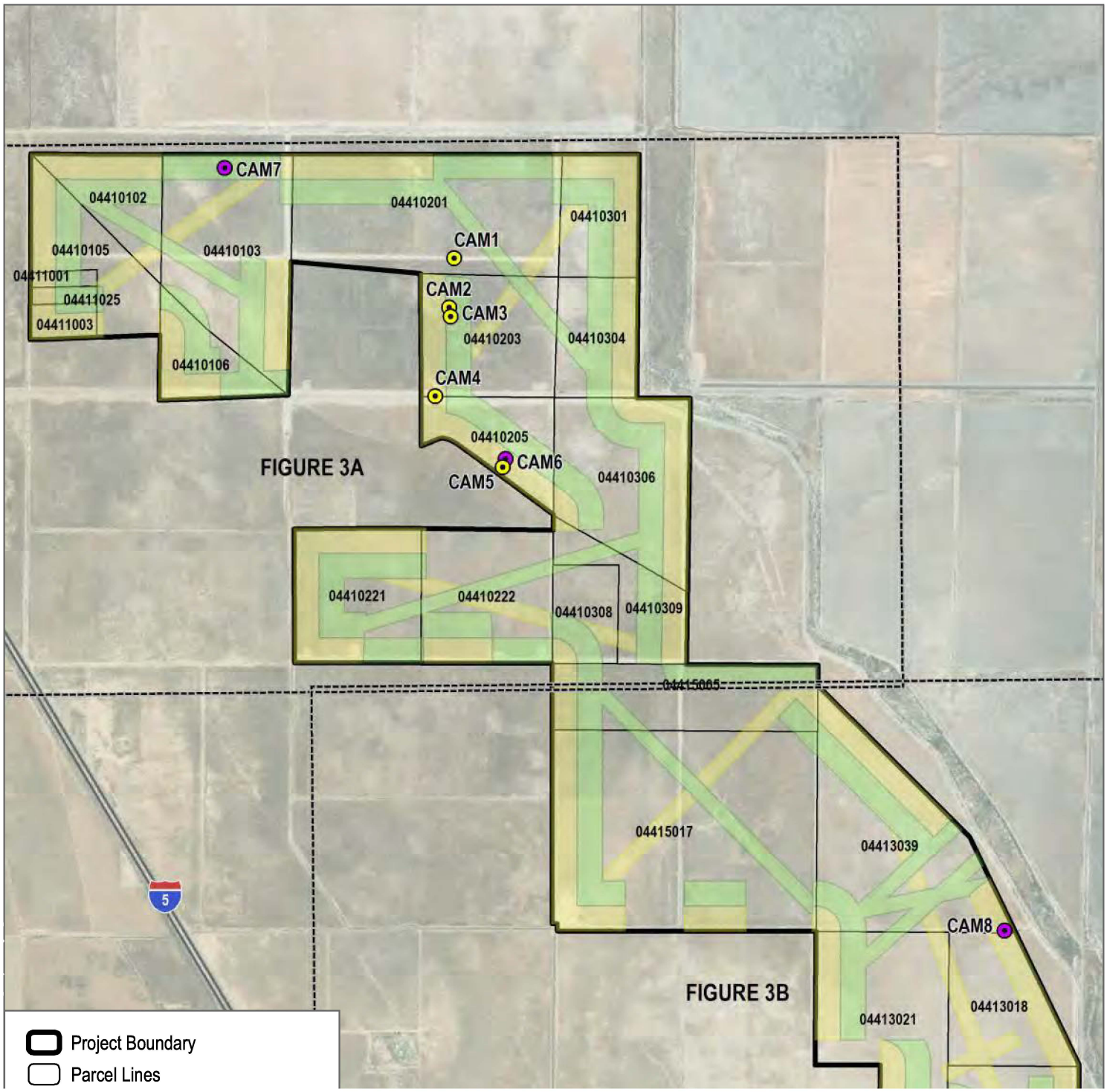
References

CDFW (California Department of Fish and Wildlife). 2019. Approved Survey Methodology for the Blunt-Nosed Leopard Lizard). October 2019.

CDFW (California Department of Fish and Wildlife). 2021. Blunt Nosed Leopard Lizard Range CWHR R019. Updated May 2021. Accessed July 2022. https://gis.data.cnra.ca.gov/datasets/CDFW::blunt-nosed-leopard-lizard-range-cwhr-r019-ds1726/explore?location=35.839654%2C-119.639523%2C11.92

USFWS (United States Fish and Wildlife Service). 2022. *Gambelia silus*. Accessed July 2022. https://www.fws.gov/species/blunt-nosed-leopard-lizard-gambelia-silus/map


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
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04415005
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04415017
04413039
04413018
04413021
04413016
5


CAM7
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04410301
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04411001
CAM2
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CAM3
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CAM6
FIGURE 3A
CAM5
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CAM8
FIGURE 3B
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5
Project Boundary
Parcel Lines

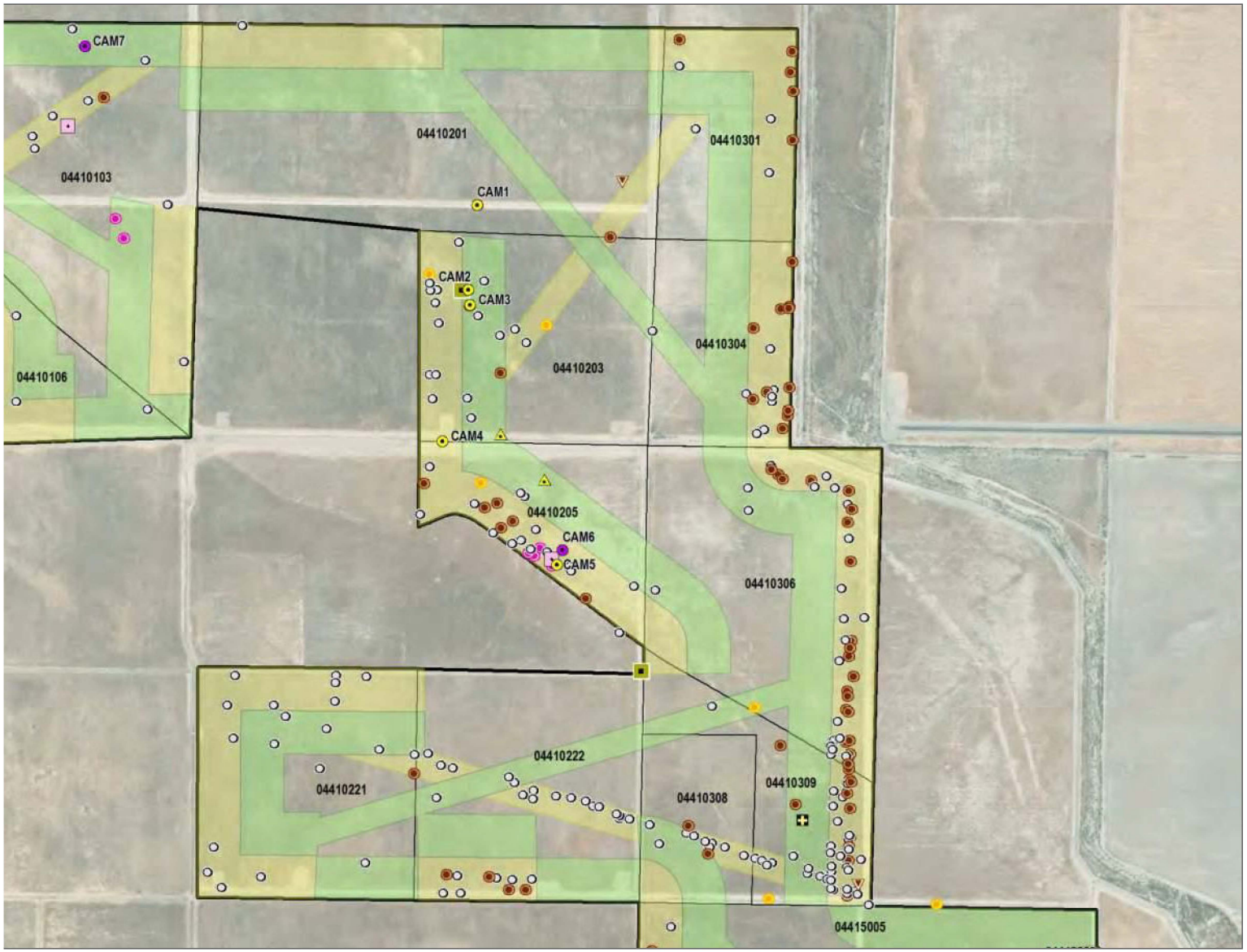


FIGURE 3A

Burrow Survey Results

Pelicans Jaw Hybrid Solar Project

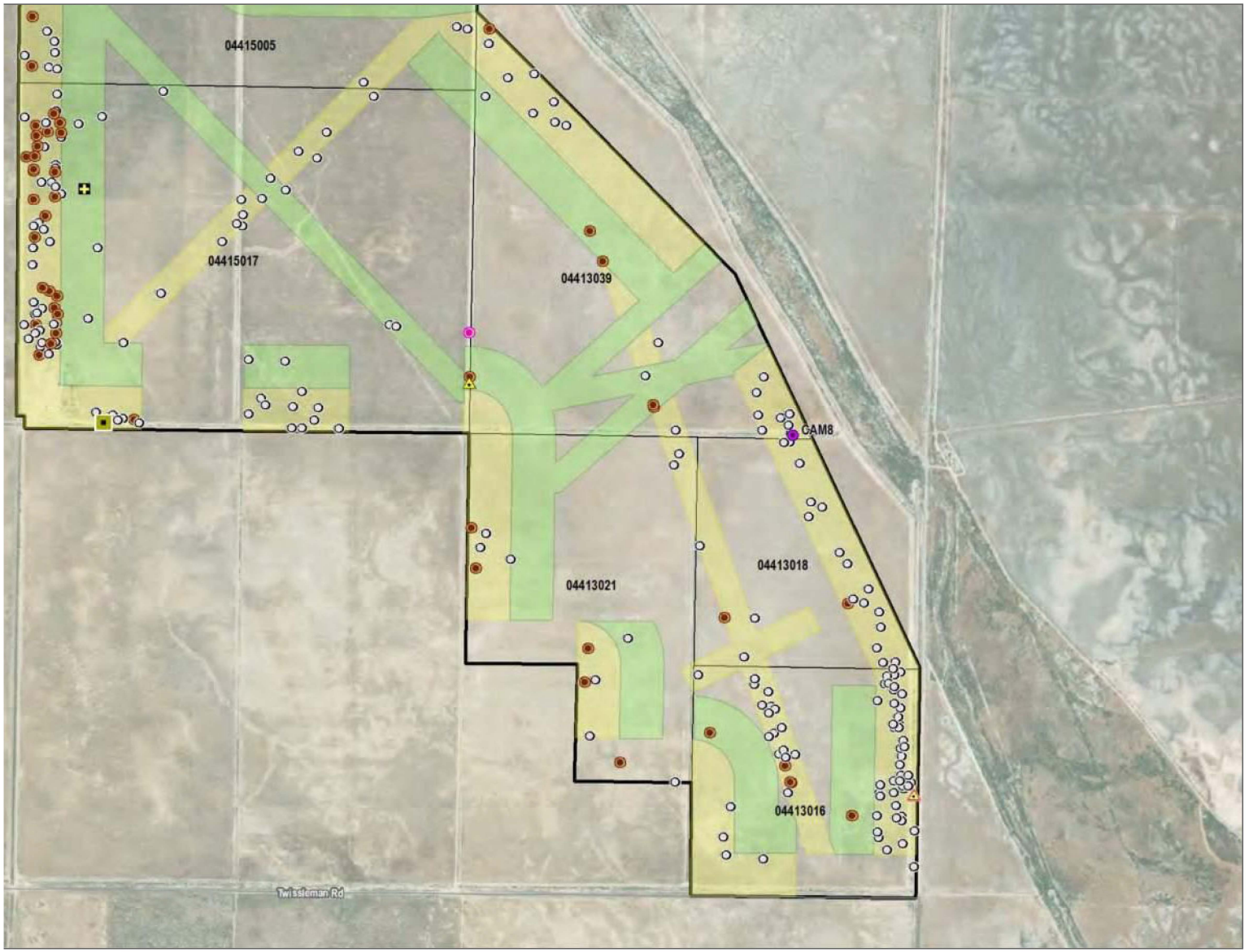


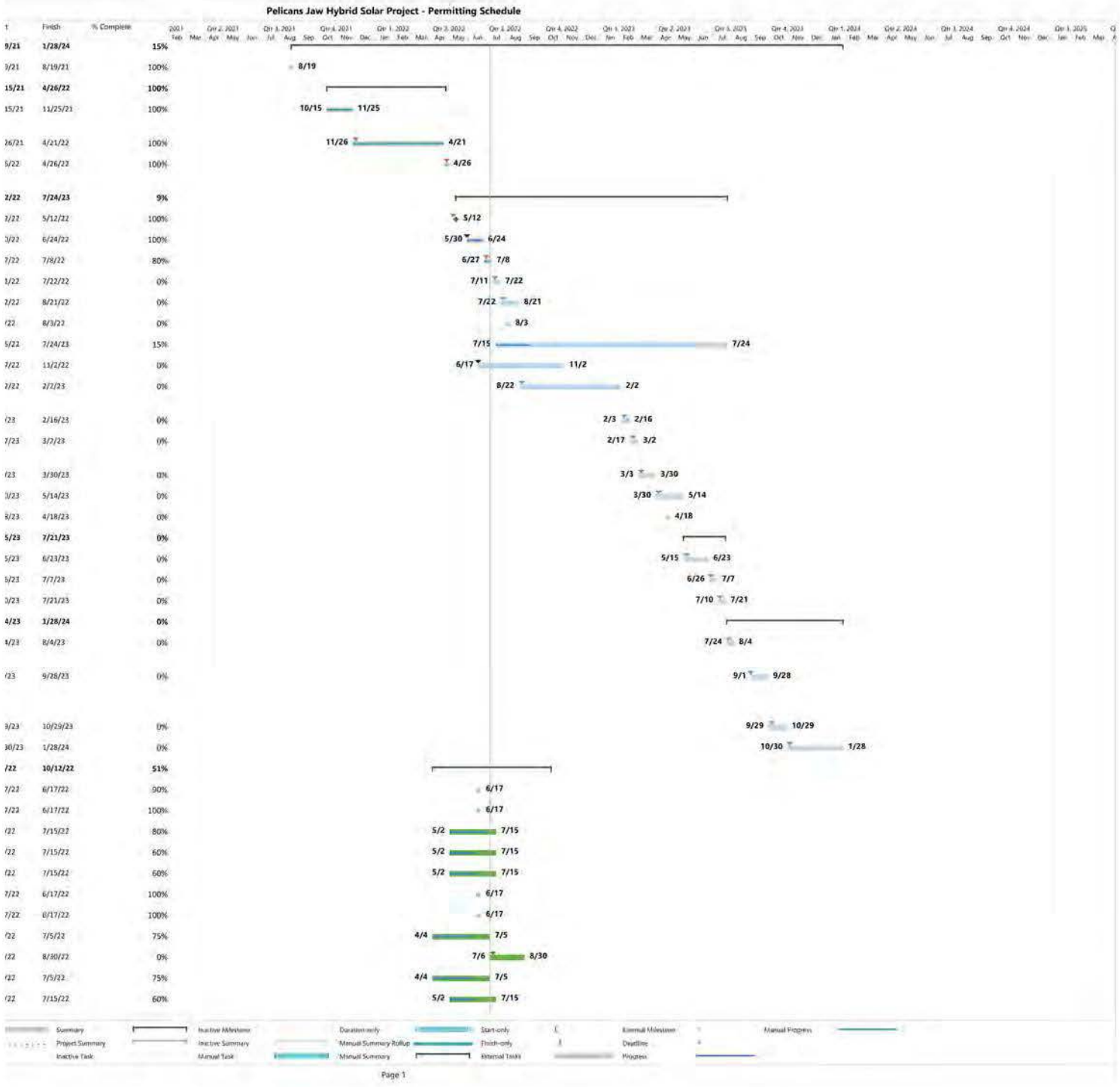
FIGURE 3B

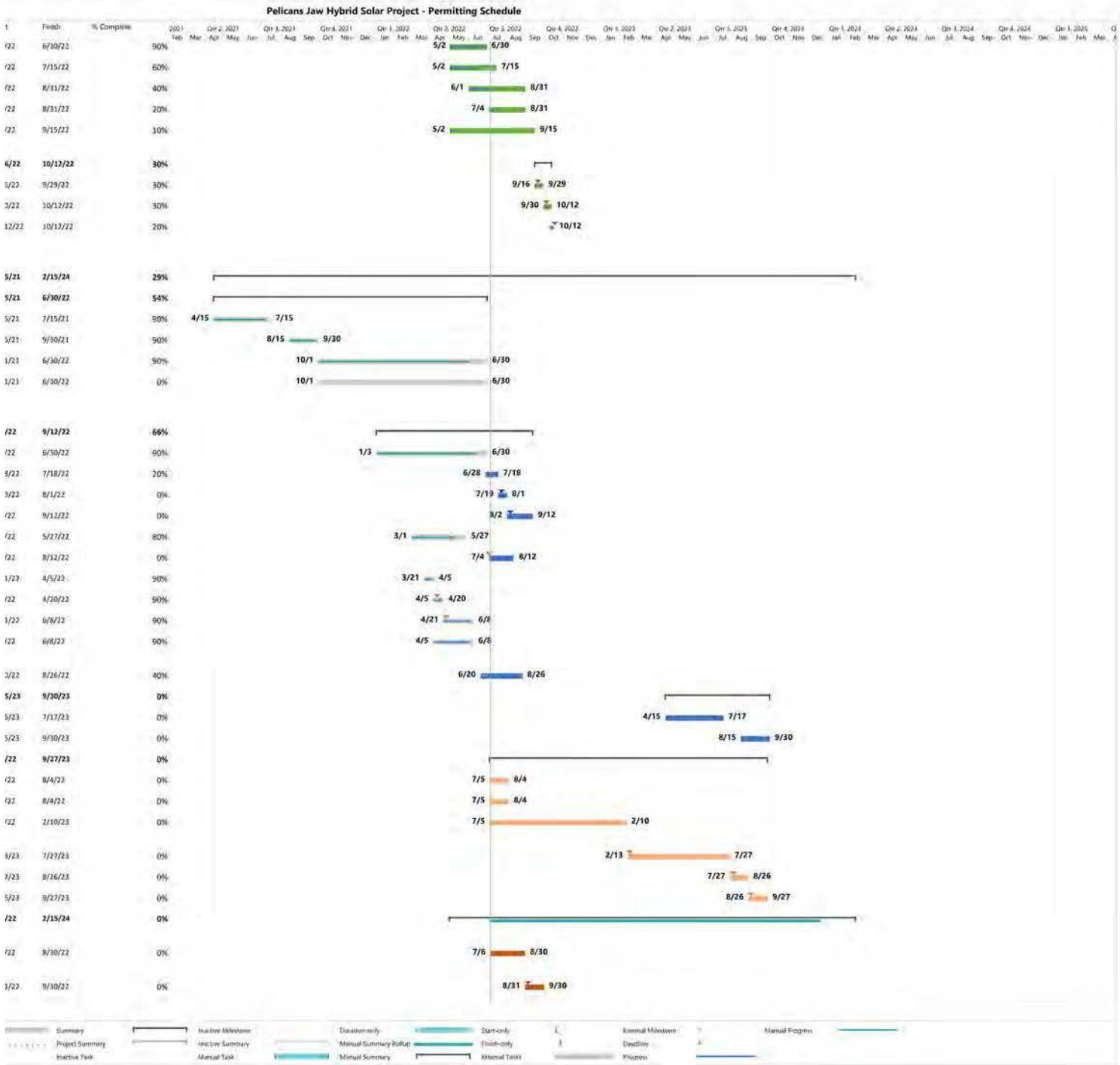
Burrow Survey Results

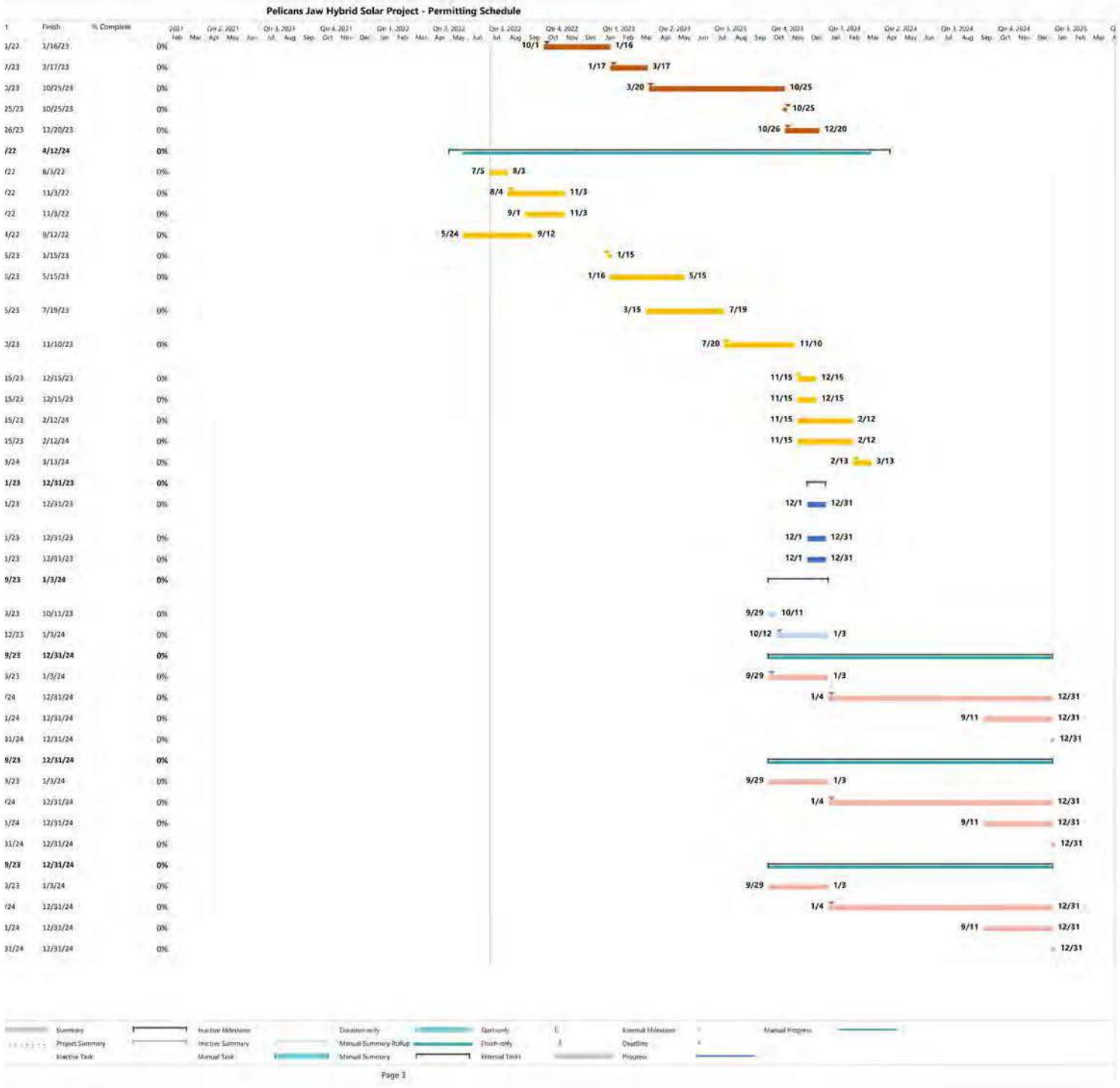
Pelicans Jaw Hybrid Solar Project

Attachment A

Project Schedule


Pelicans Jaw Hybrid Solar Project - Permitting Schedule
Finish
% Complete
9/21 1/28/24 15%
9/21 8/19/21 100%
15/21 4/26/22 100%
15/21 11/25/21 100%
26/21 4/21/22 100%
5/22 4/26/22 100%
2/22 7/24/23 9%
7/22 5/12/22 100%
3/22 6/24/22 100%
7/22 7/8/22 80%
1/22 7/22/22 0%
2/22 8/21/22 0%
/22 8/3/22 0%
5/22 7/24/23 15%
7/22 11/2/22 0%
2/22 2/2/23 0%
/23 2/16/23 0%
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3/23 5/14/23 0%
8/23 4/18/23 0%
5/23 7/21/23 0%
5/23 6/23/23 0%
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3/23 7/21/23 0%
4/23 1/28/24 0%
4/23 8/4/23 0%
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8/23 10/29/23 0%
30/23 1/28/24 0%
/22 10/12/22 51%
7/22 6/17/22 90%
7/22 6/17/22 100%
/22 7/15/22 80%
/22 7/15/22 60%
/22 7/15/22 60%
7/22 6/17/22 100%
7/22 6/17/22 100%
/22 7/5/22 75%
/22 8/30/22 0%
/22 7/5/22 75%
/22 7/15/22 60%
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Progress
Manual Progress


Pelicans Jaw Hybrid Solar Project - Permitting Schedule
Finish
% Complete
6/30/22
7/15/22
8/31/22
8/31/22
9/15/22
10/12/22
9/29/22
10/12/22
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8/30/22
9/30/22
Page 2


Pelicans Jaw Hybrid Solar Project - Permitting Schedule
Finish
% Complete
1/16/23
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Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Progress
Manual Progress

Attachment B

Biological Survey Work Plan

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be "marked" using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

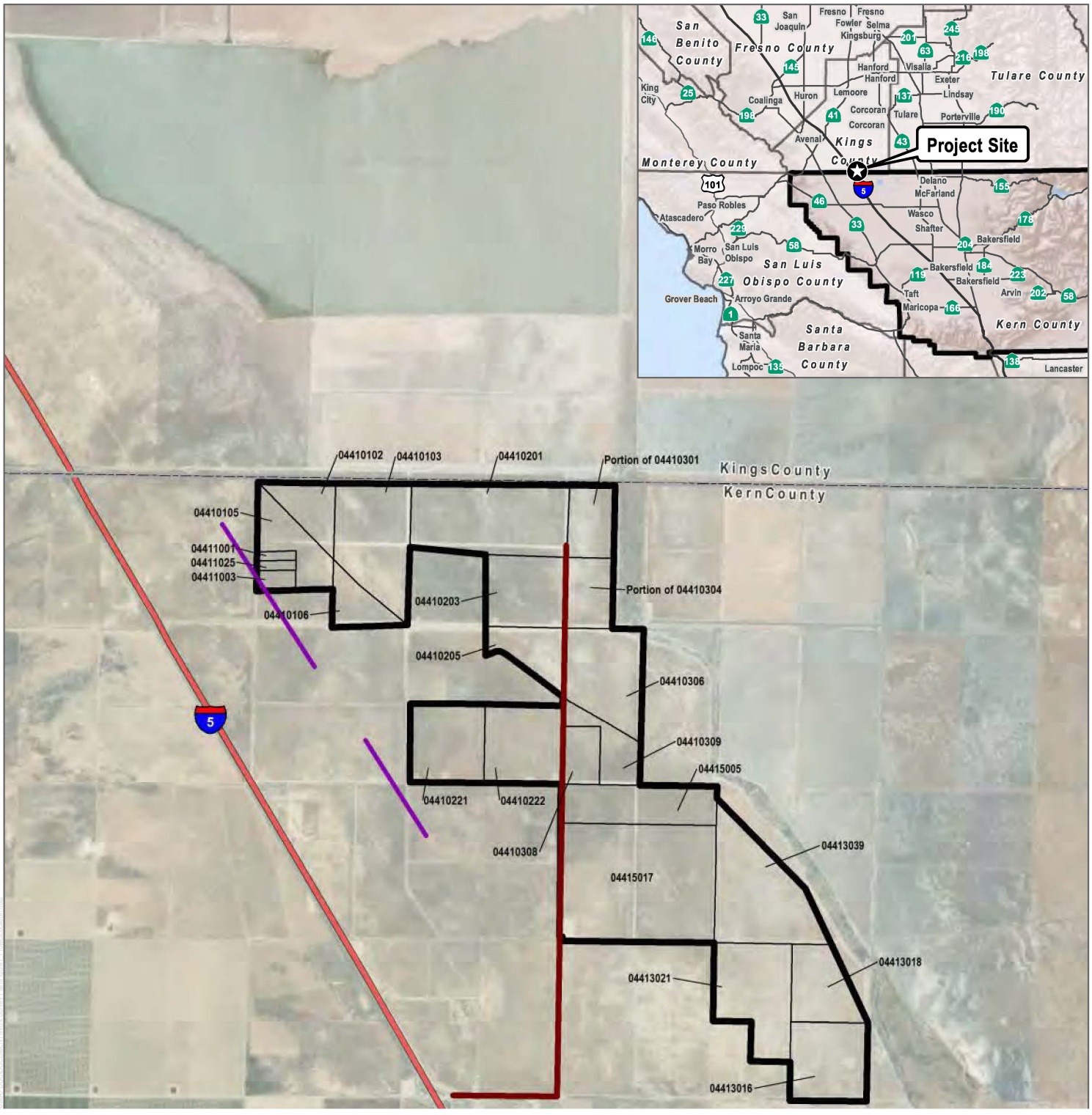
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

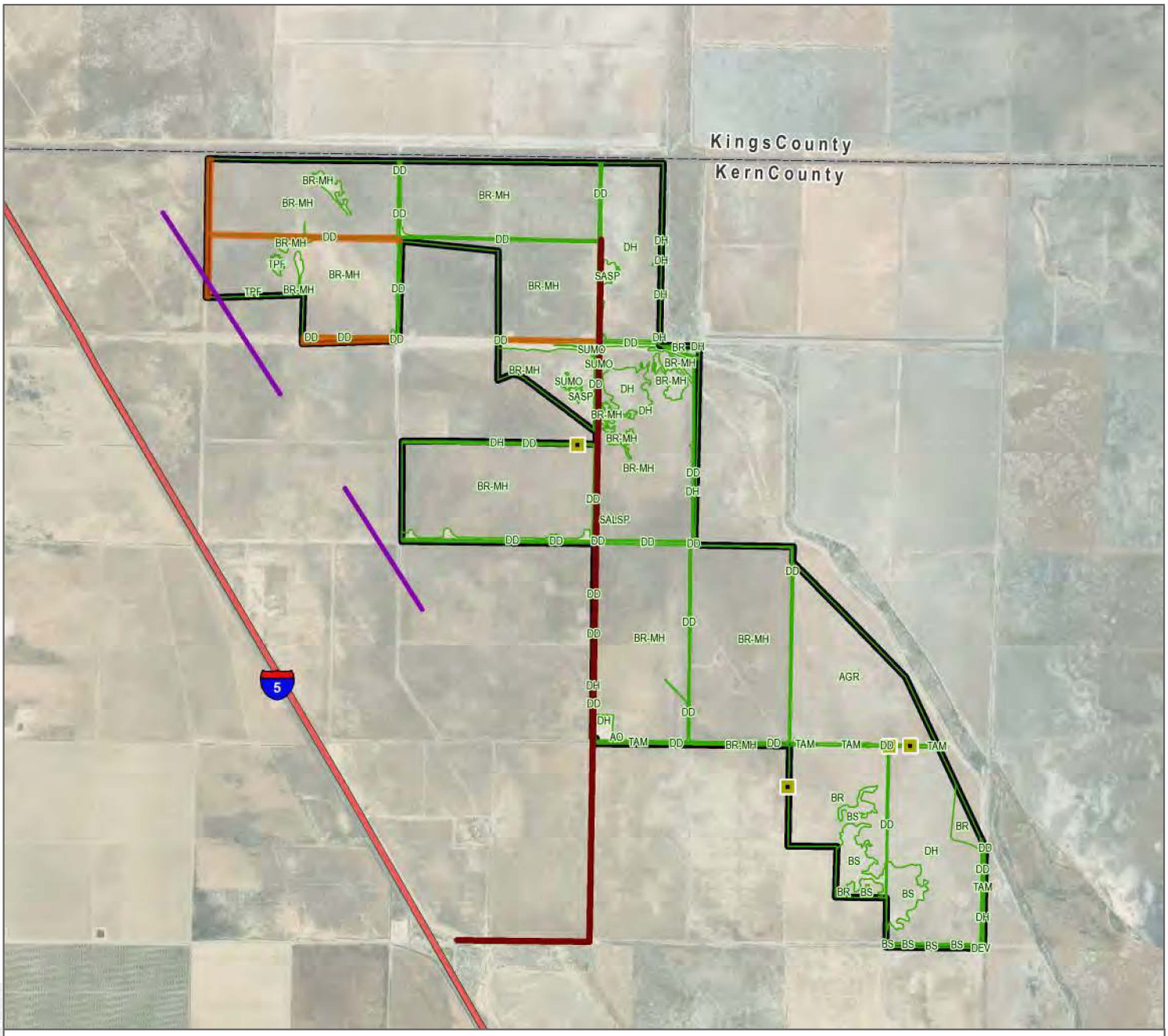
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Kern County
Santa Barbara County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

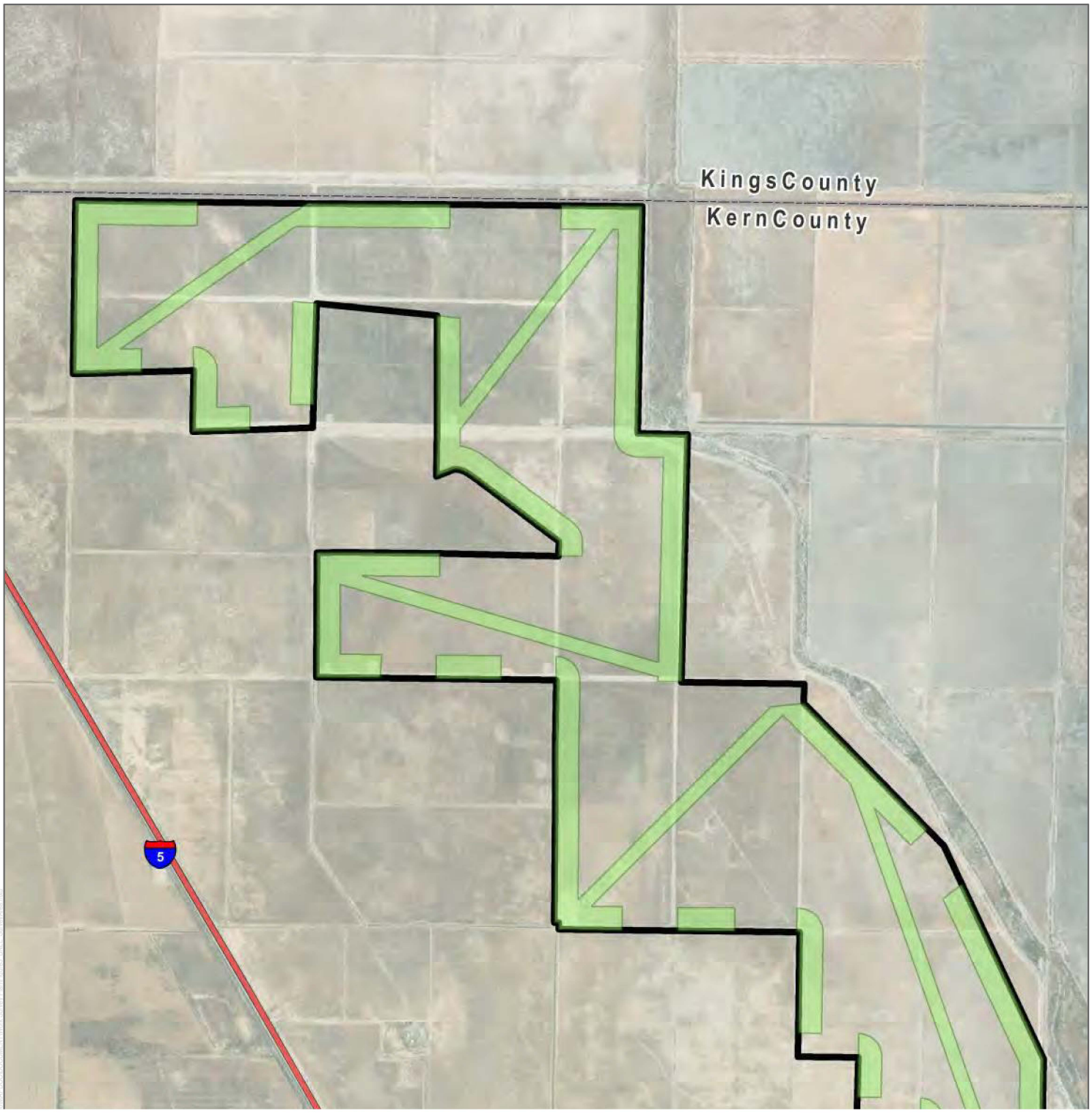
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

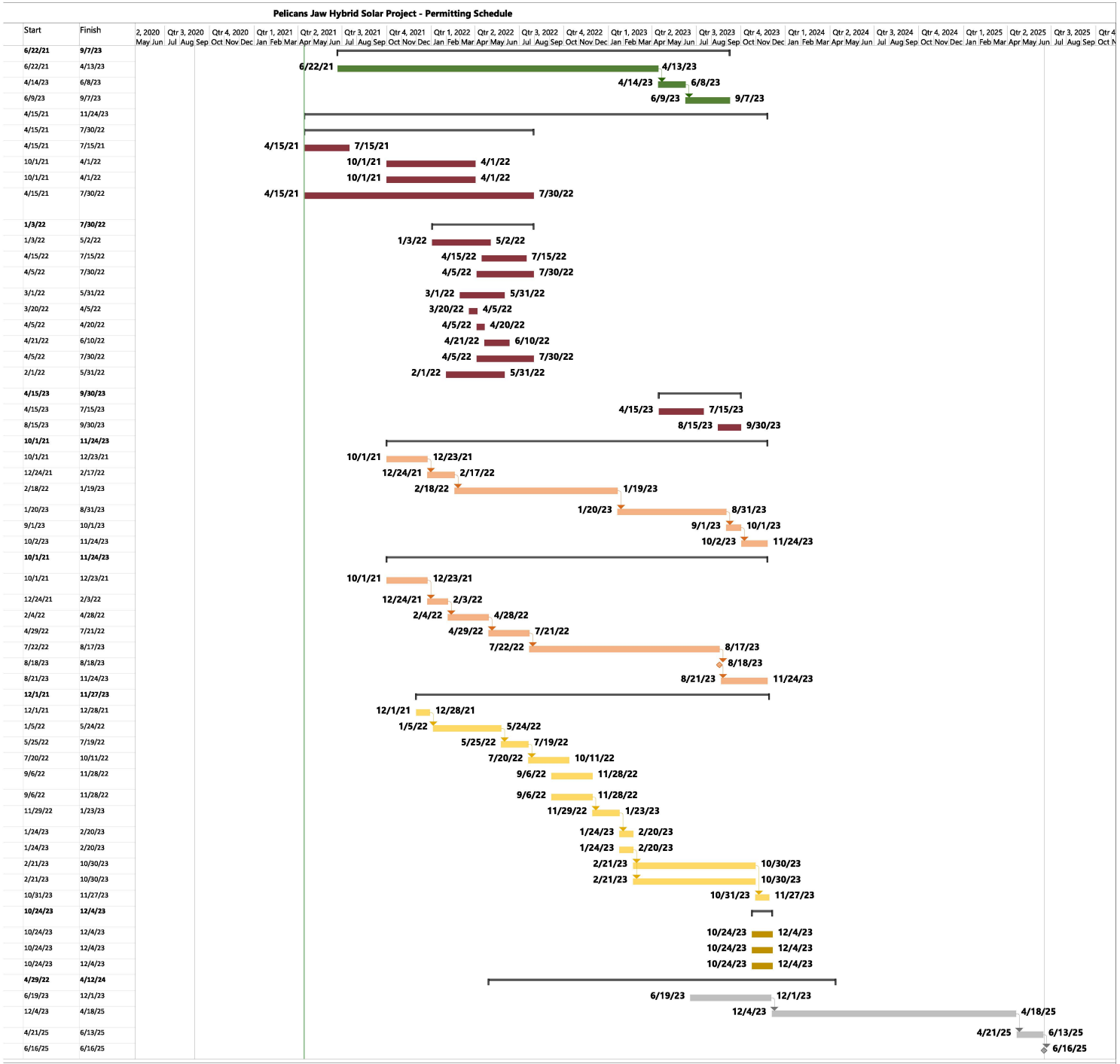
SALSP, Salsola spp. Semi-natural Association


Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

---

From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
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605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment C

Resumes of Principal Investigators

Emmeleia Nix

BIOLOGIST

Emmeleia Nix is a Biologist with 5 years of professional field experience in biological surveying and monitoring, including ecological surveying, habitatand watershed assessments, soil auguring, bird banding, and rangeland and stream surveying. Nix is comfortable capturing and handling a variety of animals, including venomous reptiles and large mammals, with experience in tissue and blood sample collection/analysis, several injection techniques and necropsy. Research and academic experience includes historical data entry; geographical information system-based data analysis; permit report preparation; grant proposal reviews; co-authoring manuscripts; and presentation preparation. Recently, Nix has completed surveys for blunt-nosed leopard lizard (*Gambelia sila*) hatchlings and adults in accordance with CDFW Survey Protocol Guidelines. Ms. Nix has completed over 1,000 hours of blunt-nosed leopard lizard protocol surveys and has handled approximately 120 individuals. Additional project field work has includedrattlesnake telemetry and surveying/monitoring for California red-legged frogs(*Rana draytonii*), foothill yellow-legged frogs (*Rana sierrae*), and salamanders.

Education

University of California, Davis (PhD program)

Miami University and San Diego Zoo's Institute for Conservation Research MA, Biology (General), 2021

California Polytechnic State University, San Luis Obispo

BS, Animal Science, 2018

York School, 2014

Certifications

Firefighter II

Dudek Project Experience

Pelicans Jaw Hybrid Solar Project, Kern County, California. Conducted blunt-nosed leopard lizard adult surveys to provide biologicalfindings/constraints in previously disturbed habitat for the proposedconstruction of a solar field. Surveys were conducted in accordance with CDFW Survey Protocol Guidelines.

Relevant Previous Experience

Biological Science Technician, BLM, Marina, California. Employed as a seasonal biological technician for the BLM Marina office's wildlife biologist. Assisted with threatened and endangered species recovery efforts in a variety of ways. Conducted field work, such as a telemetry project involving blunt-nosed leopard lizards and the projects mentioned below. Performed geographic information system–based data analysis, presentation preparation, co-authored manuscripts, reviewed grant proposals, prepared permit reports, and assisted with stream surveys and

Specialized Training

- Completed qualifications to become a Firefighter II and begin training as a Resource Advisor (READ) for biological resources on wildfires.

Publications and Presentations

Gaudenti, N., **Nix, E.,** Maier, P., Westphal, M.F., Taylor, E.N. (2021). Habitat heterogeneity affects the thermal ecology of an endangered lizard. *Ecology and Evolution, 11*(21):14843-14856. doi: 10.1002/ece3.8170.

Lortie, C.J., Filazzola, A., Brown, C., Lucero, J., Zuliani, M., Ghazian, N., Haas, S., Owen, M., Butterfield, H.S., **Nix, E.** and Westphal, M. (2021). Facilitation promotes plant invasions and indirect negative interactions. *Oikos*, in press.https://doi.org/10.1111/oik.08443

Claunch, N., **Nix, E.**, Royal, A.E., Burgos, L., Corn, M., DuBois, P.M., Ivey, K., King, E., Rucker, K., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E.N. (2020). Body size impacts critical thermal maximum measurements in lizards. *Journal of Experimental Zoology Part A, 335*, 96-107.

Westphal, M. & **Nix, E.** (2020). *Resurveys for Foothill Yellow-legged Frog, Rana boylii, in the Southern Diablo Range.* PRESENTATION at the Declining Amphibian Populations Task Force Annual Meeting, 2020.

Ivey, K.N., Cornwall, M., Crowell, H., Ghazian, N., **Nix, E.**, Owen, M., Zuliani, M., Lortie, C.J., Westphal, M., Taylor, E. (2020). Thermal Ecology of the Federally Endangered Blunt-nosed Leopard Lizard (*Gambelia sila*). *Conservation Physiology, 8*(1).

Lortie, C.J, Braun, J., Westphal, M.F., Noble, T., Zuliani, M., **Nix, E.**, Ghazian, N., Owen, M., Butterfield, H.S. (2020). Shrub and vegetation cover predict resource selection use by an endangered species of desert lizard. *Nature Scientific Reports, 10*:4884

Westphal, M.F., Kiemnex-Tyburczy, K.M., **Nix, E.**, Westphal, M.F., Gruber, E. (2019). *Timing of Larval Development in a Sympatric Population of Taricha torosa and T. granulosa.* POSTER PRESENTATION at the Joint

Royal, A.E., Claunch, N.M., DuBois, P.M., Ivey, K.N., King, E., **Nix, E.**, Rucker, K.A., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E. (2017). *Body Size Effect on Thermal Tolerance in Certain Species of Sceloporus.* POSTER PRESENTATION at the Joint Meeting of Ichthyologists and Herpetologists, 2017.

Rucker, K.A., Claunch, N.M., DuBois, P.M., Ivey, K.N., King, E., **Nix, E.**, Royal, A.E., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E. (2017). *Testing the effect of blood oxygen carrying capacity on thermal tolerance in lizards.* POSTER PRESENTATION at the Joint Meeting of Ichthyologists and Herpetologists, 2017.

DUDEK

Nicole Gaudenti

BIOLOGIST

Nicole Gaudenti is a Biologist with 6 years' professional experience working with a variety of species of wildlife in California, including blunt-nosed leopard lizards, Belding's ground squirrel, giant kangaroo rats, antelope squirrels. Ms. Gaudenti has significant experience surveying working with blunt-nosed leopard lizards, including surveying for, handling, telemetry, morphometrics, blood draw, tail tipping, and behavioral observations.

Education

California Polytechnic State University, San Luis Obispo, CA

MS, Biological Sciences, 2021

University of San Francisco

BS, Biology, emphasis in Ecology, 2015

Certifications

North American Banding Council Bander Certification, Passerines & Near Passerines

Relevant Experience

Oceano Dunes State Vehicular Recreation Area, Oceano Dunes, California. Senior Park Aide. Scoping for and monitoring nests of snowy plovers and California least terns. Experience with finding plover and tern nests, walking out to nests, assisting chick banding from a distance, monitoring blood survival, and searching for avian and mammalian predators.

California Polytechnic State University, San Luis Obispo, California. Graduate Assistant. Conducted 900+ hours surveying for blunt-nosed leopard lizards and handled over 80 individuals. Quantified the importance of shrubs in the thermoregulation of BNLL in the Carrizo Plain, CA. Coordinated a two-year summer field season; trained and supervised two students in telemetry; conducted daily relocations (2,000+ relocations) and weekly recovery of deployed temperature models and stationary temperature data (10,000+ temperature measurements). Conducted statistical analysis.

Point Blue Conservation Science, Palomarin Field Station, California. Research Assistant. Banded passerine birds, hummingbirds, and small raptors: 350+ individuals banded and 600+ handled. Skilled in extracting birds out of mist-nests, aging and sexing, collecting morphometric data, and banding. Performed daily area-search surveys. Spent one season nest-searching for wrentits, song sparrows, and Wilson's warblers; monitored 30+ nests, banded nestlings; territory-mapped all songbirds on 36-hectare study plot; target-netted certain individuals for color banding.

University of San Francisco, San Francisco, California. Research Assistant for Principal Investigator Scott Nunes, Ph.D. Investigated male breeding dispersal in Belding's ground squirrel using microsatellite DNA analysis by mark-

Ivey, K. Cornwall, M., Ghazian, N., Nix, E., Owen, M., Zuliani, M., Gaudenti, N., Maier, P., Westphal, M., Lortie, C., Taylor, E. “Temperature-based activity estimation accurately predicts surface activity but not microhabitat use in an endangered heliothermic lizard”. Amphibian & Reptile Conservation. (Accepted)

Gaudenti, N., Nix, E., Maier, P., Westphal, M., Taylor, E., “Habitat heterogeneity affects the thermal ecology of the federally endangered blunt-nosed leopard lizard”. Ecology & Evolution. (Submitted)

Gaudenti, N. “Habitat heterogeneity affects the thermal ecology of the federally endangered blunt-nosed leopard lizard”. 2021. Unpubl. Master’s thesis, California Polytechnic State University, San Luis Obispo, 33 pp.

Presentations

Gaudenti, N. Maier, P. Westphal, M., Taylor. E. 2020. “Habitat heterogeneity impacts the thermal ecology of blunt-nosed leopard lizards”, Presentation at The Wildlife Society- Western Section, Redding, CA.

Attachment D

Reference Sightings for the Blunt-Nosed Leopard Lizard
2021 Sample Survey Results

Sapphos environmental inc.

August 18, 2022
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M09

TO: Dudek
(Mr. Keith Carwana)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, Mr. Thaer Flieh, and Mr. Karl Brutsaert)

Bell-Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Reference Sightings for the Blunt-Nosed Leopard Lizard 2021 Sample Survey Results

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) documents reference sightings used to

INTRODUCTION

This MFR documents reference sightings used to inform the blunt-nosed leopard lizard 2021 sample surveys. Inclusion of reference sightings in the BNLL 2021 Sample Survey Results report demonstrates that the sample surveys were undertaken when BNLL were observed at comparable nearby locations. The use of reference sightings increases the reliability of using results of the of the BNLL 2021 Sample Survey Results report as the basis for the characterization of existing condition, and related impact analysis in the environmental impact report under preparation by Kern County, to support the evaluation and decision-making related to the proposed project, as required pursuant to the California Environmental Quality Act. The incidental sightings provided below occurred in Kern County, at the similar elevation to the Project.

REFERENCE SIGHTINGS

The California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Service (USFWS) are both in receipt of documentation of 2021 BNLL survey efforts that produced positive observations of BNLL and were used as reference sightings BNLL 2021 Sample Survey.

One BNLL adult was observed on May 10, 2021, on a dirt road within annual grassland habitat (35.776681, -119.401126) approximately 16.5 miles east of the Project. The sighting was observed by Mr. Christopher Russ (Level II BNLL Surveyor) and confirmed by Mr. Colton Parrish (Level II BNLL Surveyor).[1]

Two BNLL individuals were observed on June 8, 2021, one adult male in a cleared dirt construction area within annual grassland habitat (35.777809, -119.401520) and one sub-adult directly adjacent within the annual grassland habitat (35.777785, -119.401645). Both sightings were adjacent to each other, approximately 16.5 miles east of the Project. The sightings were observed by Ms. Rachel Sechan (Level II BNLL Surveyor) and were confirmed by Mr. Alex Brown (Level II BNLL Surveyor).[2]

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

Attachment E

Monitoring Logs

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17478	
Date	*2021-05-23*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:45 AM–1:56 PM*
Conditions	*Air Temp: 75.5–92.2°F; Ground Temp: 79.3–115°F; 0% cloud cover; 0–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:45:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*79.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.9*

Survey Conditions	
Status	*End*
Time	*13:56:00*
TEMPERATURE	*°F*
Air Temp	*92.2*
Air Temp	*92.2*
Soil Temp	*115*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.5*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber, and Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	
Number of Tiger Whiptails Observed	*0*
NOTES	*Found scat by the far south edge of the project site by the canal but after further investigation it is assumed to be whiptail scat*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15453	
Date	*2021-05-24*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:05 AM–2:00 PM*
Conditions	*Air Temp: 77–93°F; Clear*
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:05:00*
TEMPERATURE	*°F*
Air Temp	*77*
Air Temp	*77*
Soil Temp	*75*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Sky	*Clear*

Survey Conditions	
Status	*End*
Time	*14:00:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*97*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Sky	*Clear*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Lower right quadrant is mix of sparse grassland with medium burrow density at bottom and then turns into field of discarded pistachio shells with no burrows, grass, or vegetation. Left lower quadrant is heavily grazed rangeland with high burrow activity but no shrubs. Field 3 up from bottom right had higher biomass but the soil was densely packed and no rodent burrows.*
Overall habitat quality	*Habitat quality in pistachio shell field is very poor. The bottom left quadrant is okay habitat quality but lacks a complex vegetation community to provide habitat heterogeneity and elevate the area to high quality habitat. The 3rd field up from the bottom right side was very poor habitat quality. The soil was too hard for BNLL to burrow and there were no rodent burrows on the landscape.*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*10–25%*
% Bare Ground	*50–75%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3.35*
NOTES	

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*05241439EN-01-01*
Record Lat/Long	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15495	
Date	*2021-05-25*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*San Diego*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:33 AM–2:00 PM*
Conditions	*Air Temp: 77–97°F; Ground Temp: 89–99°F; 10–30% cloud cover; 1–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:33:00*
TEMPERATURE	*°F*
Air Temp	*77*
Air Temp	*77*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*14:00:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*99*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*30*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*4.3*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15552	
Date	*2021-05-26*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:32 AM–1:10 PM*
Conditions	*77.5–94°F; 0–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:32:00*
TEMPERATURE	*°F*
Air Temp	*77.5*
Air Temp	*77.5*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Notes	*Ground temp 80.5F*

Survey Conditions	
Status	*End*
Time	*13:10:00*
TEMPERATURE	*°F*
Air Temp	*94*
Air Temp	*94*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*50–75%*
% Bare Ground	*50–75%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15615	
Date	*2021-05-27*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:59 AM–12:05 PM*
Conditions	*Air Temp: 75–93.5°F; Ground Temp: 81.5–97.6°F; 0–10% cloud cover; 1–9 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:59:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*81.5*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*12:05:00*
TEMPERATURE	*°F*
Air Temp	*93.5*
Air Temp	*93.5*
Soil Temp	*97.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland. No shrubs.*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*50–75%*
% Bare Ground	*25–50%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*2.85*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15759	
Date	*2021-05-30*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:20 AM–1:21 PM*
Conditions	*Air Temp: 75.5–95.2°F; Ground Temp: 75.8–128.1°F; 0% cloud cover; 1–8.6 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:20:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*75.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*13:21:00*
TEMPERATURE	*°F*
Air Temp	*95.2*
Air Temp	*95.2*
Soil Temp	*128.1*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*2*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*
NOTES	

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*06011519EN-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*BCC/SSC*

Photo(s)	
Type	*Photo*
Photo	
Description	*Burrowing owl observed perched along existing fence. Two BUOW observed in area. Point added to Collector.*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*06011522EN-02-02*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed 5/30*

Photos	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*Burrowing owl sighted in survey area on existing fence.*

FORMS FIELD DATA REPORT

Bio Field Data

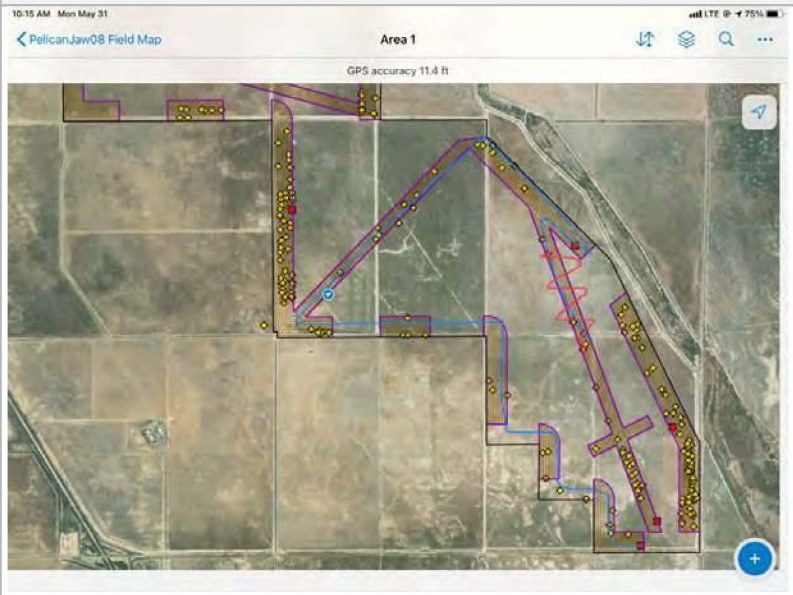
Record: 15750	
Date	*2021-05-31*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:19 AM–11:32 PM*
Conditions	*Air Temp: 81.8–97.4°F; Ground Temp: 84.4–97°F; 0% cloud cover; 1–3 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:19:00*
TEMPERATURE	*°F*
Air Temp	*81.8*
Air Temp	*81.8*
Soil Temp	*84.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*23:32:00*
TEMPERATURE	*°F*
Air Temp	*97.4*
Air Temp	*97.4*
Soil Temp	*97*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Notes	*Had checked temp around 1030AM and it was 94F. Surveys were stopped approximately one hour later.*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3.7 mi of transect, 5 miles of total distance*

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed today.*

FORMS FIELD DATA REPORT

Bio Field Data

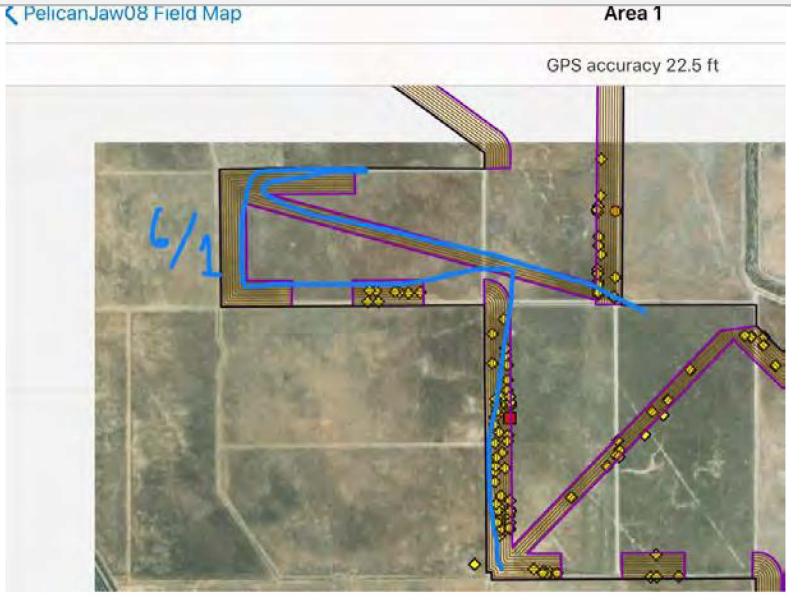
Record: 15753	
Date	*2021-06-01*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*6:54 AM–10:29 AM*
Conditions	*Air Temp: 78.4–97°F; Ground Temp: 79.3–114.3°F; 0% cloud cover; 0–7.3 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:54:00*
TEMPERATURE	*°F*
Air Temp	*78.4*
Air Temp	*78.4*
Soil Temp	*79.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*10:29:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*114.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*4.4*

Photos	
Type	*Photo*
Photo	
Description	*Survey area for 6/1/21.*

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 16119	
Date	*2021-06-02*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:00 AM–10:23 AM*
Conditions	*Air Temp: 75.4–101.4°F; Ground Temp: 80.1–127°F; 0% cloud cover; 1–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:00:00*
TEMPERATURE	*°F*
Air Temp	*75.4*
Air Temp	*75.4*
Soil Temp	*80.1*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*10:23:00*
TEMPERATURE	*°F*
Air Temp	*97.4*
Air Temp	*97.4*
Soil Temp	*127*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	*Temperature increased towards the end of the survey. Survey ended at 10:30 am.*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17421	
Date	*2021-06-13*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Select Transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:25 AM–1:33 PM*
Conditions	*Air Temp: 75–97°F; Ground Temp: 80.4–130°F; 0% cloud cover; 0–9 mph wind*
Visit Type	
Notes	*We spent time looking at the canal at the far south boundary of the project site where we had previously encountered potential BNLL scat. We found more identical scat and spotted a large whip tail lizard (Aspidoscelis tigris) down in the canal. This leads me to believe that the scat we originally found is likely from a whip tail.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:25:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*80.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*13:33:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*130*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Tiger Whiptails Observed	*1*

Photos	
Type	*Photo*
Photo	
Description	*Example of the scat observed, likely from a whip tail.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16122	
Date	*2021-06-14*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:54 AM–12:59 PM*
Conditions	*Air Temp: 75.7–96°F; Ground Temp: 78.3–126°F; 0% cloud cover; 0–6 mph wind*
Visit Type	
Notes	*Swainsons hawk observed flying overhead at beginning of survey. No active nest was observed. Burrowing owl seen in same location as from Pass 2. Location noted in Collector.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:54:00*
TEMPERATURE	*°F*
Air Temp	*75.7*
Air Temp	*75.7*
Soil Temp	*78.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*12:59:00*
TEMPERATURE	*°F*
Air Temp	*96*
Air Temp	*96*
Soil Temp	*126*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	
Survey Pass	*Adult Season Survey Pass 3*
Survey Pass	*Adult Season Survey Pass 3*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*

Wildlife List	
Species Name	*Swainson's hawk (Buteo swainsoni), B-SWHA*
Observation ID (Copy and paste into Collector)	*06141523EN-01-01*
Record Lat/Long	
Federal and State Status	*BCC/ST*

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed 6/14*

FORMS DUDEK FIELD DATA REPORT

Photo	
Description	*SWHA1 observed flying overhead.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16377	
Date	*2021-06-15*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:32 AM–1:32 PM*
Conditions	*Air Temp: 75.1–83°F; Ground Temp: 76–98°F; 0% cloud cover; 1–13 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:32:00*
TEMPERATURE	*°F*
Air Temp	*77.1*
Air Temp	*77.1*
Soil Temp	*78*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*N/A*
Notes	*Did not take average wind speed during survey.*

Survey Conditions	
Time	*10:40:00*
TEMPERATURE	*°F*
Air Temp	*83*
Air Temp	*83*
Soil Temp	*98*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*3*
Average Wind (mph, to tenths of a mile)	*8*
Notes	

FORMS FIELD DATA REPORT

Survey Conditions

Status	*End*
Time	*13:32:00*
TEMPERATURE	*°F*
Air Temp	*92*
Air Temp	*92*
Soil Temp	*132*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*
Average Wind (mph, to tenths of a mile)	*N/A*
Notes	*Did not take average wind speed.*

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*See attachment*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
NOTES	

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16380	
Date	*2021-06-16*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:16 AM–9:58 AM*
Conditions	*Air Temp: 75–89.6°F; Ground Temp: 75.8–98.8°F; 10–40% cloud cover; 0–9 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:16:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*75.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*40*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1*
Notes	*Thin hazy clouds. Slight overcast. Warm out with almost no breeze*

Survey Conditions	
Status	*End*
Time	*09:58:00*
TEMPERATURE	*°F*
Air Temp	*89.6*
Air Temp	*89.6*
Soil Temp	*98.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*2*
Average Wind (mph, to tenths of a mile)	*5.5*
Notes	*A bit hazy out but not truly overcast*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*See attachment*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*114*

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16719	
Date	*2021-06-28*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:15 AM–11:30 AM*
Conditions	*Air Temp: 78–93°F; Ground Temp: 83–108°F; 0% cloud cover; 0–8 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:15:00*
TEMPERATURE	*°F*
Air Temp	*78*
Air Temp	*78*
Soil Temp	*83*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*5*
Average Wind (mph, to tenths of a mile)	*6.5*

Survey Conditions	
Status	*End*
Time	*11:30:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*108*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0.5*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*53*
Number of Tiger Whiptails Observed	*0*

Photos	
Type	*Photo*
Photo	
Description	*View from south end of Project site, showing survey area.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16746	
Date	*2021-06-29*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:00 AM–10:01 AM*
Conditions	*Air Temp: 75.2–89.6°F; Ground Temp: 75.7–82.7°F; 10% cloud cover; 0–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:00:00*
TEMPERATURE	*°F*
Air Temp	*75.2*
Air Temp	*75.2*
Soil Temp	*75.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.6*

Survey Conditions	
Status	*End*
Time	*10:01:00*
TEMPERATURE	*°F*
Air Temp	*89.6*
Air Temp	*89.6*
Soil Temp	*82.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.6*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*34*
Number of Tiger Whiptails Observed	*0*

Photos	
Type	*Photo showing general survey area.*
Photo	

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 16776	
Date	*2021-06-30*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:42 AM–11:07 AM*
Conditions	*Air Temp: 77.1–92.3°F; Ground Temp: 82.2–89.9°F; 10% cloud cover; 4–10.7 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:42:00*
TEMPERATURE	*°F*
Air Temp	*77.1*
Air Temp	*77.1*
Soil Temp	*82.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*8.5*
Average Wind (mph, to tenths of a mile)	*9.0*

Survey Conditions	
Status	*End*
Time	*11:07:00*
TEMPERATURE	*°F*
Air Temp	*92.3*
Air Temp	*92.3*
Soil Temp	*89.9*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*4*
Average Wind (mph, to tenths of a mile)	*3.2*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*113*
Number of Tiger Whiptails Observed	*0*

Photos	
Type	*Photo showing general survey area*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16821	
Date	*2021-07-01*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	Kern County
Survey Area	*Select Transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:47 AM–9:37 AM*
Conditions	*Air Temp: 75.9–91°F; Ground Temp: 78–86.4°F; 0% cloud cover; 0–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:47:00*
TEMPERATURE	*°F*
Air Temp	*75.9*
Air Temp	*75.9*
Soil Temp	*78*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*5*
Average Wind (mph, to tenths of a mile)	*4.2*

Survey Conditions	
Status	*End*
Time	*09:37:00*
TEMPERATURE	*°F*
Air Temp	*91*
Air Temp	*91*
Soil Temp	*86.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*7.1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*33*
Number of Tiger Whiptails Observed	*0*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17424	
Date	*2021-07-06*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:22 AM–11:32 AM*
Conditions	*Air Temp: 75.5–88.6°F; Ground Temp: 75.6–94.7°F; 0% cloud cover; 1–7.7 mph wind*
Visit Type	
Notes	*Began 2nd pass of revised transects and then set up 3 wildlife cameras at suspected active burrows*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:22:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*75.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*1.5*

Survey Conditions	
Time	*09:18:00*
TEMPERATURE	*°F*
Air Temp	*88.6*
Air Temp	*88.6*
Soil Temp	*94.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*5*
Notes	*Taken midway through survey to confirm protocol compliance.*

FORMS FIELD DATA REPORT

Survey Conditions	
Status	*End*
Time	*11:32:00*
TEMPERATURE	*°F*
Air Temp	*97.5*
Air Temp	*97.5*
Soil Temp	*97.9*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.3*

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
NOTES	

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17427	
Date	*2021-07-07*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:03 AM–12:08 PM*
Conditions	*Air Temp: 75.9–97.9°F; Ground Temp: 75–93.6°F; 0% cloud cover; 0–3 mph wind*
Visit Type	
Notes	*2nd pass of revised transects. Burrowing owl observed. Checked wildlife cameras and set up an additional one.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:03:00*
TEMPERATURE	*°F*
Air Temp	*75.9*
Air Temp	*75.9*
Soil Temp	*75*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.8*

Survey Conditions	
Status	*End*
Time	*12:08:00*
TEMPERATURE	*°F*
Air Temp	*97.9*
Air Temp	*97.9*
Soil Temp	*93.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*

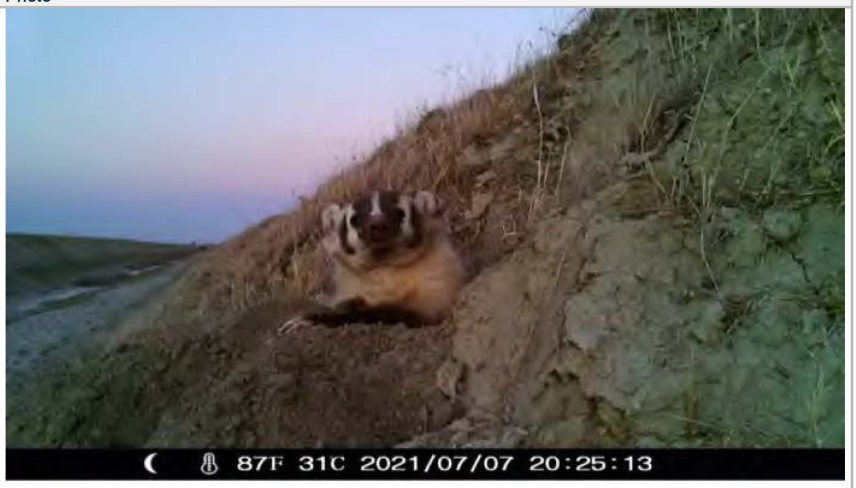
Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*07120908EN-01-01*
Record Lat/Long	
Federal and State Status	*BCC/SSC*

Wildlife List	
Species Name	*American badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07140945EN-02-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Spotted on CAM2*

Photo(s)	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*American badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07140945EN-03-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen on CAM4*

Photo(s)	
Type	*Photo*
Photo	
Description	*AMBA seen on CAM4*

Wildlife List	
Species Name	*Coyote (), B-COYO*
Observation ID (Copy and paste into Collector)	*07191725EN-04-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen on CAM1. Juvenile.*

Photo(s)	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*COYO seen on CAM1*

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed on 7/7/21*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17430	
Date	*2021-07-08*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Second pass of the revised transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:48 AM–11:09 AM*
Conditions	*Air Temp: 76.7–97.9°F; Ground Temp: 77.8–97.2°F; 0% cloud cover; 0–7.4 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*Concluded the second pass of revised transects and final pass of survey area.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:48:00*
TEMPERATURE	*°F*
Air Temp	*76.7*
Air Temp	*76.7*
Soil Temp	*77.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.4*

Survey Conditions	
Status	*End*
Time	*11:09:00*
TEMPERATURE	*°F*
Air Temp	*97.9*
Air Temp	*97.9*
Soil Temp	*97.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	

Wildlife List	
Species Name	*American Badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07120827EN-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen in project area near canal while driving to transect. We stopped to take a photo but it had already gone into the canal. By the time we got out of the car, we could not find it and it was likely in one of a few nearby burrows.*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*07120827EN-02-02*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18717	
Date	*2021-09-19*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04413018, 04413021, 04413016*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:30 PM*
Conditions	*Air Temp: 75–89°F; 0–10% cloud cover*
Visit Type	
Wildlife Species Count Summary	*common raven, 9*
Notes	*Unknown mouse sp. (small, not a kangaroo rat) seen running into burrow @ 1052. Few grasshoppers, beetles. Dead juvenile coyote carcass. Fresh evidence of kangaroo rat activity throughout*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*12:30:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Teodora Ungureanu, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*26*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*09290716NG-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09290724NG-02-04*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290724NG-03-04*
Record Lat/Long	
Federal and State Status	

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09290721NG-04-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*High count 9*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18720	
Date	*2021-09-20*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410221, 04410222, 0410308*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:00 AM–1:30 PM*
Conditions	*Air Temp: 76–89°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:30:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*3.4*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Sarah Mendez, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*52*
Number of Tiger Whiptails Observed	*0*

Wildlife List

Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*09290734NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*BCC/SSC*
Notes	*Flushed from burrow entrance and flew down along ditch. Point taken in collector with updated ID from this record*

Special-Status Wildlife Observation

Start observation time	*07:34:00*
End observation time	*09:54:00*
Lat/Long	*0.000000,0.000000*
Detection	*Observed*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Unknown*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Behavior	
Nectar Species	*N/A*
Color band information (if any)	
Vegetation Community(ies)	*Unvegetated Channel/Wash*
Habitat Quality	*Fair*
Immediate Land Use	*Agriculture ditch*
Surrounding Land Use	*Agriculture*
Visible Disturbances	
Threats	
Notes	*35.748342, -119.707729, point in collector under this same ID*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18723	
Date	*2021-09-21*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04415017, 04410309, 04410304, 04410203, 04410205*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:00 AM–1:00 PM*
Conditions	*Air Temp: 78–91°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*78*
Air Temp	*78*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*91*
Air Temp	*91*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*4*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Sarah Mendez, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*31*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09290753NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*

Wildlife List	
Species Name	*black-tailed jackrabbit (Lepus californicus), M-BTJR*
Observation ID (Copy and paste into Collector)	*09290755NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*@ 0942*

Wildlife List	
Species Name	*barn owl (Tyto alba), B-BAOW*
Observation ID (Copy and paste into Collector)	*09290756NG-03-03*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*Flushed out of tree near some large pipes @ 1057*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290757NG-04-04*
Record Lat/Long	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*turkey vulture (Cathartes aura), B-TUVU*
Observation ID (Copy and paste into Collector)	*09290757NG-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290757NG-06-06*
Record Lat/Long	
Notes	*@ 1122*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18741	
Date	*2021-09-22*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410201, 04410102, 04411003, 04410106*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–1:00 PM*
Conditions	*Air Temp: 76–93°F; Ground Temp: 89°F; 0% cloud cover*
Visit Type	
Notes	*Finished first pass, set up 3 burrow cams. Golden eagle flyover seen, no nests observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Garry Turner, Sarah Mendez*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*24*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*golden eagle (Aquila chrysaetos), B-GOEA*
Observation ID (Copy and paste into Collector)	*09291139NG-01-01*
Record Lat/Long	
Federal and State Status	*None/FP, WL*

Special-Status Wildlife Observation	
Start observation time	*13:19:00*
Lat/Long	*0.000000,0.000000*
Detection	*Observed*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Unknown*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Nectar Species	*N/A*
Color band information (if any)	
Habitat Quality	*Fair*
Immediate Land Use	*Agriculture*
Threats	

Wildlife List	
Species Name	*western rattlesnake (Crotalus oreganus), R-WERA*
Observation ID (Copy and paste into Collector)	*09291145NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Sign*
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09291146NG-03-03*
Record Lat/Long	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18744	
Date	*2021-09-26*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410203, 04410205, 04410221, 04410222, 04410309*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:30 PM*
Conditions	*Air Temp: 75–90°F; Ground Temp: 74–92°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*74*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*8*

Survey Conditions	
Status	*End*
Time	*12:30:00*
TEMPERATURE	*°F*
Air Temp	*90*
Air Temp	*90*
Soil Temp	*92*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Sophia Weber, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*48*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*coyote (Canis latrans), M-COYO*
Observation ID (Copy and paste into Collector)	*09291221NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*Adult coyote sighted @ 1104 running E to W*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09291223NG-03-03*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18747	
Date	*2021-09-27*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04413039, 04415017, 04415005*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:00 PM*
Conditions	*Air Temp: 70–87°F; Ground Temp: 67–89°F; 0% cloud cover*
Visit Type	
Notes	*1039 snakeskin found, likely gopher snake - scales not keeled*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Soil Temp	*67*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*4*

Survey Conditions	
Status	*End*
Time	*12:00:00*
TEMPERATURE	*°F*
Air Temp	*87*
Air Temp	*87*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*7*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Sophia Weber, Jakob Dewhurst*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*22*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*kangaroo rat (Dipodomys sp.), M-KARA*
Observation ID (Copy and paste into Collector)	*09291235NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Sign*
Federal and State Status	*None/None*
Notes	*Carcass found in active burrow mouth*

Photo(s)	
Type	*Photo*
Photo	
Description	*4 toes*

Photo(s)

Type	*Photo*
Photo	

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18774	
Date	*2021-09-28*
Biologist	*Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*Pelicans Jaw*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:51 AM–1:00 PM*
Conditions	*Air Temp: 70.6–75.8°F; Ground Temp: 72.4–77.3°F; 80–90% cloud cover; 3.2–6 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:51:00*
TEMPERATURE	*°F*
Air Temp	*70.6*
Air Temp	*70.6*
Soil Temp	*72.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*90*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*3.2*
Notes	

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*75.8*
Air Temp	*75.8*
Soil Temp	*77.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*80*
WIND	*mph*
Wind	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Level II Surveyor(s)	*Tamara Bryant*
Level I Surveyor(s)	*Andrea Dransfield, Jakob Dewhurst, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*15*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*red-tailed hawk (Buteo jamaicensis), B-RTHA*
Observation ID (Copy and paste into Collector)	*09301025TB-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*09301026TB-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09301026TB-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09301027TB-04-04*
Record Lat/Long	

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 18777	
Date	*2021-09-29*
Biologist	*Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*Transect*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:42 AM–12:48 PM*
Conditions	*Air Temp: 76.3–83.6°F; Ground Temp: 78.4–86.2°F; 0% cloud cover; 0–2.2 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*All camera's were removed from the survey areas.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:42:00*
TEMPERATURE	*°F*
Air Temp	*76.3*
Air Temp	*76.3*
Soil Temp	*78.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.2*

Survey Conditions	
Status	*End*
Time	*12:48:00*
TEMPERATURE	*°F*
Air Temp	*83.6*
Air Temp	*83.6*
Soil Temp	*86.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.7*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Level II Surveyor(s)	*Tamara Bryant*
Level I Surveyor(s)	*Andrea Dransfield, Jakob Dewhurst, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*44*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*turkey vulture (Cathartes aura), B-TUVU*
Observation ID (Copy and paste into Collector)	*09301257TB-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*09301259TB-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*house finch (Haemorhous mexicanus), B-HOFI*
Observation ID (Copy and paste into Collector)	*09301300TB-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

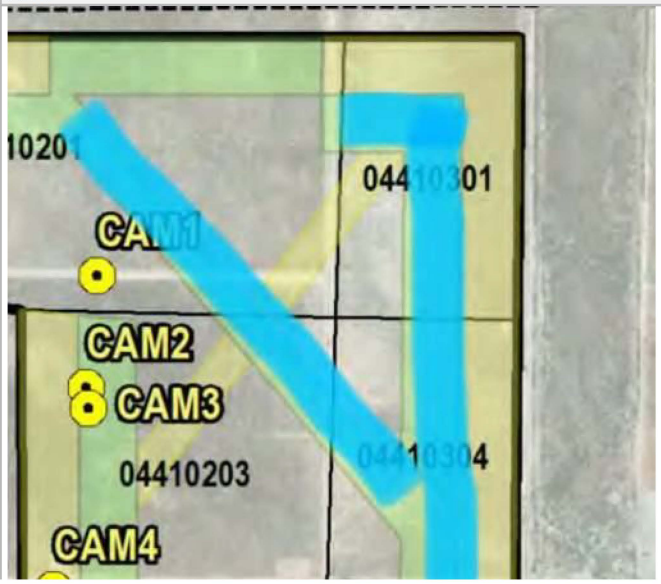
Wildlife List	
Species Name	*northern mockingbird (Mimus polyglottos), B-NOMO*
Observation ID (Copy and paste into Collector)	*09301300TB-04-04*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09301300TB-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

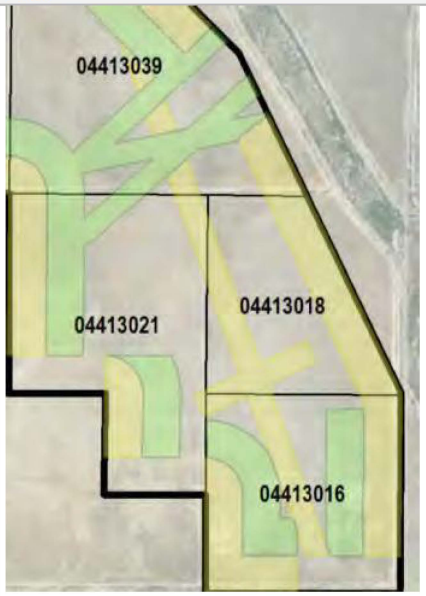
Wildlife List	
Species Name	*American crow (Corvus brachyrhynchos), B-AMCR*
Observation ID (Copy and paste into Collector)	*09301301TB-06-06*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*white-crowned sparrow (Zonotrichia leucophrys), B-WCSP*
Observation ID (Copy and paste into Collector)	*09301302TB-07-07*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Photos

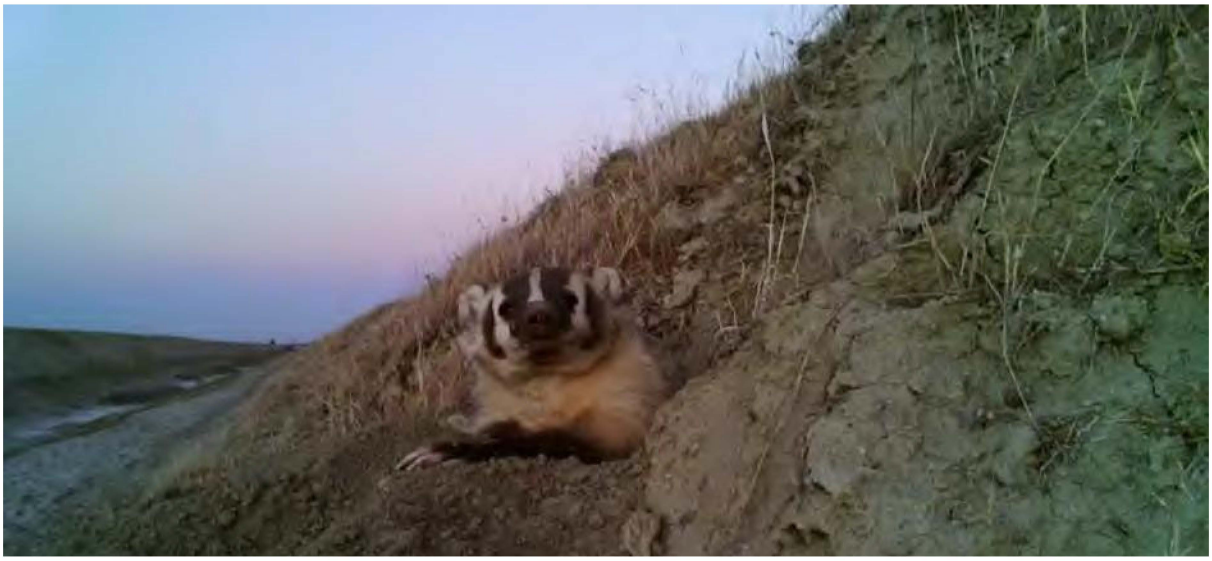
Type	*Photo*
Photo	
Description	*The BNLL survey area is in green*

Attachment F

Wildlife Observations



Camera 5 – San Joaquin kit fox





One of two burrowing owl observations in APNs 04410203 and 04410205 during adult season surveys (please see Figure 3A)





Camera 7 – San Joaquin Kit Fox. Camera indicates incorrect date due to camera malfunction. Photo was taken between 9/19/2021 and 9/29/2021.





A desiccated kangaroo rat carcass (*Dipodomys sp.*) discovered during hatchling season surveys in APN 04415017. Species-level identification could not be completed due to the condition of the carcass.



Appendix G

Wet Season Sample Protocol Survey Letter Report for Federally Listed Branchiopods

DUDEK
1701 WESTWIND DRIVE, SUITE 227
BAKERSFIELD, CALIFORNIA 93301
T 661.206.4127

June 28, 2022 11438

Justin Sloan
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

Permit Coordinator
U.S. Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825

Subject: U.S. Fish and Wildlife Service Wet Season Sample Protocol Survey Letter Report for Federally Listed Branchiopods, Pelicans Jaw Hybrid Solar Project (Reference Number: 2021-TA-0287), Kern County, California

Dear Mr. Sloan,

This U.S. Fish and Wildlife Service (USFWS) Wet Season Protocol Survey Letter Report (Report) for federally listed branchiopods has been prepared in accordance with the USFWS *Survey Guidelines for the Listed Large Branchiopods* (USFWS 2017). This work was completed pursuant to *Notification of Sample Surveys for the Vernal Pool Fairy Shrimp* at the approximately 3,260-acre Pelican Jaw Hybrid Solar Project (Project), provided to USFWS by Dudek, on November 15, 2021, (**Attachment A**, *USFWS West Season Survey Request and Authorization)*. This Report fulfills reporting requirements in accordance with the permit holder's recovery permit, pursuant to 10(a)(1)(A) of the Federal Endangered Species Act. This Report provides a complete overview of the wet season surveys conducted for the Project, located in Kern County, California. Mr. Brock Ortega (TE-81345-9) served as the principal investigator for this survey (**Attachment B**, *Resume: Brock Ortega)*. Potential wetland features have been identified on the proposed Project site; these areas will be verified through an approved Jurisdictional Delineation. No listed Branchiopods were found during the survey effort. A single brine shrimp (*Artemia franciscana*) was observed at NWW-02-TKP. Consistent with the approved work plan, Dudek does not recommend conducting dry season vernal pool invertebrate surveys, due to lack of sensitive invertebrate species observed during the wet season.

If you have any questions regarding this Report, or need any additional information, please feel free to call or email me at (760) 479-4254.

Sincerely,



Brock Ortega (TE-813545-9)
Principal Wildlife Biologist

Att.: *A) USFWS Wet Season Survey Request and Authorization*
B} Resume, Brock Ortega
C) Figure 1 - Project Location
D) Figure 2 - Project Soils
E) Figure 3 - Aquatic Features
F) Photo Record

1 Introduction

This Report documents the results of the wet season surveys for vernal pool branchiopods conducted within the approximately 3,260-acre Project site, located in the unincorporated territory of Kern County, California (**Attachment A-1**, *Project Location Index and Project Details Maps* [APNs 044-101-020, 044-101-030, 044-101-050, 044-101-060, 044-102-010, 044-102-030, 044-102-050, 044-130-390, 044-102-220, 044-103-010, 044-103-040, 044-103-060 (portion of), 044-103-080, 044-150-050, 044-150-170, 044-103-090 (portion of), 044-110-030, 044-110-250, 044-130-160, 044-130-180, 044-130-210, 044-102-210, and 044-110-010]). Surveys focused on the delineation of potentially suitable habitat and site-specific surveys to assess the presence/absence for the federally threatened vernal pool fairy shrimp (*Branchinecta lynchi*) and federally endangered vernal pool tadpole shrimp (*Lepidurus packardi*). Surveys were performed in accordance with the sample survey methods previously discussed with the USFWS on September 29, 2020, which differed from standard protocol. The sample survey methods were provided in the Dudek Memorandum to USFWS, dated October 14, 2020 (**Attachment A-2**) and consisted of ground surveys within 24 hours of rain events to identify vernal pools and other aquatic resources that provide potential suitable habitat. 11 pools were surveyed and surveys occurred every 10 days for the first month and then every 20 days for additional surveys.

A Habitat Assessment was prepared for the Project in July 2020, which concluded that there is a low potential for large branchipods to occur within seasonally inundated areas of the Project. Subsequent to the completion of the July 2020 habitat assessment and October 14, 2020 Memorandum, Pelicans Jaw Solar, LLC reduced the proposed project site from approximately 5,400-acres to approximately 3,260-acres. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the Project site in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented within the Project area or in the vicinity of the Project area and concurred with the results of the Habitat Assessment. The USFWS approved sample surveys for vernal pool fairy shrimp were conducted to determine the potential for vernal pool fairy shrimp to be present within the Project area and to ensure that there is documentation to support the environmental review and permitting process for the Project under the California Environmental Quality Act (CEQA), and related environmental permitting. No wet season surveys have been previously conducted as part of the Project. Wet season surveys were conducted between October 28, 2021, and March 30, 2022.

The request to conduct wet season sample surveys was submitted to the USFWS on November 15, 2021 and approved by the USFWS on November 16, 2021 (**Attachment A-2**). Wet season surveys were conducted within the Project site in October 2021, December 2021, January 2022, February 2022, and March 2022. Wet season surveys were led and performed by Brock Ortega, Ashley Estacio, Julie Thomas, and Kyla Garten, Dudek biologists who possess a USFWS Section 10(a)(1)(A) permit to handle vernal pool fairy shrimp and vernal pool tadpole shrimp. The

Table 1. Wet Season Survey Dates, Site Conditions, and Biologists Present Summary

Date of Survey	Site Conditions	Permitted Biologist	Assisting Biologists
October 28, 2021	52-70°F; 50–100% cloud cover; 0–1 mph wind	Brock Ortega (TE-813545-9)	Emma Hansen-Smith Jakob Dewhurst
December 10, 2021	39-55°F; 50–75% cloud cover; 0–5 mph wind	Brock Ortega (TE-813545-9)	Emma Hansen-Smith Jakob Dewhurst
December 15, 2021	40–52°F; 30–75% cloud cover; 1-4 mph wind	Ashley Estacio (TE-815537)	Emma Hansen-Smith Jakob Dewhurst
December 30, 2021	41–50°F; 100% cloud cover; 0-10 mph wind	Ashley Estacio (TE-815537)	Jakob Dewhurst
January 9, 2022	36–45°F; 100% cloud cover; 0-7 mph wind	Ashley Estacio (TE-815537)	Emma Hansen-Smith
January 18, 2022	48–61°F; 50–75% cloud cover; 0-8 mph wind	Julie Thomas (TE-834492-4)	Jakob Dewhurst
February 7, 2022	50–54°F; 100% cloud cover; 0–3 mph wind	Julie Thomas (TE-834492-4)	Emma Hansen-Smith
March 30, 2022	51-62°F; 50–75% cloud cover; 5–9 mph wind	Kyla Garten (TE-68734D-0)	Emma Hansen-Smith

mph = miles per hour
°F = degrees Fahrenheit

2 Project Setting

2.1 Location

The Project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5, located approximately 2 miles to the west (**Attachment C**). The Project site and surrounding properties are currently vacant and have historically been used for cattle and sheep grazing. The Project would include up to 500-megawatt (MW) of photovoltaic solar generation and a battery energy storage system (BESS) with a capacity that could range from 500 to 1,000-megawatt hour (MWhr). The Project would also include a Pacific Gas and Electric (PG&E) switching station that interconnects with the existing PG&E 230-kilovolt (kV) overhead transmission lines that traverse the Project site.

Project location details are detailed as follows:

060 (portion of), 044-103-080, 044-150-050, 044-150-170, 044-103-090 (portion of), 044-110-030, 044-110-250, 044-130-160, 044-130-180, 044-130-210, 044-102-210, and 044-110-010

- **Project site size**: Approximately 3,260 acres.

2.2 Soils

The Project site is located west of the Kern River Channel and spans the Kern County and Kings County border. The topography is characterized by an overall slope to the east/northeast. Elevations range from approximately 215 feet above mean sea level (amsl) near the eastern edge to approximately 220 feet amsl at the northwestern corner of the site.

According to the U.S. Department of Agriculture, Natural Resources Conservation Service's Web Soil Survey (USDA 2020), seven soil series occur within the boundaries of the Project site (**Attachment D**). The acres of each soil type are estimated based on GIS data from the U.S. Department of Agriculture, Natural Resources Conservation Service's Web Soil Survey (USDA 2020). The Project size of approximately 3,260 acres, discussed above is based on property title reports. The acreage does not include access roads.

- 238 – Twisselman clay (Farmland classification: Not prime farmland; 329.5 acres),
- 234 – Twisselman sandy loam (Farmland classification: Not prime farmland; 321.0 acres),
- 210 – Nahrub partially drained Lethent complex (Farmland classification: Not prime farmland; 175.5 acres),
- 164 – Houser fine sandy loam (Farmland classification: Not prime farmland; 979.3 acres), and
- 208 – Nahrub clay (Farmland classification: Not prime farmland; 1,407.1 acres).

3 Methodology

Wet season sampling surveys were performed in general accordance with the USFWS *Survey Guidelines for the Listed Large Branchiopods* as modified by the description provided in the Memorandum transmitted to USFWS on November 15, 2021 (**Attachment A**). Mr. Brock Ortega (TE-81345-9) served as the principal investigator for this survey (**Attachment B**, *Resume: Brock Ortega)*. The surveys were further supported by three additional permitted biologists, Ashley Estacio (TE-815537), Julie Thomas (TE-834492-4), and Kyla Garten (TE-68734D-0). Two additional assisting biologists worked under the direct supervision of the permitted biologists, Emma Hansen-Smith and Jakob Dewhurst. For the wet season sample surveys, site visits began after initial storm events when potential

4 Results

A total of 11 features were surveyed during the 2021/2022 wet season surveys (**Attachment E**). The features consisted of vernal pool (no water present), intermittent wetland (no water present), and abandoned irrigation trenches features (water present). According to the property owner, no farming occurred on the Project site between 2012 through 2022. The Project site is used for grazing with approximately 10 cows onsite seasonally due to the lack of forage. Water is provided to grazing animals from an on-site well. During the surveys, none of the features were found occupied by federally threatened vernal pool fairy shrimp, federally endangered vernal pool tadpole shrimp, or any other federally listed large branchiopods. The only features to hold water during the surveys were the abandoned irrigation trenches (NWW-02-TKP, PJ-EHS-LLB-02, PJ-EHS-LLB-08, and PJ-EHS-LLB-10); all other features were observed dry (Wetland-3P-01, Wetland-3P-02, Wetland-3P-04, NWW-17-CJS, NWW-19-CJS, PJ-EHS-LLB-1, and PJ-EHS-LLB-06). NWW-02-TKP was observed to be holding water during the January 9, 2022, February 7, 2022, and March 30, 2022 surveys; PJ-EHS-LLB-02 was observed to be holding water on January 18, 2022; PJ-EHS-LLB-08 was observed to be holding water on January 9, 2022 and on March 30, 2022; and PJ-EHS-LLB-10 was observed to be holding water on January 18, 2022.

The only shrimp species detected was *Artemia franciscana*, which is a type of brine shrimp, found in alkaline ponds and are not listed as a sensitive species at either the state or federal level. This species was captured in NWW-02-TKP. A summary of results has been provided in Tables 2 and 3. Additionally, photo plates of the Project site and various aquatic features sampled have been provided in **Attachment F.**

Table 2. Results Summary of Wet Season Surveys

Feature ID	Rain Event Date (0.5-inch or more of precipitation)	Inspection Date	Wet (3 cm of standing water) or Dry	Notes
Wetland-3P-01	10/25/21	10/28/21	Dry	No standing water present.
	12/9/21	12/10/21	Dry	No standing water present.
	12/14/21	12/15/21	Dry	No standing water present.
	12/29/21	12/30/21	Dry	No standing water present
	1/8/22	1/9/22	Dry	No standing water present

	12/9/21	12/10/21	Dry	No standing water present.
	12/14/21	12/15/21	Dry	No standing water observed, muddy conditions.
	12/29/21	12/30/21	Dry	No standing water present
	2/6/22	2/7/22	Dry	No standing water present.
	3/28/22	3/30/22	Dry	No standing water present.
Wetland-3P-04	10/25/21	10/28/21	Dry	No standing water present.
	12/9/21	12/10/21	Dry	No standing water present.
	12/14/21	12/15/21	Dry	No standing water present.
	12/29/21	12/30/21	Dry	No standing water present
	1/8/22	1/9/22	Dry	No standing water present.
	2/6/22	2/7/22	Dry	No standing water present.
	3/28/22	3/30/22	Dry	No standing water present
NWW-02-TKP	1/8/22	1/9/22	Wet	Average depth 15 cm. Water temperature 9°C, air temperature 11°C.
	2/6/22	2/7/22	Wet	Average depth 15 cm. Representative sample of male and female *Artemia franciscana* taken. Conditions salty. Water temperature 15°C, air temperature 19.5°C.
	3/28/22	3/30/22	Wet	Average depth 3 cm. *Artemia franciscana* species from earlier surveys are still present, but all individuals appear to be deceased. No other species observed.

	2/6/22	2/7/22	Dry	No standing water present.
	3/28/22	3/30/22	Dry	No standing water present.
NWW-19-CJS	10/25/21	10/28/21	Dry	No standing water present.
	12/9/21	12/10/21	Dry	No standing water present.
	12/14/21	12/15/21	Dry	No standing water present within the potential feature area. There are a couple of small puddles in the general vicinity of the feature that are approximately the size of a cow hoof print.
	12/29/21	12/30/21	Dry	No standing water present.
	1/8/22	1/9/22	Dry	No standing water present.
	2/6/22	2/7/22	Dry	No standing water present.
	3/28/22	3/30/22	Dry	No standing water present.
PJ-EHS-LLB-01	10/25/21	10/28/21	Dry	Potential riparian habitat, no standing water present.
	12/9/21	12/10/21	Dry	No standing water present.
	12/14/21	12/15/21	Dry	No standing water present.
	12/29/21	12/30/21	Dry	No standing water present.
	2/6/22	2/7/22	Dry	No standing water present.
	3/28/22	3/30/22	Dry	No standing water present.
PJ-EHS-LLB-02	1/17/22	1/18/22	Wet	Feature has water at least 3 cm deep. The mud was too thick to get depth

PJ-EHS-LLB-08	1/8/22	1/9/22	Wet	Air temperature 11°C, water temperature 14°C, gnats, and deceased Hemiptera observed. Average depth 5 cm.
	2/6/22	2/7/22	Dry	No standing water present.
	3/28/22	3/30/22	Wet	Standing water present, no organisms observed through dip netting. Average depth 2 cm.
PJ-EHS-LLB-10	1/17/22	1/18/22	Wet	Average depth 2 cm. No organisms observed via dip netting.

Table 3. Results Summary of Wet Season Surveys

Feature ID	Anostracans	Notostracans	Copepods	Ostracods	Cladocera	Coleoptera	Hemiptera	Diptera Culicidae	Diptera Chiromidae	Platyhelminths (flatworms)
Wetland-3P-01										
Wetland-3P-02										
Wetland-3P-04										
NWW-02-TKP*							x			x
NWW-17-CJS										
NWW-19-CJS										
PJ-EHS-LLB-01										
PJ-EHS-LLB-02										
PJ-EHS-LLB-06										
PJ-EHS-LLB-08										
PJ-EHS-LLB-10										

Notes:

I certify that the information in this Report for the wet season surveys conducted within the Project site and attached exhibits fully and accurately represents my work.

6 References

Dudek. July 2020. Biological Habitat Assessment for the Pelicans Jaw Hybrid Solar Project.

USDA (U.S. Department of Agriculture). 2020. Web Soil Survey. Natural Resources Conservation Service. Accessed July 2020.

USFWS (U.S. Department of the Interior, Fish and Wildlife Service), 2017. *Survey Guidelines for the Large Listed Branchiopods*. United State Department of the Interior. USFWS, Pacific Southwest Region, 2800 Cottage Way, Suite W-2606, Sacramento, CA, 95825-1846. Accessed October 2021 - February 2022. https://www.fws.gov/ventura/docs/species/protocols/vpshrimp/shrimp2017.pdf.

Attachment A

USFWS Wet Season Survey Request and Authorization

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

November 15, 2021 11438.0024

Justin Sloan
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

Permit Coordinator
U.S. Fish and Wildlife Service
2800 Cottage Way, W-2605
Sacramento, CA 95825

Subject: Notification of Sample Surveys for the Vernal Pool Fairy Shrimp at the Proposed Pelicans Jaw Hybrid Solar Project, Kern County, California

Dear Mr. Sloan,

Dudek is providing this request to the U.S. Fish and Wildlife Service (USFWS) to conduct wet season sample surveys for large listed branchiopods (i.e., vernal pool fairy shrimp [*Branchinecta lynchi*]) in the proposed Pelicans Jaw Hybrid Solar Project (PJHSP) survey area (Attachment 1).

Proposed Project and Survey Area

The survey area for the proposed PJHSP includes a total of approximately 3,260 acres within unincorporated Kern County, California (Attachment 1) in accordance with the Biological Survey Work Plan submitted to USFWS on April 15, 2021. The survey area includes the proposed project access road and collector line options along with a 250-foot survey buffer. According to the USFWS, the survey area is located in 'Survey Zone B' of California for listed large branchiopods.

Survey Request Overview

Surveys will conform to the proposed sample survey methods as previously discussed with the USFWS for the proposed Project (Attachment 2). In summary, the sample survey effort would consist of ground surveys within 24 hours after rain events to identify vernal pools and other aquatic resources that provide potential suitable habitat

survey methodology and adequacy, including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Survey Personnel

Dudek may employ several of our permitted biologists to conduct surveys in the proposed Project survey area. Each permitted biologist will be accompanied by one or more supporting biological staff that have had appropriate field experience to assist in these surveys. Table 1 below lists all Dudek biologists that hold a Recovery 10(a)(1)(a) Permit, and/or supporting biological field staff that Dudek is requesting to have approved to conduct large listed branchiopod surveys in the proposed Project survey area.

Table 1. Dudek Survey Personnel Reference

Name (Title)	USFWS 10(a)(1)(A) Recovery Permit	Survey Designation
Bergman, Erin	TE53771B-2	Biologist- Lead
Burris, Laura	N/A	Field Biologist- Support
Dewhurst, Jacob	N/A	Field Biologist- Support
Garcia, Pedro	N/A	Field Biologist- Support
Godinho, Anna	N/A	Field Biologist- Support
Hansen-Smith, Emma	N/A	Field Biologist- Support
Henry, Ryan	TE031848-4	Biologist- Lead
Henry, Michael	N/A	Field Biologist- Support
Keating, Paul	N/A	Field Biologist- Support
Kennedy, Morgan	N/A	Field Biologist- Support
Leis, Michelle	N/A	Field Biologist- Support
Lemons, Paul	TE051248-6	Biologist- Lead
Marella, Travis	N/A	Field Biologist- Support
Moine, Heather	TE60147A-1	Biologist- Lead
Ortega, Brock	TE813545-9	Biologist- Lead
Scricca, Emily	N/A	Field Biologist- Support
Sennett, Allie	N/A	Field Biologist- Support

Sincerely,



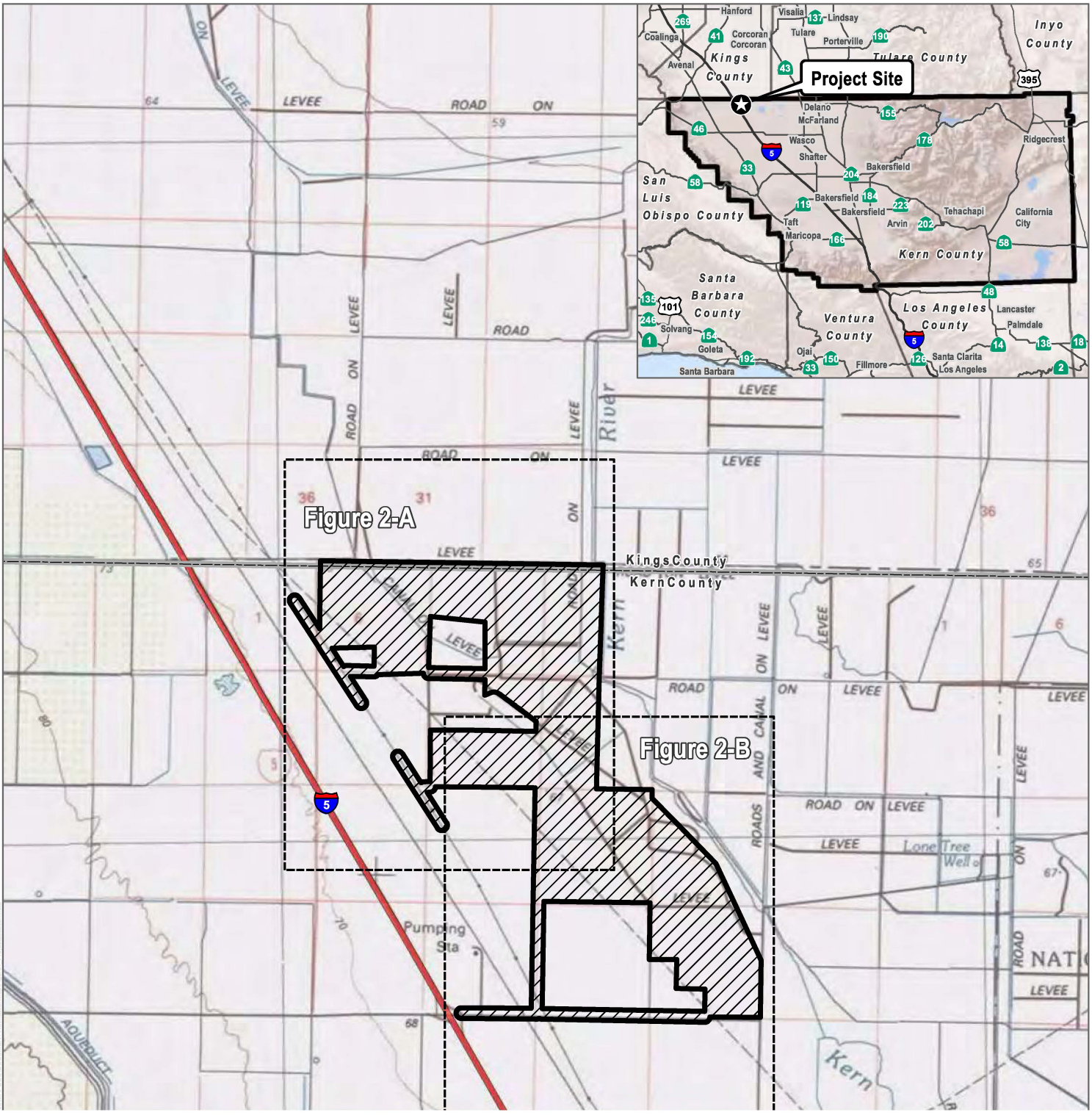
Brock Ortega
Principal/Senior Wildlife Biologist

Att.: 1: Figures 1-2B. Project Location Index and Project Detail Maps
2: Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys Memorandum

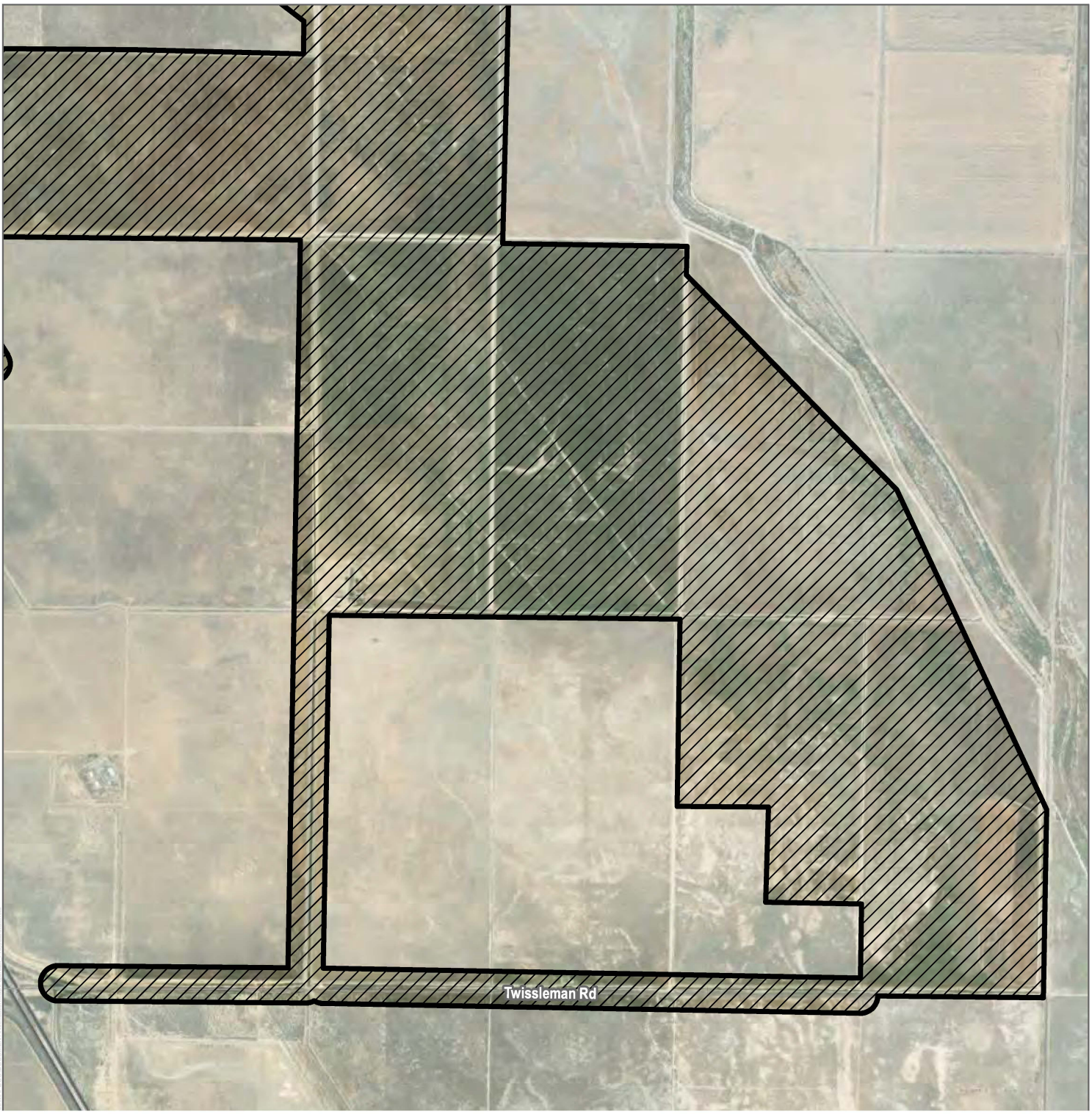
cc: Alphonso Jung, Samsung Solar Energy 2, LLC
Tandy McMannes, Samsung Solar Energy 2, LLC
Keith Carwana, Dudek
Anna Bischoff, Dudek

Attachment A-1

Figures 1-2B. Project Location Index and Project Detail Maps


Project Site
Figure 2-A
Figure 2-B
Kings County
Kern County
Tulare County
Inyo County
San Luis Obispo County
Santa Barbara County
Ventura County
Los Angeles County
Hanford
Visalia
Lindsay
Tulare
Porterville
Coalinga
Corcoran
Avenal
Delano
McFarland
Wasco
Shafter
Bakersfield
Ridgecrest
Taft
Maricopa
Arvin
Tehachapi
California City
Lancaster
Palmdale
Solvang
Goleta
Santa Barbara
Ojai
Fillmore
Santa Clarita
Los Angeles
Kern River
Lone Tree Well
Pumping Sta
AQUEDUCT
LEVEE
ROAD
ON
CANAL
ROADS
AND


KingsCounty
KernCounty


Twissleman Rd

Attachment A-2

Vernal Pool Fairy Shrimp Sample Survey Memorandum

Angela Zhang

From: Keith Carwana
Sent: Monday, June 13, 2022 4:16 PM
To: Angela Zhang
Subject: FW: [EXTERNAL] Postponement of proposed Pelicans Jaw Hybrid Solar Project vernal pool fairy shrimp surveys

Keith Carwana
Environmental Compliance Manager
DUDEK
605 Third Street, Encinitas, CA 92024
O: 949.450.2525 C: 760.889.9498
www.dudek.com

From: Lantz, Samantha M <samantha_lantz@fws.gov>
Sent: Tuesday, November 16, 2021 8:44 AM
To: Brock Ortega <bortega@dudek.com>; Sloan, Justin <Justin_Sloan@fws.gov>
Cc: alfonso.jung@samsung.com; t.mcmannes@samsung.com; Keith Carwana <kcarwana@dudek.com>; Anna Bischoff <abischoff@dudek.com>
Subject: Re: [EXTERNAL] Postponement of proposed Pelicans Jaw Hybrid Solar Project vernal pool fairy shrimp surveys

Hi Brock,

You may consider this email approval for the wet season branchiopod sampling as described in your email below. Please continue to use Service reference number 2021-TA-0287 in future correspondence regarding these surveys, and send reports to my and Justin Sloan.

Thanks,
Sam

Samantha Lantz, PhD (she/her)
Senior Biologist
USFWS, Sacramento Field Office
Listing and Recovery Division
Phone: 916-414-6526

In an effort to slow the spread of the coronavirus (COVID-19), staff in the Sacramento Fish and Wildlife Office have implemented an aggressive telework schedule. At this time, we are responding to requests for information via email or phone as often as possible as we do not have the in-office capacity to support regular mail service. We appreciate your understanding.

From: Brock Ortega <bortega@dudek.com>
Sent: Monday, November 15, 2021 7:07 AM
To: Sloan, Justin <Justin_Sloan@fws.gov>; Lantz, Samantha M <samantha_lantz@fws.gov>
Cc: alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Keith Carwana <kcarwana@dudek.com>; Anna Bischoff <abischoff@dudek.com>
Subject: FW: [EXTERNAL] Postponement of proposed Pelicans Jaw Hybrid Solar Project vernal pool fairy shrimp surveys

Hi Justin and Samantha,

Dudek is providing this request to the U.S. Fish and Wildlife Service to conduct wet season sample surveys for large listed branchiopods (i.e., vernal pool fairy shrimp) in the proposed Pelicans Jaw Hybrid Solar Project survey area. We plan to begin the surveys on or after November 30, 2021. Note that the survey methods have been revised in coordination with Mr. Sloan. Please do not hesitate to contact me with any questions.

Thank you,
Brock Ortega (TE-813545-9)

From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Wednesday, January 6, 2021 7:35 AM
To: Brock Ortega <bortega@dudek.com>
Subject: Re: [EXTERNAL] Postponement of proposed Pelicans Jaw Hybrid Solar Project vernal pool fairy shrimp surveys

From: Brock Ortega <bortega@dudek.com>
Sent: Tuesday, January 5, 2021 8:02 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>; Lantz, Samantha M <samantha_lantz@fws.gov>
Cc: Alphonso Chang-Su Jung <alfonso.jung@samsung.com>; 'Tandy McMannes' <t.mcmannes@samsung.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>; Anna Bischoff <abischoff@dudek.com>
Subject: [EXTERNAL] Postponement of proposed Pelicans Jaw Hybrid Solar Project vernal pool fairy shrimp surveys

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Good afternoon Samantha and Justin,

Dudek is providing the attached update to the U.S. Fish and Wildlife Service regarding the anticipated timing to conduct wet season sample surveys for large listed branchiopods for the Pelicans Jaw Hybrid Solar Project survey area. The surveys were originally anticipated to occur during the 2020-2021 wet season and are now anticipated to occur during the 2021-2022 wet season.

Please do not hesitate to contact me with any questions.

Thank you,
Brock Ortega (TE-813545-9)

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
www.dudek.com

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

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From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
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MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment B

Resume: Brock Ortega

Brock Ortega

Principal, Senior Wildlife Biologist

Brock Ortega has more than 30 years' experience as a wildlife biologist and project manager. He brings extensive expertise to his project teams in many areas, including species surveys, project and program management, permitting issues related to wetland resources and threatened or endangered species, wildlife biology and management, ecological assessment, environmental impact assessment and mitigation, habitat remediation, endangered species management plan authorship, and mitigation monitoring,. Mr. Ortega has conducted over 40,000 hours of focused and general wildlife surveys during his professional career. Mr. Ortega has performed dozens of protocol-level surveys for listed and rare butterflies. He has also performed generic surveys for listed fairy shrimp, butterflies, bees and other invertebrates on project sites. Mr. Ortega has managed hundreds of projects throughout California, ranging from small tasks to several large comprehensive projects with multi-million dollar budgets. He has enjoyed numerous long-term clients with some spanning his entire career. A leader in the biological resources group, he has been instrumental in developing expertise in herpetological trapping arrays, camera-trapping sets, bat acoustic surveys, pit-tagging studies, and other techniques. Additionally, has led Dudek's entry into the Unmanned Aerial Systems (UAS; "drones") market, having spearheaded obtaining approvals from the FAA and obtaining professional-grade UAS.

EDUCATION

Humboldt State University
BS, Wildlife Biology and Management, 1991

CERTIFICATIONS

USFWS Federal 10a Survey Permit No. TE-813545-9:

- California Gnatcatcher Surveys
- Least Bell's Vireo Surveys/ Nest Monitoring
- Southwestern Willow Flycatcher Surveys
- Quino Checkerspot Butterfly Surveys
- Fairy Shrimp Surveys
- Casey's June beetle (Under USFWS permit)

PROFESSIONAL AFFILIATIONS

Southern California Chapter of The Wildlife Society, President

Humboldt State University Wildlife Department Alumni Association, Past Board Member

Since approximately 1998, after receiving his 10)(a) permit to conduct fairy shrimp surveys, Mr. Ortega has conducted dozens of focused surveys for fairy shrimp. His permit covers all listed species of fairy shrimp within California. In support of receipt of the permit, he attended training sessions for fairy shrimp identification conducted by Denton Belk, author of the textbook on fairy shrimp identification and natural history and later by Mary Belk. Examples of surveys include California State University Dominquez Hills, Newhall Ranch, Caltrans I-15 widening, Mid-coast rail, Mid-county Parkway project, Otay Ranch Resort Site, St. Jerome Church site, Tejon Mountain Village, Fanita Ranch, Neighborhood 8A, and Ramona Boulevard project, among others. Mr. Ortega has worked with the resource agencies to address permitting for projects with federally listed fairy shrimp species and has prepared the documents required for Section 7

where pools existed. Where it would have taken a biologist 4 person days to survey the entire route, it only took 3 hours for a biologist in a helicopter.

Other Invertebrates

Mr. Ortega is currently assisting the USFWS by holding a CDFA grant to study the federally endangered Casey's June beetle and participating in a range-wide genetic, habitat use, and survey method study that is critical to the species' recovery. He has captured and marked over 300 individuals. He was the invertebrate species (including listed fairy shrimp and Quino checkerspot) lead biologist for the Western Riverside Multiple Species Habitat Conservation Plan and has conducted numerous focused surveys and habitat assessments for Quino checkerspot, fairy shrimp and vernal pools during his career. Some notable projects include the following:

- Reviewing potential Caltrans stormwater BMP sites for potential to support fairy shrimp and vernal pools. This included over 200 sites across California – Humboldt to Ventura counties and to Arizona/Nevada border.

- Conducting focused positive surveys for fairy shrimp along Interstate 15 in San Diego County.

- Conducting focused positive surveys for Quino checkerspot and fairy shrimp in City of Chula Vista and southern San Diego County.

- Surveying over 200 pools in conjunction with 3,600-acre project in eastern San Diego County.

- Designing and conducting a focused survey effort for a 32-mile road project in Riverside county – required using innovative helicopter surveys to efficiently locate pools then returning to survey. Surveyed over 300 pools.

- Surveying pools on Camp Pendleton MCB to facilitate pipeline base projects.

- Conducting focused positive surveys for a City of San Diego pipeline project east of Miramar NAS.

- Conducting focused surveys for fairy shrimp and pools along the 65-mile Metropolitan Water District Pipeline No. 6 project and alternative alignments in Riverside County.

- Conducting multiple focused Quino checkerspot surveys in Riverside, Orange, and San Diego counties.

- Surveying over 40 projects throughout their range and identifying individuals throughout their

(Bombus crotchii), Franklin bumble bee (Bombus franklini), Western bumble bee (Bombus occidentalis occidentalis), and Suckleyi Cuckoo bumble bee (Bombus suckleyi). Lecture topics included classification and bee morphology; identification of species; life history and ecology and; sampling protocols. A large portion of the workshop included identification of specimens using a microscope and guidebook "Bumble Bees of the Western United States" (by Koch, Strange, and Williams).

Selected Project Experience

Strauss Wind Energy Project, Santa Barbara, California. Developed a CDFW-approved Crotch bumblebee survey protocol and implemented the survey protocol in advance of CDFW 1600 impacts. Designed and managed acoustic passive (2 long-term stations) and active (20 stations) bat studies. Developed and implemented 4 years of avian point-count, eagle surveys, and eagle nest surveys. Prepared Bird and Bata Protection Plans and an Eagle Take Permit analysis and application package.

Construction Package (CP) 2-3 of the California High-Speed Rail Project, Dragados-Flatiron Joint Venture (DFJV), Fresno, Tulare, Fresno, and Kings Counties, California. Mr. Ortega served as a lead biologist related to San Joaquin kit fox, Crotch bumble bee and wildlife movement issues for construction of the CP 2-3 segment of the California High-Speed Rail Project. Mr. Ortega devised a survey CDFW-approved survey protocol for Crotch bumble bee. Mr. Ortega works closely with the DFJV to ensure project requirements and permit conditions are implemented and adhered to, while also keeping the construction teams moving along the alignment. CP 2-3 of the California High-Speed Rail Project is a civil trackway design-build project that is approximately 65 miles long, located in the Counties of Fresno, Tulare, and Kings; and the Cities of Hanford, Corcoran, and Allensworth. As sub consultant to the DFJV, Dudek is serving as the DFJV's primary environmental consultant for the CP 2-3 project. Working closely with the DFJV's environmental compliance manager, the Authority, rail delivery partners, the project and construction management team, and the Federal Rail Authority, the Dudek team is responsible for meeting all of the environmental commitments contained within the CP 2-3's contracting documents that cover pre-construction environmental activities.

State Water Project As-Needed Services, California Department of Water Resources, California. Period of service from August 2019 to current. Serves as the lead wildlife biologist evaluating survey needs and coordinating surveys, methodology, scoping, and data collection strategy for advanced mitigation planning and permitting in conjunction with two HCPs and a Dam retrofit project at San Luis Reservoir that Dudek is preparing for this statewide facility. Species include listed fairy shrimp, Crotch bumblebee and several reptiles, mammals, and birds. Also, a participant in agency coordination regarding methods and permitting strategy for this effort. Responsible for biological survey strategy and methodology for several other smaller tasks.

Fanita Ranch, HomeFed Fanita Rancho, LLC, San Diego, California. Has served as the project and

habitat restoration plans, trail management plans, and species management plans. In the process of preparing Section 7 consultation documents for endangered species permitting.

Casey's June Beetle Range-wide Study, USFWS, Palm Desert, California. Serves as the CDFA Grant holder and participant in a USFWS-led study. The Casey's June Beetle Dietary and Subsoil Use Study, began in 2015 and will conclude in 2021. The study includes investigating optimal soil conditions, dietary needs, life span, genetic testing, mark-recapture to determine movement patterns, and test telemetry options for the critically endangered beetle.

Landmark Village Project, Newhall Land and Farming Company, Los Angeles County, California. Supervisory biologist for habitat assessments and focused surveys in 2007 for least Bell's vireo, California gnatcatcher (*Polioptila californica*), western spadefoot, and vernal pool surveys on 145 acres of land. Assisted in study design, focused surveys, and analysis.

Mission Village Project, Newhall Land and Farming Company, Los Angeles County, California. Supervisory biologist for habitat assessments and focused surveys in 2007 for least Bell's vireo, western spadefoot, vernal pool species and California gnatcatcher on 520 acres of land. Assisted in study design, focused surveys, and analysis.

California State University, Dominguez Hills, Los Angeles County, California. Project manager and lead biologist responsible for conducting wet and dry-season surveys of potential pools located on the campus. The goal was to identify whether there were shrimp on site, culture them if present, then hatch and identify them to species. Identification of non-listed species allow for development of infill portions of the campus.

4S Kelwood/4S Ranch, Newland Communities, San Diego County, California. Served as primary wildlife biologist for this project. Conducted habitat assessments and surveys for least Bell's vireo, California gnatcatcher, clapper rail (*Rallus longirostris*), southwestern pond turtle, and Quino checkerspot butterfly (*Euphydryas editha quino*). In addition, conducted a wildlife movement analysis across the property and monitored construction and removal of vegetation.

Trabuco Canyon, The Planning Center, Orange County, California. Lead wildlife biologist for preparation of biological technical reports for California Environmental Quality Act (CEQA) documentation for the Trabuco Canyon Project, which encompasses over 1,110 acres. Managed and conducted a 2.5-year wildlife corridor study program, focused surveys for least Bell's vireo and southwestern willow flycatcher, focused surveys for arroyo toad, habitat assessments and focused surveys for burrowing owl (*Athene cunicularia*), focused California gnatcatcher surveys, nesting raptor surveys, California red-legged frog surveys, and fairy shrimp surveys.

(U.S. Army Corps of Engineers). Responsibilities included reviewing daily reports, directing monitoring staff if issues arose, conducting periodic site visits, and coordinating with regulatory agencies as necessary.

Tierra Del Sol Solar Project, Tierra Del Sol Farm Solar LLC, San Diego County, California. Served as principal biologist. Conducted vegetation mapping, raptor surveys, and Quino checkerspot (*Euphydryas editha quino*) surveys for the 420-acre solar development site located within an unincorporated section of San Diego County. Prepared the biological resources technical report in accordance with the County of San Diego's guidelines; and attended public outreach meetings.

Tule Wind Project As-Needed Environmental Services, Iberdrola Renewables Inc; San Diego County, California. Serves as principal biologist and task manager. Dudek was initially contracted to conduct a habitat assessment for Quino checkerspot butterfly at the Tule project site in McCain Valley, in southeastern San Diego County. According to USFWS guidelines, habitat assessments are required to identify suitable vegetation structure and determine the presence/absence of suitable host and nectar plant species used by the Quino. Areas identified as suitable habitat then required focused surveys, according to USFWS protocol, by Dudek's USFWS-permitted biologists. Dudek conducted Quino surveys within the Cuyapaipe, BLM, and state lands along approximately a 10-mile, 1,000-foot-wide corridor of proposed wind turbines and access roads, as well as two, 10-acre substation sites and a 100-foot-wide corridor for 10 miles in McCain Valley, proposed for overhead transmission lines. The survey results mapped and characterized the vegetation communities using GIS technology, and all suitable Quino habitat was mapped, identified, and described in a project report. The Quino survey work was later expanded to include approximately 400 additional acres located on Rough Acres Ranch north of McCain Road, and an additional 1,000-foot-wide corridor designated as an anticipated "action area" for wind turbine projects.

Tierra del Sol Project Biological Surveys, Invenergy Wind Development LLC, San Diego County, California. Served as lead biologist and task manager. Dudek was contracted to conduct a biological constraints-level survey of the 150-acre Tierra del Sol parcel located in San Diego County. Vegetation communities were mapped in accordance to Holland nomenclature and County of San Diego requirements. A general inventory of plant and animal species was compiled as well as a determination of potential special-status species that could occur on the site. All data were compiled in GIS digital format and added to a Biological Resources Map. Also, specifically, a Quino checkerspot butterfly survey was conducted on the site, and Dudek biologists assessed the suitability of the site as habitat for this protected species. In general, Dudek's initial work on the project identified potential biological issues before the client submits any applications to proceed on the project to the County of San Diego.

Torrey Wind Project, Terra-Gen, LLC, San Diego County, California. As principal biologist, directed all biological studies for proposed wind farm on 2,000 acres in accordance with CEQA and County requirements including those for Peninsular bighorn sheep, quino checkerspot butterfly, least Bell's vireo, rare plants, vegetation mapping, jurisdictional delineations, and others; designed and managed extensive

and eagle studies in support of future wind operations; coordinated with the USFWS eagle coordinator and state counterparts regarding avian and bat studies and analysis; prepared separate technical reports for the BIA and County of San Diego; wrote BBCS and prepared an eagle analysis; used USGS data to create a novel eagle analysis package; assisted both lead agencies with Section 7 Endangered Species Act consultation including preparation of a Biological Assessment and mitigation site coordination; assisting in ongoing USFWS avian and eagle consultations.

Baseline Biological Surveys of the Otay Ranch Preserve – Salt Creek and San Ysidro Mountain Parcels, County of San Diego, California. Served as project manager and lead biologist, staffed the project and attended preserve owner/manager meetings as needed. Provided direction on wildlife survey design and directed staff with regard to survey locations and various wildlife studies, including butterfly surveys, avian point-count stations, herp arrays, game camera locations, and small-mammal trapping, within an approximately 1,350-acre area located in Chula Vista, California.

As-Needed Biological and Cultural Resources Surveys and Monitoring, Department of Parks and Recreation, County of San Diego, California. Served as project manager and principal biologist, providing as-needed consulting services for biological and cultural resources. Services included conducting Phase I cultural resources surveys; baseline biological surveys; quino checkerspot butterfly, habitat, wildlife corridor, and sensitive plant and animal species monitoring; and habitat restoration. Prepared technical reports, developed vegetation management plans, and developed public access plans providing analysis and recommendations for potential multiple-use trails and staging areas. Responsible for oversight, wildlife survey design, and staffing for the following projects:

- Baseline Biodiversity and Cultural Survey for the Pascoe, Helix-Lambron, and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve. This project included preparation of a vegetation management plan for the approximately 313-acre area in Escondido, California.
- Baseline Biodiversity and Cultural Survey for the Escondido Creek Preserve. This project included preparation of a vegetation management plan for the approximately 346-acre site in the Elfin Forest.
- Baseline Biodiversity and Cultural Survey for the San Luis Rey River Park. This project included preparation of a trails assessment and vegetation management plan for the approximately 460-acre site in the northern San Diego County area.
- Tijuana River Valley Regional Park Habitat Restoration Project. This 33-acre site is located in southern San Diego County.
- Lusardi Creek Perennial Invasive Vegetation Control and Coastal Sage Scrub Seed Imprinting Project. This project included preconstruction surveys for nesting birds. This approximately 2-acre site is located in the San Dieguito River Valley.
- Santa Ysabel West Perennial Invasive Vegetation Control Project. This approximately 0.26-acre area is a mitigation site in eastern San Diego County.

- Baseline Biodiversity and Cultural Survey for the Potrero/Mason Properties. This project included preparation of a vegetation management plan and access plan. The survey was conducted over an approximately 505-acre area in the Barratt Junction area.

Western Riverside County Multiple Species Habitat Conservation Plan (MSCHP), Riverside County Transportation and Land Management Agency, Riverside County, California. Served as one of the primary biologists for the Western Riverside MSHCP. Responsible for writing species accounts, coverage assessments, and impact assessments for all of the covered reptiles, amphibians, insects, and crustaceans within the planning area. Also responsible for analyzing various wildlife crossing and corridor issues and determining potential methods for safely conveying wildlife across planned roadways. This involved extensive review of current state-of-the-art wildlife underpasses and overpasses within California, nationally, and globally. This also included visiting various sites, such as the Interstate 80 underpasses east of Sacramento. Was responsible for developing the MSHCP-specific burrowing owl protocol. Also participated in implementation of the MSHCP, reviewing proposed projects for consistency with the MSHCP.

Western Riverside County Multiple Species Habitat Conservation Plan (MSCHP), Riverside County Transportation and Land Management Agency, Riverside County, California. Served as one of the primary biologists for the Western Riverside MSHCP. Responsible for writing species accounts and coverage assessments for all of the covered reptiles, amphibians, insects, and crustaceans within the planning area. Also responsible for analyzing various wildlife crossing and corridor issues and determining potential methods for safely conveying wildlife across planned roadways. This involved extensive review of current state-of-the-art wildlife underpasses and overpasses within California, nationally, and globally. This also included visiting various sites, such as the Interstate 80 underpasses east of Sacramento. Also participated in implementation of the MSHCP, reviewing proposed projects for consistency with the MSHCP.

West Coyote Hills Field Closure and Development Project, Chevron USA Production Company and Chevron Pacific Coast Homes, City of Fullerton, Orange County, California. Served as project manager and principal biologist. Performed quino checkerspot butterfly surveys. Assisted Chevron in obtaining a federal Section 4(d) permit to allow closure of the approximately 600-acre oil field. This field was home to between 46 to 80 pairs of California gnatcatchers. Managed environmental compliance regarding endangered species issues and included regular coordination with the USFWS, CDFG, U.S. Army Corps of Engineers, and California Division of Oil and Gas. Served as long-term 4(d) compliance monitor and coordinator for the field closure. Managed and conducted construction worker training seminars, and provided other training materials to educate workers regarding biological resources. Obtained regulatory agency approval of several project changes, including extension of work seasons and impact variances. Prepared and managed implementation of habitat restoration activities benefiting the California gnatcatcher. Prepared, and regularly coordinated with the regulatory agencies regarding, a federal Section 7 Biological Assessment to be included within the USFWS Biological Opinion regarding

for this BMP pilot study that began in 1999 to account for potential endangered species issues related to implementation of BMPs in San Diego and Los Angeles counties. Initially evaluated all proposed structures to determine which had the potential to become attractive nuisances to sensitive wildlife species. Potentially sensitive BMPs were then monitored over a 2-year period to determine their true impact on sensitive species including least Bell's vireo, burrowing owl, and western spadefoot. During this timeframe, Worked with Caltrans, project engineers, scientists, regulatory agencies, and local conservation groups to modify maintenance and facility management regimes to avoid impacts to a wide variety of sensitive species. As a result of this project, it was determined that one type of BMP was at greater risk of becoming an attractive nuisance to threatened and endangered species. At Caltrans' request, formulated a project strategy and initiated discussions with the regulatory agencies to determine a strategy to permit installation of the BMPs on a statewide level. It was determined that the best method would be to employ the Safe Harbors Act or possibly pursue a habitat conservation plan under Section 7 or 10 of the Endangered Species Act. Mr. Ortega evaluated all major highway networks in the state for potential listed species issues. This included a review of existing or proposed wildlife crossings including Highways 50 and 80.

Mid-County Parkway, Riverside County Integrated Project, Riverside County, California. Served as the lead biologist responsible for managing and conducting focused sensitive plant, burrowing owl, least Bell's vireo, southwestern willow flycatcher, and fairy shrimp surveys within the Mid-County Parkway study area, which includes a number of alternatives and ranges from approximately 1.7 kilometer (1.1 mile) to 6.5 kilometers (4 miles) in width and is approximately 52 kilometers (32 miles) in length. In addition, was responsible for devising a cost-effective helicopter survey method for potential fairy-shrimp-occupied pools after rain events, reducing potential survey time from days to 3 hours. Was also responsible for siting and design of at least 15 major and minor wildlife undercrossings and 3 wildlife overcrossings to accommodate reserves in western Riverside County and listed species movement through the reserve.

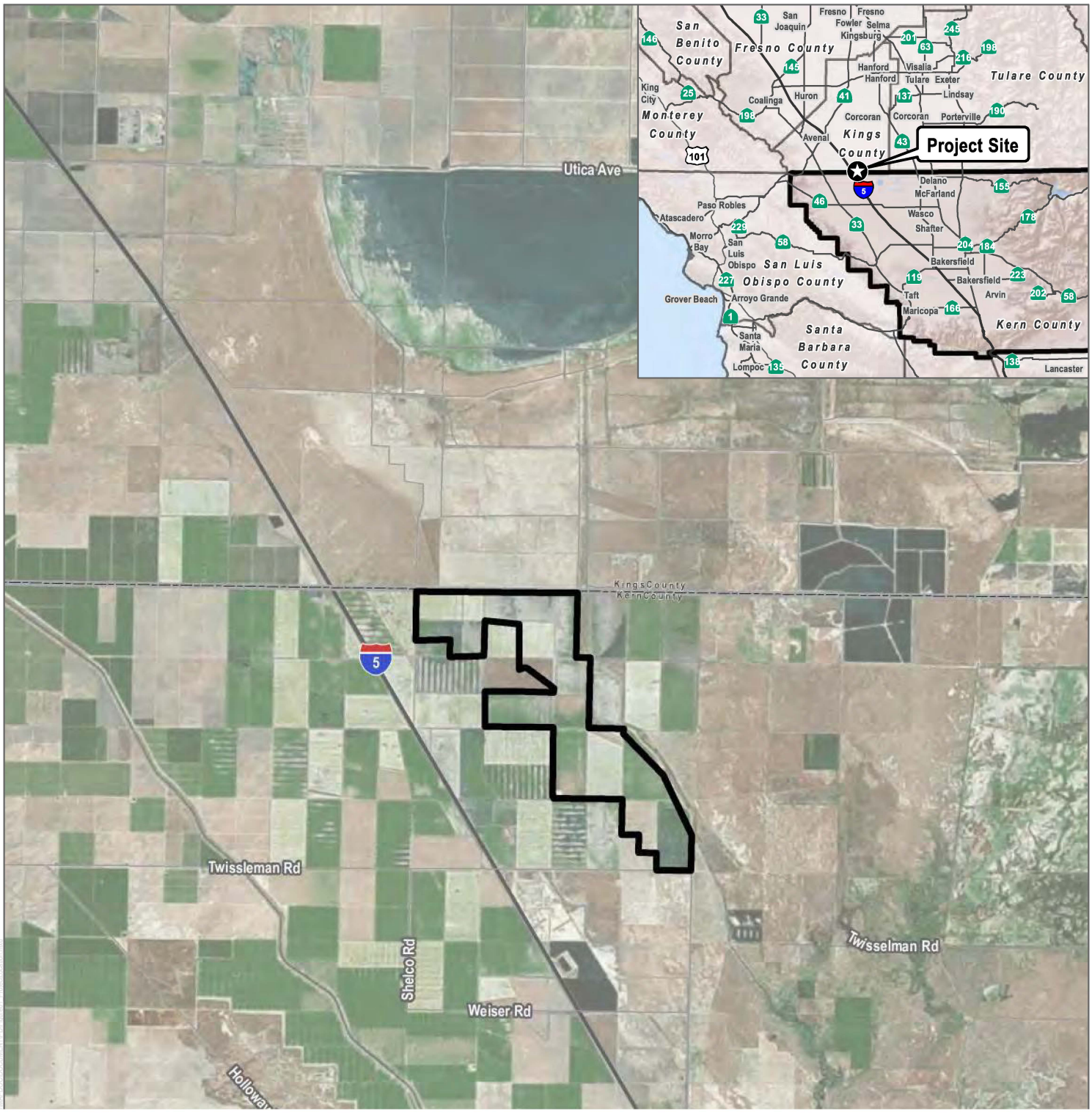
North City Project: Pure Water Program, City of San Diego Public Utilities Department, California. Served as the primary biologist for a joint project EIR and EIS for the City of San Diego Public Utilities Department and the U.S. Bureau of Reclamation. The North City Project is the first phase of the San Diego Pure Water Program for reservoir augmentation with recycled water and involves several pump stations, expanded water treatment facilities, a new advanced water treatment facility, water, wastewater, and brine pipelines, a landfill gas pipeline, and renewable energy facility. The joint EIR/Environmental Impact Statement analyzed two alternatives at an equal level and spanned multiple cities and unincorporated areas of the county. Biological issues included California gnatcatcher, quino checkerspot, pond turtle, fairy shrimp, jurisdictional resources, rare plants, and evaluation of non-native fisheries to address California Department of Fish and Wildlife concerns.

As-Needed Biological Services 2000–2005, San Diego Metropolitan Wastewater Department, City of San Diego, California. Served as primary biologist. Responsibilities included conducting habitat

Multiple Projects, Riverside County Flood Control and Water Conservation District, Riverside County, California. Served as project manager and lead biologist for multiple projects. The projects ranged from multiple-acre detention basins to long and linear conveyance projects. Responsible for conducting biological studies, reporting, mitigation and monitoring plan writing, and wetland permitting. Recently completed two projects that involved widening existing channels in the Salt Creek and Perris Valley areas: 4- and 2-mile-long study areas, respectively. These projects involved conducting biological studies (i.e., vegetation mapping, wetland delineations, and focused surveys for California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, arroyo toad, Quino checkerspot, and sensitive plants), relocating burrowing owls, reporting, and assisting with resource agency permitting as required. Many of the projects required coordination with resource agencies. Most recently, co-wrote their Burrowing Owl Management documents and training session materials.

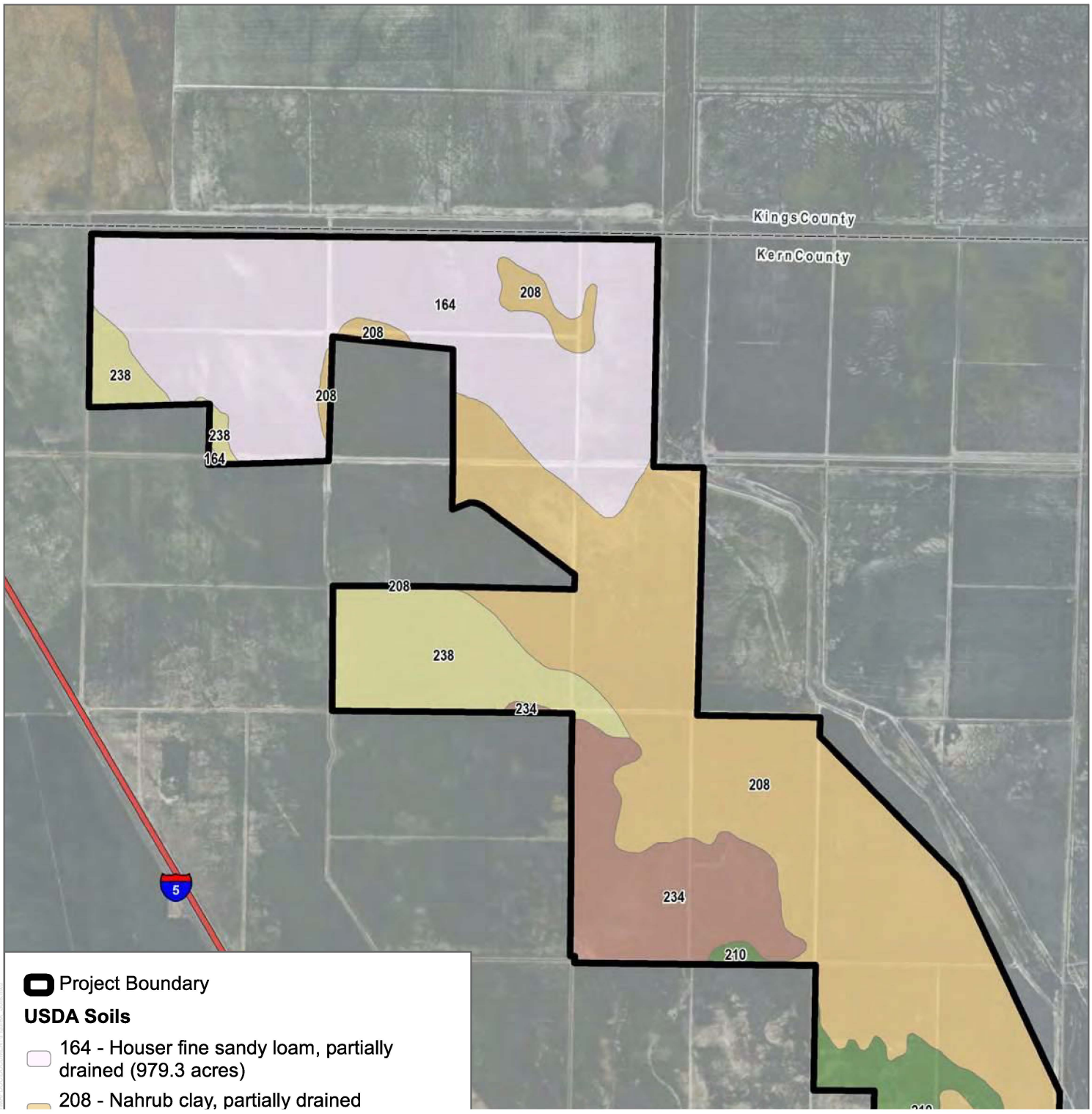
Attachment C

Figure 1 – Project Location


Utica Ave
Kings County
Kern County
5
Twissleman Rd
Shelco Rd
Weiser Rd
Twisselman Rd
Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Fresno
Coalinga
Huron
Avenal
Corcoran
Hanford
Visalia
Tulare
Exeter
Lindsay
Porterville
Delano
McFarland
Wasco
Shafter
Bakersfield
Taft
Arvin
Maricopa
Lancaster
Paso Robles
Atascadero
Morro Bay
San Luis Obispo
Grover Beach
Arroyo Grande
Santa Maria
Lompoc
King City

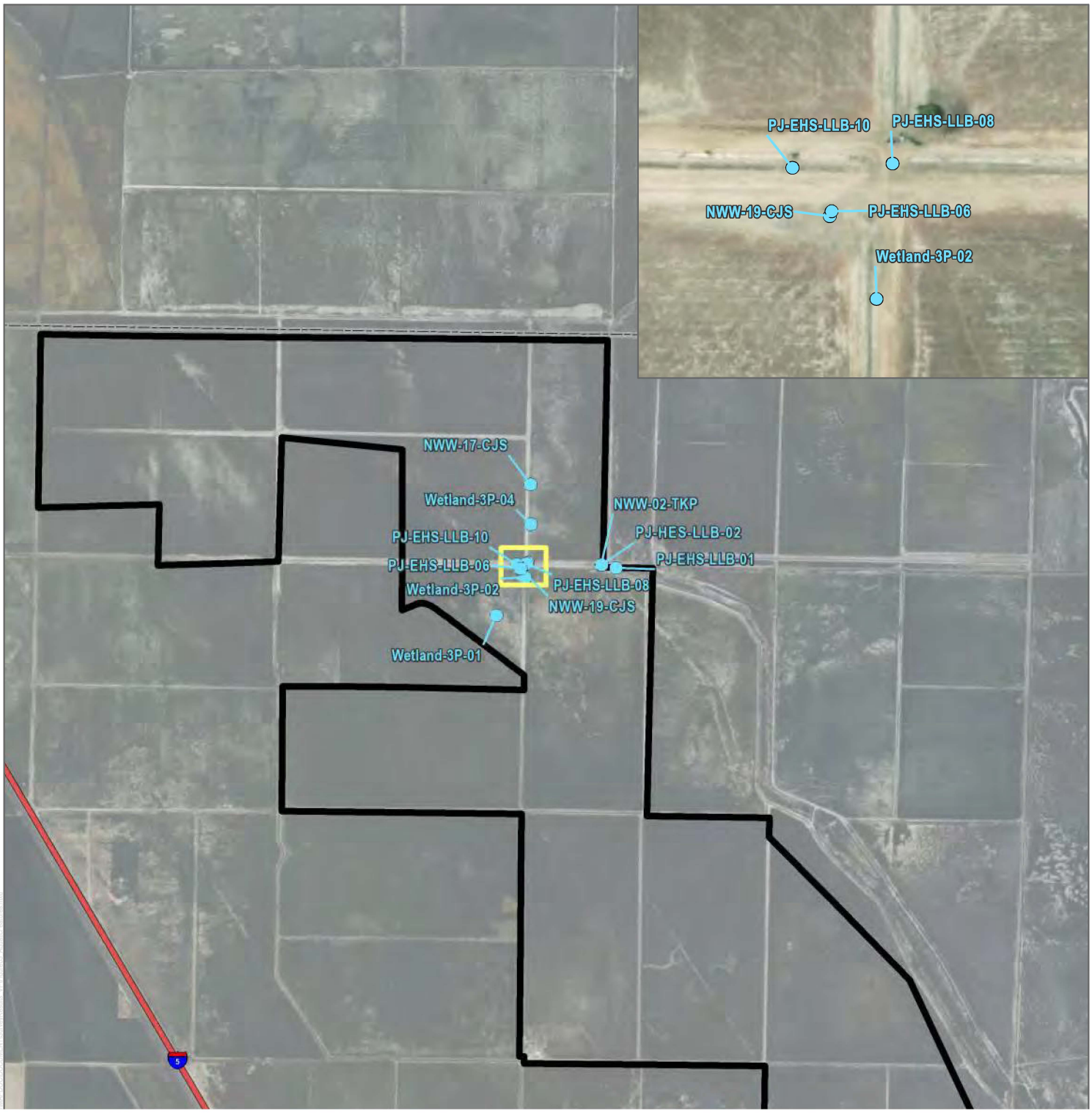
Attachment D

Figure 2 – Project Soils


Kings County
Kern County
164
208
208
238
208
238
164
208
238
234
208
234
210
5
Project Boundary
USDA Soils
164 - Houser fine sandy loam, partially drained (979.3 acres)
208 - Nahrub clay, partially drained

Attachment E

Figure 3 – Aquatic Features


PJ-EHS-LLB-10
PJ-EHS-LLB-08
NWW-19-CJS
PJ-EHS-LLB-06
Wetland-3P-02
NWW-17-CJS
Wetland-3P-04
NWW-02-TKP
PJ-EHS-LLB-10
PJ-HES-LLB-02
PJ-EHS-LLB-06
PJ-EHS-LLB-01
Wetland-3P-02
PJ-EHS-LLB-08
NWW-19-CJS
Wetland-3P-01
5

Attachment F

Photo Record



Photo 1: Photo depicts dry conditions for Feature ID Wetland-3P-01





Photo 3: Photo depicts dry conditions for Feature ID Wetland-3P-04





Photo 5: Photo depicts *Artemia franciscana* collected from Feature ID NWW-02-TKP





Photo 7: Photo depicts dry conditions for Feature ID NWW-19-CJS





Photo 9: Photo depicts wet conditions for Feature ID PJ-EHS-LLB-02





Photo 11: Photo depicts wet conditions for Feature ID PJ-EHS-LLB-08



Appendix H
Plant Species Compendium

Plant Species

Eudicots

AIZOACEAE – FIG-MARIGOLD FAMILY

* *Mesembryanthemum nodiflorum* – slenderleaf iceplant

ASTERACEAE – SUNFLOWER FAMILY

Centromadia pungens ssp. *pungens* – common tarweed
Lasthenia ferrisiae – Ferris' goldfields
Layia glandulosa – whitedaisy tidytips
Malacothrix coulteri – snake's head
Matricaria discoidea – disc mayweed
Psilocarphus brevissimus var. *brevissimus* – short woollyheads
* *Senecio vulgaris* – old-man-in-the-Spring

BORAGINACEAE – BORAGE FAMILY

Amsinckia menziesii – Menzies' fiddleneck
Phacelia ciliata – Great Valley phacelia
Phacelia distans – distant phacelia

BRASSICACEAE – MUSTARD FAMILY

* *Brassica nigra* – black mustard
Caulanthus lasiophyllus – California mustard
Lepidium dictyotum – alkali pepperweed
* Sisymbrium irio – London rocket

CARYOPHYLLACEAE – PINK FAMILY

Spergularia marina – saltmarsh sand-spurrey

CHENOPODIACEAE – GOOSEFOOT FAMILY

Allenrolfea occidentalis – iodine bush
Atriplex argentea – silverscale saltbush

CONVOLVULACEAE – MORNING-GLORY FAMILY

Cressa truxillensis – alkali weed

CRASSULACEAE – STONECROP FAMILY

Crassula connata – sand pygmyweed

FABACEAE – LEGUME FAMILY

Astragalus didymocarpus var. *didymocarpus* – dwarf white milkvetch

* *Medicago falcata* – yellow medick

* *Melilotus indicus* – annual yellow sweetclover

* *Melilotus officinalis* – sweetclover

FRANKENIACEAE – FRANKENIA FAMILY

Frankenia salina – alkali heath

GERANIACEAE – GERANIUM FAMILY

* *Erodium botrys* – longbeak stork's bill

* *Erodium brachycarpum* – shortfruit stork's bill

* *Erodium cicutarium* – redstem stork's bill

MALVACEAE – MALLOW FAMILY

Eremalche parryi ssp. *kernensis* – Kern mallow

* *Malva neglecta* – common mallow

* *Malva parviflora* – cheeseweed mallow

Malvella leprosa – alkali mallow

TAMARICACEAE – TAMARISK FAMILY

* *Tamarix ramosissima* – tamarisk

Monocots

POACEAE – GRASS FAMILY

* *Avena barbata* – slender oat

Bromus arizonicus – Arizona brome

* *Bromus rubens* – red brome

Appendix I

Wildlife Species Compendium

Birds

New World Blackbirds

ICTERIDAE – NEW WORLD BLACKBIRDS

Agelaius phoeniceus – red-winged blackbird

Zenaida macroura – mourning dove

Cuckoos

CUCULIDAE – CUCKOOS

Geococcyx californianus – greater roadrunner

Doves and Pigeons

COLUMBIDAE – DOVES AND PIGEONS

Zenaida macroura – mourning dove

Flycatchers

TYRANNIDAE – TYRANT FLYCATCHERS

Sayornis nigricans – black phoebe

Sayornis saya – Say's phoebe

Hawks

ACCIPITRIDAE – HAWKS, KITES, EAGLES, AND ALLIES

Aquila chrysaetos – golden eagle

Buteo jamaicensis— red-tailed hawk

Buteo swainsoni – Swainson's hawk

Jays, Magpies and Crows

Mockingbirds and Thrashers

MIMIDAE – MOCKINGBIRDS AND THRASHERS

Mimus polyglottos – northern mockingbird

Nightjars

CAPRIMULGIDAE – NIGHTJARS

Chordeiles acutipennis – lesser nighthawk

True Owls

STRIGIDAE – TRUE OWLS

Athene cunicularia – burrowing owl

Bubo virginianus – great horned owl

New World Quails

ODONTOPHORIDAE – NEW WORLD QUAILS

Callipepla californica – California quail

Shrikes

LANIIDAE – SHRIKES

Lanius ludovicianus – loggerhead shrike

Wrens

TROGLODYTIDAE – WRENS

Thryomanes bewickii – Bewick's wren

New World Sparrows

Swallows, Martins, and Saw-Wings

HIRUNDINIDAE – SWALLOWS, MARTINS, AND SAW-WINGS

Petrochelidon pyrrhonota – cliff swallow

New World Vultures

CATHARTIDAE – NEW WORLD VULTURES

Cathartes aura – turkey vulture

Mammals

Canids

CANIDAE – WOLVES AND FOXES

Vulpes macrotis mutica – San Joaquin kit fox

Hares and Rabbits

LEPORIDAE – HARES AND RABBITS

Lepus californicus – black-tailed jackrabbit

Weasels, Badgers, Otters, Ferrets, Martens, and Minks

MUSTELIDAE – WEASELS, BADGERS, OTTERS, FERRETS, MARTENS, AND MINKS

Taxidea taxus – American badger

Reptiles

Lizards

PHRYNOSOMATIDAE – IGUANID LIZARDS

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Appendix J
Representative Photos



Photo 1. Representative photo of dense burrows (6/10/20).



Photo 2. Representative photo of canal within APN 044-110-01 (6/10/20).



Photo 3. Representative photo of APN 044-150-05 (6/10/20).



Photo 4. Representative photo of APN 044-130-21 (6/10/20).



Photo 5. Representative photo of disturbed levee road and adjacent non-native grassland within connection line (9/14/22).



Photo 6. Representative photo of a barren depressional area associated with leaking cattle trough infrastructure (9/14/22).



Photo 7. Representative photo of non-native upland grasses, red brome and mouse barley (9/14/22).



Photo 8. Representative photo of bush seepweed, crownscale, and sand spurrey within a seasonal wetland (9/14/22).



Photo 9. Representative photo of creosote-dominated wash features present within the Biological Study Area (BSA).



Photo 10. Representative photo of AMBA observed on wildlife camera (7/7/21).







Photo 13. Representative photo of SJKF (9/24/22).



Photo 14. Representative photo of SJKF (10/2/22).



Photo 15. Representative photo of SJKF and AMBA (10/17/22).



Photo 16. Representative photo of SJKF (10/17/22).

Appendix K

California Department of Fish and Wildlife
Jurisdictional Report

DRAFT

California Department of Fish and Wildlife Jurisdictional Delineation Report

Pelicans Jaw Hybrid Solar Project

DECEMBER 2022

Prepared for:

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Executive Summary

This jurisdictional delineation report presents a delineation of areas regulated by the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code for the proposed Pelicans Jaw Hybrid Solar Project (project), located in unincorporated Kern County, California. The delineation was conducted to identify and map stream and riparian habitats potentially subject to CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code. CDFW jurisdiction relies on the presence of a lake and/or streambed and associated riparian or wetland habitat. There are no lakes located on the project site. The delineation of streambeds, including those that are episodic (dry for periods of time) and perennial (flow year round) was conducted using the U.S. Army Corps of Engineers Minimum Standards for the Acceptance of Aquatic Resources Delineation Reports (USACE 2017), which allows for an accurate characterization of areas that are anticipated to be regulated pursuant to Section 1602 of the California Fish and Game Code.

Dudek conducted a field delineation in December 2020 and September 2022 to identify aquatic resources in the approximately 3,265-acre review area potentially subject to agency jurisdiction pursuant to regulations in Section 404 of the Clean Water Act. Table ES-1 summarizes the delineation findings. A description of each resource is presented discussed in Section 5.

Table ES-1. CDFW Resource Summary for the Review Area

Figure Reference	Feature Name	Cowardin[1]	Location (Latitude/Longitude; Decimal Degrees)	Acres/linear feet[2]
Stream bed				
6-14	2022-NWW-01	R6	35.76812088, −119.7429908	0.10/85
6-14	2022-NWW-02	R6	35.76832996, −119.7436123	0.06/82
6-18	2022-NWW-03	R6	35.7617392, −119.74287	0.12/200
6-33, 35	NWW-01-CJS	R6	35.73631095, −119.6902139	2.10/2,642
6-34, 35	NWW-01-OLK	R6	35.73242759, −119.6973548	1.77/2,544
6-20 through 6-23	NWW-01-TKP	R6	35.761419, −119.7167978	2.46/2,484

Table ES-1. CDFW Resource Summary for the Review Area

Figure Reference	Feature Name	Cowardin[1]	Location (Latitude/Longitude; Decimal Degrees)	Acres/linear feet[2]
6-28	NWW-04-CJS	R6	35.74675128, −119.707865	0.01/12
6-17, 21	NWW-04-OLK	R6	35.768487, −119.7167222	2.32/4,815
6-27	NWW-05-CJS	R6	35.7467057, −119.716559	0.01/11
6-13, 17	NWW-05-OLK	R6	35.77513895, −119.7176003	0.77/1,044
6-13	NWW-05-TKP	R6	35.77557151, −119.7167554	0.67/1,133
6-22, 26	NWW-06-CJS	R6	35.75041463, −119.7252755	1.48/2,455
6-9, 10	NWW-06-OLK	R6	35.77593444, −119.7446559	1.42/2,432
6-22	NWW-07-CJS	R6	35.75457871, −119.7254028	0.51/1,122
6-10	NWW-07-OLK	R6	35.77591328, −119.7434436	0.06/84
6-4, 6, 12	NWW-08-CJS	R6	35.78257837, −119.7254512	3.24/4,694
6-4, 10	NWW-08-OLK	R6	35.77909437, −119.743346	2.85/4,601
6-12, 14, 15, 16	NWW-09-CJS	R6	35.77207339, −119.7256183	4.06/7,299
6-2 through 6-3	NWW-09-OLK	R6	35.78325216, −119.7492273	2.42/4,826
6-21, 23, 27	NWW-11-CJS	R6	35.7554553, −119.7168438	2.26/4,231
6-27	NWW-12-CJS	R6	35.74843349, −119.7167957	0.78/874
6-16, 20	NWW-13-CJS	R6	35.76499981, −119.7256152	1.63/2,488
6-18, 19, 20, 22	NWW-14-CJS	R6	35.76140534,	4.79/5,151

Table ES-1. CDFW Resource Summary for the Review Area

Figure Reference	Feature Name	Cowardin[1]	Location (Latitude/Longitude; Decimal Degrees)	Acres/linear feet[2]
Riparian				
6-13	Iodine bush	RP1SS	35.77544458, −119.7174431	1.93
			Riparian Subtotal	*1.93/—*

Notes: CDFW = California Department of Fish and Wildlife; OHWM = ordinary high-water mark; NWW = non-wetland water; R6 = riverine, ephemeral; FEMA = Federal Emergency Management Agency; PEM = palustrine, emergent; WET = wetland.
Totals may not sum due to rounding.

1 Pursuant to Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979) and USACE Cowardin Codes for ORM Data Entry (USACE 2022).

2 Totals may not sum due to rounding. Acreage of streambed taken below Top of Bank (TOB).

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APPENDICES

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
APT	Antecedent Precipitation Tool
ARC	Antecedent Runoff Condition
CDFW	California Department of Fish and Wildlife
OHWM	ordinary high-water mark
PDSI	Palmer Drought Severity Index
USACE	U.S. Army Corps of Engineers

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1 Introduction

This report presents the results of Dudek's delineation of areas regulated by the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code for the proposed Pelicans Jaw Hybrid Solar Project (project), located in unincorporated Kern County, California. The delineation was conducted to identify and map stream and riparian habitats potentially subject to CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code. CDFW jurisdiction relies on the presence of a lake and/or streambed and associated riparian or wetland habitat. There are no lakes located on the project site. CDFW's regulations define *lakes* as "natural lakes or man-made reservoirs" (14 California Code of Regulations [CCR] Section 1.56) and *stream* 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 water courses having a surface or subsurface flow that supports or has supported riparian vegetation." (14 CCR Section 1.72). The delineation of streambeds, including those that are episodic (dry for periods of time) and perennial (flow year round) was conducted using the U.S. Army Corps of Engineers (USACE) Minimum Standards for the Acceptance of Aquatic Resources Delineation Reports (USACE 2017), which allows for an accurate characterization of areas that are anticipated to be regulated pursuant to Section 1602 of the California Fish and Game Code. Although this report was prepared to support the environmental impact report for the project, under preparation by Kern County, and the assessment of the potential need for the project to obtain a Lake and Streambed Alteration Agreement, the USACE template is utilized for this CDFW report to ensure consistency in the information provided to USACE, the Regional Water Quality Control Board, CDFW, and Kern County.

1.1 Disclaimer Statement

This report presents Dudek's best effort to quantify the extent of resources potentially regulated by CDFW pursuant to Section 1602 of the California Fish and Game Code within the identified review area using the current regulations, written policies, and current standards. The potential jurisdictional boundaries described in this report are subject to verification by CDFW. Only CDFW can make a final determination on whether the features present are subject to CDFW regulation.

1.2 Contact Information

Contact information for the project applicant and agent are provided in Table 1. Access to the review area is not restricted, but if a site visit is requested, the project applicant or agent will accompany regulatory staff to the review area. Pelicans Jaw Solar LLC is the project applicant.

Table 1. Contact Information

Project	Pelicans Jaw Solar LLC	**Agent**	Sapphos Environmental Inc.

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2 Review Area Description and Landscape Setting

The approximately 3,265-acre review area spans privately owned land generally located between Kettleman City and Lost Hills in unincorporated Kern County, California (Figure 1, Vicinity). The project site is designated as Vacant or Disturbed Land, Grazing Land, and Nonagricultural or Natural Vegetation according to the Farmland Mapping and Monitoring Program (DOC 2018). The project site and surrounding properties are currently vacant and have been used for cattle and sheep grazing over the past 10 years. No crop cultivation has occurred within the last 10 years on project site, between the years 2012 and 2022 (Wonderful Orchards 2022).

The review area is within the U.S. Geological Survey 7.5-minute West Camp, Lone Tree Well, and Lost Hills NW quadrangle maps, Sections 4, 5, 6, 7, 8, 9, 15, 16, 17, 21, 22, 23, 27 of Township 25S, Range 21E. The approximate geographic center of the review area is −119.72327232, 35.764842. The review area consists of 26 parcels: Assessor's Parcel Numbers (APNs) 044-101-02, 044-101-03, 044-101-05, 044-101-06, 044-101-11, 044-101-16, 044-102-01, 044-102-03, 044-102-05, 044-102-21, 044-102-22, 044-102-23, 044-103-01, 044-103-04, 044-103-06, 044–103-08, 044-103-09, 044-110-01, 044-110-03, 044-110-25, 044-130-16, 044-130-18, 044-130-21, 044--130-39, 044-150-05, 044-150-17.

To drive to the review area, take Interstate 5 North or South to exit 288, then turn east onto Twisselman Road. Drive approximately 3 miles to the intersection of Twisselman Road and Lost Hills Road, and the review area will be located immediately to the north.

2.1 Geology and Topography

The review area is comprised of privately owned rangeland bordered by Twisselman Road to the south, the Kern River Channel (portions of which are channelized as the Kern River Flood Canals) to the east, Kern/ Kings County line to the north, and Interstate 5 to the west. The elevations on site range from 211 feet above mean sea level to 222 feet above mean sea level (Figure 2, USGS Topographic Map). The review area is situated within a matrix of agricultural land uses including rangeland, row crops, and orchards.

2.2 Soils

Soil types within the review area are shown on Figure 3 and in Table 2. The review area is comprised primarily of partially hydric soils (USDA 2022a).

Table 2. Soils within the Pelicans Jaw Hybrid Solar Review Area

Symbol	Soil Name	Hydric Rating	Acreage
234	Twisselman sandy loam, saline-alkali, moderately wet, 0% to 2% slopes	Not hydric	321
		Total	**3,224**

Sources: USDA 2022a.
Note: Totals may not sum due to rounding. Table 2 acreage calculations are based on GIS data provided by Kern County. The acreage calculations do not include access roads. In accordance with property title reports, the project is estimated to include approximately 3,273 acres

All soil series mapped on the site are characterized as moderately to very strongly alkaline (pH of 7.9 or higher) and are thus considered naturally problematic due to the conditions that can inhibit the formation of redoximorphic concentrations used to identify hydric soils in the field (USACE 2008). Salt accumulation and deposits were also observed on and in soils during the delineation, indicating saline conditions.

2.3 Vegetation

As described in Section 2.6, Review Area Alterations, Current and Past Land Use, the review area has been modified and farmed for more than 65 years. Because of this long-term disturbance, the review area is predominantly comprised of upland non-native grassland communities with the exception of several isolated areas of highly disturbed wetland plant communities—iodinebush (*Allenrolfea occidentalis*) association, saltmarsh salt-spurrey (*Spergularia marina*) alliance, bush seepweed (*Suaeda moquinii*) association, tamarisk (*Tamarix* spp.) association, and common tarplant (*Centromadia pungens*) alliance—and human-made channels associated with the adjacent Kern River Channel, which intersects a northeastern corner of the review area (see Figure 4, Vegetation Communities and Land Covers). All these plant species are rated by the National Wetland Plant List (USACE 2020a) as obligate, facultative wet, and facultative plants (all considered to be USACE wetland indicators). Additionally, these plants are halophytes (salt-loving plant species), which are often associated with ephemeral wetland conditions in the Arid West (USACE 2008). Plants designated as obligate, facultative wet, and facultative plants by USACE would also be considered CDFW riparian habitat pursuant to the California Fish and Game Code when they occur in conjunction with a lake, river, or stream. Table 3 summarizes the vegetation communities within the review area.

Table 3. Vegetation Communities within the Pelicans Jaw Hybrid Solar Review Area

Vegetation Community or Land Cover	Acreage
Allenrolfea occidentalis association (FACW)	3
Bassia (*hyssopifolia scoparia*) Semi-natural Association	75

Table 3. Vegetation Communities within the Pelicans Jaw Hybrid Solar Review Area

Vegetation Community or Land Cover	Acreage
Suaeda nigra (*moquinii*) Association (OBL)	4
Tamarisk ramosissima Tamarisk Thickets Semi-Natural Alliance (FAC)	2
Urban/Developed	1
Total	**3,265**

Notes: FACW = facultative wetland; FAC = facultative; OBL = obligate (wetland).

2.4 Watershed and Hydrology

The review area is located within the Antelope Plain Watershed (HUC-10 1803001215) and Lower Kern River Flood Canal-Kern River Channel Watershed (HUC-10 1803001216), which drain 149,827 acres and 93,121 acres of the Tulare Lake Bed Watershed (HUC-8 18030012), respectively (see Figure 5, Hydrologic Resources). The review area is located approximately 10 miles south of the historic Tulare Lakebed, where the Kings, Kaweah, Tule, and Kern Rivers historically converged to form what was once the largest freshwater lake and wetland complex west of the Mississippi River. Tulare Lake historically overflowed north toward the San Joaquin River through a series of natural sloughs during wetter years. River and streams that once drained into the Tulare Lake were diverted for agriculture as early as the 1860s and by 1899 the perennial lake had dried up completely, only to partially fill up during times of flood. The other three large terminal lakes in the region were Kern Lake, Buena Vista Lake, and Goose Lake. The Kern River historically discharged most of its flow into Kern and Buena Vista Lakes, which then overflowed north into Buena Vista Slough towards Tulare Lake during periods of higher flow. Today, all of the Kern River water is used for irrigation, groundwater recharge, or stored in Isabella Reservoir. In years of high runoff volume, Kern River flows can be diverted into the Buena Vista Lakebed or sent north toward Tulare Lake via the Kern River Channel, which originates at the Kern River/Buena Vista Outlet Canal located approximately 40 miles south of the review area. During extremely high flows, excess water can be diverted back into the California Aqueduct via the Kern River Intertie to avoid potentially damaging flows into the Tulare Lakebed (ECORP Consulting Inc. 2007).

The Kern River Channel (Figure 5) is a south-to-north flowing river located between 0 and 2,400 feet east of the review area. This section of the river only sees flow during flood events typically generated east in the Sierra Nevada above Bakersfield (in the headwaters) either through intense rainfall events or periods of above-average snowmelt-runoff. The Kern River Channel parallels the northeastern section of the review area, after which it flows through the Hacienda Spillway before discharging into the enclosed Tulare Lake. The historical flow of the Kern River sustained significant modifications because of farming practices. Construction of levees and straightening of the Kern River into the Kern River Channel has resulted in a straight, leveed demarcation of the Kern River Channel along the eastern boundary of the review area.

The Kern River Channel intersects an eastern corner of the review area and continues off site to the north, eventually terminating into the historic Tulare Lakebed. The ditches on the northeastern edge of the review area are likely associated with the Kern River Channel and appear to connect to the historical Tulare Lake area to the north; these ditches showed evidence of recent use. These ditches are likely actively conveying water south to north beyond the boundaries of the site. Regardless, all ditches on the site appear to receive runoff from upland portions of the site and likely remain inundated for extended periods of time (Dudek 2022). There are several areas outside of the ditches on the review area that appeared to be subject to seasonal ponding and inundation as well, but these are limited to small depressions, road ruts, and generally unvegetated disturbed areas with evidence of cattle grazing. Some of these areas showed clear indicators of wetland hydrology in the form of well-defined surface soil cracking (see seasonal wetland features in Figures 6-1 through 6-35, CDFW Jurisdictional Delineation).

2.5 National Wetland Inventory

The National Wetlands Inventory identifies several additional channels within the review area classified as seasonally flooded (R4SBCx) and semi-permanently flooded (R5UBFx) excavated riverine features and identifies a portion of the Kern River Channel within the review area as excavated, artificially flooded freshwater forest/shrub wetland (PSSKx) (USFWS 2022). The locations of these historical features were investigated for presence of wetland indicators and/or ordinary high water marks (OHWMs) during the delineation but were not identified as potentially jurisdictional features due to lack of wetland characteristics including hydrophytic vegetation, soils, and hydrology.

2.6 Review Area Alterations, Current and Past Land Use

Based on historic aerials and topographic maps, the review area has been modified and farmed for more than 65 years; however, according to a letter from the property owner, the review area has not been farmed since 2012, during which time the land has been used for cattle and sheep grazing (Wonderful Orchards 2022). Watering trough infrastructure and associated unvegetated cattle wallows were observed throughout the review area, in addition to property fence lines, a holding pen and silo, and a solar-powered water pump. The review area remains in a relatively disturbed condition and is predominantly comprised of upland non-native grassland communities as described in Section 2.3, Vegetation.

3 Precipitation Data and Analysis

The USACE-developed Antecedent Precipitation Tool (APT) was used to assess whether the delineation date occurred in a drier, average, or wetter than normal period (USACE 2020b). The APT is also utilized to determine what constitutes a "typical year." The information generated from the APT can help to determine whether normal hydrologic and/or climatic conditions were present during the site visit.

The APT provides three climatological parameters: Palmer Drought Severity Index (PDSI), season, and Antecedent Precipitation Condition. The PDSI is a standardized index calculated on a monthly basis with PDSI value outputs ranging from −4 (extreme drought) to +4 (very wet) (NOAA 2021) to assess long-term drought conditions (i.e., PDSI Class) based on a simplified soil water balance and estimate of relative soil moisture conditions. The APT determines wet vs. dry season based on related procedures provided in the applicable USACE regional supplement for the review area (in this case, the Arid West Supplement). The APT calculates an Antecedent Precipitation Score for a given observation point and observation date using historic precipitation data. The Antecedent Precipitation Score serves as a measurement of precipitation normalcy that translates into a description of precipitation normalcy by the Antecedent Precipitation Condition (e.g., normal, wet, or dry conditions) for the observation point and observation date. If the Antecedent Runoff Condition (ARC) score is less than 10, then the Antecedent Precipitation Condition is classified as drier than normal; normal conditions are present with an ARC score of 10 to 14; conditions are wetter than normal when an ARC score is greater than 14 (USACE 2020b).

Table 4 summarizes the key data extrapolated from the APT output: estimated drought conditions (PDSI Class), wet or dry season determination, ARC score, and Antecedent Precipitation Condition. Based on the APT output provided in Appendix A and summarized in Table 2, the precipitation and climatic conditions for the review area were dried than normal during the time of the December 2020 delineation and wetter than normal during the September 2022 delineation.

Table 4. Antecedent Precipitation Tool Data for the Review Area

Main Field Survey Date	PDSI Class	Season	ARC Score	Antecedent Precipitation Condition
12/16/2020	Severe drought	Wet season	9	Drier than normal
09/15/2022	Extreme drought	Dry season	15	Wetter than normal

Notes: PDSI = Palmer Drought Severity Index; ARC = antecedent runoff condition.

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4 Investigation Methods

Laura Burris is the principal investigator for the jurisdictional delineation and report. Ms. Burris is a biologist with more than 15 years' experience in terrestrial biology. Ms. Burris specializes in botanical surveys, aquatic resources delineations, and the ecological study of vegetation communities for application in environmental review, regulatory permitting, and restoration. She is knowledgeable about the National Environmental Policy Act and California Environmental Quality Act and their processes and is skilled in managing and drafting environmental documents such as aquatic resources delineation reports, biological resource assessments, wetland delineation reports, arborist reports, habitat restoration plans, technical sections of environmental impact reports and environmental impact statements, and regulatory permit applications. Her resume is included in Appendix B.

Field data were collected in accordance with methods outlined in the 1987 USACE Wetlands Delineation Manual (USACE 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). Additional resources potentially jurisdictional under Sections 1600 of the California Fish and Game Code were identified based on definitions of regulated resources such as the presence of a lake and/or streambed (bed and bank) and associated riparian or wetland habitat.

In December 2020, Dudek biologists conducted a preliminary jurisdictional delineation for a larger 5,500-acre area (Dudek 2021) and in September 2022, Dudek biologists returned to verify/update the delineation within the current 3,265-acre review area (which is a subset of the larger 5,500-acre area previously surveyed in 2020) (Table 5).

Table 5. Schedule of the Delineation

Date	Hours	Personnel	Conditions
2020/12/08	7:25 a.m.–4:30 p.m.	Cody Schaaf, Emily Bradford, Mackenzie Forgey, Olivia Koziel, Tracy Park	30°F–57°F; 20%–70% cloud cover; 0–1 mph wind
2020/12/09	7:15 a.m.–4:45 p.m.	Cody Schaaf, Emily Bradford, Mackenzie Forgey, Olivia Koziel, Tracy Park	32°F–59°F; 30%%–60% cloud cover; 0–3 mph wind
2020/12/10	7:20 a.m.–3:30 p.m.	Cody Schaaf, Emily Bradford, Mackenzie Forgey, Olivia Koziel, Tracy Park	37°F–63°F; 0–10% cloud cover; 0–3 mph wind
2020/12/15	7:05 a.m.–4:40 p.m.	Cody Schaaf, Tracy Park	30°F–53°F; 0% cloud cover; 0–5 mph wind
2020/12/16	7:05 a.m.–2:40 p.m.	Cody Schaaf, Tracy Park	27°F–58°F; 0% cloud cover; 0–3 mph wind

4.1 Desktop Review

Prior to conducting the jurisdictional delineation, U.S. Fish and Wildlife Service's National Wetland Inventory data (USFWS 2022) were reviewed to determine if the review area contained any features mapped by the U.S. Fish and Wildlife Service. Site-specific topographical data were reviewed in conjunction with aerials, both current and historical, to determine the potential presence of streambeds. Current vegetation mapping was reviewed to assess whether the review area supported hydrophytic vegetation and potential riparian habitat as defined by CDFW.

As part of the desktop review, current and historical aerial imagery (Google Earth 2022; Historic Aerials 2022) was examined for signatures of inundation and/or saturation that could potentially indicate the presence of an aquatic feature. In historical imagery from 1956, the earliest year imagery available for this region, the review area contained several canals and isolated ponded areas, and what appeared to be a large wetland/swale complex in the south. Historical color infrared imagery from wetter than normal years, including 2006, 2009, and 2018, was also examined for signatures of early plant germination that could potentially indicate inundation and/or saturation (USDA 2022b). These areas were investigated thoroughly during the September 2022 field delineation.

4.2 Field Delineation

The delineation defined areas under the jurisdiction of CDFW pursuant to Sections 1600–1603 of the California Fish and Game Code. CDFW asserts jurisdiction over rivers, streams, lakes, and riparian vegetation associated with these features. Features potentially under the jurisdiction of CDFW were identified by the presence of a bed and bank. A predominance of hydrophytic vegetation, where associated with a potentially jurisdictional feature (such as a linear channel), was used to determined CDFW-regulated riparian habitat. Linear channelized features potentially under the jurisdiction of CDFW were mapped to include the top of bank of the channel and outer dripline of adjacent riparian vegetation, as set forth under California Fish and Game Code Section 1602. Jurisdictional boundaries were mapped in the field using ESRI Collector on a mobile device and a Trimble R1 GNSS Receiver with submeter accuracy. Following the field work, aquatic resources were digitized using ArcGIS.

Wetland determination data forms were completed at 14 sampling points in December 2020 and 30 sampling points in September 2022 to determine the status of three wetland criteria (hydrophytic vegetation, hydric soils, and hydrology) within potential CDFW-jurisdictional aquatic resources of the review area. Within the review area, 16 OHWM datasheets were documented in December 2020 and 1 OHWM datasheet was recorded in September 2022 at areas potentially subject to CDFW jurisdiction pursuant to Section 1602. Data collected within the review area were used to determine the status of OHWM indicators, including presence of a bed and bank, within those features. Wetland determination data forms and OHWM datasheets are included as Appendix C. A discussion of the potential

5 Results of Jurisdictional Delineation

The CDFW jurisdictional delineation resulted in the identification of 59.18 acres potentially regulated by CDFW within the review area, including approximately 57.18 acres (85,500 linear feet) of human-made drainage ditches with defined bed and bank and 1.93 acres of riparian habitat (Figures 6-1 through 6-35). Table 6 provides a detailed summary of aquatic resources delineated within the review area. Table 6 also includes a description of the features identified within the review area; their Cowardin types, if available (Cowardin et al. 1979; USACE 2022); any OHWM indicators present; the location; and the acreage/linear feet.

Photos of the potential aquatic features delineated within the review area, as well as additional areas reviewed for the presence of these resources, are provided in Appendix D. The locations of these photos are shown in Figure 6.

Table 6. CDFW Resource Summary for the Review Area

Figure Reference	Feature Name	Cowardin[1]	Location (Latitude/ Longitude; Decimal Degrees)	Acres/linear feet[2]
Stream bed				
6-14	2022-NWW-01	R6	35.76812088, −119.7429908	0.10/85
6-14	2022-NWW-02	R6	35.76832996, −119.7436123	0.06/82
6-18	2022-NWW-03	R6	35.7617392, −119.74287	0.12/200
6-33, 35	NWW-01-CJS	R6	35.73631095, −119.6902139	2.10/2,642
6-34, 35	NWW-01-OLK	R6	35.73242759, −119.6973548	1.77/2,544
6-20 through 6-23	NWW-01-TKP	R6	35.761419, −119.7167978	2.46/2,484
6-34, 35	NWW-02-CJS	R6	35.73693134, −119.6900581	1.20/2,584
6-29, 32, 34	NWW-02-OLK	R6	35.73589359, −119.6988908	1.82/4,000
6-11 through 6-13	NWW-02-TKP	R6	35.77591888, −119.7299967	4.76/4,230
6-26 through	NWW-03-CJS	R6	35.74687387	8.23/8,959

Table 6. CDFW Resource Summary for the Review Area

Figure Reference	Feature Name	Cowardin[1]	Location (Latitude/ Longitude; Decimal Degrees)	Acres/linear feet[2]
6-13, 17	NWW-05-OLK	R6	35.77513895, −119.7176003	0.77/1,044
6-13	NWW-05-TKP	R6	35.77557151, −119.7167554	0.67/1,133
6-22, 26	NWW-06-CJS	R6	35.75041463, −119.7252755	1.48/2,455
6-9, 10	NWW-06-OLK	R6	35.77593444, −119.7446559	1.42/2,432
6-22	NWW-07-CJS	R6	35.75457871, −119.7254028	0.51/1,122
6-10	NWW-07-OLK	R6	35.77591328, −119.7434436	0.06/84
6-4, 6, 12	NWW-08-CJS	R6	35.78257837, −119.7254512	3.24/4,694
6-4, 10	NWW-08-OLK	R6	35.77909437, −119.743346	2.85/4,601
6-12, 14, 15, 16	NWW-09-CJS	R6	35.77207339, −119.7256183	4.06/7,299
6-2 through 6-3	NWW-09-OLK	R6	35.78325216, −119.7492273	2.42/4,826
6-21, 23, 27	NWW-11-CJS	R6	35.7554553, −119.7168438	2.26/4,231
6-27	NWW-12-CJS	R6	35.74843349, −119.7167957	0.78/874
6-16, 20	NWW-13-CJS	R6	35.76499981, −119.7256152	1.63/2,488
6-18, 19, 20, 22	NWW-14-CJS	R6	35.76140534, −119.7281204	4.79/5,151
6-12	NWW-15-CJS	R6	35.77561398, −119.7256087	0.02/38
6-16, 20, 6-18, 19, 20, 22	NWW-18-CJS	R6	35.78332256, −119.7344194	3.36/5,234
			Streambed Subtotal	*57.18/85.500*

5.1 Streambed

The primary drainage of the review area is the Kern River Channel, which intersects an eastern corner of the review area and exchanges flows with a network of human-made canals on site via gates and culverts. The Kern River Channel continues off site to the north and eventually outlets into the historic Tulare Lakebed. Within the review area, 30 canals comprising 57.18 acres (85,500 linear feet) of streambed, measured to the top of bank of each canal, were identified. Within the review area, the Kern River Channel is comprised of two earthen-bottomed canals (NWW-05-OLK and NWW-05-TKP) dominated by iodine bush and sparse tamarisk below OHWM. A network of 28 additional canals (2022-NWW-01, 2022-NWW-02, 2022-NWW-03, NWW-01-CJS, NWW-01-OLK, NWW-01-TKP, NWW-02-CJS, NWW-02-OLK, NWW-02-TKP, NWW-03-CJS, NWW-03-OLK, NWW-04-CJS, NWW-04-OL, NWW-05-TKP, NWW-06-CJS, NWW-06-OLK, NWW-07-CJS, NWW-07-OLK, NWW-08-CJS, NWW-08-OLK, NWW-09-CJS, NWW-09-OLK, NWW-11-CJS, NWW-12-CJS, NWW-13-CJS, NWW-14-CJS, NWW-15-CJS, NWW-18-CJS) extend west from the Kern River Channel, intersecting the review area and connected via culverts and gates. During the field delineations, these gates were observed to be mostly closed and several culverts were observed to be collapsed or blocked by sediment. The canals supported mostly upland species such as five-hook bassia (*Bassia hyssopifolia*) and Russian thistle (*Salsola tragus*) with sporadic tamarisk stands. These features were dry at the time of the December 2020 and September 2022 field delineations.

5.2 Riparian

There is one area of riparian habitat that comprises 1.93 acres of iodinebush within the review area. This vegetation community is associated with the Kern River Channel and is assumed to be under the jurisdiction of CDFW. Riparian vegetation communities occur along streams, ponds, rivers, and lakes and are considered sensitive because of their high habitat value for native wildlife. Riparian status was determined by the National Wetland Plant List indicator of the dominant species in a community being classified as obligate, facultative wetland, or facultative (USACE 2020a).

5.3 Non-CDFW-Jurisdictional Wetlands

In total, 15 seasonal wetlands comprising 26.27 acres of the review area were identified as waters of the state potentially subject to jurisdiction by CDFW. In general, these seasonal wetlands are characterized by their flat, bottomland landscape position likely to collect or concentrate water; they were mostly barren of vegetation, indicating a period of seasonal inundation that would preclude the dominance of upland species present throughout the surrounding non-native grassland. Where present, vegetation consisted of facultative to obligate wetland plant species, bush seepweed, crownscale (*Atriplex coronata*), Ferris' goldfields (*Lasthenia ferrisiae*), and saltmarsh sand-spurrey. Hydrology was confirmed by surface soil cracks and salt crusts within these features. Soils were naturally problematic due to high alkalinity and were therefore assumed to be hydric due to the presence of other

While all 15 wetlands meet the three USACE-required parameters (soil, hydrology, hydrophytic vegetation), only 5 of them located within the floodplain are anticipated to meet the significant nexus standard as adjacent wetlands. Although they are not directly influenced by the canals on site, they may contain subsurface or flood-stage hydrologic connectivity. Eight seasonal wetlands features located outside of the floodplain were isolated with no connectivity or adjacency to other potentially jurisdictional features. Two human-made wetlands features were wholly created in upland by leaking water pump infrastructure, and therefore would be expected to return to upland under normal conditions (i.e., if the unintentional leak is fixed). Thus, these 10 seasonal wetlands do not meet the current definition of waters of the United States. All except the two human-made wetlands meet the definitions of waters of the state as regulated by the Regional Water Quality Control Board.

None of the 15 seasonal wetlands are located within or directly fed or created by a streambed. Thus, these wetlands are not anticipated to be regulated by CDFW.

6 Results and Conclusions

Based on the jurisdictional delineation and review of relevant information provided in this CDFW Jurisdictional Delineation Report, there area total of 59.11 acres within the project site that are potentially subject to the jurisdiction of CDFW, pursuant to Section 1602 of the California Fish and Game Code. The 59.11 acres of potentially jurisdictional areas include 57.18 acres (85,500 linear feet) of the Kern River Channel and human-made drainage ditches (to top of bank) and 1.93 acres of riparian habitat. The 57.18 acres under the jurisdiction of CDFW were identified by the presence of a bed and bank, and mapped to include the top of bank of the stream/channel and outer dripline of adjacent riparian vegetation. A predominance of hydrophytic vegetation, where associated with a location with a defined bed and bank, was used to determine CDFW-regulated riparian habitat. The GIS data for the delineation are provided digitally.

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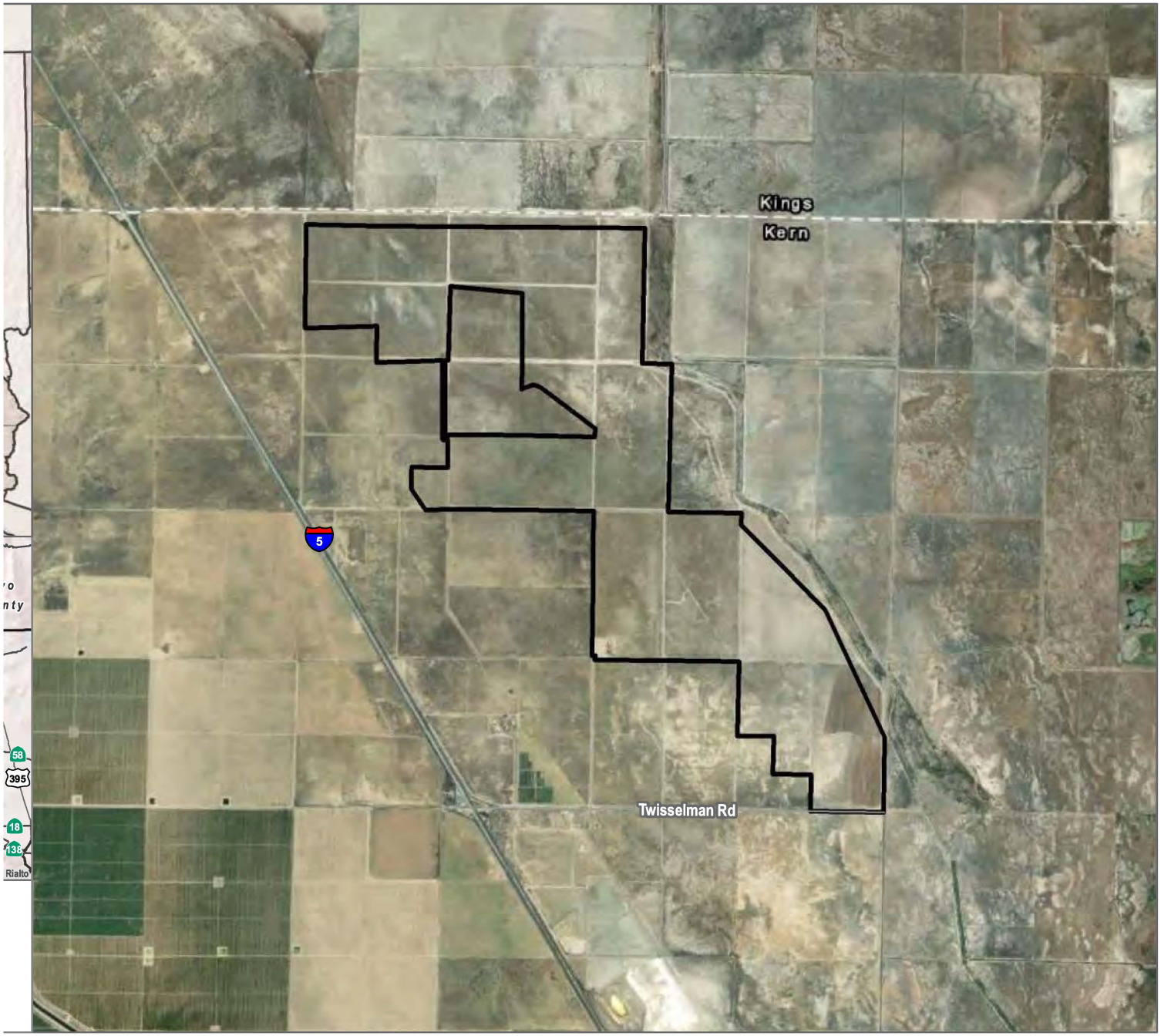


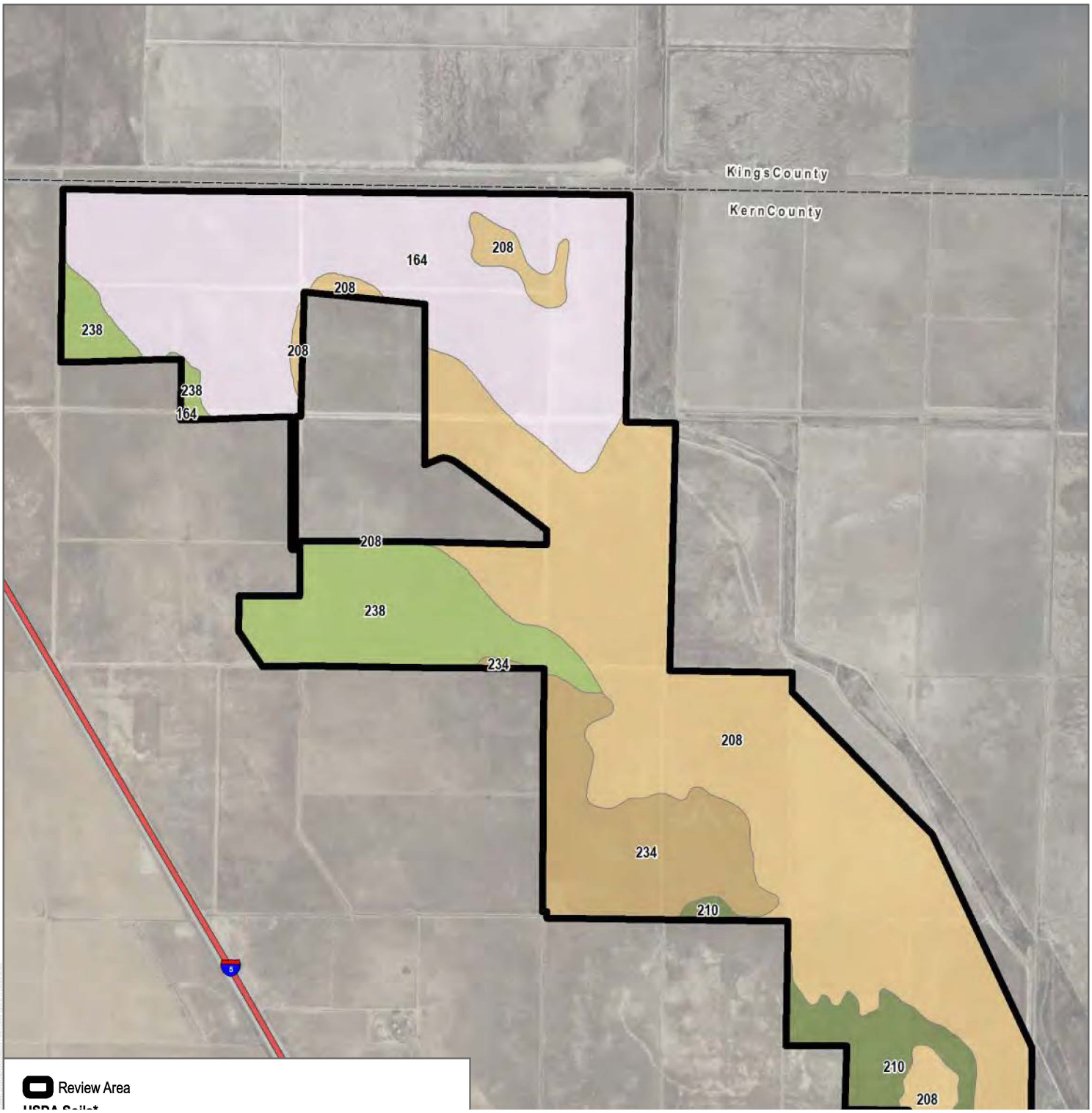
FIGURE 1

Project Location

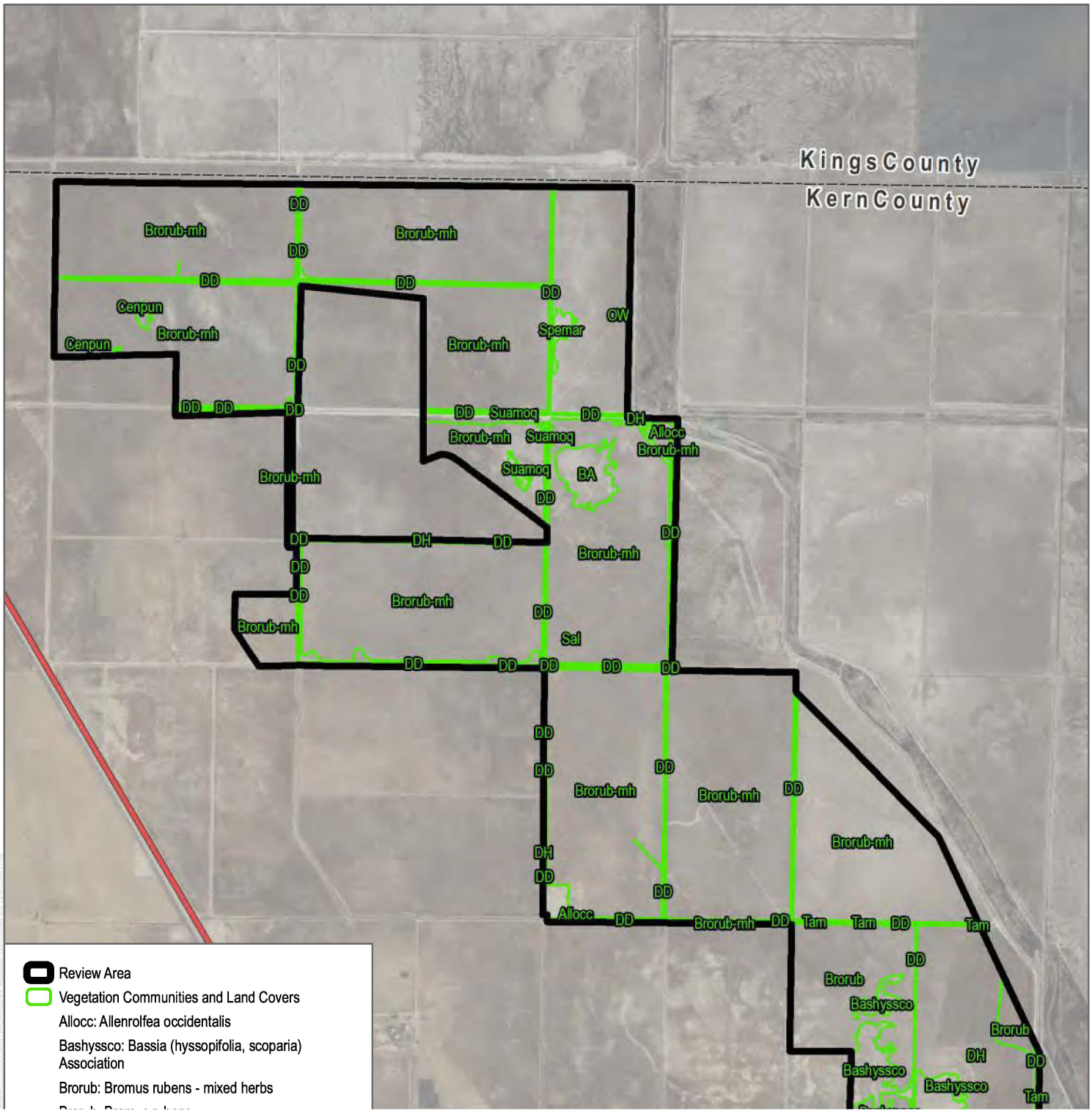
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KINGS CO
KERN CO
Kern River
Channel
LEVEE
PIPE LINE
Pumping Station
APPROXIMATE

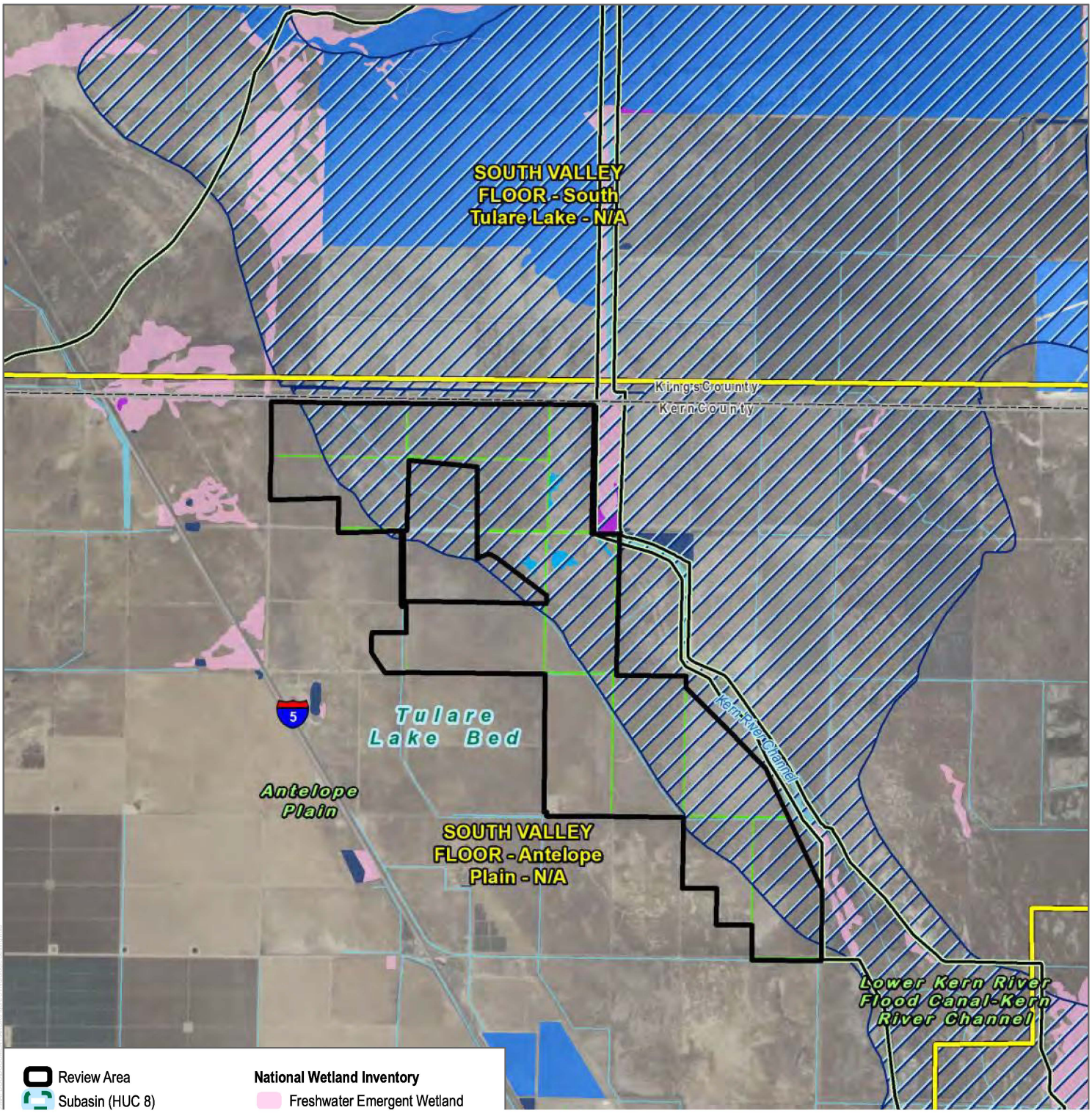
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Kings County
Kern County
164
208
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238
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238
164
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234
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234
210
210
208
Review Area

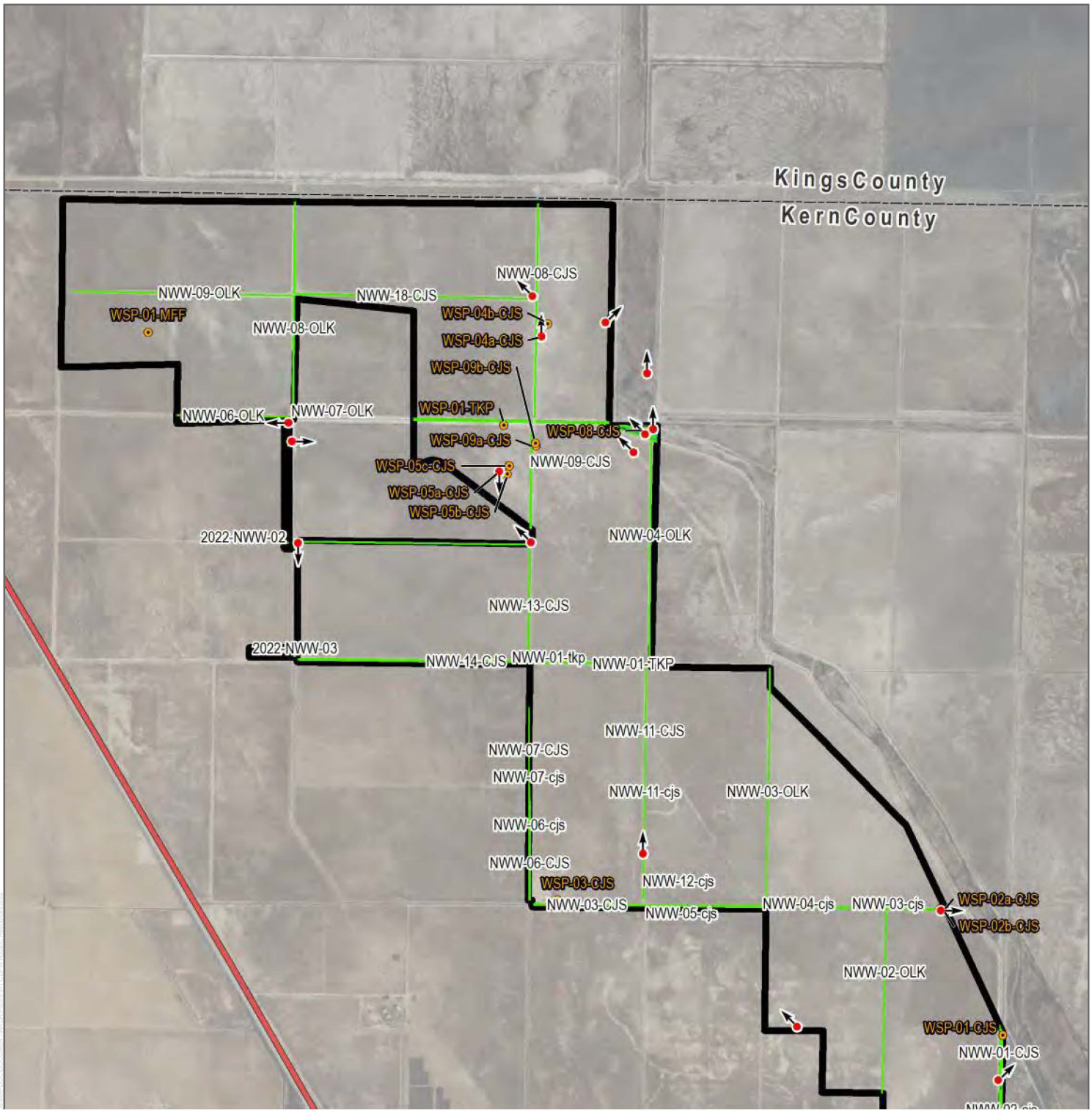
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Kings County
Kern County
DD
Brorub-mh
Cenpun
OW
Spemar
Suamoq
DH
Allocc
BA
Sal
Tam
Brorub
Bashyssco
Review Area
Vegetation Communities and Land Covers
Allocc: Allenrolfea occidentalis
Bashyssco: Bassia (hyssopifolia, scoparia) Association
Brorub: Bromus rubens - mixed herbs

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SOUTH VALLEY FLOOR - South Tulare Lake - N/A
Kings County
Kern County
5
Tulare Lake Bed
Kern River Channel
Antelope Plain
SOUTH VALLEY FLOOR - Antelope Plain - N/A
Lower Kern River Flood Canal-Kern River Channel
Review Area
Subasin (HUC 8)
National Wetland Inventory
Freshwater Emergent Wetland

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Kings County
Kern County
NWW-08-CJS
NWW-09-OLK
NWW-18-CJS
WSP-01-MFF
WSP-04b-CJS
NWW-08-OLK
WSP-04a-CJS
WSP-09b-CJS
NWW-06-OLK
NWW-07-OLK
WSP-01-TKP
WSP-08-CJS
WSP-09a-CJS
NWW-09-CJS
WSP-05c-CJS
WSP-05a-CJS
WSP-05b-CJS
2022-NWW-02
NWW-04-OLK
NWW-13-CJS
2022-NWW-03
NWW-14-CJS
NWW-01-tkp
NWW-01-TKP
NWW-11-CJS
NWW-07-CJS
NWW-07-cjs
NWW-11-cjs
NWW-03-OLK
NWW-06-cjs
NWW-06-CJS
WSP-03-CJS
NWW-12-cjs
NWW-03-CJS
NWW-05-cjs
NWW-04-cjs
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WSP-01-CJS
NWW-01-CJS

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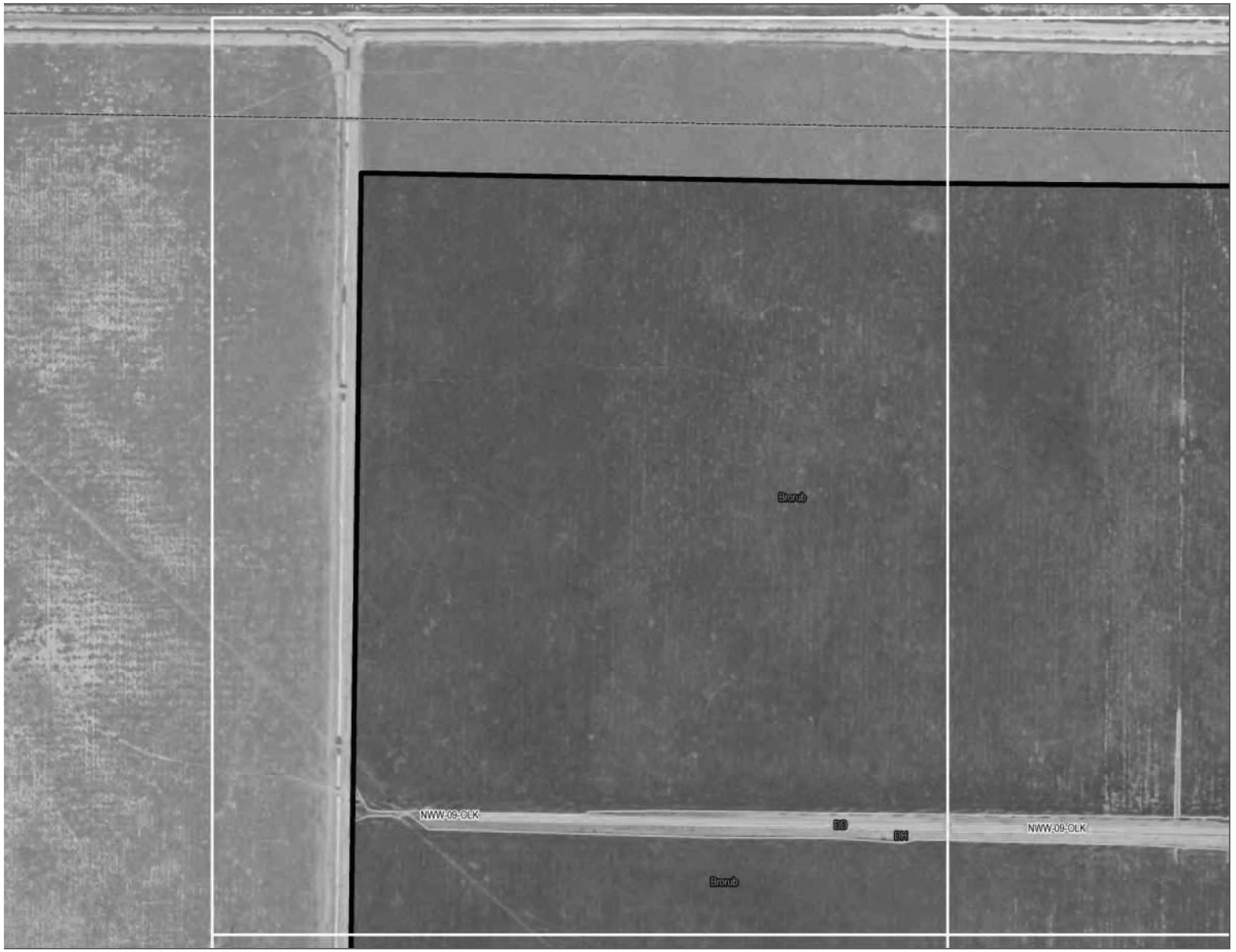


FIGURE 6-2

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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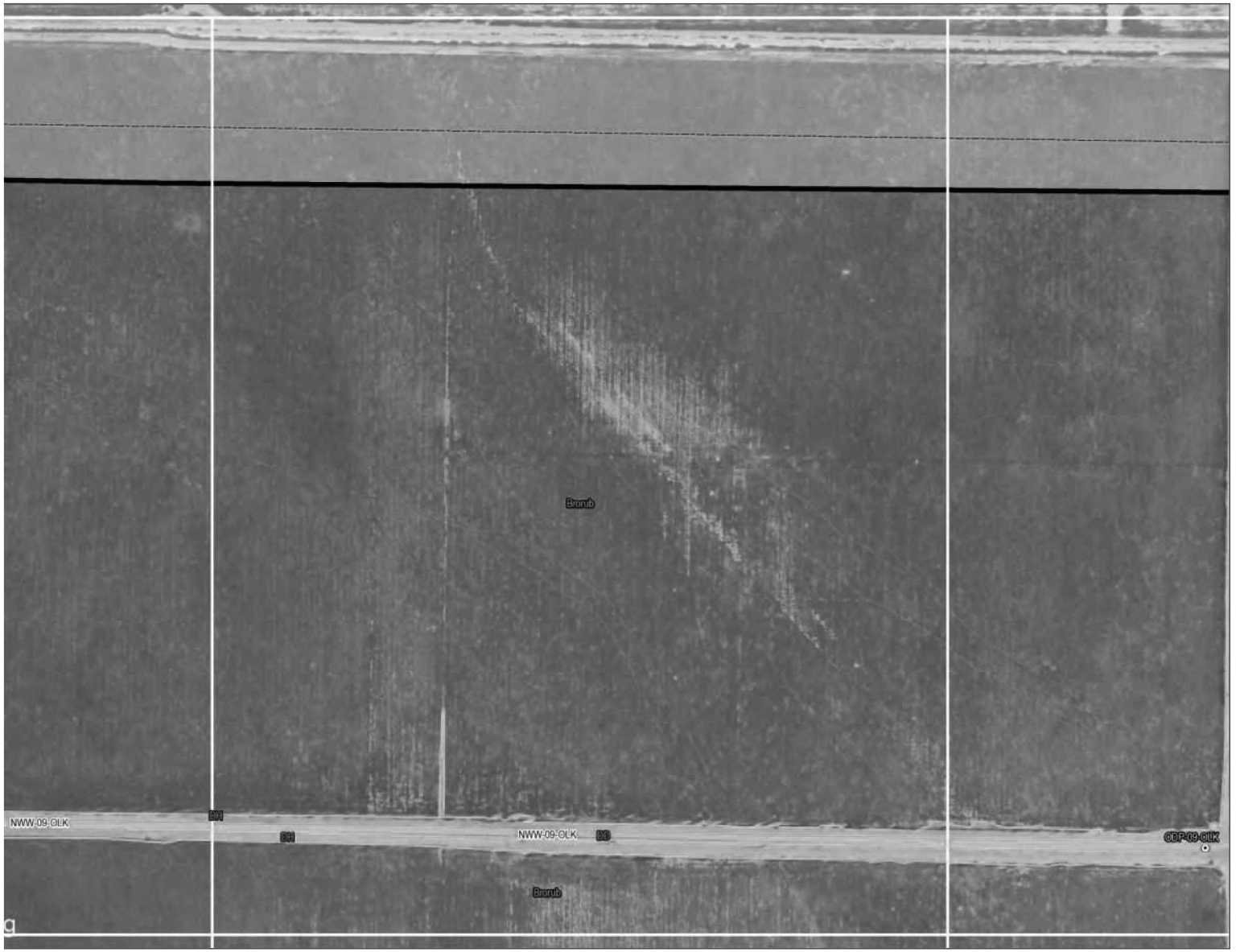


FIGURE 6-3

CDFW Aquatic Delineation

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FIGURE 6-4

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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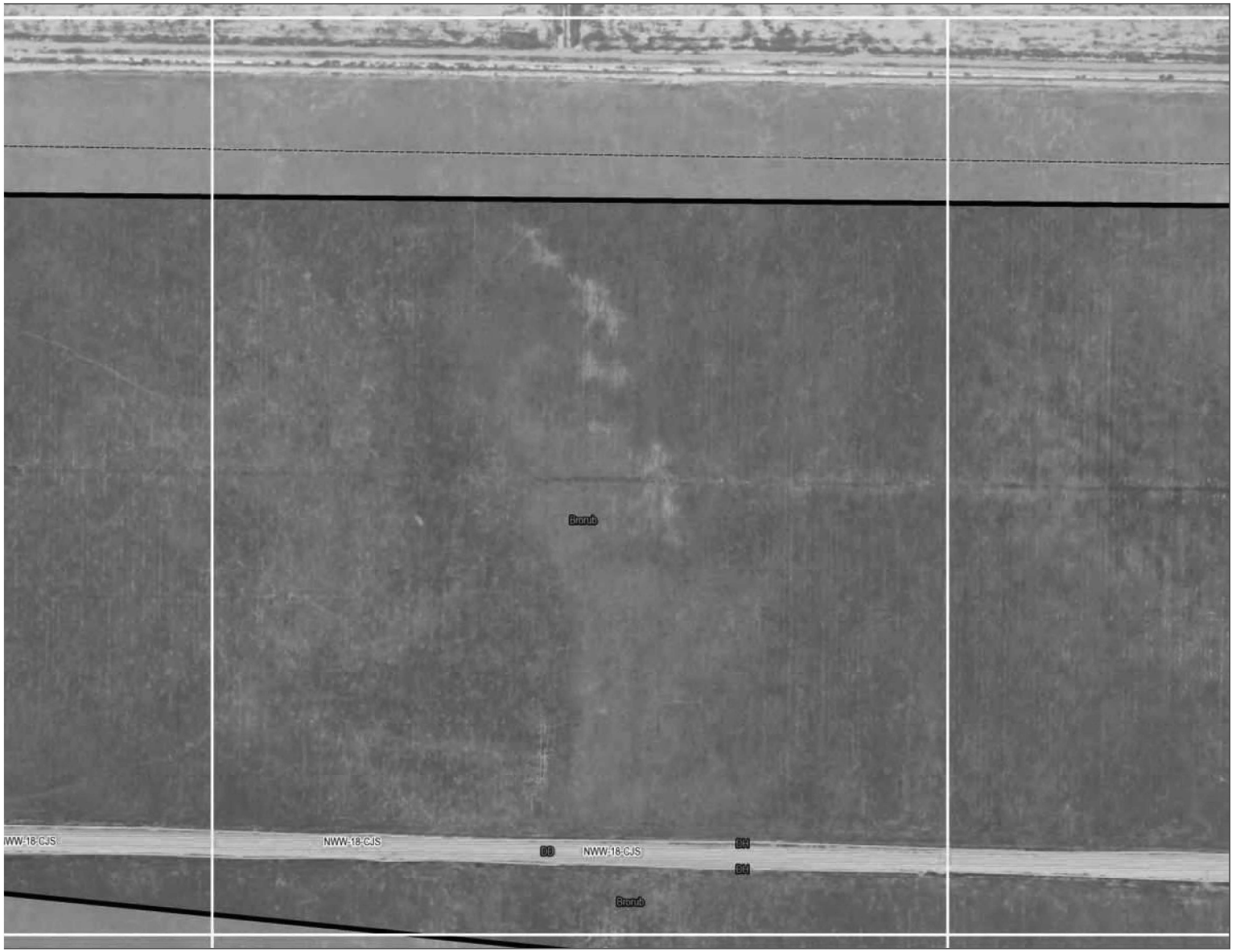


FIGURE 6-5

CDFW Aquatic Delineation

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FIGURE 6-6

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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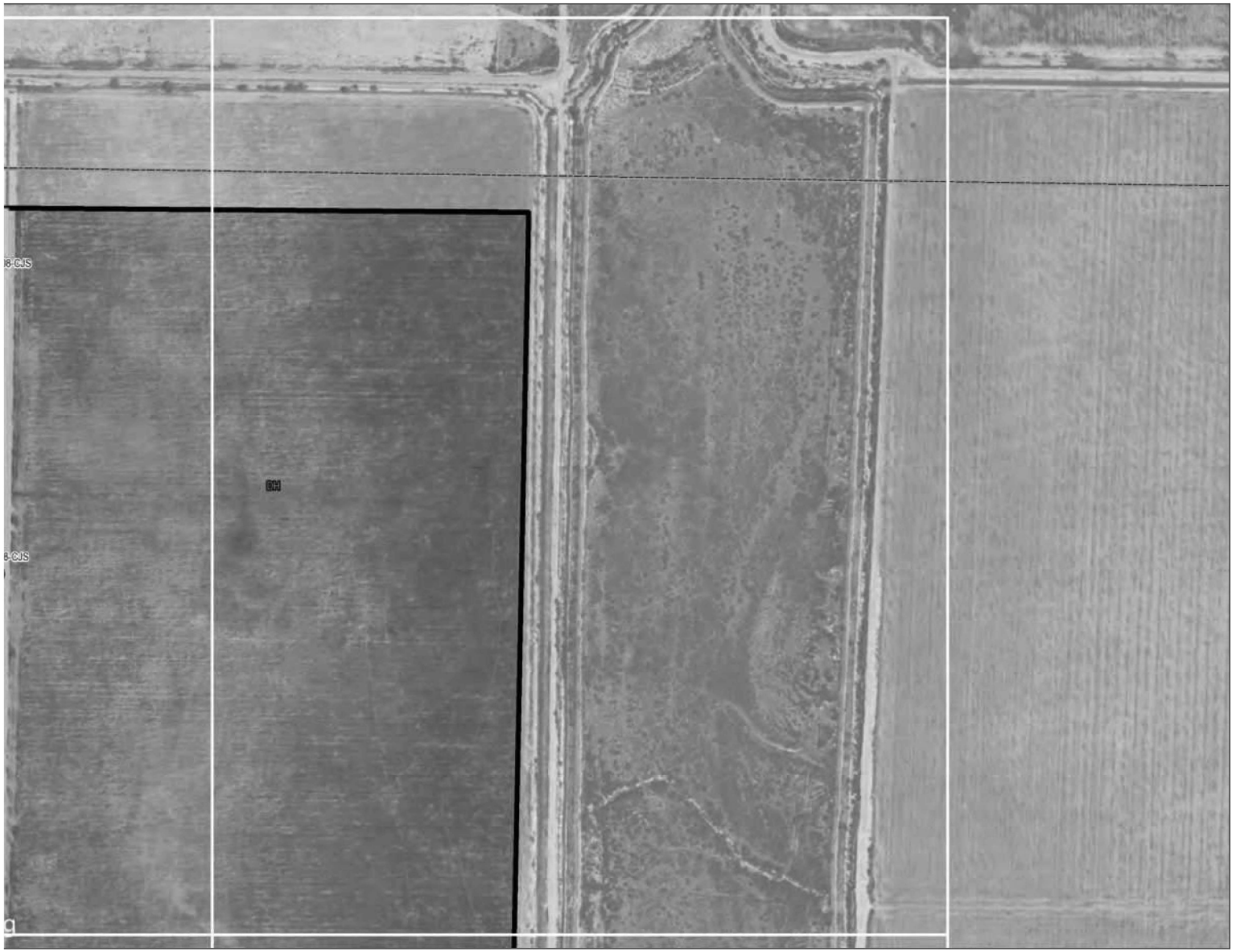


FIGURE 6-7

CDFW Aquatic Delineation

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FIGURE 6-8

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-9

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-10

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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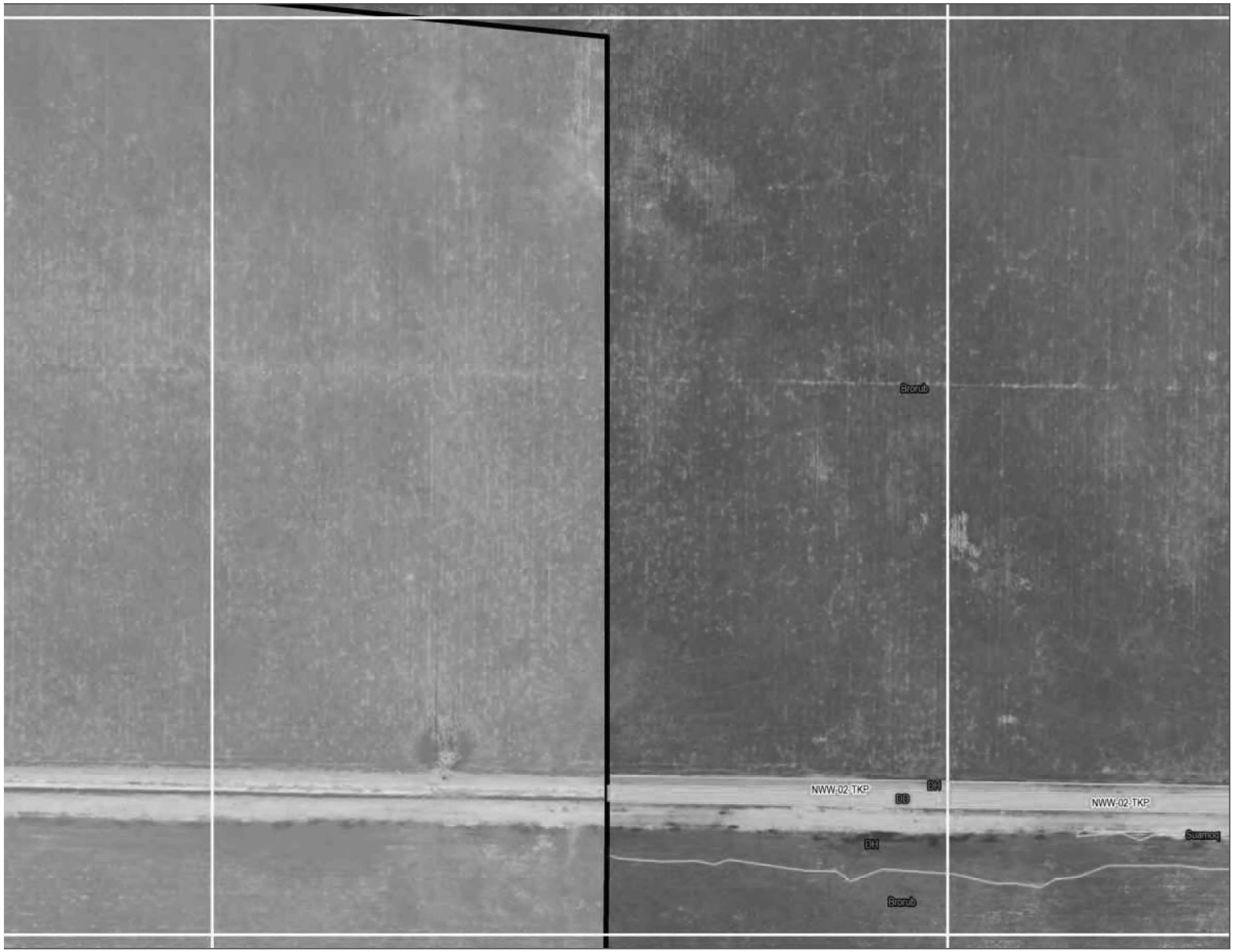


FIGURE 6-11

CDFW Aquatic Delineation

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FIGURE 6-12

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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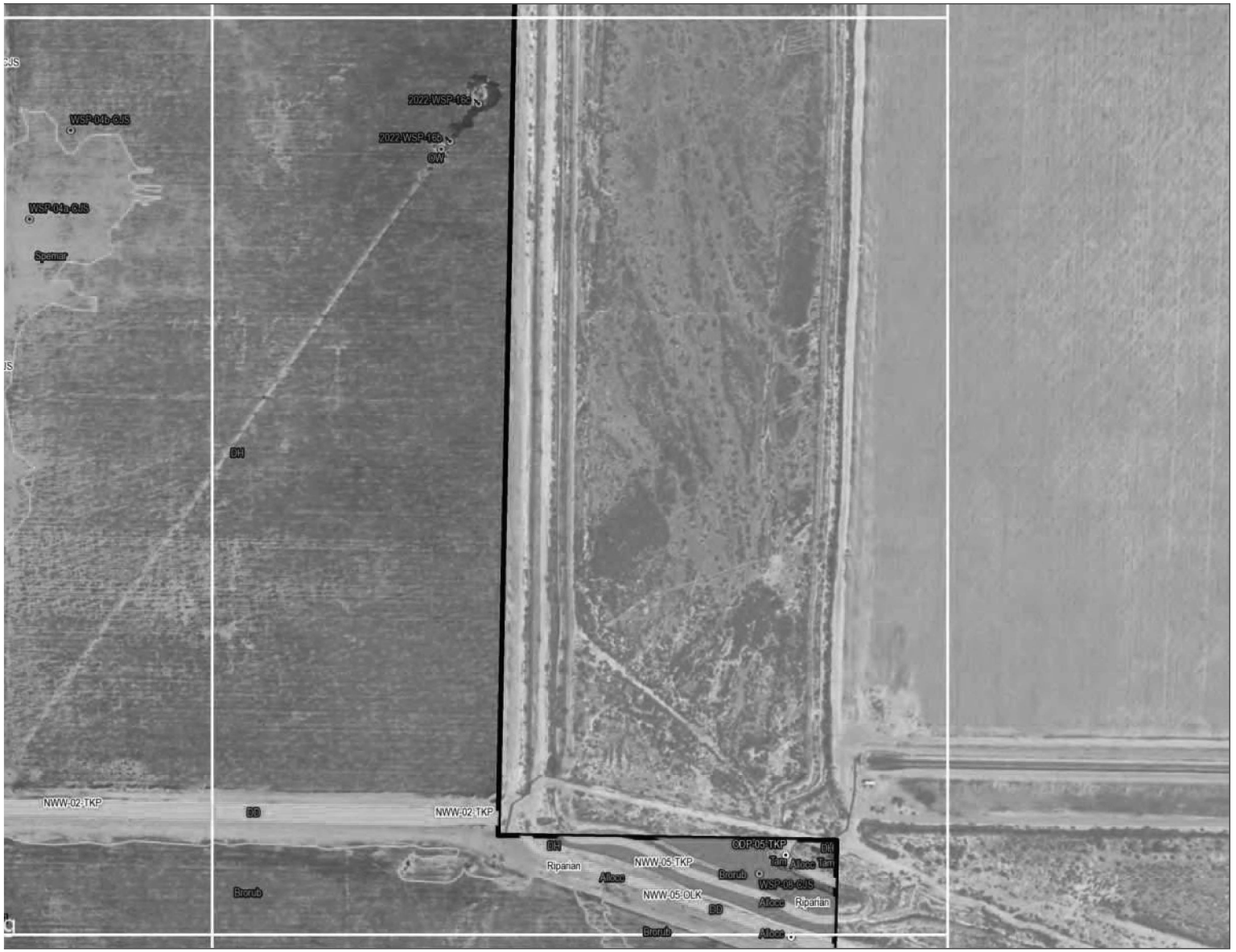


FIGURE 6-13

CDFW Aquatic Delineation

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FIGURE 6-14

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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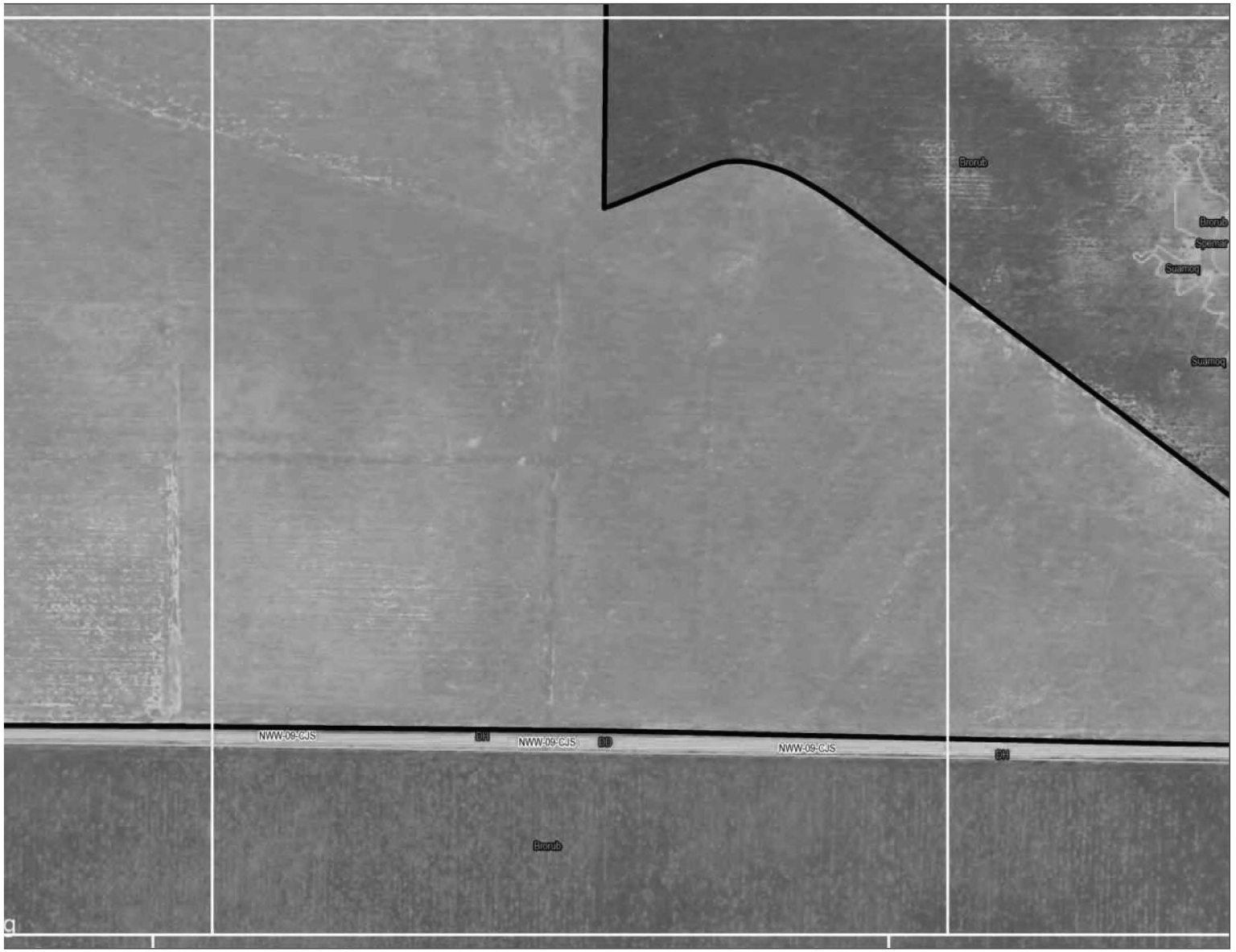


FIGURE 6-15

CDFW Aquatic Delineation

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FIGURE 6-16

CDFW Aquatic Delineation

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FIGURE 6-17

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-18

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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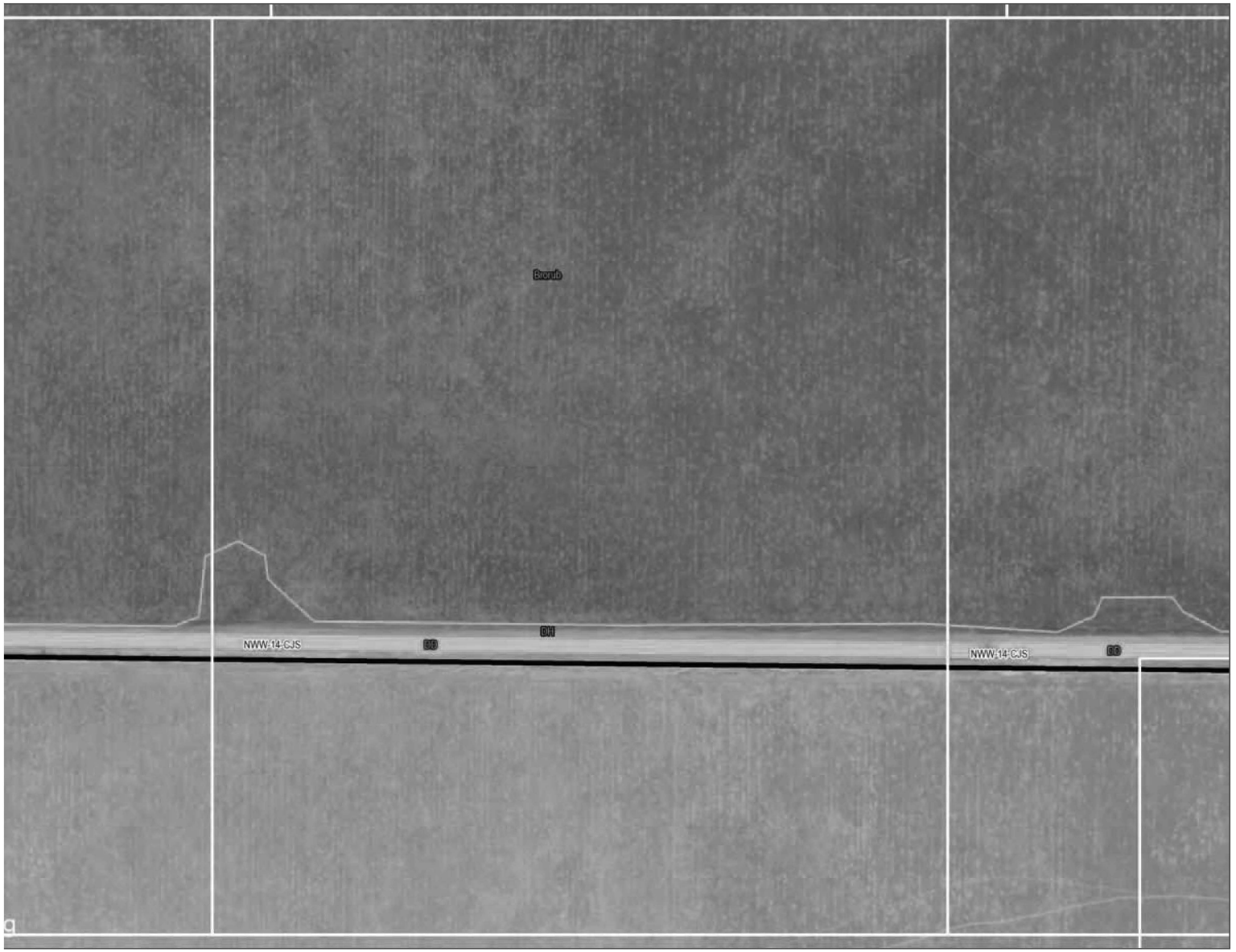


FIGURE 6-19

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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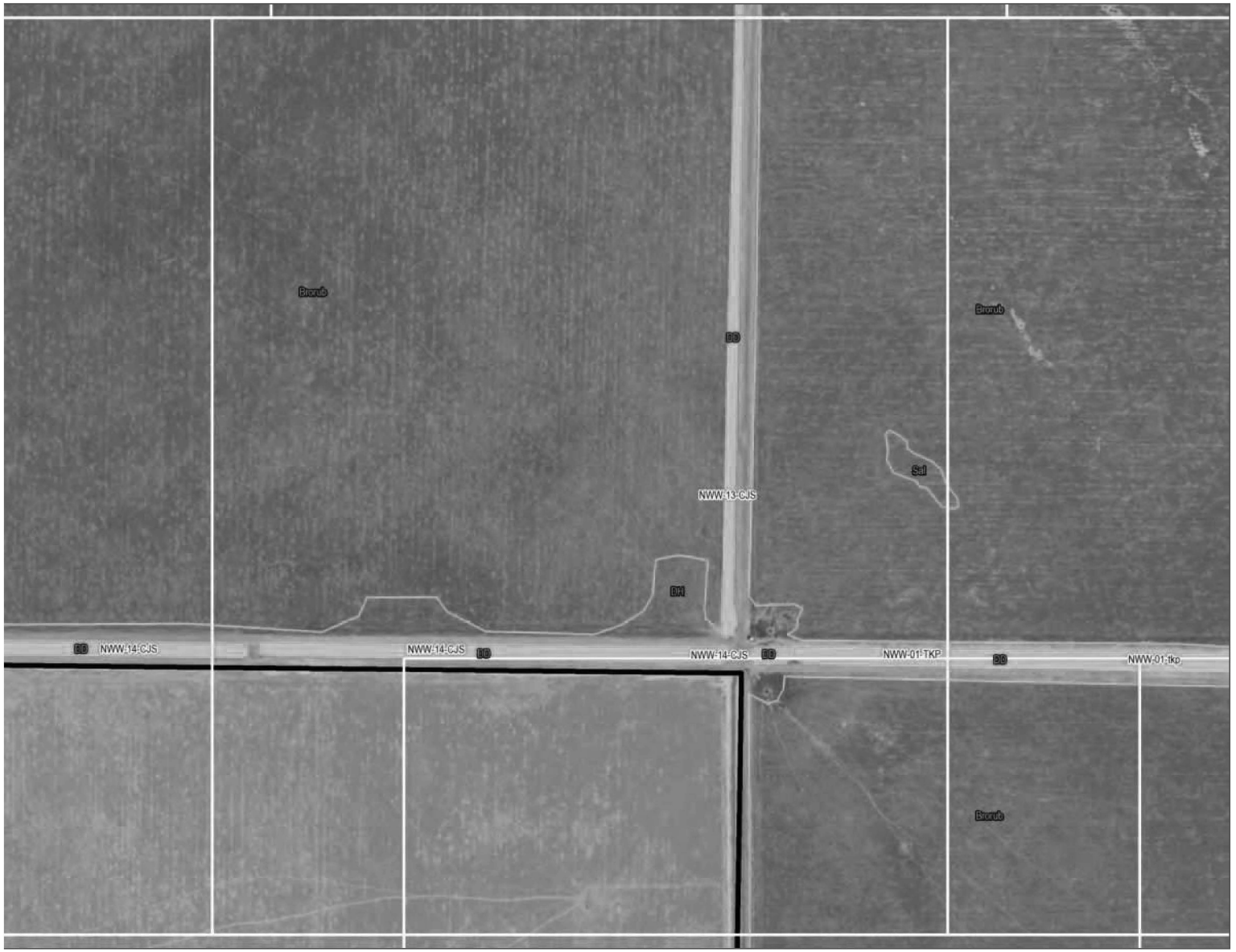


FIGURE 6-20

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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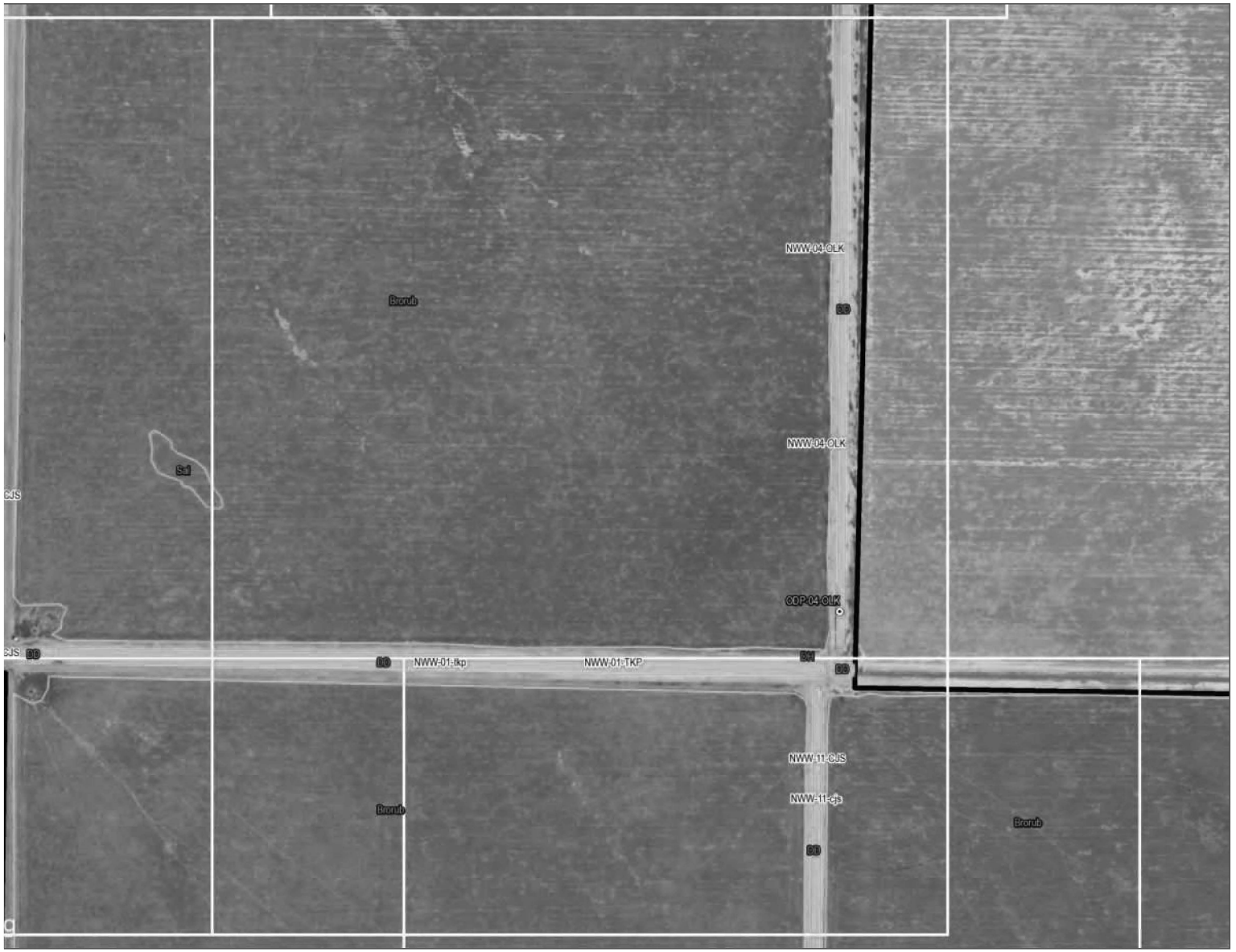


FIGURE 6-21

CDFW Aquatic Delineation

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FIGURE 6-22

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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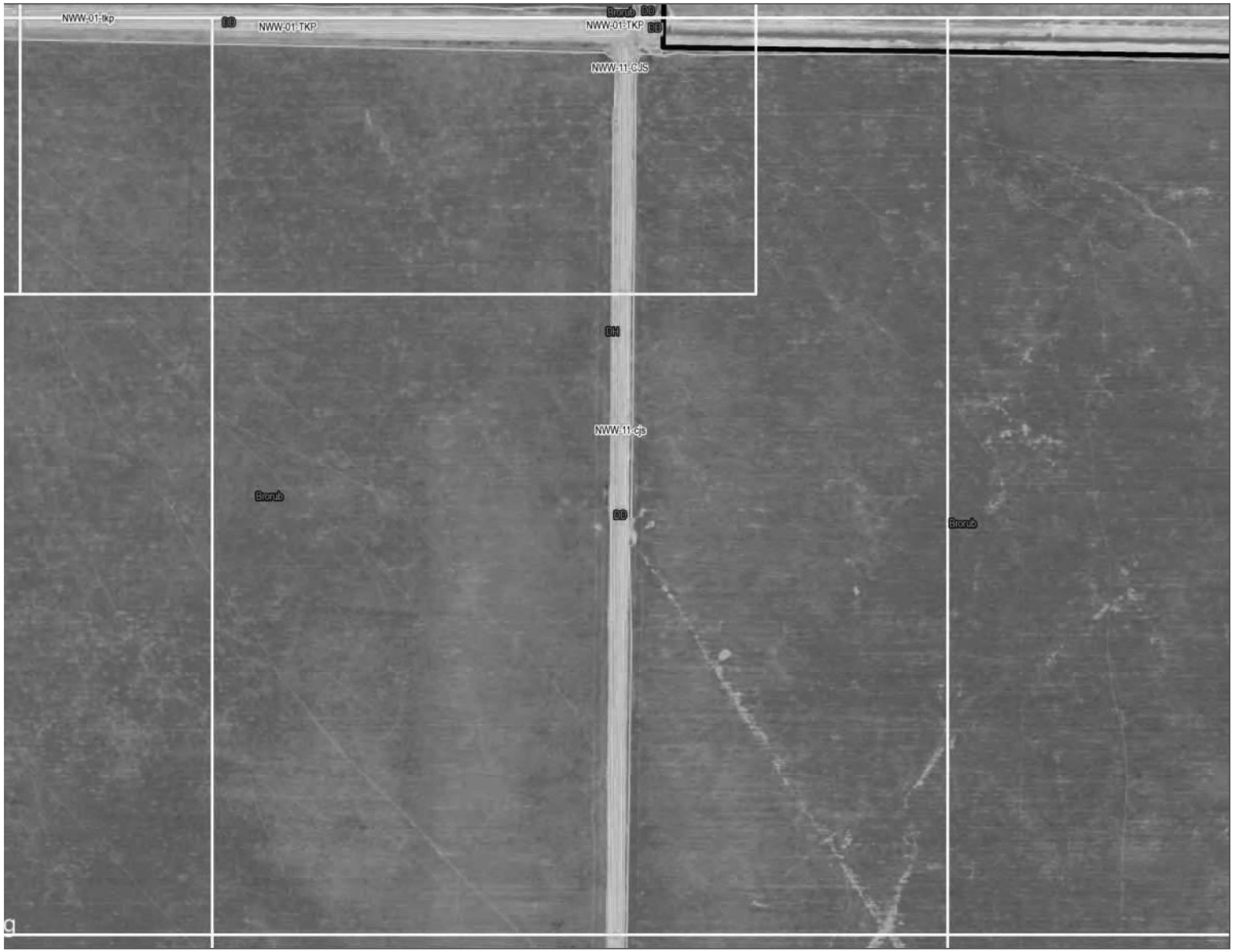


FIGURE 6-23

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-24

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-25

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-26

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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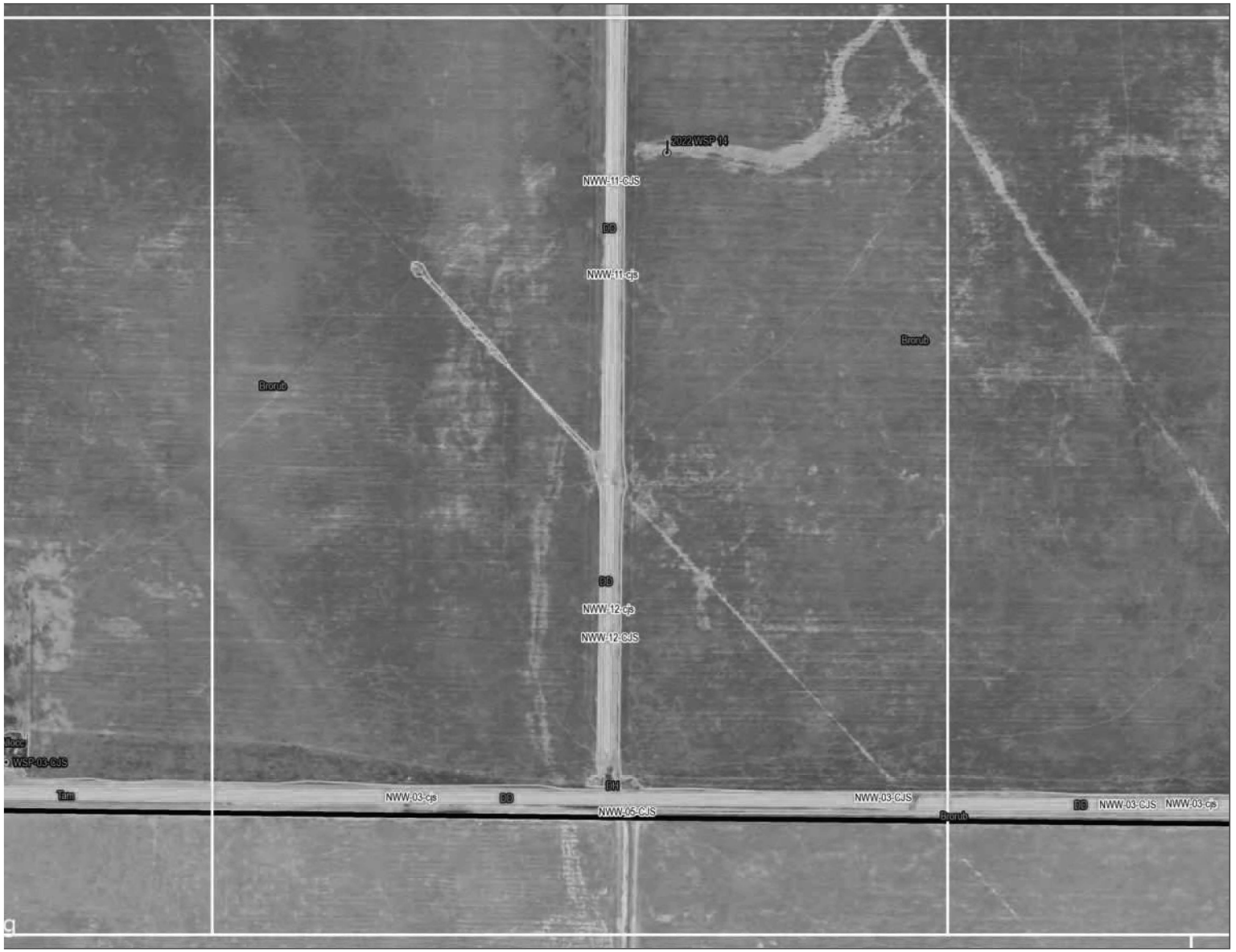


FIGURE 6-27

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-28

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-29

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-30

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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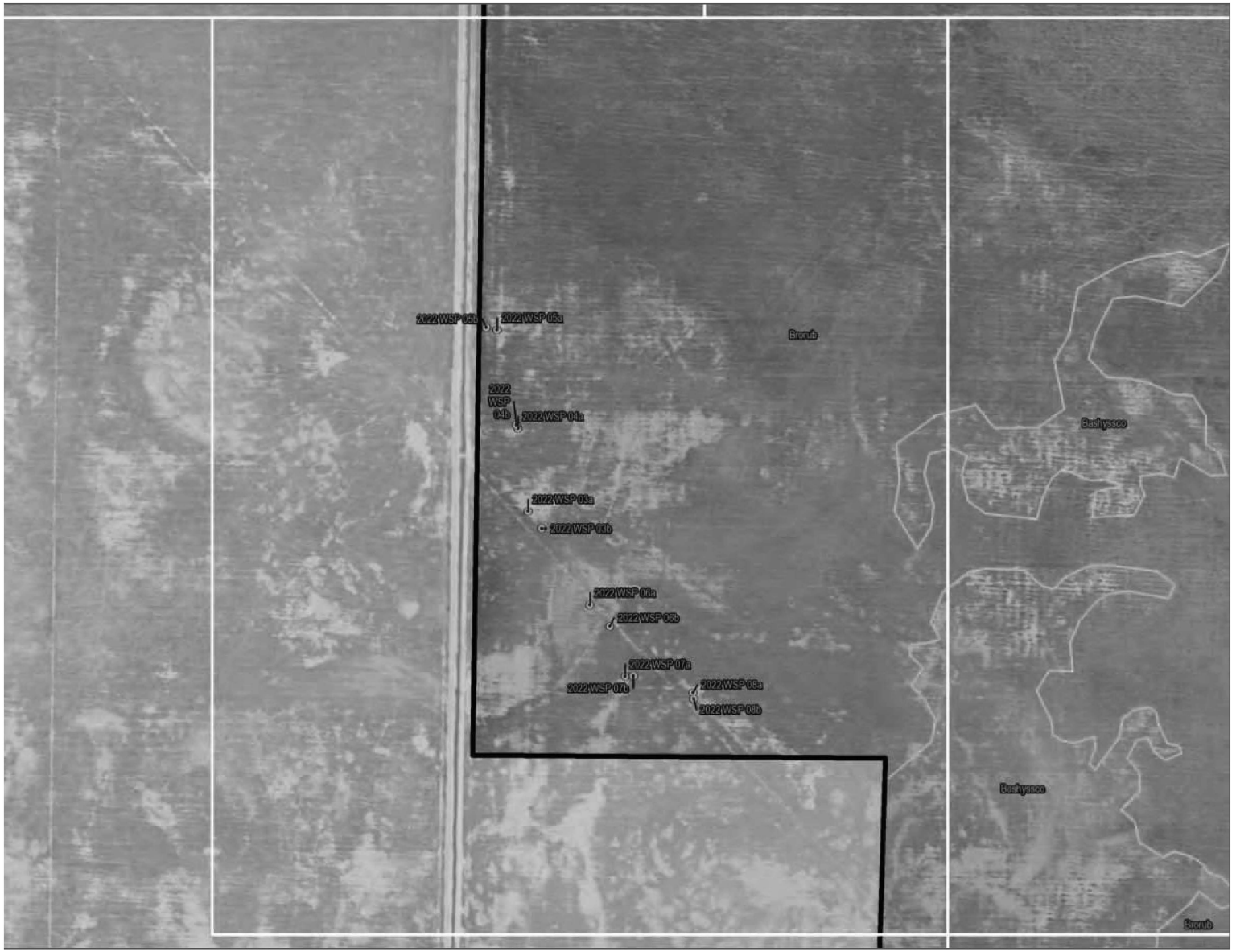


FIGURE 6-31

CDFW Aquatic Delineation

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FIGURE 6-32

CDFW Aquatic Delineation

Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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FIGURE 6-33

CDFW Aquatic Delineation

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FIGURE 6-34

CDFW Aquatic Delineation

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FIGURE 6-35

CDFW Aquatic Delineation

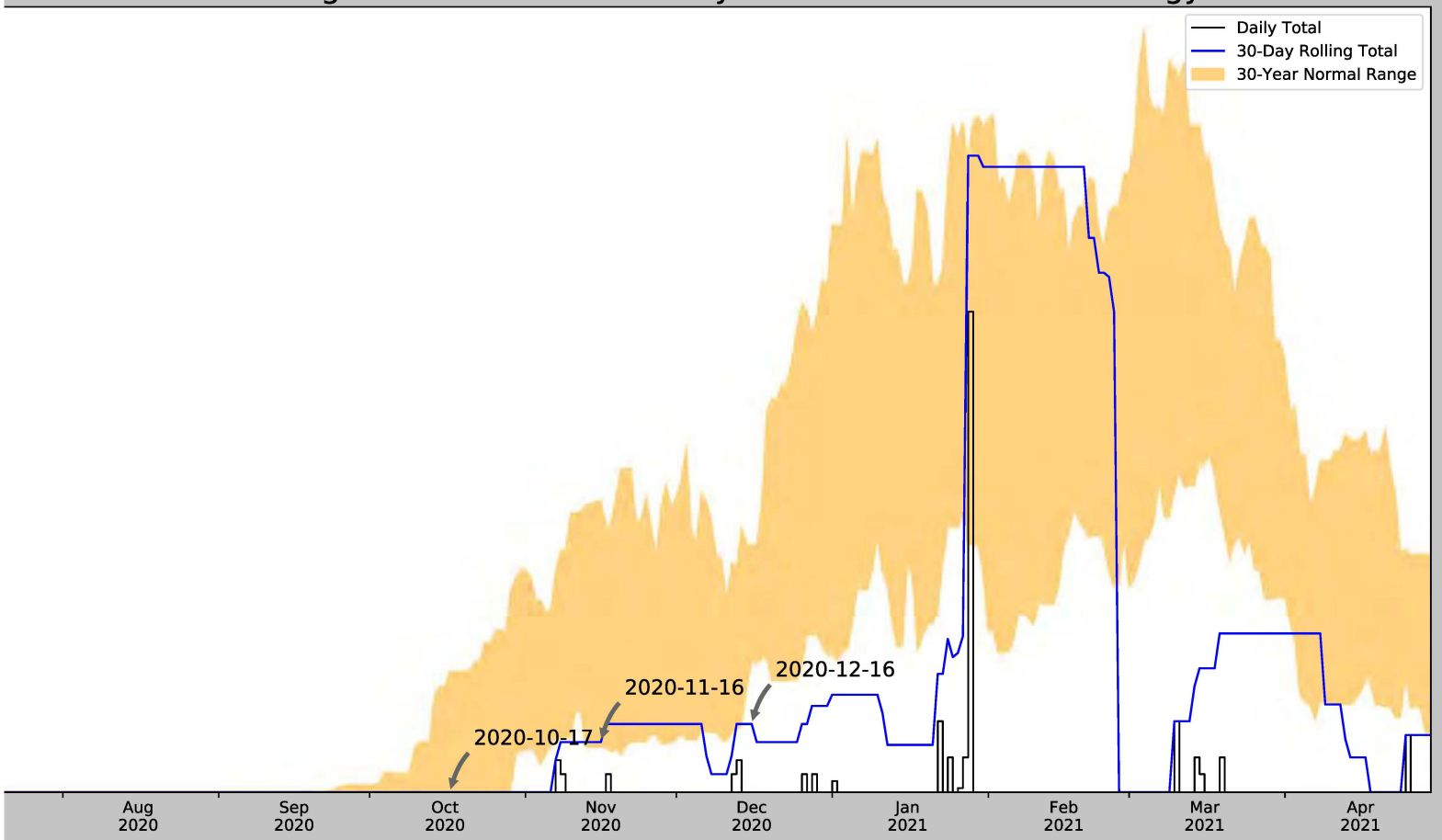
Pelicans Jaw Hybrid Solar Project CDFW Aquatic Resources Delineation Report

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Appendix A

Antecedent Precipitation Tool Outputs

ation vs Normal Range based on NOAA's Daily Global Historical Climatology Network

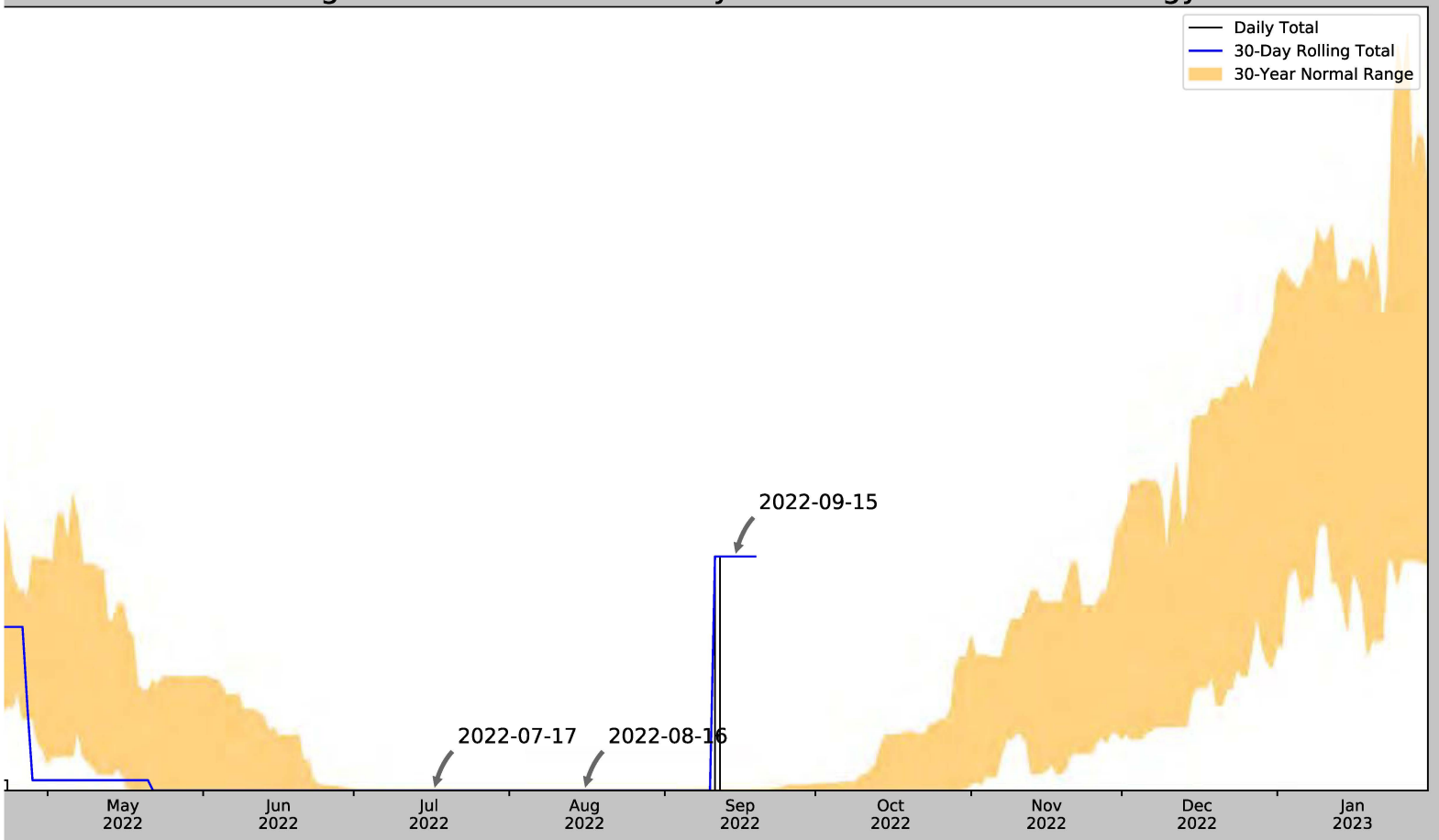


, -119.7232	
2020-12-16	
217.54	
ere drought	
Wet Season	

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2020-12-16	0.368898	0.7	0.192913	Dry	1	3	3
2020-11-16	0.126378	0.822835	0.141732	Normal	2	2	4
2020-10-17	0.0	0.338583	0.0	Normal	2	1	2
Result							Drier than Normal - 9

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
CORCORAN IRRIG DIST	36.0975, -119.5817	200.131	24.31	17.409	11.363	11161	90
LOST HILLS	35.6181, -119.6892	288.058	10.317	70.518	5.37	65	0
KETTLEMAN CITY	36.0067, -119.96	240.157	21.33	22.617	10.081	85	0
WASCO	35.5892, -119.3519	291.011	24.116	73.471	12.624	38	0
BUTTONWILLOW	35.4028, -119.47	225.066	28.778	7.526	13.167	4	0

ation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



, -119.7232	
2022-09-15	
217.54	
t (2022-08)	
Dry Season	

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-09-15	0.0	0.0	0.720472	Wet	3	3	9
2022-08-16	0.0	0.0	0.0	Normal	2	2	4
2022-07-17	0.0	0.0	0.0	Normal	2	1	2
Result							Wetter than Normal - 15

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days (Normal)	Days (Antecedent)
KETTLEMAN CITY	36.0067, -119.96	240.157	21.33	22.617	10.081	6301	70
LOST HILLS	35.6181, -119.6892	288.058	10.317	70.518	5.37	144	0
CORCORAN IRRIG DIST	36.0975, -119.5817	200.131	24.31	17.409	11.363	4866	14
WASCO	35.5892, -119.3519	291.011	24.116	73.471	12.624	38	5
BUTTONWILLOW	35.4028, -119.47	225.066	28.778	7.526	13.167	4	1

Appendix B

Laura Burris Resume

Laura Burris

SENIOR BIOLOGIST, BOTANIST



Laura Burris is a biologist with 13 years' experience in terrestrial biology. Ms. Burris specializes in botanical surveys and the ecological study of vegetation communities for application in habitat restoration, mitigation, and conservation. She is knowledgeable about the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) and their processes, and is skilled in managing and drafting environmental documents such as biological resource assessments, wetland delineation reports, arborist reports, habitat restoration plans, technical sections of environmental impact reports (EIRs) and environmental impact statements (EISs), and regulatory permit applications.

In addition to botanical expertise, Ms. Burris has extensive training and experience in reconnaissance-and protocol level surveys and construction monitoring for sensitive wildlife species, including Swainson's hawk (*Buteo swainsonii*), burrowing owl (*Athene cunicularia*), sensitive bat species, sensitive butterfly species, California tiger salamander (*Ambystoma californiense*), Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylii*), western pond turtle (*Actinemys marmorata*), and California vernal pool branchiopods. Ms. Burris attends annual courses and training seminars on plant identification, special-status species biology, natural resources, CEQA/NEPA, and regulatory permitting.

Project Experience

Development

Elkus Ranch Master Plan Project, San Mateo County, California. Conducted a botanical inventory, biological field assessment, sensitive resource and riparian habitat assessment, and wetland delineation within the 126-acre University of California Elkus Ranch property located near Half Moon Bay. Target special

Education

Humboldt State University
BS, Biology, 2007

Certifications

ISA, Certified Arborist

CDFW, Voucher Plant Collector's Permit

CRAM Practitioner, Riverine and Depressional Modules

40-Hour Wetland Delineation Training, Wetlands Training Institute 2014

Professional Affiliations

California Native Plant Society

International Society of Arboriculture (ISA)

Northern California Botanists

The Wildlife Society

Lytton Residential Development Technical Biological Studies, Windsor, California. Assisted with protocol-level surveys for the Sonoma population of California tiger salamander and California red-legged frog in compliance with a biological opinion issued by the U.S. Fish and Wildlife Service (USFWS) for land proposed to be placed into federal trust for the Lytton Rancheria of California. In addition, for several consecutive years, conducted focused rare plant surveys on the property in accordance with the Santa Rosa Plain Conservation Strategy.

Point Molate Casino EIR/EIS Native Grassland Surveys and Technical Report, Point Richmond, California. As botanist, assisted in the design and implementation of quantitative and qualitative native grassland and scrub habitat evaluations on the former Point Molate Naval Refueling Depot in support of a natural resources management plan. Coordinated with the local chapter of the California Native Plant Society and other botanists knowledgeable of the local flora to complete the study. A technical memorandum was drafted detailing results of the surveys and identifying areas suitable for preservation and/or restoration. The report also provided recommendations for restoration techniques and invasive species management practices for the coastal terrace prairie and coastal scrub habitats on site.

Compost Facility and Bureau of Land Management (BLM) Right-of-Way Biological Evaluation and Permitting Compliance, Nursery Products LLC, Barstow, California. Served as project biologist and permitting specialist. Compiled subconsultant technical reports to create a biological evaluation and assessment for the Nursery Products Hawes Composting Facility. The project involved access through BLM land, creating a federal nexus and requiring federal Endangered Species Act (ESA) Section 7 consultation with USFWS regarding the potential presence of desert tortoise (*Gopherus agassizii*). Also drafted a raven management plan detailing measures to negate predation of desert tortoise by common ravens (*Corvus corax*), which might be attracted to the area due to the development.

EIR and Technical Botanical and Arborist Reports, White Wolf Ski Resort, Placer County, California. Served as primary botanist and arborist. Conducted focused botanical surveys and arborist surveys to identify biological constraints, impacts, and mitigation measures for proposed development in the Lake Tahoe area. Per the Placer County Tree Protection Ordinance, all trees were assessed and documented in an arborist assessment. Technical botanical and arborist reports were used to draft the biology section of the EIR for the project.

Jasude Estate Timber Harvest Plan and Timberland Conversion EIR, Napa County, California. Served as project botanist. Conducted botanical and general biological resources surveys of the areas proposed for timberland conversion to a new vineyard. Drafted a supplemental biological technical memorandum and the technical section of the Draft EIR, including recommendations for avoidance and minimization measures to ensure no impacts to sensitive habitats and species.

Abrue Vineyard Timber Harvest Plan and Timberland Conversion EIR, Angwin, California. Conducted botanical and general biological resources surveys of the areas proposed for timberland conversion to new vineyard. Compiled technical reports from subconsultants and drafted the biological section of the Draft EIR. Special-status species found

Energy

Pipeline Pathways, Pacific Gas and Electric Company (PG&E), San Francisco Bay Area, California. Served as primary botanist and conducted focused botanical surveys along gas pipelines where vegetation management was scheduled. Documented occurrences of rare plant species, drafted technical memoranda, and provided technical guidance for avoidance and minimization of potential impacts to rare species as a result of vegetation management.

Greenbrae Boardwalk Pipeline Replacement Project, PG&E, Greenbrae, California. Served as primary biologist and permitting specialist. Coordinated and obtained wetland permits for emergency work on a gas pipeline in a tidally influenced marsh. Drafted permit applications for restoration work on a neighboring preserve, including Clean Water Act (CWA) Sections 404 and 401, and Bay Conservation and Development Commission permits. Coordinated with project stakeholders, clients, and agencies to ensure that the project could be safely completed in a timely manner while obeying the letter and intent of the law.

Gas Pipeline Installation, South Sacramento, California. Served as biologist and biological monitor. Conducted monitoring for Swainson's hawk during a 3-month gas pipeline installation project that included open trenching and horizontal directional boring under a major freeway. Several Swainson's hawk nests were present within 0.25 mile of the project site. Daily monitoring logs were recorded and reported to the California Department of Fish and Wildlife (CDFW).

28th Street Landfill Solar Farm, City of Sacramento, California. Conducted botanical and general biological resources surveys of the areas proposed for conversion to a solar farm. Drafted a biological resources assessment and assisted with an evaluation of habitat suitability for Swainson's hawk in accordance with CDFW guidelines. Other special-status species found on the site included Northern California black walnut (*Juglans hindsii*) and Valley elderberry longhorn beetle.

Military

Former Fort Ord Base Realignment and Closure (BRAC), Annual Rare Plant Survey and Habitat Assessment, Monterey, California. Conducted quantitative rare plant surveys for sand gilia (*Gilia tenuiflora* ssp. *arenaria*), Monterey spineflower (*Chorizanthe pungens* var. *pungens*), and seaside bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*) in support of an ecological study of existing vegetative resources on the former military base. Also conducted transect surveys of chaparral habitat in sensitive areas containing live munitions.

Municipal

Placer County Government Center Master Plan EIR, California. Served as botanist and wetland delineator. Performed wetland delineation and drafted technical wetland delineation reports. Provided technical expertise on botanical resources, vegetation communities, and permitting. Assisted with drafting the EIR for the Master Plan.

Monitors populations of special-status San Joaquin spearscale (*Extriplex joaquiniana*), Contra Costa goldfields (*Lasthenia conjugens*), and pappose tarplant (*Centromadia parryi* ssp. *parryi*), conducts annual large branchiopod wet season surveys, and annual surveys for eggs and larvae for CTS. She compiles data and drafts annual monitoring reports for submittal to the client and responsible agencies.

San Felipe Creek Restoration Project, Santa Clara Valley Habitat Agency (SCVHA), California. Conducted biological surveys and reporting, wetland delineation, and pre-construction survey support for habitat restoration efforts on the San Felipe Creek Restoration Project. Additionally, provides technical assistance and habitat restoration monitoring during the plant establishment period. The project consists of restoration of approximately one mile of incised stream channel and enhance wetland areas through the use of channel and floodplain modifications. Leading the 10-year mitigation monitoring efforts post construction, including qualitative and quantitative methods for assessing mitigation success. She conducts monitoring fieldwork, data compilation and management, and report generation. She communicates closely with client and agency staff to ensure timely submittal of progress and annual reports.

Altamont Landfill Resource Recovery Facility, Livermore, California. As part of a 10-year mitigation monitoring plan and ACOE, RWQCB, and CDFW permit specifications, assists with pre-construction biological surveys to determine the presence of special-status species including CTS, CRLF, American badger, San Joaquin kit fox and burrowing owl. Assists with annual botanical, wildlife, and wetland monitoring surveys and biological reconnaissance surveys, as well as periodic construction monitoring. She compiles data and drafts annual monitoring reports for submittal to the client and responsible agencies.

North Delta Ecosystem Habitat Restoration Project, Thornton, California. Served as primary wetland delineator and permit advisor for the McCormack Williamson Tract restoration wetland delineation. Conducted surveys to identify wetlands and waters that were potentially jurisdictional under CWA Section 404. Compiled data and drafted a wetland delineation report to be verified by ACOE and used in the permitting process.

Habitat Mitigation and Monitoring Plan, Brooktrails Community Services District, California. Served as primary botanist and permitting specialist. In compliance with the 5-year monitoring plan for tree and wetland mitigation, conducted surveys to assess the progress of mitigation plantings in the community. Compiled and analyzed data to produce annual reports in compliance with the CWA Section 404 permit and Section 1600 Streambed Alteration Agreement (SAA). Consulted with local stakeholders, the Community Services District, CDFW, and ACOE to ensure all success criteria would be met within the specified period.

Water Rights Biological Resources Assessment, Hanuman Fellowship, Watsonville, California. Served as primary botanist. Conducted a botanical inventory and general biological resources survey, and assisted with a stream assessment for a reservoir expansion project. Drafted the biological resources analysis and recommended avoidance and minimization measures for sensitive species on site, including Santa Cruz manzanita

Water Right Biological Technical Memorandum, Stream Management Plan, and Arborist Report, Marin Country Club, Novato, California. Served as primary botanist and arborist. Conducted surveys to identify biological constraints, impacts, and mitigation measures for trees removed as a result of constructing several on-stream reservoirs. Drafted a stream management plan in accordance with local ordinance and permitting needs. The plan detailed avoidance and minimization measures, restoration techniques, monitoring and reporting methods, and success criteria.

Off-Stream Storage Pond Conversion Project Stream Restoration Plan and Mitigation Monitoring, Nemerever Vineyards, Oakville, California. Served as primary botanist. Created and implemented a stream revegetation plan in compliance with permits issued by ACOE and the Regional Water Quality Control Board (RWQCB) for an off-stream storage pond conversion and stream restoration project. Collected percent vegetation cover data; compiled annual reports; and consulted with the property owner, stakeholders, and regulatory agency staff.

Transportation

Housing and Urban Development Grant Roadway Improvement Biological Assessment, County of Mariposa, California. Served as primary botanist tasked with preparation of technical supporting documents for NEPA review. Conducted preliminary research and general biological resources surveys for all roadway segments scheduled for improvement as part of an emergency evacuation plan. Drafted the biological technical memorandum in support of an environmental assessment required under NEPA, including recommendations for avoidance and mitigation of impacts to sensitive species and habitats in the project vicinity.

East Bay BART Project Mitigation Implementation, Antioch, California. Conducted surveys for burrowing owl within the project footprint of the new East Bay Area Rapid Transit (BART) depot. Assisted in drafting technical biological reports. Aided in implementing the impact avoidance measures, which included installation of one-way exclusion doors on burrows and construction monitoring.

Focused Wetland Plant Survey for Mitigation Bank Feasibility Study, California Department of Transportation (Caltrans), Humboldt County, California. Conducted quantitative vegetation surveys of wetland and grassland habitats adjacent to Humboldt Bay for a Caltrans mitigation bank feasibility study. Plotted belt transects, calculated overall and relative percent cover for plant species, and assessed overall habitat at the site.

Tribal

Fee-to-Trust Project-California Tiger Salamander Study, Plymouth, Ione Band of Miwok Indians, California. Assisted with protocol-level surveys for the Central Valley population of California tiger salamander in compliance with a biological opinion issued by USFWS for land proposed to be placed into federal trust for the Ione Band of Miwok Indians. Surveys also included an evaluation of the status of vernal pools and other potentially suitable aquatic

Pomo Indians for 6 acres of land to be placed into Federal trust. Drafted the biological evaluation with recommendations for avoidance and minimization measures for sensitive species and waters of the United States (U.S.) in the vicinity of the project site. Also provided technical assistance to the Bureau of Indian Affairs throughout the Federal ESA Section 7 consultation process with USFWS.

Cache Creek Casino Resort Wetland Mitigation and Monitoring Plan Implementation, Yocha Dehe Wintun Nation, Brooks, California. Served as primary botanist and permitting compliance specialist. In compliance with a 10-year wetland mitigation monitoring and reporting plan, conducted annual surveys to assess the progress of mitigation plantings and hydrology. Compiled and analyzed data to produce annual reports in compliance with CWA Section 404 individual permit stipulations. Consulted with local stakeholders, the tribe, and ACOE to ensure all success criteria would be met within the specified time frame.

Fee-to-Trust Project-Botanical Survey, Sycuan Band of Kumeyaay Nation, San Diego, California. Performed comprehensive floristic surveys on all parcels proposed for transfer to federal trust. Surveys focused on identifying and documenting populations of several locally rare plant species and larval host plants for Quino checkerspot butterfly (*Euphydryas editha quino*).

Water/Wastewater

Arboretum Waterway Improvement Project, University of California, Davis. Served as biologist. Conducted biological surveys of the project area to assess potential constraints to waterway restoration. Developed a Salvage and Relocation Plan for western pond turtle and assisted with regulatory permitting, pre-construction surveys, and provided biological support for the project.

State Water Project-Erosion Repair Routine Maintenance, Contra Costa County, California. As primary biologist, conducted surveys and wetland delineation fieldwork for various proposed erosion repair sites at State Water Project facilities. Compiled results on soils, hydrology, and plants in a wetland delineation report and preliminary jurisdictional determination. Communicated with agencies regarding permitting requirements. Completed documents for CEQA compliance.

Lake Dalwigk Habitat Enhancement Initial Study (IS) and Permitting, Vallejo Sanitation and Flood Control District, Vallejo, California. Served as deputy project manager and project biologist. Prepared and performed senior review of multiple sections of the project's CEQA documents. Conducted biological and botanical surveys for technical supporting documents. Ensured that the initial study/mitigated negative declaration was completed within time constraints and budget. Conducted focused plant surveys, habitat assessment field studies, and background research for potential biological constraints. Completed applications and consulted with regulatory agencies to obtain the following permits: Section 1600 Streambed Alteration Agreement (SAA) from CDFW, CWA Section 404 Individual Permit from ACOE, CWA Section 401 Water Quality Certification from the San Francisco RWQCB, and Coastal Development Permit from the Bay Conservation and Development Commission. As part of the permitting

Placer County Sewer Maintenance District 3 Pipeline Improvement, Granite Bay, California. As part of a team of biologists, conducted floristic surveys of proposed pipeline routes, assisted with the delineation of waters of the U.S. Drafted a botanical technical memorandum, and provided technical assistance for botanical resources throughout the EIR and permitting process.

Family Water Alliance Fish Screen Installation, Sacramento and American Rivers, California. As botanist/biologist, assisted fisheries biologists in evaluating riverine and riparian habitat for potential to support special-status plant and animal species as part of a water pump intake fish-screening project. Drafted biological resources assessments for each site, including avoidance and minimization measures for potential impacts.

Wastewater Treatment Plant Improvement Project, Swainson's hawk Monitoring, Vacaville Wastewater Treatment Plant, Vacaville, California. Served as biologist and biological monitor. In compliance with measures outlined in the EIR and in consultation with CDFW, monitored two active Swainson's hawk nests within 500 feet of ground-disturbing activities at a wastewater treatment plant. For several months during the nesting season, recorded activities and reported daily on the status of the active nests to ensure that no impacts to Swainson's hawk resulted from project activities.

Specialized Training

- 40-Hour Wetland Delineation Training, 2014, Wetlands Training Institute
- 40-Hour California Rapid Assessment Method (CRAM) Training Course, Depressions and Riverine Module, 2015
- Annual courses and seminars on plant identification, special-status species biology, natural resources, CEQA/NEPA, and regulatory permitting

Appendix C
Data Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/16/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-01-MFF

Investigator(s): Mackenzie Forgey, Olivia Koziel | Section, Township, Range: S 6, T 25 S, R 21 E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.78085936 | Long: -119.75416989 | Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ○ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken in disturbed tarplant patch within flats of non-native grasses in Kern County. Disturbance includes old road ruts and cattle grazing. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Centromadia pungens*	20	Yes	FAC
2. *Hordeum murinum*	57	Yes	FACU
3. *Atriplex argentea*	1	No	FAC
4. *Phalaris minor*	1	No	Not Listed
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	21	x 3 =	63
FACU species	57	x 4 =	228
UPL species	1	x 5 =	5
Column Totals:	79 (A)		296 (B)

Prevalence Index = B/A = 3.75

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-01-1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-12	10YR 5/2	95		0			Clay	5% salt concentrations

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◯ No ◯

Remarks: Salt deposits evident in soil however no redox to qualify this sample as a depleted matrix. Soils alkaline and problematic - high pH and previous disturbance. Soils mapped as hydric but due to lack of hydrophytic vegetation parameter, soil not assumed hydric at this location.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/08/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-01-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 22, T 25S, R 21E

Landform (hillslope, terrace, etc.): Ditch | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.739370 | Long: -119.690034 | Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained | NWI classification: R4SBCx

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken in bottom of inactive irrigation canal in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Phalaris minor*	95	Yes	Not Listed
2. *Frankenia salina*	2	No	FACW
3. *Atriplex argentea*	1	No	FACW
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	3	x 2 =	6
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	95	x 5 =	475
Column Totals:	98 (A)		481 (B)

Prevalence Index = B/A = 4.91

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-01-

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-11	10YR 4/1	100					Silty clay	Some organic detritus
11-16	10YR 5/2	60	2.5YR 3/6	40	C	M	Clay	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: Redox concentrations start >10" and rule out F3. Soils are alkaline/problematic and would be considered hydric if hydrology and wetland vegetation parameters were also met.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/15/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-01-TKP

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 8, T 25 S, R 21 E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.77563789 | Long: -119.72771458 | Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken in highly disturbed Suaeda nigra patch adjacent to road/inactive canal in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Suaeda nigra*	3	No	OBL
2.			
3.			
4.			
5.			
Total Cover:	3 %		
Herb Stratum			
1. *Hordeum murinun*	40	Yes	FACU
2. *Atriplex argentea*	1	No	FAC
3. *Melilotus indicus*	2	No	FACU
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species		x 2 =	0
FAC species	1	x 3 =	3
FACU species	42	x 4 =	168
UPL species		x 5 =	0
Column Totals:	46 (A)		174 (B)

Prevalence Index = B/A = 3.78

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-01-

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks: Wetland vegetation not present in high enough cover to meet hydrophytic vegetation parameter. Therefore, soil is not assumed hydric at this location despite naturally problematic alkaline situation and soil mapping.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/08/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-02a-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 15, T 25S, R 21E

Landform (hillslope, terrace, etc.): Ditch | Local relief (concave, convex, none): Concave | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.746896 | Long: -119.694755 | Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained | NWI classification: R4SBCx

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken in bottom of inactive irrigation canal in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Tamarix ramosissima*	15	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover:	15 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	15	x 3 =	45
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	15 (A)		45 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-02a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-3	10YR 3/2	100					Clay	
3-14	10YR 5/2	95	5YR 3/4	5	C	M	Silty clay	
14-17	10YR 6/2	93	5YR 5/6	7	C	M	Loamy sand	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/08/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-02b-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 15, T 25S, R 21E

Landform (hillslope, terrace, etc.): Ditch bank | Local relief (concave, convex, none): Convex | Slope (%): 30

Subregion (LRR): C - Mediterranean California | Lat: 35.746896 | Long: -119.694755 | Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained | NWI classification: R4SBCx

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken on bank of inactive irrigation canal in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Tamarix ramosissima*	2	No	FAC
2.			
3.			
4.			
5.			
Total Cover:	2 %		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	2	x 3 =	6
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	2 (A)		6 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-02b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-20	10YR 4/3	100					Clay loam	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/08/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-03-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 16, T 25S, R 21E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.747081 | Long: -119.723137 | Datum: WGS 84

Soil Map Unit Name: Twisselman sandy loam, saline-alkali, moderately wet | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken in patch of Allenrolfia adjacent to cattle enclosure on expansive flat (previously used for agriculture) in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Allenrolfia occidentalis*	35	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	35 %		
Herb Stratum			
1. *Poa annua*	5	Yes	FACU
2. *Spergularia sp. (likely macrotheca or marina)*	2	No	FAC
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	35	x 2 =	70
FAC species	2	x 3 =	6
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	42 (A)		96 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-03-

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-7	10YR 4/3	100					Silt loam	

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type: Hard pan

Depth (inches): 7

Hydric Soil Present? Yes ○ No ◉

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/09/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-04a-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 4, T 25S, R 21E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.781003 | Long: -119.725006 | Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken in disturbed area with soil cracking/salt crust and Spergularia sp. on expansive flat (previously used for agriculture) in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Spergularia sp. (likely macrotheca or marina)*	15	Yes	FAC
2. *Atriplex coronata*	5	No	FACW
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	15	x 3 =	45
FACU species		x 4 =	0
UPL species		x 5 =	0
Column Totals:	20 (A)		55 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-04a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	10YR 4/2	100					Sandy clay	No redox

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type: Hard pan

Depth (inches): 10

Hydric Soil Present? Yes ◉ No ○

Remarks: Soils alkaline and problematic - high pH and previous disturbance may be reason soil not showing redox features. Soils mapped as hydric. Wetland hydrology indicators and wetland vegetation present. Soils assumed hydric given presence of other wetland indicators and flat landscape position that likely holds water after rains.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/15/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-04b-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 4, T 25S, R 21E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.781003 | Long: -119.725006 | Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken outside disturbed Spergularia wetland on expansive flat (previously used for agriculture) in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Bromus rubens*	45	Yes	UPL
2. *Atriplex coronata*	5	No	FACW
3. *Spergularia sp. (likely macrotheca or marina)*	1	No	FAC
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	5	x 2 =	10
FAC species	1	x 3 =	3
FACU species		x 4 =	0
UPL species	45	x 5 =	225
Column Totals:	51 (A)		238 (B)

Prevalence Index = B/A = 4.67

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-04b

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: No soil sample taken. No wetland hydrology indicators. Wetland vegetation not present in high enough cover to meet hydrophytic vegetation parameter. Therefore, soil is not hydric at this location despite naturally problematic alkaline situation and soil mapping.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/09/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-05a-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 8, T 25S, R 21E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.772840 | Long: -119.727953 | Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken within disturbed (lots of bare ground) Suaeda nigra patch surrounded by non-native grasses on expansive flat (previously used for agriculture) in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Suaeda nigra*	10	Yes	OBL
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Hordeum murinum*	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	15 (A)		30 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-05a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-10	10YR 4/3	100					Clay loam	No redox

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: White mottles in sample (10-15%) - potentially salt concentrations. Soils alkaline and problematic - high pH and previous disturbance may be reason soil not showing redox features. Soils mapped as hydric. Wetland hydrology indicators and wetland vegetation present. Soils assumed hydric given presence of other wetland indicators and flat landscape position that likely holds water after rains.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/10/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-05b-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 8, T 25S, R 21E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.77269395 | Long: -119.72739055 | Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken within disturbed (lots of bare ground) area with Atriplex coronata and Spergularia sp.; adjacent to Suaeda nigra patch in similar bare ground. Surrounded by non-native grasses on expansive flat (previously used for agriculture) in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Atriplex coronata*	10	Yes	FACW
2. *Spergularia sp.*	5	Yes	FAC
3. *Hordeum murinum*	1		FACU
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species	5	x 3 =	15
FACU species	1	x 4 =	4
UPL species		x 5 =	0
Column Totals:	16 (A)		39 (B)

Prevalence Index = B/A = 2.44

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-05b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-20	10YR 4/3	100					Clay	No redox

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: White mottles in sample (10-15%) - potentially salt concentrations. Soils alkaline and problematic - high pH and previous disturbance may be reason soil not showing redox features. Soils mapped as hydric. Wetland hydrology indicators and wetland vegetation present. Soils assumed hydric given presence of other wetland indicators and flat landscape position that likely holds water after rains.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/10/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-05c-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 8, T 25S, R 21E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.7731875 | Long: -119.7272607 | Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken outside of isolated and disturbed wetlands within non-native grasses on expansive flat (previously used for agriculture) in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:	%		
Herb Stratum			
1. *Hordeum murinum*	20	Yes	FACU
2. *Bromus rubens*	5	Yes	UPL
3. *Atriplex argentea*	1		FAC
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species		x 2 =	0
FAC species	1	x 3 =	3
FACU species	20	x 4 =	80
UPL species	5	x 5 =	25
Column Totals:	26 (A)		108 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-05c

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-20	10YR 4/3	100					Clay	No redox

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: No wetland hydrology indicators. Wetland vegetation not present in high enough cover to meet hydrophytic vegetation parameter. Therefore, soil is not hydric at this location despite naturally problematic alkaline situation and soil mapping.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/10/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-08-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 4, T 25S, R 21E

Landform (hillslope, terrace, etc.): Bottomland | Local relief (concave, convex, none): Convex | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.7778329 | Long: -119.7179049 | Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained | NWI classification: PEM1Kx

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken in Allenrolfia scrub between two active canals associated with the Kern River Flood Canal in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Allenrolfia occidentalis*	10	Yes	FACW
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Bromus rubens*	60	Yes	UPL
2. *Phalaris minor*	5	No	Not Listed
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species		x 1 =	0
FACW species	10	x 2 =	20
FAC species		x 3 =	0
FACU species		x 4 =	0
UPL species	65	x 5 =	325
Column Totals:	75 (A)		345 (B)

Prevalence Index = B/A = 4.60

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-08-

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture[3]	Remarks
0-18	10YR 4/2	100					Sandy clay loam	No redox

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: No redox or salt concentrations observed in sample. No wetland hydrology indicators. Wetland vegetation not present in high enough cover to meet hydrophytic vegetation parameter. Therefore, soil is not hydric at this location despite naturally problematic alkaline situation and soil mapping.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/15/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-09a-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 9, T 25S, R 21E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.77499535 | Long: -119.72540377 | Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken in highly disturbed Suaeda nigra patch next to dirt road on edge of expansive flat in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Suaeda nigra*	10	Yes	OBL
2.			
3.			
4.			
5.			
Total Cover:	10 %		
Herb Stratum			
1. *Hordeum murinum*	5	Yes	FACU
2. *Spergularia sp*	1	No	FAC
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species		x 2 =	0
FAC species	1	x 3 =	3
FACU species	5	x 4 =	20
UPL species		x 5 =	0
Column Totals:	16 (A)		33 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-09a

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: No sample taken; assumed hydric. Soils alkaline and problematic - high pH and previous disturbance. Soils mapped as hydric. Wetland hydrology indicators and wetland vegetation present. Soils assumed hydric given presence of other wetland indicators and flat landscape position that likely holds water after rains.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Pelicans Jaw Solar | City/County: Lost Hills/Kern | Sampling Date: 12/15/20

Applicant/Owner: Samsung Solar Energy 2, LLC | State: CA | Sampling Point: WSP-09b-CJS

Investigator(s): Cody Schaaf, Tracy Park | Section, Township, Range: S 9, T 25S, R 21E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): None | Slope (%): 0

Subregion (LRR): C - Mediterranean California | Lat: 35.77489765 | Long: -119.72536557 | Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained | NWI classification: None

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

Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ Soil ☒ or Hydrology ☒ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: Sample point taken in non-native grasses outside disturbed Suaeda wetland next to dirt road on edge of expansive flat in Kern County. Dry conditions for December with little to no rain. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:	%		
Sapling/Shrub Stratum			
1. *Suaeda nigra*	3	No	OBL
2.			
3.			
4.			
5.			
Total Cover:	3 %		
Herb Stratum			
1. *Hordeum murinum*	60	Yes	FACU
2.			
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species		x 2 =	0
FAC species		x 3 =	0
FACU species	60	x 4 =	240
UPL species		x 5 =	0
Column Totals:	63 (A)		243 (B)

Prevalence Index = B/A = 3.86

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: WSP-09b

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture[3]	Remarks

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

[3]Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

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

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

Indicators for Problematic Hydric Soils:[4]

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks: No wetland hydrology indicators. Wetland vegetation not present in high enough cover to meet hydrophytic vegetation parameter. Therefore, soil is not hydric at this location despite naturally problematic alkaline situation and soil mapping.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

DDP-01-CJS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelicans Jaw
Project Number: 11438
Stream: Drainage Ditch
Investigator(s): Cody Schaaf, Tracy Park

Date: 12/8/20
Town: Lost Hills
State: CA
Photo begin file#:
Photo end file#:
Time: n/a

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details: Ditch adjacent to Fallow Fields - Twisselman Rd, east

Projection: **Datum:** WGS84
Coordinates: 35.732787, -119.690152

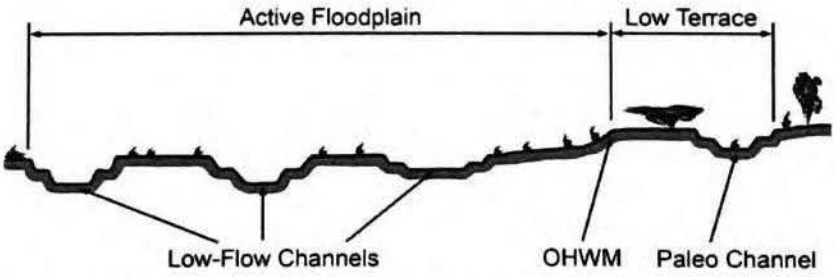
Potential anthropogenic influences on the channel system: Agricultural runoff and grazing. Litter also. Cattle grazing.

Brief site description: Drainage ditch (manmade) adjacent to fallow field. Southeast corner of site.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 2020
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

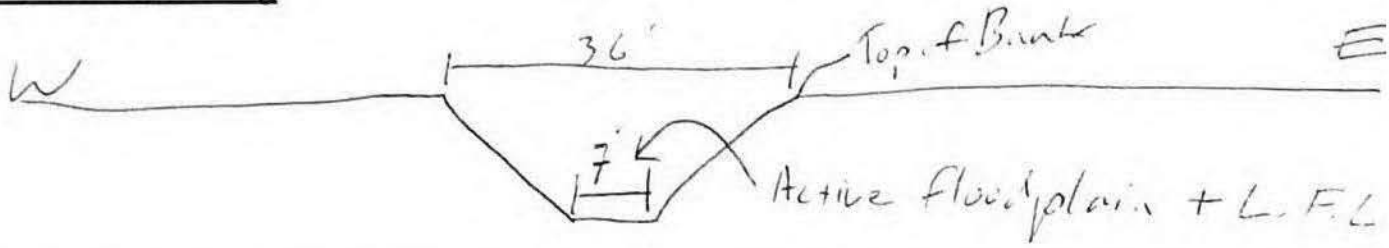


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: 1193 **Cross section ID:** DDP-01-CSS **Date:** 12/5/22 **Time:** N/A

Cross section drawing:



OHWM

GPS point: in Collector - DDP-01-CSS

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☒ Other: Salt crust in ditch bottom
- ☐ Other: _____

Comments: Clear break in bank slope. Manmade banks.

Floodplain unit:

☒ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: NWW-01-CSS

Characteristics of the floodplain unit:

Average sediment texture: Silt

Total veg cover: 10 % Tree: 5 % Shrub: ____ % Herb: 5 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Soil development
- ☐ Surface relief

ODP-02-CJS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelicans Jun **Date:** 12/8/20 **Time:** n/a
Project Number: 114[redacted]38 **Town:** Lost Hills **State:** CA
Stream: Drainage Ditch **Photo begin file#:** **Photo end file#:**
Investigator(s): Cody Schaad, Tracy Park

Y ☒ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☒ Is the site significantly disturbed?

Location Details: Fallow ag fields

Projection: **Datum:** WGS84
Coordinates: 35.732675, -119.690013

Potential anthropogenic influences on the channel system:

See ODP-01-CJS - Agricultural runoff, litter and grazing will be present in most ditches on site.

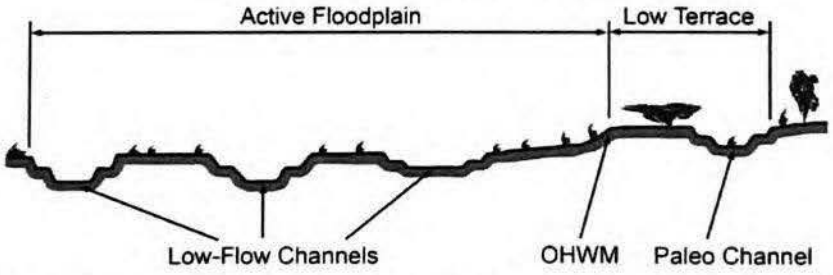
Brief site description:

Drainage ditch next to ag. fields (fallow) Southeast corner of site.

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 2020
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

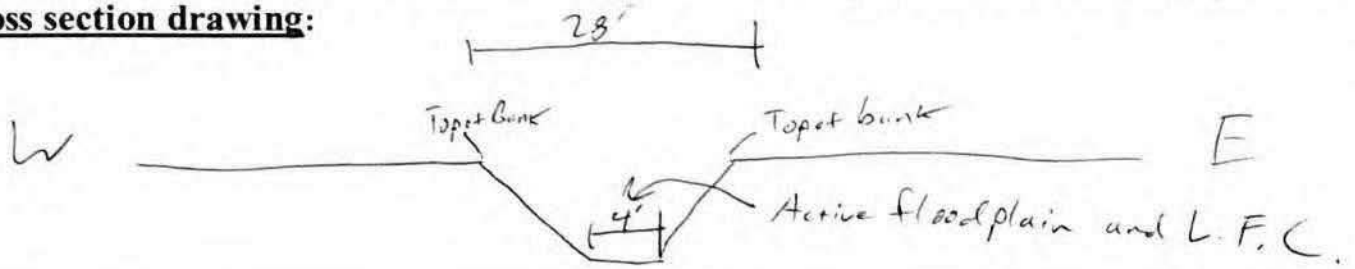


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: 11438 **Cross section ID:** ODP-02-CJS **Date:** 12/8/20 **Time:**

Cross section drawing:



OHWM

GPS point: ODP-02-CJS

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Bed/Bank - Man made ditch

Floodplain unit:

☒ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: NWW-02-CJS

Characteristics of the floodplain unit:

Average sediment texture: Silt

Total veg cover: 50 % Tree: ____ % Shrub: ____ % Herb: 50 %

Community successional stage:

- ☐ NA
- ☒ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelicans Jaw
Project Number: 11438
Stream: Drainage Ditch
Investigator(s): Cody Schaaf and Tracy Park

Date: 12/8/20
Town: Lost Hills
Time: n/a
State: CA
Photo begin file#:
Photo end file#:

Y ☐ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☐ Is the site significantly disturbed?

Location Details: Fallow ag. fields

Projection:
Datum: WGS84
Coordinates: 35.746381, -119.674707

Potential anthropogenic influences on the channel system:

See previous ODP-01-CJS

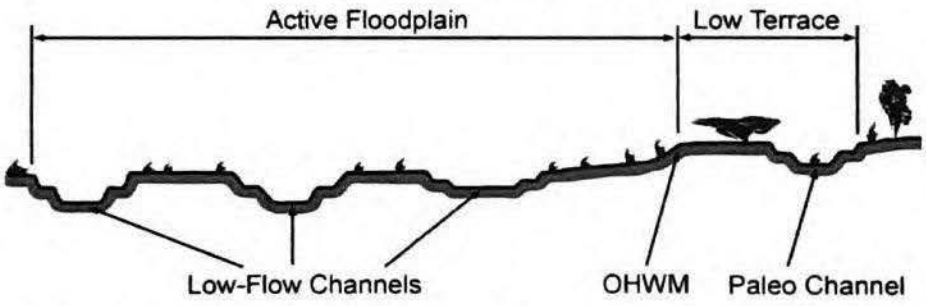
Brief site description:

Drainage ditch

Checklist of resources (if available):

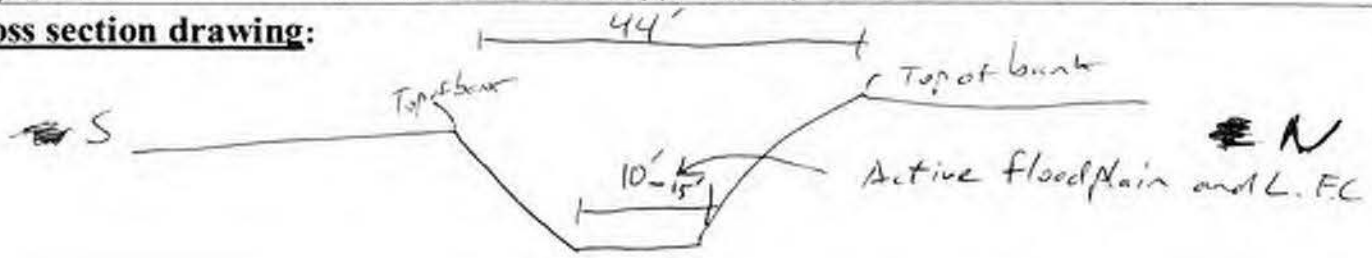
- ☑ Aerial photography
  Dates: 2020
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



Project ID: 11435 **Cross section ID:** ODP-03-CJS **Date:** 12/5/20 **Time:**

Cross section drawing:



OHWM

GPS point: ODP-03-CJS

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☑ Other: Salt crust in
- ☐ Other:

Comments: Break in manmade bank slope

Floodplain unit: ☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: NWW-03-CJS

Characteristics of the floodplain unit:

Average sediment texture: Silt/Clay

Total veg cover: 5 % Tree: 5 % Shrub: ____ % Herb: ____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development

ODP-04- CJS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelicans Jaw	**Date:** 12/8/20	**Time:** n/a
Project Number: 11438	**Town:**	**State:**
Stream: Drainage ditch	**Photo begin file#:**	**Photo end file#:**
Investigator(s): Cody Schaaf		

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: See ODP-01-CJS

Projection: **Datum:** WGS84

Coordinates: 35.747139, -119.785181

Potential anthropogenic influences on the channel system:

See ODP-01-CJS

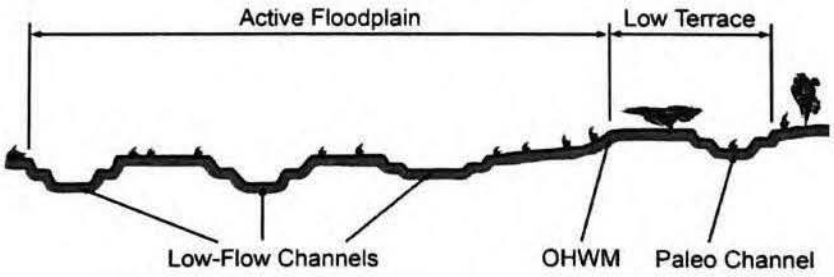
Brief site description:

Drainage ditch. See other ODPs

Checklist of resources (if available):

- ☑ Aerial photography
  Dates: 2020
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

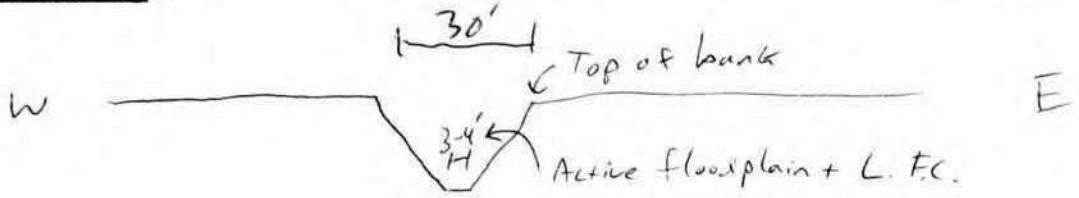


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: 11433 **Cross section ID:** ODP-04-CJS **Date:** 12/8/20 **Time:**

Cross section drawing:



OHWM

GPS point: ODP-04-CJS

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments: Bank is man made and shows steep break at Low flow channel.

Floodplain unit: ☒ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: NWW-06-CJS

Characteristics of the floodplain unit:

Average sediment texture: Silt

Total veg cover: 11 % Tree: 1 % Shrub: ____ % Herb: 10 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development

ODP-05-CJS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelicans Jaw
Project Number: 11438
Stream: Drainage ditch
Investigator(s): Cody Schaaf

Date: 12/8/20
Town: Lost Hills
State: CA
Time: n/a
Photo begin file#:
Photo end file#:

Y ☐ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☐ Is the site significantly disturbed?

Location Details: See ODP-01-CJS

Projection:
Datum: WGS84
Coordinates: 35.7694766, -119.7255734

Potential anthropogenic influences on the channel system:

See previous ODPs

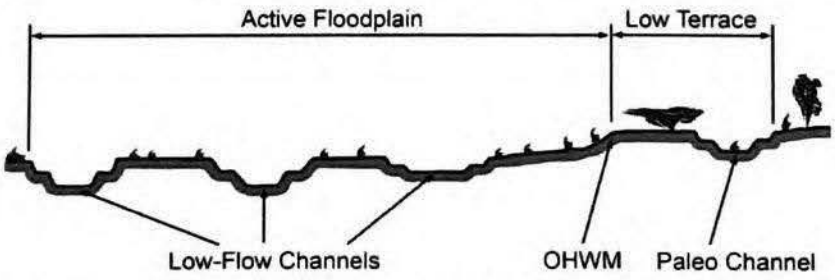
Brief site description:

Drainage ditch

Checklist of resources (if available):

- ☒ Aerial photography
  Dates: 2020
- ☒ Topographic maps
- ☐ Geologic maps
- ☒ Vegetation maps
- ☒ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☒ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

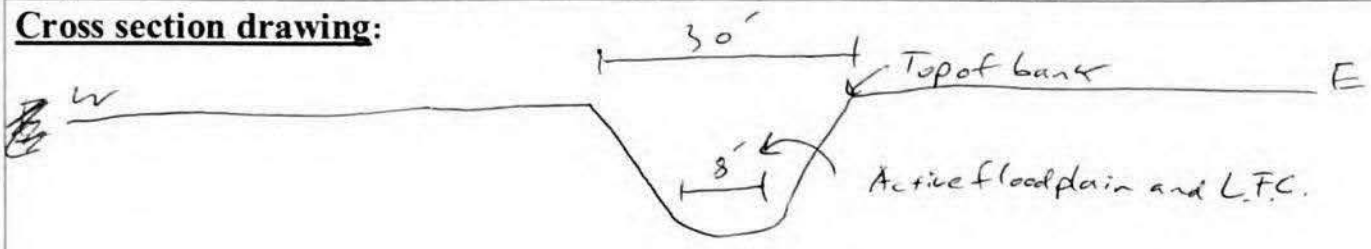


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: 11438 **Cross section ID:** ODP-05-CJS **Date:** 12/8/20 **Time:**

Cross section drawing:



OHWM

GPS point: ODP-05-CJS

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☒ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

Break in manmade bank. Unvegetated.

Floodplain unit:

☒ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: NWW-01-CJS

Characteristics of the floodplain unit:

Average sediment texture: Silt/clay

Total veg cover: 0 % Tree: ____% Shrub: ____% Herb: ____%

Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development

ODP-01-TKP

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican Jaw
Project Number: 11438
Stream: NWW-07-CDS
Investigator(s): TPark CSchaf

Date: 8 Dec 2020 **Time:** n/a
Town: **State:** CA
Photo begin file#: **Photo end file#:**

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: N-S drainage along w-border w/in southern section of Project Si

Projection: **Datum:**
Coordinates:

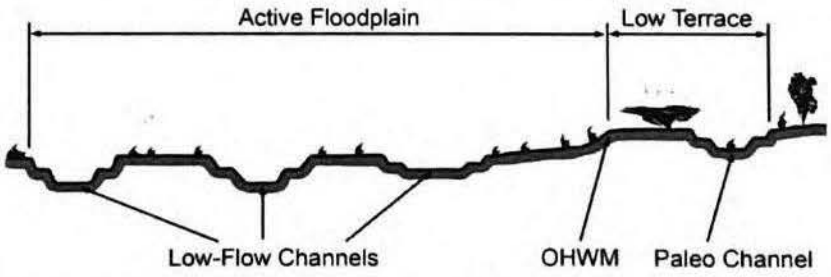
Potential anthropogenic influences on the channel system:
cattle ranching, chemical inputs from agricultural activities, vehicular traffic on adjacent roads

Brief site description:
Agricultural irrigation/drainage ditch among fallow fields.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

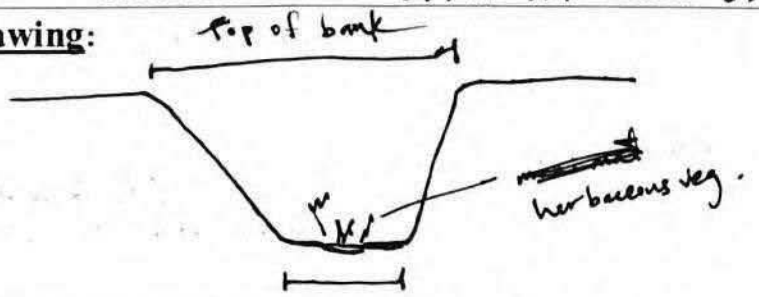


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: Pelican Jaw **Cross section ID:** ODP-01-TKP **Date:** 8 Dec 2020 **Time:**

Cross section drawing:



OHWM

GPS point: ODP-01-TKP / NWW-07-CJS

Indicators:

- [ ] Change in average sediment texture
- [ ] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

Floodplain unit:

- [x] Low-Flow Channel
- [x] Active Floodplain
- [ ] Low Terrace

GPS point: NWW-07-CJS

Characteristics of the floodplain unit:

Average sediment texture: Silt

Total veg cover: ____ % Tree: ____ % Shrub: ____ % Herb: 60 %

Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Soil development

ODP-05-TKP

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican Jaw
Project Number: 11438
Stream: Kern River
Investigator(s): TPark

Date: 09 Dec 2020 **Time:** n/a
Town: Kern County **State:** CA
Photo begin file#: **Photo end file#:**

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: Eastern border of Project Area, East channel of Kern River.

Projection: **Datum:** WGS84
Coordinates: 35.785015°, -119.716308

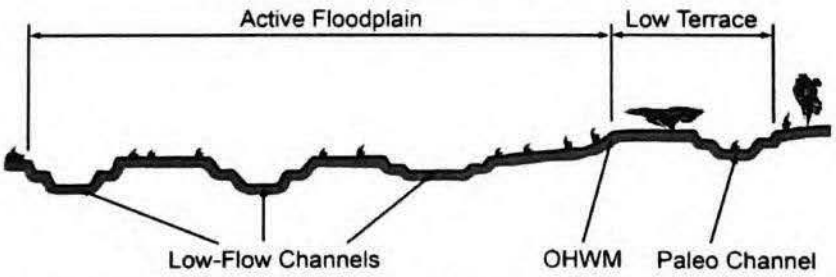
Potential anthropogenic influences on the channel system:
Vehicular traffic on adjacent roads.

Brief site description:
Modified earthen channel with Tamarix & Alloca. East channel of Kern River after fork immediately south (upstream)

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



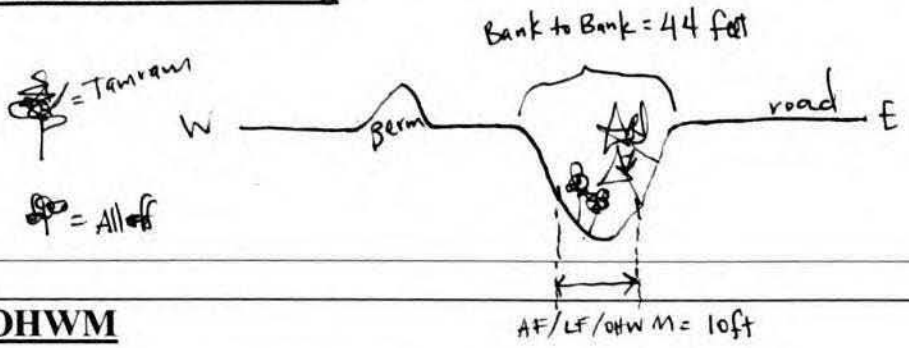
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Pelican Jaw

Project ID: 11438 **Cross section ID:** ODP-05-TKP **Date:** 09 Dec 2020 **Time:** N/A

Cross section drawing:



OHWM

GPS point: NWW-05-TKP

Indicators:

- [x] Change in average sediment texture
- [x] Change in vegetation species
- [x] Change in vegetation cover
- [x] Break in bank slope
- [x] Other: salt crust
- [ ] Other: _____

Comments:

Floodplain unit:

- [x] Low-Flow Channel
- [x] Active Floodplain
- [ ] Low Terrace

GPS point: NWW-05-TKP

Characteristics of the floodplain unit:

Average sediment texture: silt/clay

Total veg cover: _____ % Tree: _____ % Shrub: _____ % Herb: _____ %

Community successional stage:

- [ ] NA
- [ ] Early (herbaceous & seedlings)
- [x] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican's Jaw
Project Number:
Stream: ODP - 01 - OLK
Investigator(s): Mackie Forgey, Olivia Koziel

Date: 12/8/20
Town:
Photo begin file#:

Time: n/a
State: CA
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: Near SE corner of site

Projection: **Datum:**

Coordinates: 35.732428 119.690425

Potential anthropogenic influences on the channel system:

See ODP-01-CJS

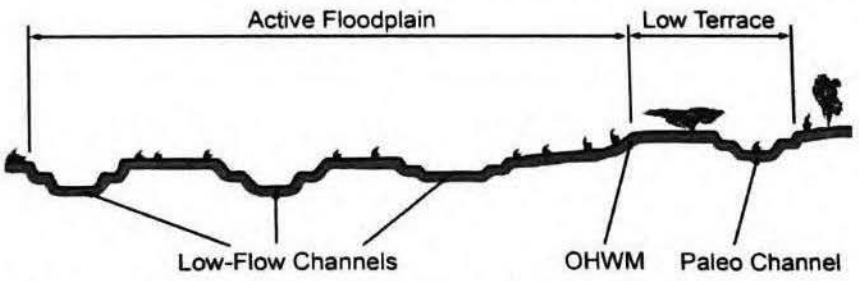
Brief site description:

Man-made Drainage ditch adjacent to fallow ag field

Checklist of resources (if available): See ODP-01-CJS

- ☐ Aerial photography
  Dates:
- ☐ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ☐ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☐ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

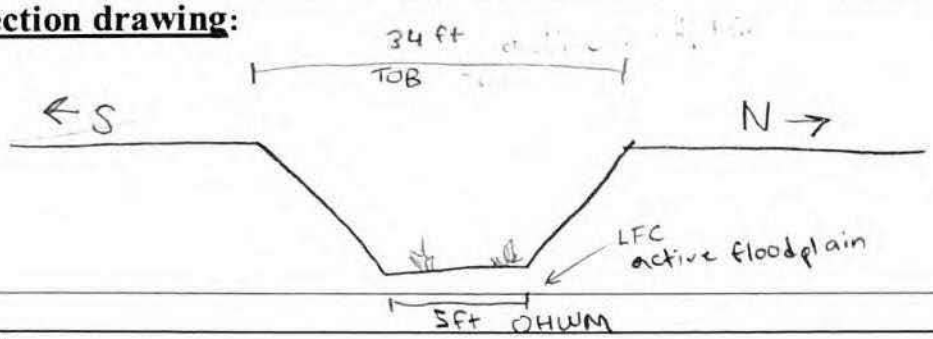
Hydrogeomorphic Floodplain Units See ODP-01-CJS



Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

Project ID: **Cross section ID:** ODP-01-OLK **Date:** 12/8/20 **Time:**

Cross section drawing:



OHWM

GPS point: ODP1-01-OLK in Collector

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

See ODP-01-CJS, same indicators

Floodplain unit:

☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: NWW-01-OLK in Collector

Characteristics of the floodplain unit:

Average sediment texture: silt

Bassia hyssopifolia

Total veg cover: 20 % Tree: ____ % Shrub: ____ % Herb: 20 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development

See ODP-01-CJS

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican's Jaw
Date: 12/8/20
Time: n/a
Project Number:
Town:
State: CA
Stream: ODP-02-OLK
Photo begin file#:
Photo end file#:
Investigator(s): MFF, OLK

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details:
Ditch in SE area of site.

Projection: **Datum:**
Coordinates: 35.736019 -119.698888

Potential anthropogenic influences on the channel system:

see ODP-01-CJS

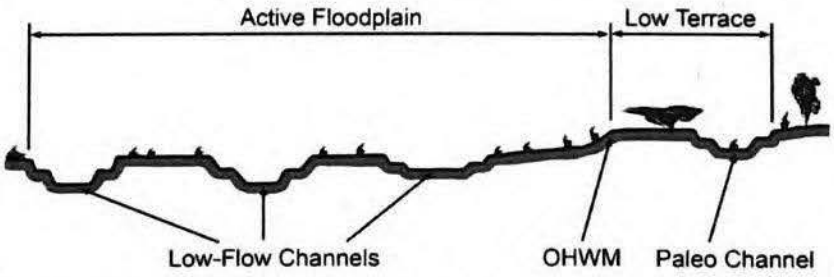
Brief site description:

Man-made drainage ditch adjacent to flat fallow fields

Checklist of resources (if available):

- ☑ Aerial photography
  - Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  - Gage number:
  - Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

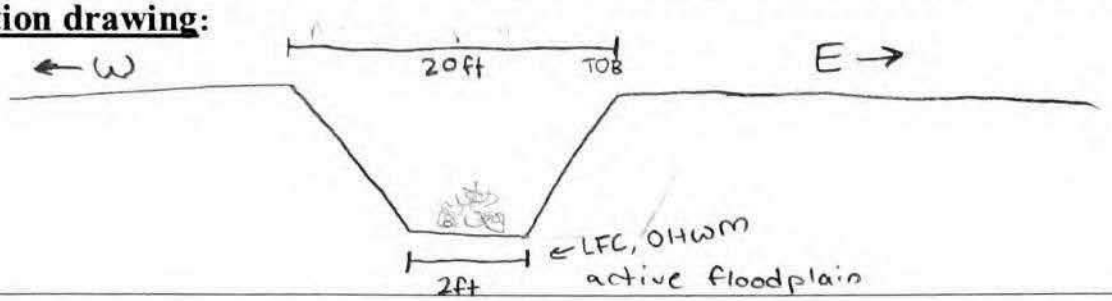


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: **Cross section ID:** ODP-02-OLK **Date:** 12/8/20 **Time:**

Cross section drawing:



OHWM

GPS point: Refer to ODP-02-OLK in Collector

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☑ Other: saline crust
- ☐ Other: _____

Comments: Obvious man-made ditch, thatchy gathered in bottom of ditch. (ie tumbleweed)

Floodplain unit:

☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: NWW-02-OLK in Collector

Characteristics of the floodplain unit:

Average sediment texture: Silt

Total veg cover: 0 % Tree: ____% Shrub: ____% Herb: ____%

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican's Jaw
Project Number:
Stream: ODP-03-OLK
Investigator(s): MFF, OLK
Date: 12/8/20
Time: n/a
Town:
State: CA
Photo begin file#:
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: "Survey Area 5" southern portion of site

Projection: **Datum:**
Coordinates: 35.747666 -119.707735

Potential anthropogenic influences on the channel system:

Agricultural runoff

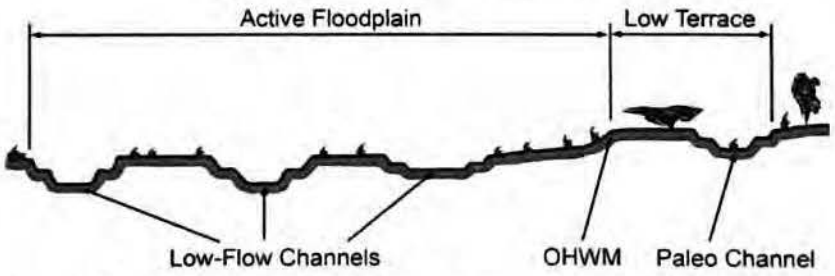
Brief site description:

Man-made ditch adjacent to rangeland/agriculture fields. Apparently a retention basin; no obvious connectivity.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

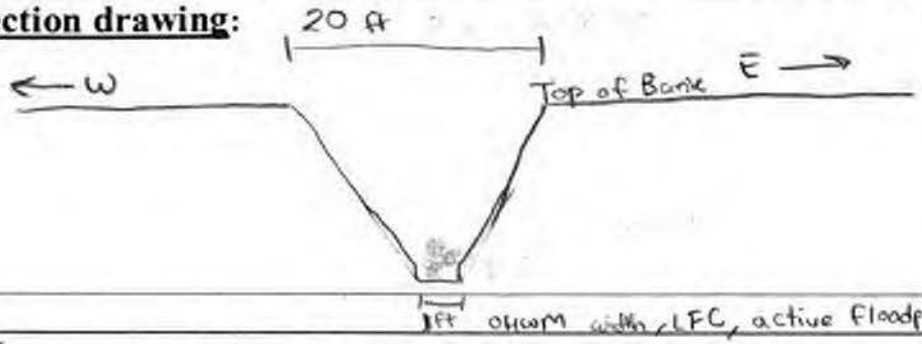


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: **Cross section ID:** ODP-03-OLK **Date:** 12/8/20 **Time:**

Cross section drawing:



OHWM

GPS point: See ODP-03-OLK in collector

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

LFC at bottom of ditch is incised (approx. 1 foot) along majority of ditch. Some saline crust. Intermittent areas where bed and bank/OHWM is less obvious due to erosion of slopes; however bed/bank visible in majority of channel.

Floodplain unit:

☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: See NWW-03-OLK in Collector

Characteristics of the floodplain unit:

Average sediment texture: Silt

Total veg cover: 0 % Tree: ____ % Shrub: ____ % Herb: 0 %

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican's Jaw
Project Number:
Stream: ODP-04-OLK
Investigator(s): MFF, OLK

Date: 12/8/20
Town:
Photo begin file#:

Time: n/a
State: CA
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: Near center of southern half of site.

Projection: **Datum:**
Coordinates: 35.761912 -119.716656

Potential anthropogenic influences on the channel system:

Agricultural runoff; cattle

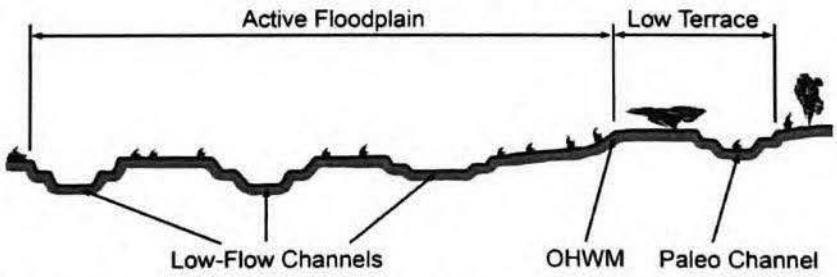
Brief site description:

Man-made ditch adjacent to fallow/grazing fields.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

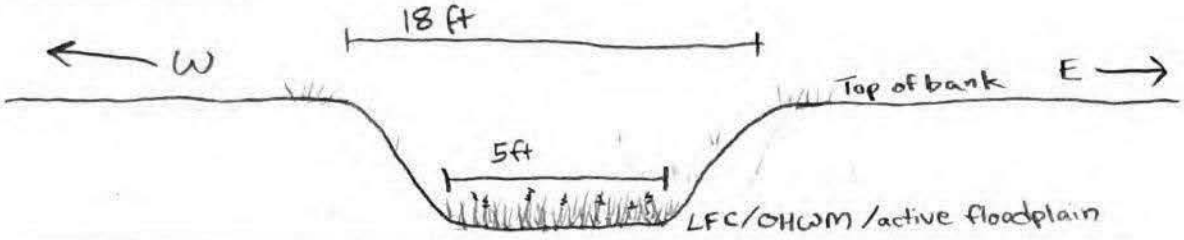


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: **Cross section ID:** ODP-04-OLK **Date:** 12/8/20 **Time:**

Cross section drawing:



OHWM

GPS point: ODP-04-OLK in Collector

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☑ Change in vegetation cover
- ☑ Break in bank slope
- ☑ Other: minimal saline crust
- ☐ Other: _____

Comments: Dense cover of herbs (Phalaris minor=dominant) within channel bottom. Minimal vegetation on slopes

Floodplain unit: ☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: NWW-04-OLK in Collector

Characteristics of the floodplain unit:

Average sediment texture: Silt

Total veg cover: 90 % Tree: ____% Shrub: ____% Herb: 90 %

* Phalaris minor
Avena sp.
Atriplex argentea

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican's Jaw **Project Number:** **Stream:** ODP-05-OLK **Investigator(s):** MFF, OLK	**Date:** 12/8/20 **Town:** **Photo begin file#:**	**Time:** n/a **State:** CA **Photo end file#:**
Y ☑ / N ☐ Do normal circumstances exist on the site? Y ☐ / N ☑ Is the site significantly disturbed?	**Location Details:** Near northern portion of southern half of site. **Projection:** 35.774992594 **Datum:** **Coordinates:** -119.71681829	

Potential anthropogenic influences on the channel system:

Agricultural runoff; cattle

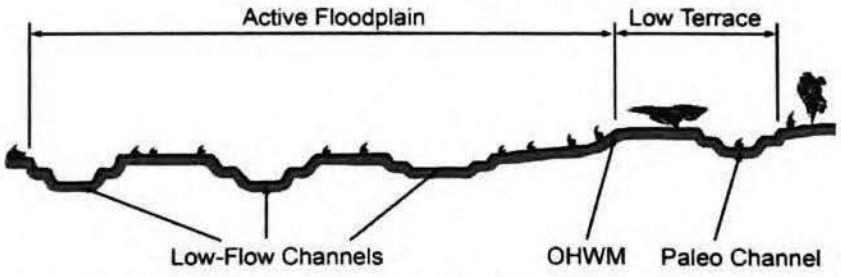
Brief site description:

Man-made ditch adjacent to dirt road and ag/cattle fields to south, and other features to the north

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

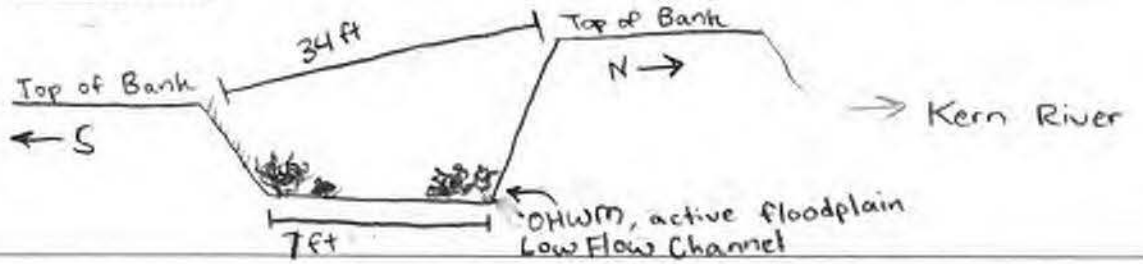


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: **Cross section ID:** ODP-05-OLK **Date:** 12/8/20 **Time:**

Cross section drawing:



OHWM

GPS point: See ODP-05-OLK in Collector

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☑ Other: Saline crust
- ☑ Other: Soil cracks

Comments: Allenrolfia dominant in bottom of channel. Few Tamarisk. Soil cracks and saline crust ~~dominant~~ abundant within the OHWM

Floodplain unit:

☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: See NWW-05-OLK in Collector

Characteristics of the floodplain unit:

Average sediment texture: SiH

Total veg cover: 30 % Tree: ____ % Shrub: 30 % Herb: ____ %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☑ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelicans Jaw
Project Number:
Stream: ODP-06-OLK
Investigator(s): Mackie Forgey, Olivia Koziel

Date: 12/9/20
Town:
Photo begin file#:

Time: n/a
State: CA
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: NW area of southern half of site.

Projection: **Datum:**
Coordinates: 35.77593052 -119.74972247

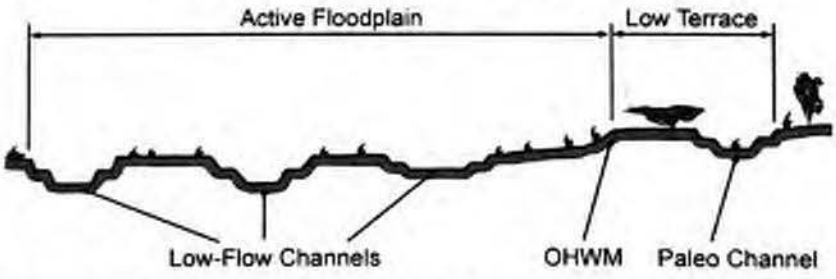
Potential anthropogenic influences on the channel system:
Man-made; cattle presence within and outside of feature; agricultural runoff

Brief site description:
Man-made ditch adjacent to rangeland. Cattle tracks within ditch.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

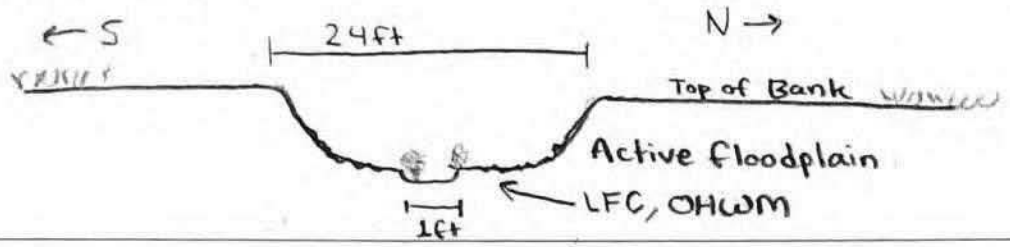


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: **Cross section ID:** ODP-06-OLK **Date:** 12/9/20 **Time:**

Cross section drawing:



OHWM

GPS point: See ODP-06-OLK in Collector

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☑ Other: Saline crust
- ☐ Other: _____

Comments:

Floodplain unit: ☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: See NWW-06-OLK in Collector

Characteristics of the floodplain unit:

Average sediment texture: silt

Total veg cover: 5 % Tree: ____ % Shrub: ____ % Herb: 5 % Atriplex argentea, Bromus rubens

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican's Jaw | **Date:** 12/9/20 | **Time:** n/a
Project Number: | **Town:** | **State:** CA
Stream: GDP-07-OLK | **Photo begin file#:** | **Photo end file#:**
Investigator(s): MFF, OLK

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: NW area of southern half of site

Projection: **Datum:**
Coordinates:

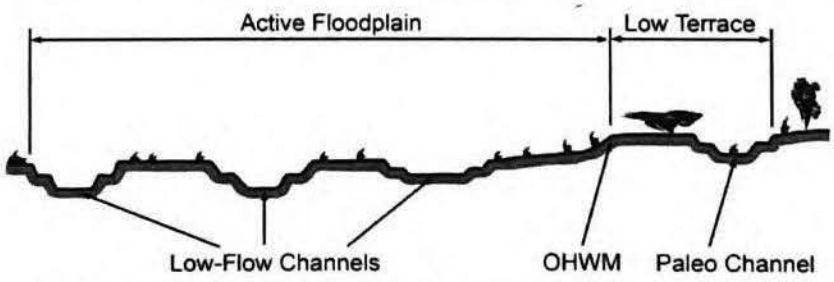
Potential anthropogenic influences on the channel system:
Cattle within feature; agricultural runoff

Brief site description:
Man-made basin topography which contains culverts (half/mostly clogged) leading towards ditches to the west, north, and east. Cattle tracks within basin.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

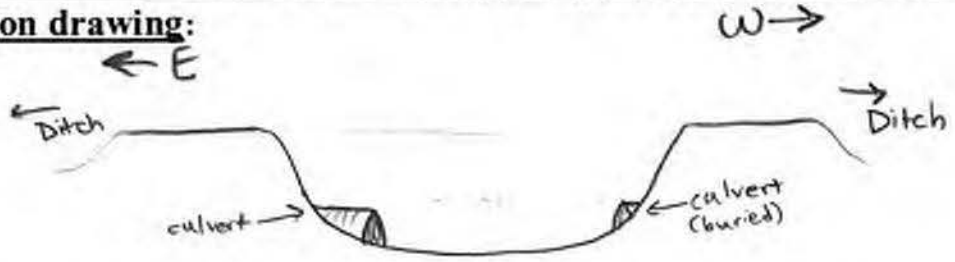


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: **Cross section ID:** ODP-07-OLK **Date:** 12/9/20 **Time:**

Cross section drawing:



OHWM

GPS point: See ODP-07-OLK in collector

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments: Minimal salt crust around edges.

Floodplain unit: ☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: See NWW-07-OLK in collector

Characteristics of the floodplain unit:

Average sediment texture: Silt

Total veg cover: 0 % Tree: ____% Shrub: ____% Herb: ____%

Community successional stage:

- ☑ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican's Jaw
Project Number:
Stream: ODP-08-OLK
Investigator(s): Olivia Koziel, Mackenzie Forgey

Date: 12/9/20
Town:
Photo begin file#:

Time: n/a
State: CA
Photo end file#:

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: NW area of southern half of site

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:

Cattle; agricultural runoff

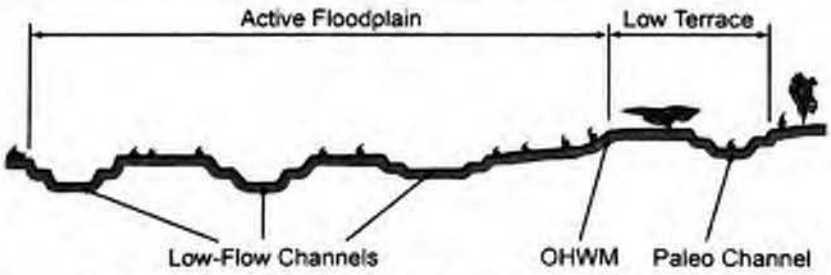
Brief site description:

Man-made unvegetated ditch adjacent to rangeland fields.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

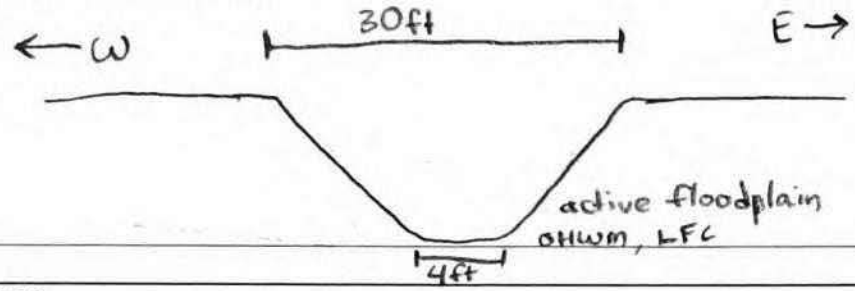


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: **Cross section ID:** ODP-08-OLK **Date:** 12/9/20 **Time:**

Cross section drawing:



OHWM

GPS point: See ODP-08-OLK in Collector

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope slight
- ☐ Other: _____
- ☑ Other: Salt crust

Comments:

Floodplain unit:

☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: See NWW-08-OLK in Collector

Characteristics of the floodplain unit:

Average sediment texture: Silt

Total veg cover: 5 % Tree: ____ % Shrub: ____ % Herb: 5 % Bassia hyssopifolia

Community successional stage:

- ☑ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican's Jaw | **Date:** 12/9/20 | **Time:** n/a
Project Number: | **Town:** | **State:** CA
Stream: ODP-09-OLK | **Photo begin file#:** | **Photo end file#:**
Investigator(s): MFF, OLK

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ☑ Is the site significantly disturbed?

Location Details: NW

Projection: **Datum:**
Coordinates:

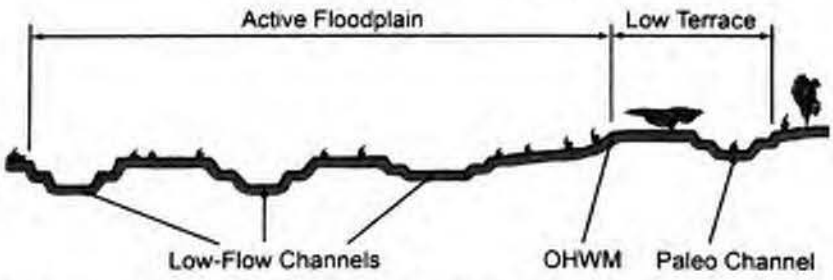
Potential anthropogenic influences on the channel system:
Man-made ditch adjacent to rangeland

Brief site description:
Cattle; agricultural runoff. No apparent connectivity to other ditches, thus appears to serve as a retention basin

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☑ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

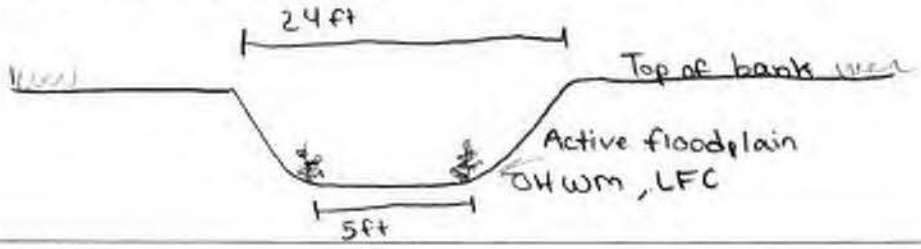


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: **Cross section ID:** ODP-09-OLK **Date:** **Time:**

Cross section drawing:



OHWM

GPS point: See ODP-09-OLK in Collector

Indicators:

- ☐ Change in average sediment texture
- ☑ Change in vegetation species
- ☐ Change in vegetation cover
- ☑ Break in bank slope
- ☑ Other: salt crust
- ☐ Other: _____

Comments: Salt crust w/ Atriplex argentea growing along bottom of channel near edges of OHWM

Floodplain unit: ☑ Low-Flow Channel ☑ Active Floodplain ☐ Low Terrace

GPS point: See NWW-09-OLK

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 10 % Tree: ____ % Shrub: ____ % Herb: 10 % Atr. Arg.

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Soil development

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Pelican Jaw
Project Number:
Stream: SWALE-02-MFF / ODP-02-MFF
Investigator(s): MFF

Date: 12/10/2020 **Time:** n/a
Town: Kern County **State:** CA
Photo begin file#: **Photo end file#:**

Y ☑ / N ☐ Do normal circumstances exist on the site?

Y ☑ / N ☐ Is the site significantly disturbed?

Location Details: Kern River "floodplain" area.

Projection: **Datum:**
Coordinates:

Potential anthropogenic influences on the channel system:
Kern River "floodplain" area is very flat except for swales/depressions like this one, appears to have been graded in the past. Feature is directly adjacent to artificial berm.

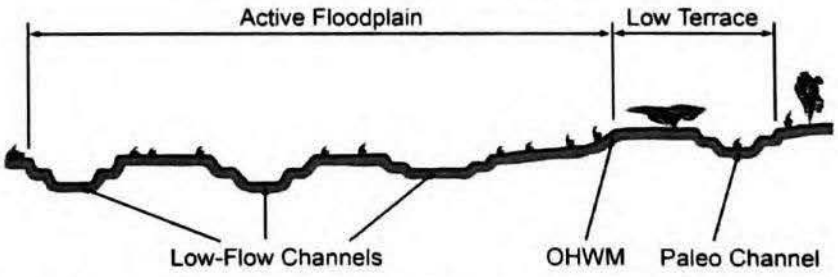
Brief site description:
Feature within flat Kern River "floodplain" area, which appears to be largely upland aside from swales/depressions like this feature. Artificial berm directly adjacent to feature.

Checklist of resources (if available):

- ☑ Aerial photography
  Dates:
- ☑ Topographic maps
- ☐ Geologic maps
- ☑ Vegetation maps
- ☑ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ☑ Global positioning system (GPS)
- ☐ Other studies

- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units

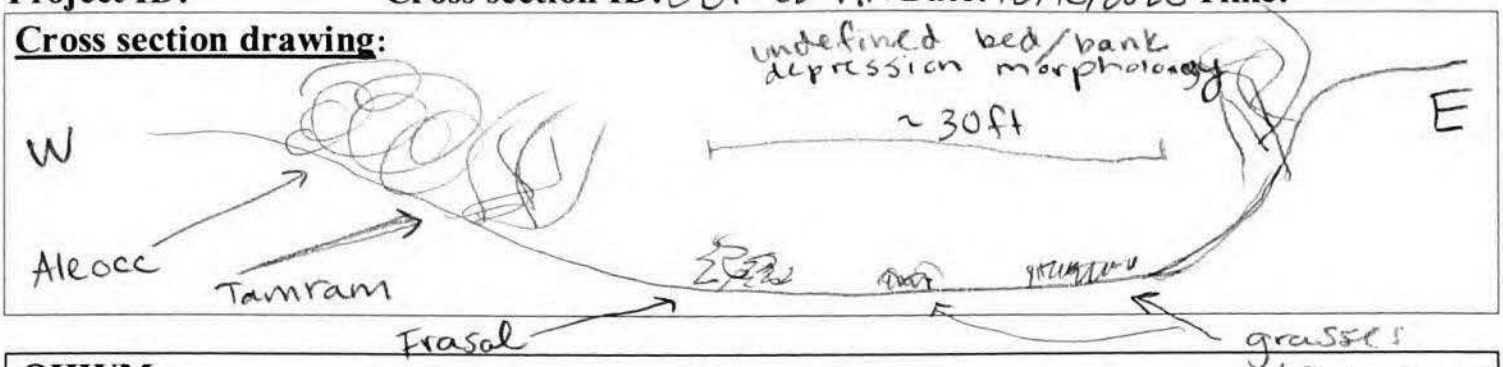


Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and

Project ID: **Cross section ID:** ODP-02-MFF **Date:** 12/10/2020 **Time:**

Cross section drawing:



OHWM

GPS point: ODP-02-MFF

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☐ Other: _____
- ☐ Other: _____

Comments:

No defined bed/bank. Many of the veg species present are also present outside feature. Appears to be topographical depression.

Floodplain unit: ☐ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: SWALE-02-MFF

Characteristics of the floodplain unit:

Average sediment texture: silt

Total veg cover: 24 % Tree: ____ % Shrub: 4 % Herb: 20 %

Community successional stage:

- ☐ NA
- ☑ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☑ Mudcracks
- ☐ Soil development

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 01a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7357499 Long: -119.6920972 Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained (208) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic ponded area shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping. Located within 100 year floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex argentea	20	✔	FAC
2. Hordeum murinum	20	✔	FACU
3. Sisymbrium altissimum	5		FACU
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	45 (A)		160 (B)

Prevalence Index = B/A = 3.56

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 01a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 4

Hydric Soil Present? Yes _____ No ✔

Remarks:

Pistachio shells on surface

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 01b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S34 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7080265 Long: -119.7005486 Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained (208) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic swale complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping. Located within 100 year floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Hordeum murinum	20	✔	FACU
2. Amsinckia menziesii	2		UPL
3. Phalaris aquatica	1		FACU
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	21	x 4 =	84
UPL species	2	x 5 =	10
Column Totals:	23 (A)		94 (B)

Prevalence Index = B/A = 4.09

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 01b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 6

Hydric Soil Present? Yes _____ No ✔

Remarks:

Pistachio shells on surface

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 02

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7342766 Long: -119.6983526 Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained (208) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Amsinckia menziesii	5	✔	UPL
2. Atriplex argentea	5	✔	FAC
3. Bassia hyssopifolia	5	✔	FACU
4. Hordeum murinum	5	✔	FACU
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	20 (A)		80 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 02

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

Pistachio shells on surface

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 03a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7415337 Long: -119.7071594 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex coronata	20	✔	FACW
2.			
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	20 (A)		40 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 03a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 03b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S34 T24S R20E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7966323 Long: -119.7914748 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Schismus arabicus	20	✔	UPL
2. Atriplex coronata	15	✔	FACW
3. Atriplex argentea	10		FAC
4. Plagiobothrys sp.	10		
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column Totals:	45 (A)		160 (B)

Prevalence Index = B/A = 3.56

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 03b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 04a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7422828 Long: -119.7072537 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex coronata	20	✔	FACW
2. Schismus arabicus	5	✔	UPL
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	25 (A)		65 (B)

Prevalence Index = B/A = 2.60

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 04a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 04b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7422304 Long: -119.7072528 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Schismus arabicus	20	✔	UPL
2. Atriplex argentea	10	✔	FAC
3. Plagiobothrys sp.	10	✔	
4. Atriplex coronata	5		FACW
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column Totals:	35 (A)		140 (B)

Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 04b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 05a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7430989 Long: -119.7075180 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex coronata	20	✔	FACW
2. Schismus arabicus	5	✔	UPL
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	25 (A)		65 (B)

Prevalence Index = B/A = 2.60

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 05a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 05b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7430821 Long: -119.7075230 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Schismus arabicus	20	✔	UPL
2. Atriplex argentea	15	✔	FAC
3. Atriplex coronata	5		FACW
4. Plagiobothrys sp.	5		
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column Totals:	40 (A)		155 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 05b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 06a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7407315 Long: -119.7064931 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic swale complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex coronata	25	✔	FACW
2. Atriplex argentea	5		FAC
3. Hordeum murinum	5		FACU
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	35 (A)		85 (B)

Prevalence Index = B/A = 2.43

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 06a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 06b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S10 T26S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.6881983 Long: -119.7029718 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Schismus arabicus	20	✔	UPL
2. Atriplex coronata	10	✔	FACW
3. Atriplex argentea	5		FAC
4. Hordeum murinum	5		FACU
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	20	x 5 =	100
Column Totals:	40 (A)		155 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 06b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 07a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7401329 Long: -119.7060798 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex coronata	25	✔	FACW
2. Atriplex argentea	5		FAC
3. Schismus arabicus	5		UPL
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	35 (A)		90 (B)

Prevalence Index = B/A = 2.57

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 07a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 07b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S10 T26S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.6844636 Long: -119.7027027 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in wetland swale complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Schismus arabicus	20	✔	UPL
2. Atriplex coronata	10	✔	FACW
3. Atriplex argentea	5		FAC
4. Hordeum murinum	5		FACU
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	20	x 5 =	100
Column Totals:	40 (A)		155 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 07b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 08a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7400280 Long: -119.7053789 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex coronata	20	✔	FACW
2.			
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	20 (A)		40 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 08a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 08b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7399428 Long: -119.7053473 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex argentea	20	✔	FAC
2. Schismus arabicus	20	✔	UPL
3. Atriplex coronata	5		FACW
4. Hordeum murinum	5		FACU
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	20	x 3 =	60
FACU species	5	x 4 =	20
UPL species	20	x 5 =	100
Column Totals:	50 (A)		190 (B)

Prevalence Index = B/A = 3.80

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 08b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 09a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7372337 Long: -119.7027584 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex coronata	15	✔	FACW
2.			
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	15 (A)		30 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 09a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 09b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7370228 Long: -119.7028079 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Schismus arabicus	20	✔	UPL
2. Atriplex argentea	5		FAC
3. Atriplex coronata	5		FACW
4. Hordeum murinum	5		FACU
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	5	x 3 =	15
FACU species	5	x 4 =	20
UPL species	20	x 5 =	100
Column Totals:	35 (A)		145 (B)

Prevalence Index = B/A = 4.14

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 09b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 10

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7368736 Long: -119.7028019 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.9b is the upland point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex coronata	15	✔	FACW
2.			
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	15 (A)		30 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 10

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 11

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7375342 Long: -119.7017264 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex argentea	20	✔	FAC
2. Schismus arabicus	10	✔	UPL
3. Atriplex coronata	5		FACW
4. Hordeum murinum	5		FACU
5. Parapholis incurva	5		FACU
6. Phalaris aquatica	3		FACU

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	20	x 3 =	60
FACU species	13	x 4 =	52
UPL species	12	x 5 =	60
Column Totals:	50 (A)		182 (B)

Prevalence Index = B/A = 3.64

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 11

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 12

Investigator(s): CJA, ALT, LAB Section, Township, Range: S22 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7372131 Long: -119.6992101 Datum: WGS 84

Soil Map Unit Name: Nahrub, partially drained-Lethent complex (210) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic wetland complex shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Malva parviflora	10	✔	UPL
2. Schismus arabicus	10	✔	UPL
3. Hordeum murinum	5		FACU
4. Atriplex argentea	2		FAC
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	2	x 3 =	6
FACU species	5	x 4 =	20
UPL species	20	x 5 =	100
Column Totals:	27 (A)		126 (B)

Prevalence Index = B/A = 4.67

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 12

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 13

Investigator(s): CJA, ALT, LAB Section, Township, Range: S16 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7474155 Long: -119.7086082 Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained (208) NWI classification: R5UBFx Riverine

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in historic canal shown in 1956 aerial imagery and mapped by NWI. Now filled in

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex argentea	25	✔	FAC
2. Schismus arabicus	10	✔	UPL
3. Hordeum murinum	5		FACU
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	5	x 4 =	20
UPL species	10	x 5 =	50
Column Totals:	40 (A)		145 (B)

Prevalence Index = B/A = 3.63

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 13

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 14

Investigator(s): CJA, ALT, LAB Section, Township, Range: S16 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.752435 Long: -119.716256 Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained (208) NWI classification:

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in potential feature, signature shown in 1956 aerial imagery

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Hordeum murinum	25	✔	FACU
2. Atriplex argentea	5		FAC
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	5	x 3 =	15
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	30 (A)		115 (B)

Prevalence Index = B/A = 3.83

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 14

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 15

Investigator(s): CJA, ALT, LAB Section, Township, Range: S08 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7755801 Long: -119.7262004 Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained (164) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in barren depression. Located within 100 year floodplain

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex argentea	10	✔	FAC
2. Hordeum murinum	10	✔	FACU
3. Bassia hyssopifolia	1		FACU
4. Malva parviflora	1		UPL
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	10	x 3 =	30
FACU species	11	x 4 =	44
UPL species	1	x 5 =	5
Column Totals:	22 (A)		79 (B)

Prevalence Index = B/A = 3.59

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 15

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 5

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 16a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S36 T24S R20E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7893273 Long: -119.7561710 Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained (164) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in area dominated by wetland plants-- artificial source of water is leaking solar pump. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping. Located within 100 year floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex argentea	50	✔	FAC
2. Amsinckia menziesii	2		UPL
3. Atriplex cordulata	2		FAC
4. Bromus rubens	2		UPL
5. Malva parviflora	2		UPL
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	52	x 3 =	156
FACU species	0	x 4 =	0
UPL species	6	x 5 =	30
Column Totals:	58 (A)		186 (B)

Prevalence Index = B/A = 3.21

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 16a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 3

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ✔ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 16b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S04 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7817704 Long: -119.7206064 Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained (164) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Area between artificial wetland areas

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus rubens	10	✔	UPL
2. Hordeum murinum	10	✔	FACU
3.			
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	10	x 5 =	50
Column Totals:	20 (A)		90 (B)

Prevalence Index = B/A = 4.50

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 16b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 3

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-14

Applicant/Owner: Samsung State: California Sampling Point: 2022 WSP 16c

Investigator(s): CJA, ALT, LAB Section, Township, Range: S04 T25S R21E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7820318 Long: -119.7202814 Datum: WGS 84

Soil Map Unit Name: Houser fine sandy loam, partially drained (164) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in inundated/saturated area--artificial source of water is leaking solar pump. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping. Located within 100 year floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex argentea	20	✔	FAC
2. Hordeum marinum	10	✔	FAC
3. Phalaris aquatica	10	✔	FACU
4. Frankenia salina	5		FACW
5. Chenopodium album	2		FACU
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	30	x 3 =	90
FACU species	12	x 4 =	48
UPL species	0	x 5 =	0
Column Totals:	47 (A)		148 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022 WSP 16c

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 6

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ✔ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-15

Applicant/Owner: Samsung State: California Sampling Point: 2022-WSP-17a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S09 T25S R21E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7726977 Long: -119.7219339 Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained (208) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken within barren signature on aerial, historic canal shown on 1956 aerial imagery. Obligate plants documented in area during rare plant survey but dead/dried during delineation. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping. Located within 100 year floodplain.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft r)			
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex cordulata	10	✔	FAC
2. Bromus rubens	10	✔	UPL
3. Cressa truxillensis	10	✔	FACW
4. Hordeum murinum	10	✔	FACU
5. Lasthenia ferrisiae	10	✔	OBL
6. Schismus arabicus	10	✔	UPL

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	10	x 2 =	20
FAC species	10	x 3 =	30
FACU species	10	x 4 =	40
UPL species	20	x 5 =	100
Column Totals:	60 (A)		200 (B)

Prevalence Index = B/A = 3.33

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022-WSP-17a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 8

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-15

Applicant/Owner: Samsung State: California Sampling Point: 2022-WSP-17b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S09 T25S R21E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7727283 Long: -119.7216325 Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained (208) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping. Located within 100 year floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Schismus arabicus	50	✔	UPL
2. Bromus rubens	10		UPL
3. Hordeum murinum	10		FACU
4. Lasthenia ferrisiae	5		OBL
5. Atriplex cordulata	3		FAC
6. Cressa truxillensis	3		FACW

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	3	x 2 =	6
FAC species	3	x 3 =	9
FACU species	10	x 4 =	40
UPL species	60	x 5 =	300
Column Totals:	81 (A)		360 (B)

Prevalence Index = B/A = 4.44

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022-WSP-17b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 8

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-15

Applicant/Owner: Samsung State: California Sampling Point: 2022-WSP-18a

Investigator(s): CJA, ALT, LAB Section, Township, Range: S09 T25S R21E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7744370 Long: -119.7181261 Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained (208) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Pit taken in barren signature on aerial imagery, historic canal shown in 1956 aerial imagery. Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping. Located within 100 year floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Atriplex argentea	15	✔	FAC
2. Bromus rubens	10	✔	
3. Hordeum murinum	10	✔	FACU
4. Lasthenia ferrisiae	10	✔	OBL
5. Atriplex cordulata	5		FAC
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	0	x 2 =	0
FAC species	20	x 3 =	60
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	40 (A)		110 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

✔ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022-WSP-18a

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 4

Hydric Soil Present? Yes ✔ No ___

Remarks:

Alkaline soils are problematic, may not develop hydric indicators. Assumed hydric due to presence of other indicators.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✔ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Pelicans Jaw City/County: Lost Hills/Kern Sampling Date: 2022-09-15

Applicant/Owner: Samsung State: California Sampling Point: 2022-WSP-18b

Investigator(s): CJA, ALT, LAB Section, Township, Range: S09 T25S R21E

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): C 17 Lat: 35.7744911 Long: -119.7180758 Datum: WGS 84

Soil Map Unit Name: Nahrub clay, partially drained (208) NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation ✔, Soil ✔, or Hydrology ✔ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

Soils on site are alkaline and naturally problematic due to high pH. Natural hydrology regime is altered due to canals, berms, and excessive groundwater pumping. Located within 100 year floodplain.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 5 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus rubens	25	✔	UPL
2. Schismus arabicus	25	✔	
3. Hordeum murinum	15	✔	FACU
4.			
5.			
6.			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	25	x 5 =	125
Column Totals:	40 (A)		185 (B)

Prevalence Index = B/A = 4.63

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

SOIL

Sampling Point: 2022-WSP-18b

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	2.5Y 4/2	100					Silty Clay	
-								
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: Clay

Depth (inches): 8

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

OHWM DATA SHEET

Project: Pelicans Jaw Date: 9-14-22 Feature ID: 2022-NWW-01

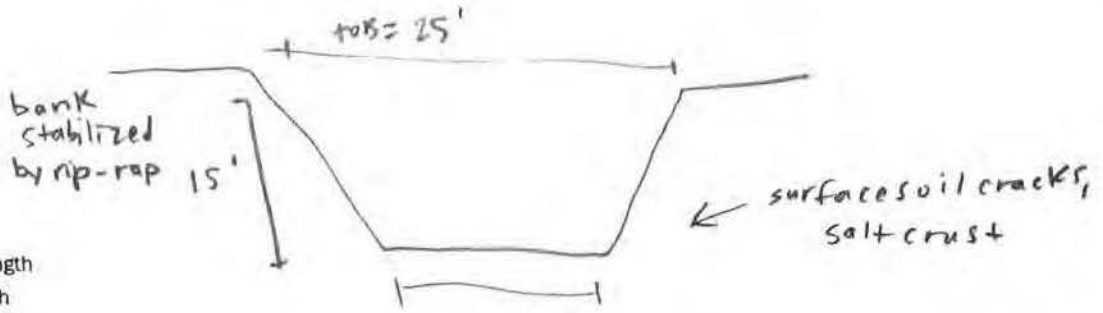
Investigator(s): ALT + LAB + CFA Transect ID: -T-01

Site Location:

canal bisected by intertie

Feature Type: ☐ Ephemeral ☐ Intermittent ☐ Perennial ☑ Other

Transect (cross-section) drawing(s): View Facing: S



☑ Transect length
☐ OHWM width
☑ Channel depth
☑ Photo

OHWM Indicators (at OHWM; primary indicators indicated with *)

- ☐ Natural line impressed on the bank
- ☐ Shelving
- ☐ Changes in the character of soil (texture)*
- ☐ Destruction of terrestrial vegetation
- ☐ Presence of litter and debris
- ☐ Wracking
- ☐ Vegetation matted down, bent, or absent
- ☐ Sediment sorting
- ☐ Leaf litter disturbed or washed away
- ☐ Scour
- ☐ Deposition
- ☑ Bed and banks
- ☐ Water staining
- ☐ Change in plant community and/or cover*

☑ Break in Slope at OHWM*: ☑ Sharp (>60°) ☐ Moderate (30-60°) ☐ Gentle (<30°)

Soil Texture

	Clay/Silt	Sand	Gravel	Cobbles	Boulders
Above OHWM	100	0	0	0	0
Below OHWM					

Total Vegetation Cover

	Tree (%)	Shrub (%)	Herb (%)	Bare (%)

OHWM DATA SHEET

Condition/Disturbances/Anthropogenic Influences (e.g., erosion, grazing, culverts, etc.):

man-made

Hydrology

☐ Flowing water	Avg. depth:	Min. depth:
☐ Standing water	Temp:	Max. depth:
☐ Saturated		
☑ Dry		

Checklist of resources (if available):

☐ Aerial photography	☐ Vegetation maps	☐ GPS unit
☐ Remotely-sensed images	☐ Soil maps	☐ Stream gage data
☐ Topographic maps	☐ Rainfall/precipitation data	☐ Other studies:
☐ Geologic maps	☐ Existing delineation(s) for site	

Other drawings (aerial view), notes:

irrigation canals connected via culverts, continue E/W + N/S of survey area

Appendix D

Review Area Photo



Photo 1. A representative canal within the review area with fields of non-native upland grasses beyond, photo facing north. December 2020 (35.749964, -119.716853).





Photo 3. Non-native upland grasses, red brome (*Bromus rubens)* and mouse barley (*Hordeum murinum),* dominate the flat upland portions of the review area, photo facing northwest. December 2020 (35.783475, -119.725756).





Photo 5. A mostly barren seasonal wetland (Wetland-3P-4) dominated by sand spurrey (*Spergularia* sp.) with large surface soils cracks and salt crust, photo facing north. December 2020 (35.781014, -119.725033).





Photo 7. Riparian area associated with the Kern River Channel dominated by iodine bush (*Allenrolfea occidentalis*) and red brome; photo facing north. December 2020 (35.778917, -119.717172).



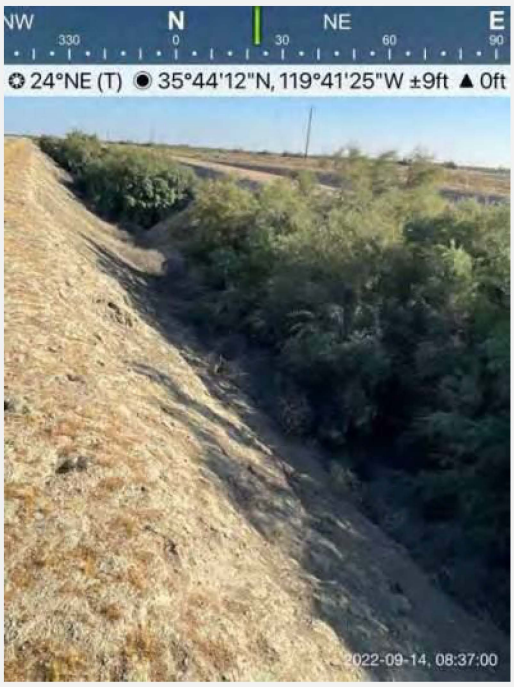
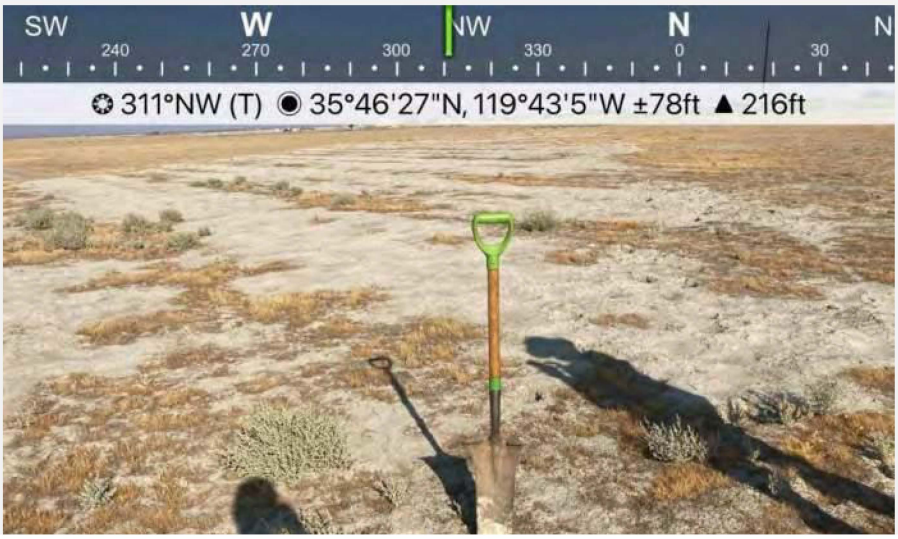


Photo 9. Intermittent tamarisk stands still present within some of the canals in September 2022, but prominent hydrology indicators not observed.





Photo 11. A mostly barren seasonal wetland (2022-WET-06) dominated by crownscale with surface soils cracks. September 2022.



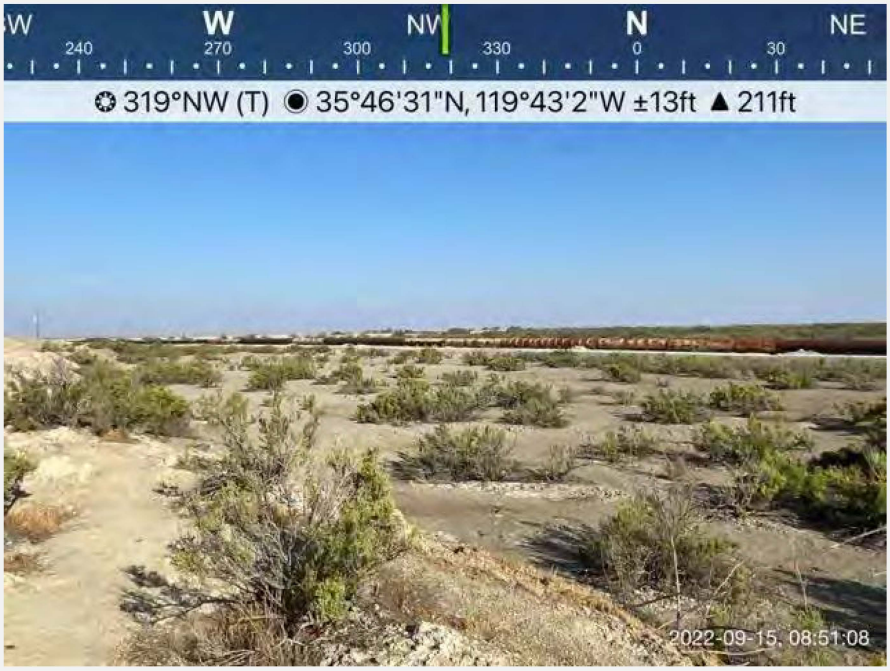


Photo 13. Riparian area associated with the Kern River Channel. September 2022.





Photo 15. Man-made wetland caused by leaking solar pump. Saturated at the time of the September 2022 delineation.



Appendix L

Results of Small Mammal Trapping Survey

Sapphos environmental inc.

April 13, 2023
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M19

TO: U.S. Fish and Wildlife Service
(Mr. Justin Sloan)

California Department of Fish and Wildlife
(Ms. Carrie Swanberg)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Kern County
(Mr. Terrance Smalls)

Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Alphonso Chang-Su Jung, Mr. Karl Brutsaert, and Mr. Sean Mantucca)

Dudek
(Mr. Keith Carwana)

Bell-Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Submittal of the Pelicans Jaw Hybrid Solar Project - Kangaroo Rat Trapping Study Results

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) has been prepared to provide the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) with results of a kangaroo rat trapping survey to determine presence/absence of the state- and federally endangered giant kangaroo rat (*Dipodomys ingens*; GKR) and Tipton kangaroo rat (*D. n. nitratoides*; TKR) on the proposed Pelicans Jaw Hybrid Solar Project (Project) located in northwestern Kern County, California. Dudek completed the trapping study at the approximately 3,371-acre Project site and two additional areas of potential GKR and TKR habitat that adjoin the Project site. The surveys were led by Phil Brylski, PhD (USFWS permit TE148555-2) in accordance with the USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats.[1] No GKR or TKR were observed or trapped during the kangaroo rat trapping efforts. Fifteen Heermann's kangaroo rat *(Dipodomys heermanni*; HKR) and 31 deer mice (*Peromyscus maniculatus*; PMAN) were captured, neither of which possess a federal or state listing or are on any sensitive species list.

INTRODUCTION

A Biological Survey Work Plan for focused special-status species surveys was submitted to the USFWS and the CDFW on April 15, 2021;[2] and an addendum to the Biological Survey Work Plan was submitted to USFWS, CDFW, and Kern County to revise kangaroo rat species surveys on January 13, 2023.[3] The kangaroo rat trapping study was completed in accordance with this work plan and with the USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats[4] for 7 consecutive nights from February 17 through February 24, 2023. Because the study was conducted outside the optimum activity period (April 1 to October 31), the trapping density and survey period were increased following recommendations in the protocol. The trapping survey sampled all potentially suitable kangaroo rat habitats across the approximately 3,371-acre Project site and two additional areas that adjoin the Project site that were included because they were considered to be potential habitat for GKR and TKR: a patch of iodine bush habitat along the Kern River Channel and an area of sparse grassland habitat on alkali/clay soils west of the Channel. The surveys were led by Phil Brylski, PhD (USFWS permit TE148555-2). The purpose of the GKR and TKR survey efforts was to assess the potential presence or absence of these species afforded protection pursuant to the California Endangered Species Act and the federal Endangered Species Act. This MFR transmits the results of the GKR and TKR study (Attachment 1, *Results of Small Mammal Trapping Survey for the Pelicans Jaw Hybrid Solar Project Site, Kern County, California*) for the Project, located in Kern County, California.

SURVEY RESULTS

No GKR or TKR were observed or trapped during the kangaroo rat study efforts either on the Project site or in the two adjacent trapped areas. Fifteen HKR and 31 PMAN were captured. GKR

vegetation cover from recent abnormally heavy rainfall. In-depth discussion of the results is presented in the trapping report (Attachment 1).

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

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To:	Justin Sloan and My Nguyen (Recovery Permit Coordinator) – U.S. Fish and Wildlife Service Larry Bonner and Jeremy Pohlman – California Department of Fish and Wildlife
From:	Phil Brylski, Ph.D, Brock Ortega, and Keith Carwana - Dudek
Subject:	Results of Small Mammal Trapping Survey for the Pelicans Jaw Hybrid Solar Project Site, Kern County, California
Date:	April 12, 2023
Attachments:	A – Biological Survey Work Plan, April 15, 2021 B – Biological Survey Work Plan Addendum, January 13, 2023 C – Phil Brylski, Ph.D Resume D – Photo Log E – Historical Aerial Photos

Executive Summary

This report presents the results of a small mammal trapping survey for the proposed Pelicans Jaw Hybrid Solar Project (Project) located in northwestern Kern County, California. The Project site includes approximately 3,371 acres stretching 3.9 miles from Twisselman Road north to the Kings County border. The Kern River Channel runs outside the eastern border of the site.

The objective of the small mammal trapping survey was to determine presence/absence of the state- and federally-endangered giant kangaroo rat (*Dipodomys ingens*; GKR) and Tipton kangaroo rat (*D. n. nitratoides*; TKR) on the Project site.

The Project applicant, Pelicans Jaw Solar, LLC prepared a Biological Survey Work Plan, which included the methods for focused special-status survey methods (**Attachment A**) that was submitted to the United States Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) on April 15, 2021, and discussed during a subsequent conference call on April 28, 2021. On January 13, 2023, an addendum to the biological survey work plan was submitted to USFWS, CDFW, and Kern County to revise kangaroo rat species surveys (**Attachment B**).

The survey methods were conducted in accordance with the USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (USFWS, 2013). Because the surveys were conducted outside the optimum activity

Project Description

The proposed Project would include up to 500-megawatt (MW) of photovoltaic solar generation and a battery energy storage system (BESS) with a capacity up to 4,000-megawatt hour (MWhr). The Project would primarily consist of photovoltaic (PV) panels, a single-axis tracker system, inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector substation, generation interconnection (gen-tie) line, access roads, security fence, an operations and maintenance (O&M) facility, and a supervisory control and data acquisition (SCADA) system. The Project would also include a Pacific Gas and Electric (PG&E) switching station within the Project site, which would connect with the existing PG&E 230-kilovolt (kV) overhead transmission lines that traverse the Project site.

Construction of the Project is anticipated to occur in three phases, with the first phase consisting of the installation of 300 MW of photovoltaic solar panels and the installation of up to 2,000-MWhr of battery energy storage beginning in the first quarter 2024 and becoming commercially operational in the fourth quarter of 2024 (up to 12 months). The second and third phase would consist of the installation of 200 MW of photovoltaic solar (phase two) and the installation of up to 3,000-MWhr of battery energy storage (phase three) to begin construction in the first quarter of 2024 and become commercially operational in the fourth quarter 2024 (up to 12 months). The operational life of the Project is anticipated to be 35 years.

Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023.

Project Location

The Project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5, located approximately 2 miles to the west. **Figure 1** shows the site on a topographic map (Township 25 South, Range 21 East, Sections 4- 9, 15, 16, and 22). **Figure 2** shows the Project site on an aerial photograph. The Project site and surrounding properties are currently vacant and have been, since 2012, and continue to be used for livestock grazing.

Project location details were recorded from USGS topographic quadrangle and the County Assessor's Parcel Maps:

- **County:** Kern
- **U.S. Geological Survey (USGS) 7.5-Minute Quadrangle (Quad):** West Camp and Lone Tree Well

Figure 1. Project site on topographic map

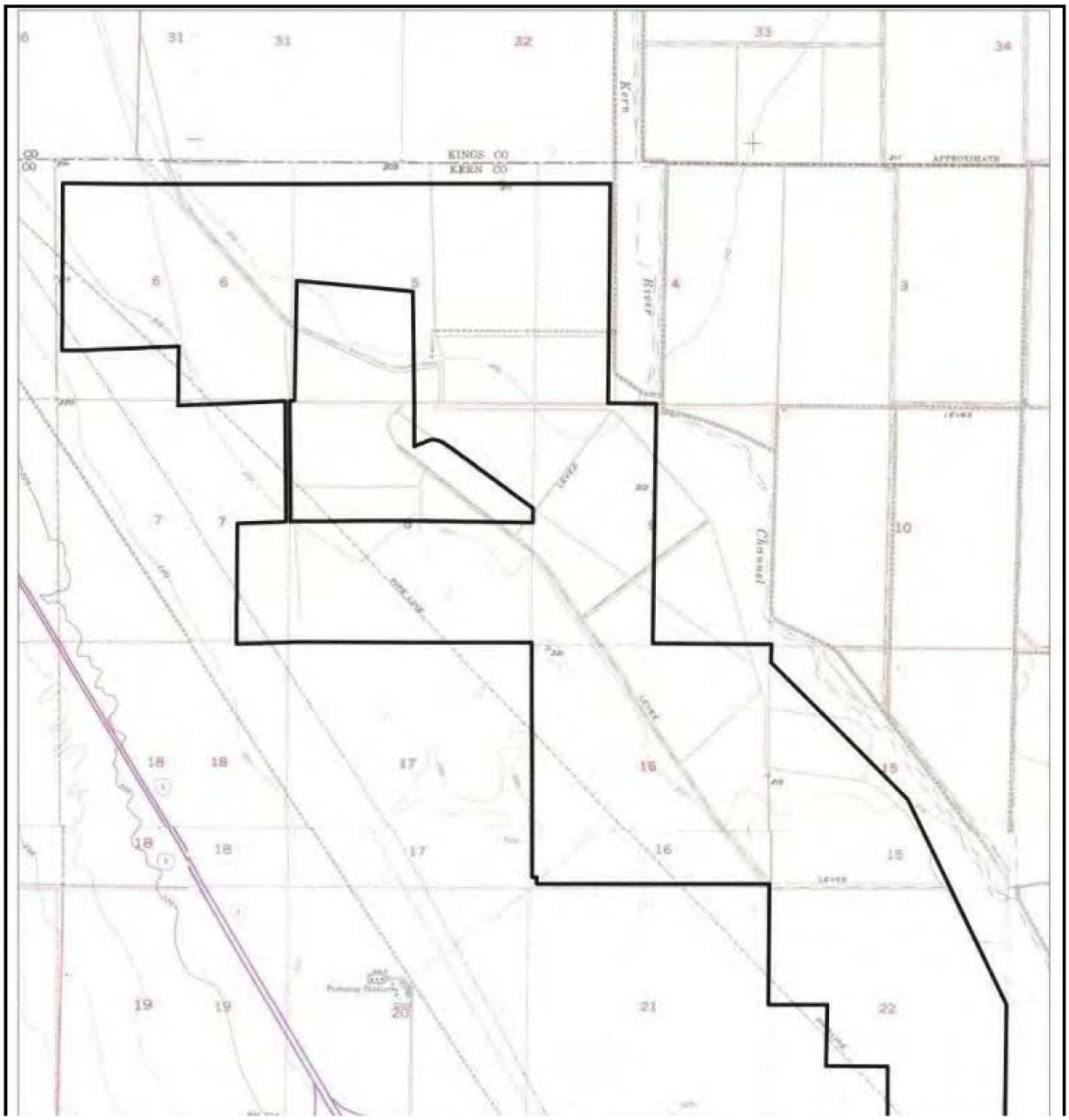
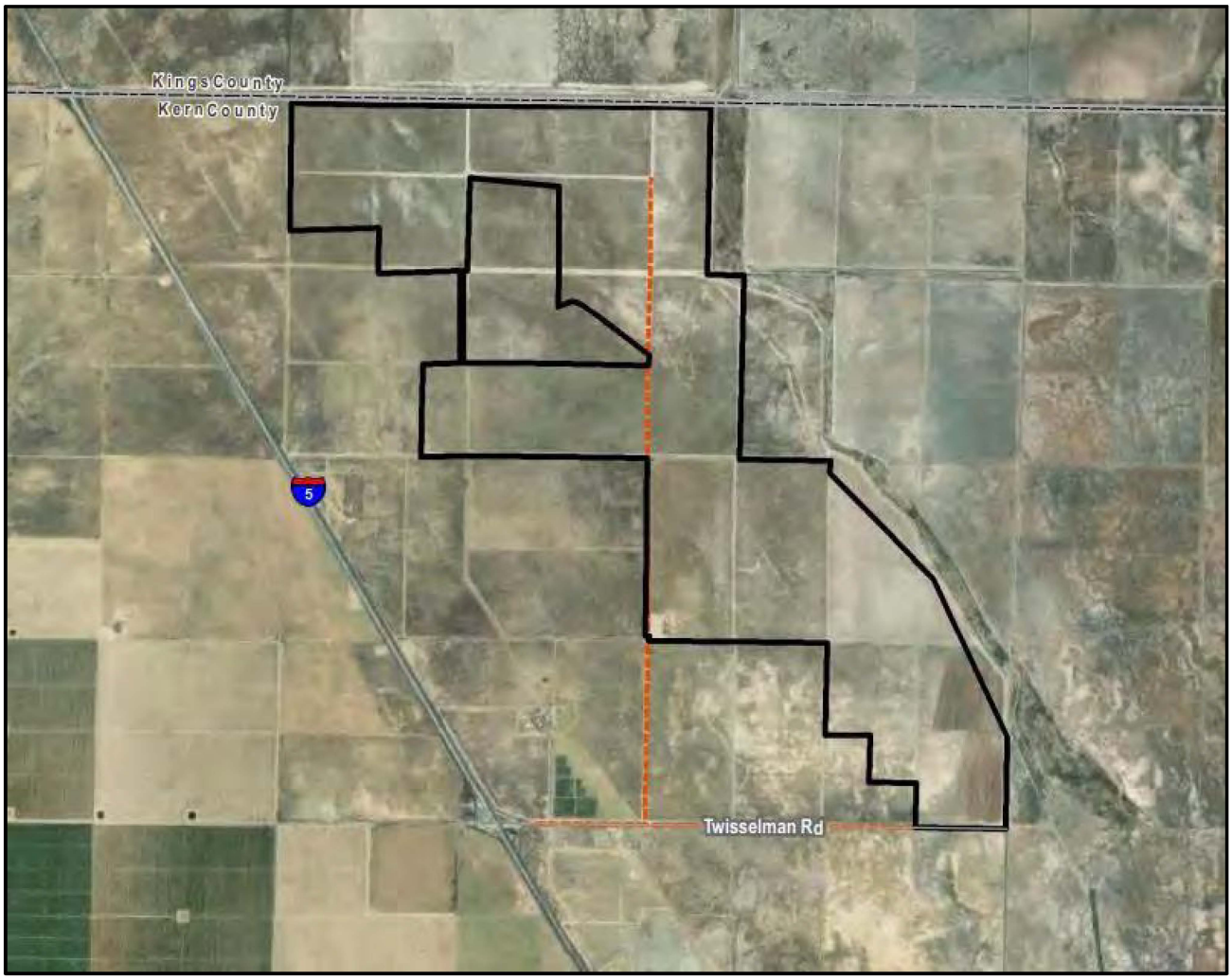


Figure 2. Project site on aerial photo (black line Project border; red dashed line proposed access roads)

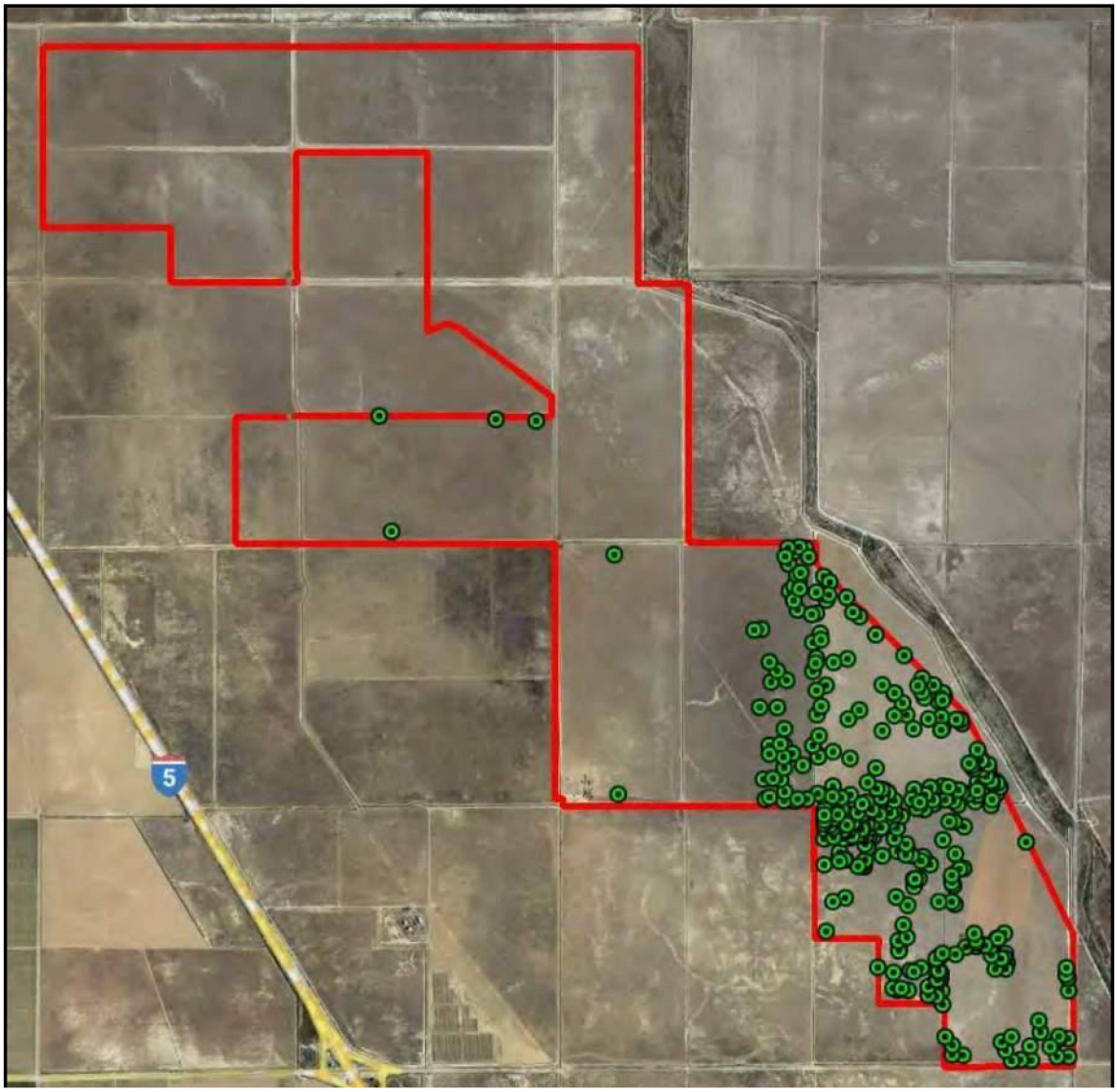


Survey Methods

Literature review. A review of occurrences of sensitive small mammals in the Project area included records from the USFWS database and the CDFW California Natural Diversity Database (CNDDB; CDFW 2023), the Recovery Plan

transects 30 to 100 feet apart (depending on visibility), with 100% coverage of the Project site. A trapping plan to sample the potential kangaroo rat burrows was sent to CDFW and USFWS on January 13, 2023.

Figure 3. Potential kangaroo rat burrow locations on an aerial photo



A survey of potential kangaroo rat burrows on February 17, 2023, under dry conditions, before and while traps were being set, found that many of the burrow systems had been damaged by previous rains, mainly those on flat ground having one to several burrow entrances surrounded by bare dirt. Some had blocked entrances (**Photo 1, Attachment D**) and were considered inactive based on the absence of dirt movement or burrow repair. There were two types of potentially active burrows on the site: those on flat ground with one to several entrances with at least one entrance tunnel open (**Photo 2, Attachment D**) and those in roadside berms (**Photo 3, Attachment D**). All three burrow types were sampled (live-trapped), but the trap effort was weighted to active or potentially active burrows.

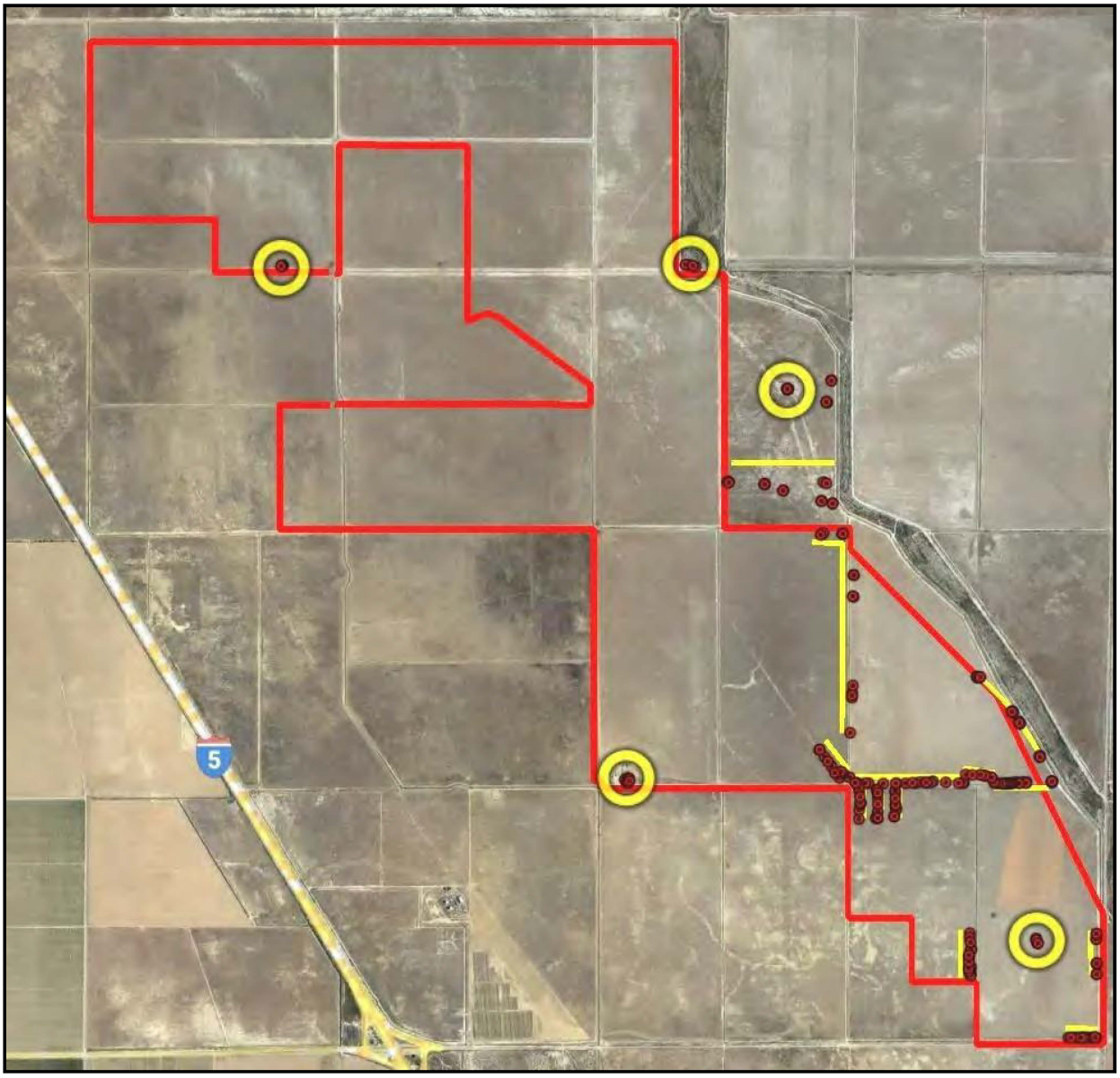
The trapping survey sampled all potentially suitable kangaroo rat habitats across the Project site. 204 large Sherman™ live traps (3 x 3.75 x 12") with shortened doors and extra-large (4 x 4.5 x 15") traps were set along transects in areas with high burrow density and at stations with lower density burrows. Traps were set in areas with potential kangaroo rat burrows. In areas with high density burrows, the distance between traps was 10-25 meters.

Live-trapping was carried out in accordance with the Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (USFWS 2013) from February 17 to 24, 2023, led by Mr. Brylski (USFWS permit TE148555-2. The survey was conducted over a seven-night period rather than a five-night period due to the winter timing of the survey, in accordance with the survey protocol and trapping plan submitted to USFWS and CDFW on January 13, 2023.

Traps were baited with a bird seed/rolled oats mixture, set at dusk and checked every three hours because night-time temperatures were below 50°F. A piece of paper towel was included in each trap as nesting material to help animals stay warm. Animals were identified and released immediately at the point of capture. Sex, weight, hindfoot length, and reproductive condition were recorded for the captured kangaroo rats. UTMs coordinates of traps and capture locations of kangaroo rats were recorded using a Garmin 62S (NAD 83) GPS unit.

The trapping survey sampled all of the areas with potential kangaroo rat burrows. The survey effort totaled 1,428 trap-nights. Two areas that adjoin the Project site were included in the trapping survey because they were considered to be potential habitat for GKR and TKR: a patch of iodine bush habitat along the Kern River Channel and an area of sparse grassland habitat on alkali/clay soils west of the Channel. Figure 4 shows the trap locations on the Project site.

Figure 4. Trap locations (red circles) on an aerial photo (yellow lines show transects, yellow circles show trap stations located in areas with low density burrows



The land use on the Project site for the period 2012 to 2022 has been sheep and cattle grazing, and from about 2004 to 2012 the site had been dry farmed (Wonderful Orchards, 2022; Mike Widhalm, pers. comm. March 14, 2023). At the time of the 2023 small mammal survey, the entire Project Site was in grazing use and showed the effects of previous intensive agricultural uses.

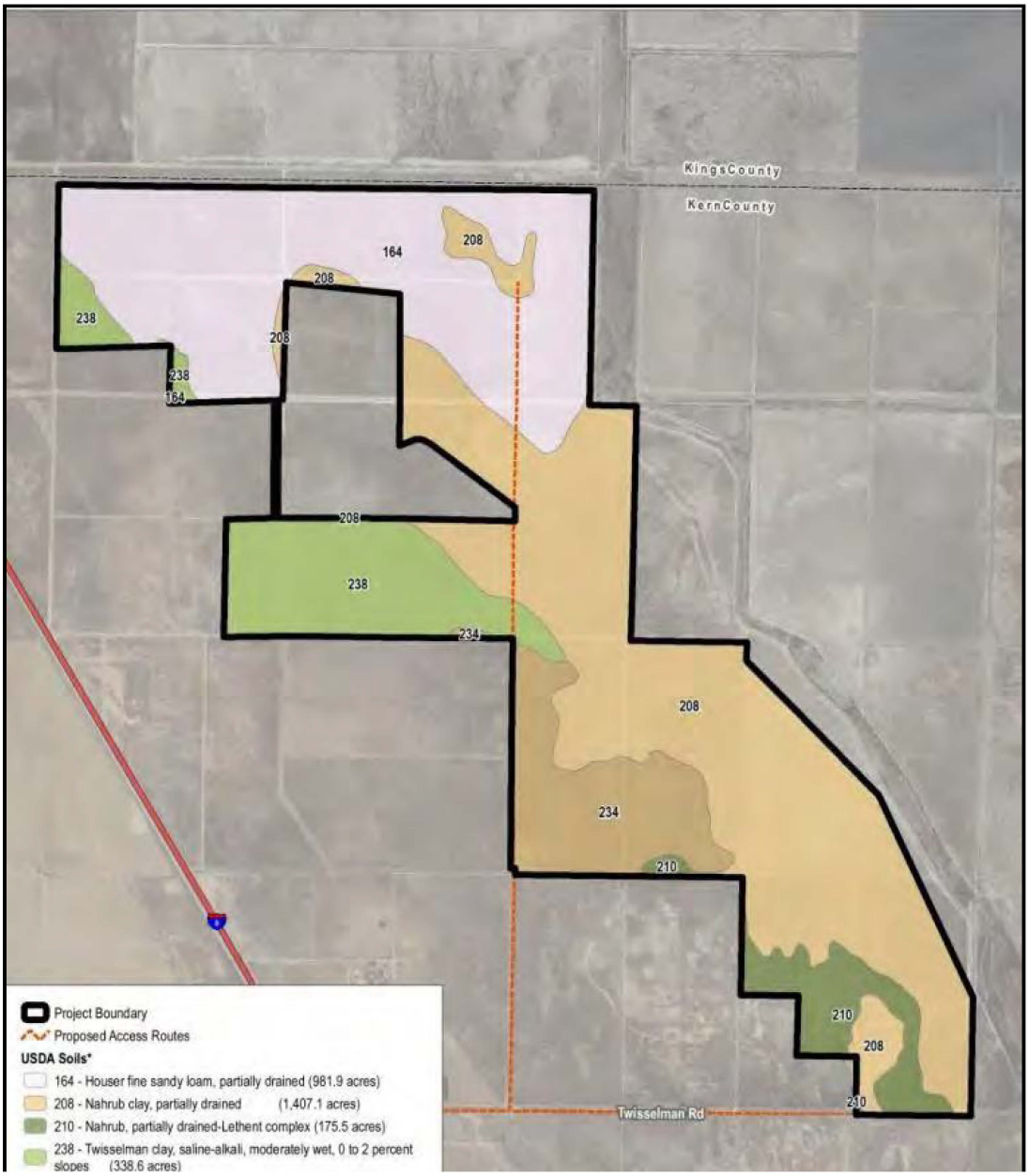
Aerial photos for the northeastern and northwestern parts of the site from 1931 (UCSB 2023) show no evidence of agricultural ground disturbance. By 1956, large areas were under tillage (the light areas in Photo 1, Attachment E) and dikes had been constructed to manage flooding impacts and passive irrigation in eastern parts of the Project Site. In Photo 1, the Kern River Channel flows along the right (eastern) side of the photo; much of the Project Site is in the center of the photo. In 1994, the Project Site was entirely in agricultural use (Photo 2, Attachment E) (Google Earth 2023). Photo 3 shows the southeastern corner of the Project Site under tillage (horizontal lines) (Google Earth 2023). Photo 4 shows that the Project Site remained under tillage in 2007.

The available data indicate that agricultural use of the site started sometime between 1931 and 1956 and that the site was dry-farmed until 2012, with regular tilling, followed by grazing to 2023. Fields that are tilled one or more times a year could exclude use by kangaroo rats for periods of time, yet kangaroo rats could persist in roadside berms depending on food availability. Interruptions in annual tilling would provide an opportunity for recolonization, This is the likely explanation for kangaroo rat expansion in the southeastern part of the Project Site prior to 2022. The only kangaroo rat recorded on the Project Site in the 2023 trapping survey was Heermann's kangaroo rat.

Soils

The soil types on the site are as follows: Nahrub clay (partially drained), Nahrub, partially drained-Lethent complex, Twisselman sandy loam (saline-alkali, moderately wet, 0 to 2% slopes), Twisselman clay (saline-alkali, moderately wet, 0 to 2% slopes), and Houser fine sandy loam (partially drained) (Dudek 2023) (Figure 5).

Figure 5. Soils map



Plant Communities

There are two grassland-herb communities on the Project site: red brome (*Bromus rubens*)-mixed herb association, the dominant plant community on the Project site (2,418.36 acres) and red brome semi-natural association (176.09 acres, Figure 6). At the time of the small mammal trapping survey, grasses and forbs had grown following earlier rains. Plants common in these two associations in February 2023 included red brome (*Bromus rubens*), Mediterranean grass (*Schismus arabicus, S. barbatus*), filaree (*Erodium cicutarium*), London rocket (*Sisymbrium irio*), Menzie's (*Amsinckia menziesii*), California mustard (*Caulanthus lasiophyllus*), and tumbleweed (*Kali tragus*). Other plants observed include caterpillar phacelia (*Phacelia cicutaria*), bur clover (*Medicago polymorpha*), and cheeseweed (*Malva parviflora*). The grasslands at the time of the survey were dense across much of the site (**Photos 4 and 5, Attachment D**) or with exposed soils in other parts of the site (**Photo 6, Attachment D**). This contrasts with the sparse cover observed in May 2022 during the drought (**Photo 7, Attachment D**); Iodine bush (*Allenrolfea occidentalis*) association (3.10 acres). There are two small patches in the northeastern and southern parts of the site, which are dominated by saltgrass (*Distichlis spicata*) and alkali heath (*Frankenia salina*).

Five-hook bassia (*Bassia hyssopifolia*)-burning bush (*B. scoparia*) semi-natural association (Figure 6, 74.76 acres). This herbaceous community is dominated by *Bassia* sp. and red brome with large patches of bare ground, in disturbed areas with evidence of recent tilling or farming and along roadsides in the southern part of the Project site.

Common tarweed (*Centromadia pungens*) (Figure 6, 3.09 acres). This association occurs as a small patch in the northwestern part of the site near an inactive irrigation canal. Associated plants include alkali heath, short-pod mustard (*Hirschfeldia incana*), wall barley (*Hordeum murinum*), California goldfields (*Lasthenia californica*), and Fremont's goldfields (*L. fremontii*).

Kali (*Salsola kali*) (Figure 6, 0.49 acres). This association is found in previously disturbed areas with evidence of recent tilling or farming in the middle of the Project site. It is an herbaceous community dominated by kali with red brome and five-hook bassia.

Saltmarsh sand-spurrey (*Spergularia marina*) (Figure 6, 6.24 acres). This community can be found in moist or seasonally flooded alkaline/saline areas.

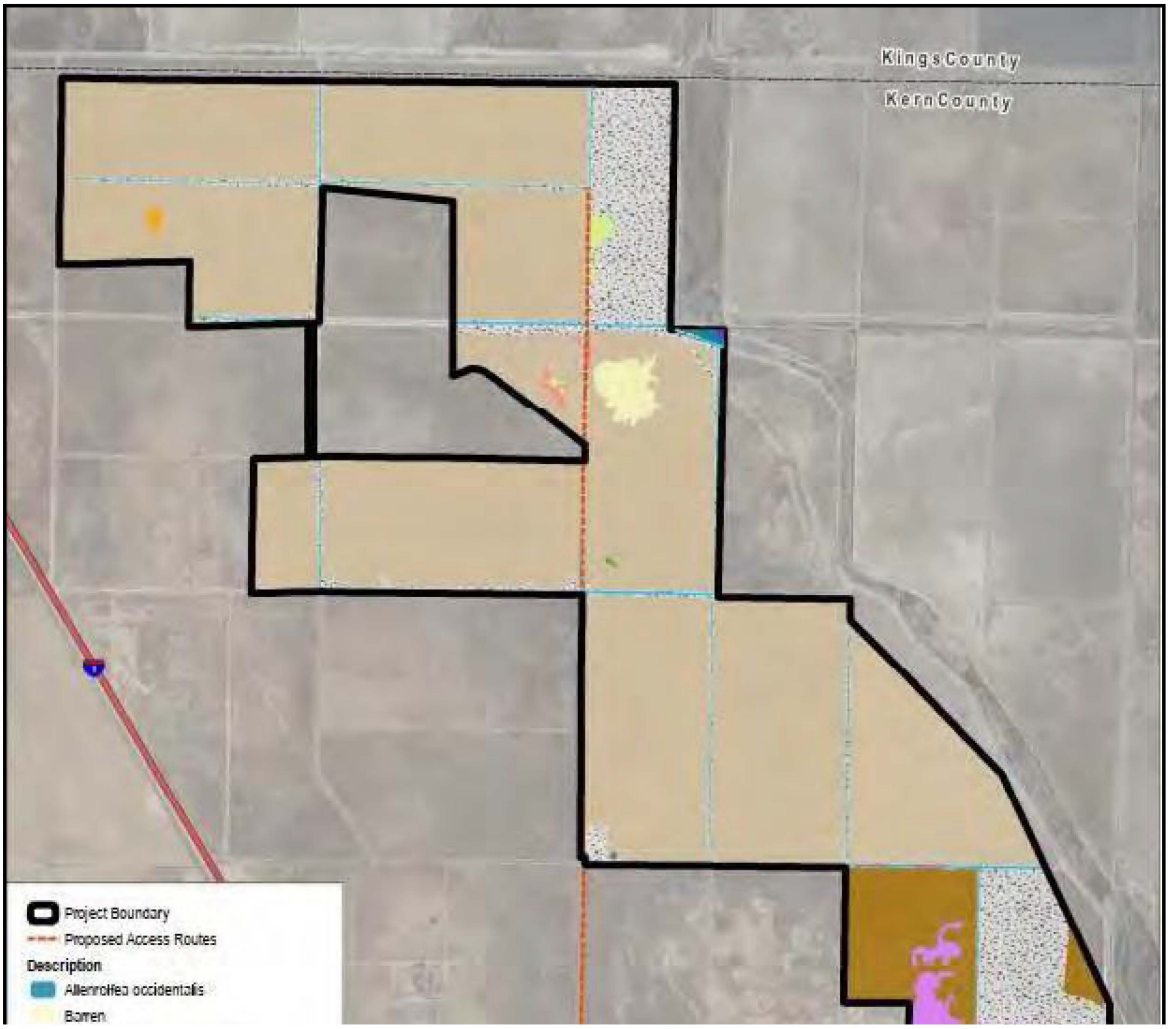
Bush seepweed (*Suaeda moquinii*) (Figure 6, 4.5 acres). This vegetation community can be found on flat or gently sloping valley bottoms or playas that have deep alkaline or saline soils.

Tamarisk thickets (*Tamarisk ramosissima*) (Figure 6, 2.25 acres). This community within the inactive irrigation

Disturbed Habitat (Figure 6, 528.50 acres). This land cover includes heavily grazed areas in the northeastern and southeastern parts of the Project site, ranch roads, remnant structures and paved roads.

Drainage Ditch (Figure 6, 57.41 acres). This land cover consists of the man-made drainage ditches that occur throughout the Project site.

Figure 6. Vegetation and land cover types



Small Mammal Survey Results

The small mammal trapping survey consisted of seven nights of live-trapping from February 17 to 24, 2023 using 204 traps each night, for a total trap effort of 1,428 trap-nights. Temperatures during the survey ranged from 38 to 49 °F (Table 1). Cloud cover ranged from 0 to 100%; wind ranged from 0 to 15 mph. Light rainfall occurred in the early morning of February 24, 2023, at which time the traps were closed.

Table 1. Weather Conditions

Date (2023)	Temperature (°F)*	Cloud Cover (%)	Wind (mph)
2/17 – 2/18	38/45	5	0
2/18 – 2/19	39/48	0	3
2/19 – 2/20	38/48	0	0
2/20 – 2/21	47/49	10-70	2-5
2/21 – 2/22	44/47	15	10-15
2/22 – 2/23	39/45	75-90	5-10
2/23 – 2/24	38/45	100	5-8

Note:
* high and low temps for the trap session, with highs generally at night and lows in early morning

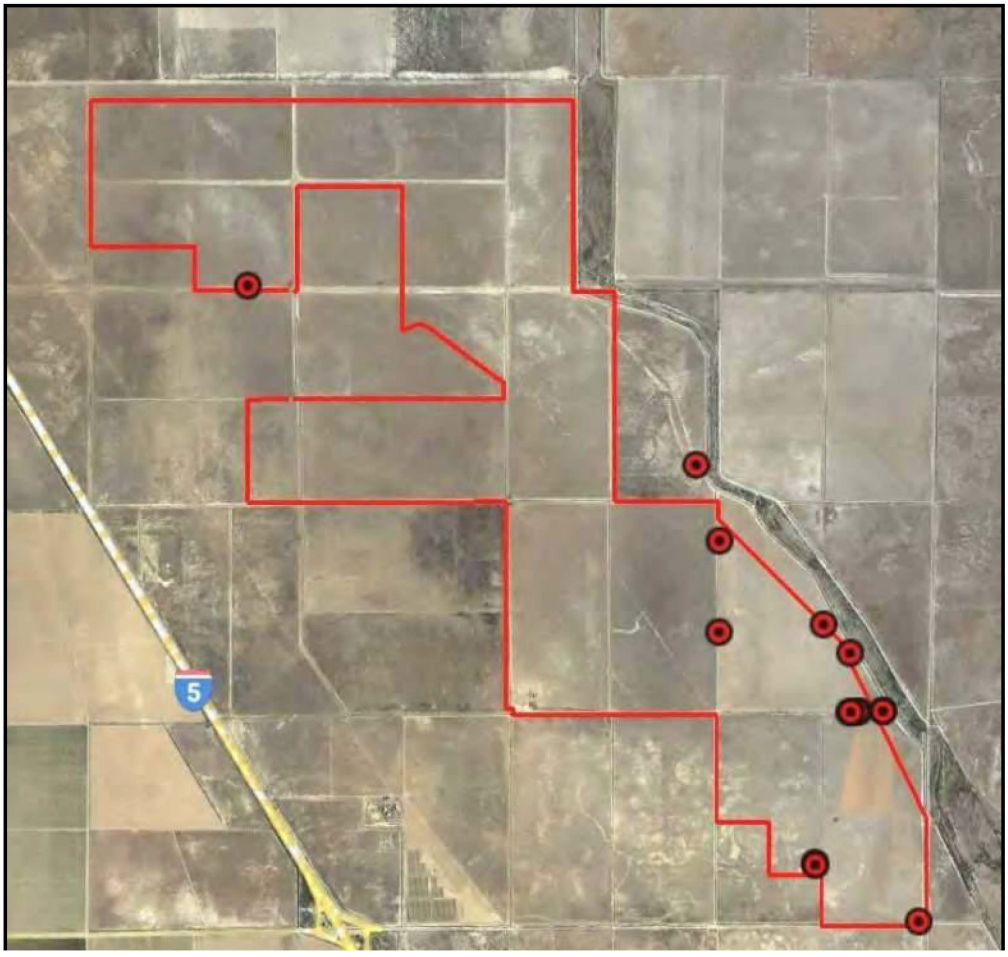
The survey yielded 15 Heermann's kangaroo rats (*Dipodomys heermanni*; HKR; 6 subadults, 9 adults, 8 males, and 7 females) and deer mouse (*Peromyscus maniculatus*; PMAN). Table 2 summarizes the captures. The adult HKR averaged 63.2 grams (range 55-86, n=6), with hindfoot lengths less than 42mm. Subadults averaged 37 grams (range 32-41, n=3). Figure 7 shows the HKR capture locations.

Table 2. Summary of small mammal captures

	HKR		
Date (2023)	Subadults	Adults	PMAN
2/17 – 2/18	1	2	2
2/18 – 2/19	1	1	3
2/19 – 2/20	2	1	5
2/20 – 2/21	0	0	4
2/21 – 2/22	1	2	4
2/22 – 2/23	0	0	6

kangaroo rat burrows observed in 2022 and the low number of HKR captures in 2023 (15) suggests that the population experienced a steep decline in recent years. The burrow surveys carried on the Project site in June through August 2022 documented extremely dry conditions and only several of the burrows that were inspected had kangaroo rat scat, which were consistent with HKR scat size. The Project region experienced drought from 2011 to 2017 and was in 'exceptional drought' in 2021 and 2022. The capture data and observations on the Project site conditions indicate that the HKR population declined to low numbers, possibly related to the extended drought.

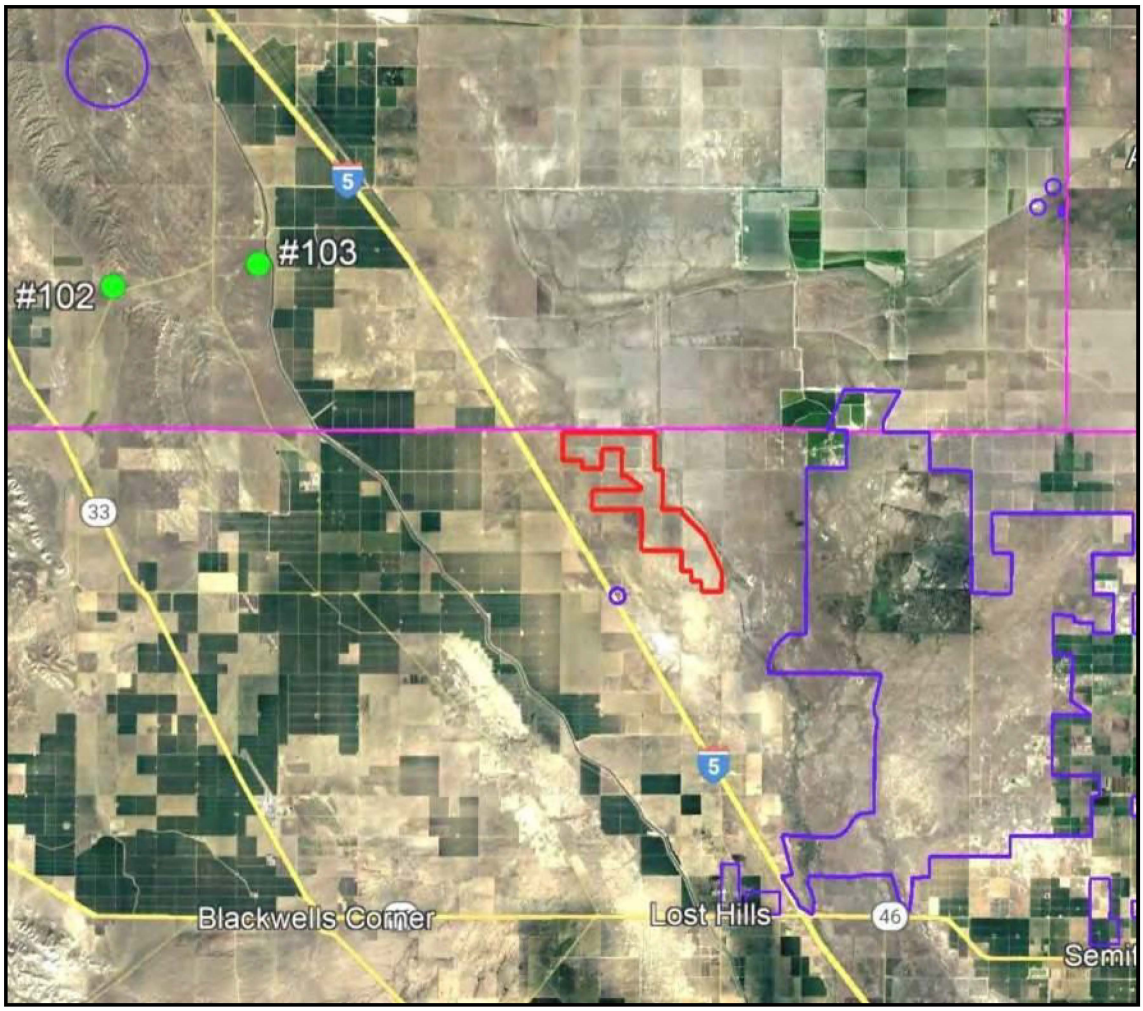
Figure 7. HKR capture locations



Project Site in Relation to Historical Range, Recent Occurrence Records, and Habitat

Figure 8 below shows the Project site in relation to recorded occurrences of giant kangaroo rat and Tipton kangaroo rat.

Figure 8. Project site in relation to CNDDB records for GKR (green dots) and TKR (purple circles and polygon).



Santa Barbara and San Luis Obispo counties. GKR may also occur in patches between these areas (Williams et al. 1995, Williams 1981, 1992).

The nearest GKR occurrences to the Project site in the CNDDB (CDFW 2022) are two records from the Kettleman Hills (Figure 8), as follows:

- 0.5 mile north, 0.5 mile east Las Perillas pumping plant, Kettleman Hills. The note in the CNNDB states 'colonies verified (sometime between 1979 and 1986) as inhabited' (CNDDB #103). This locality is 8.7 miles northwest of the Project site; and
- Avenal Gap, Kettleman Hills, the note in the CNNDB record states 'colony(ies) verified in 1979. At that time the colony and several, small satellite colonies covered approx 50 acres. By 1985, all but this "core" colony had disappeared. Now only approx 30 precincts over 2-3 acres' (CNDDB #102). This locality is 11.75 miles northwest of the Project site.

These CNDDB records are from 1979 to 1985. Bean et al. (2018) surveyed the Kettleman Hills from 2010 to 2017 using a combination of aerial photos and field assessments focused on burrows, supplemented by live-trapping, and confirmed that GKR still occur in the Kettleman Hills.

Early studies of GKR found them west of the valley floor on grassland and scrub habitats overgrazed by sheep, on sandy and loamy soils (Grinnell, 1932). Currently, good quality GKR habitat is considered to be annual grasslands with few or no shrubs on gentle slopes that do not flood in winter (USFWS 2020), although GKR also occur on similar habitats on slopes of up to 20% (Williams and Kilburn, 1991). Recent surveys along the California aqueduct found GKR in sparse saltbush scrub habitats with little grass cover (Brylski unpubl. data). GKR burrow systems have up to five openings in proximity, known as 'precincts,' which are occupied by one individual (Grinnell 1932). GKR are primarily granivorous, consuming brome (*Bromus* spp), filaree (*Erodium* spp.), peppergrass (*Lepidium* spp.), and fiddleneck (*Amsinckia* spp.) (Williams et al. 1993). The Project site has been used as pasture for cattle and sheep for the last decade, prior to which it was dry farmed, with shrub clearance and tilling.

The live-trapping survey recorded no GKR captures in seven nights of trapping, which is the most definitive evidence of their absence from the Project Site. GKR absence from the Project site is consistent with the size of the kangaroo rat burrows there and by previous aerial imagery analyses carried out across the species range.

The sizes of GKR and HKR burrows overlap, but GKR burrows tend to be much larger than HKR burrows. The diameters of GKR and HKR burrow entrances in the Elkhorn Plain Ecological Reserve, Panoche Creek, and Kettleman Hills ranged from 5-12.3 cm and 3.5-7.9 cm, respectively (Williams 1992). The kangaroo rat burrows on the Project Site measured 5-7 cm at the time of the 2023 small mammal survey, which is in the zone of overlap

If GKR burrows were mapped on aerial images, follow-up studies (foot and/or trapping surveys) confirmed GKR presence 98% of the time. However, only approximately half of the sites where GKR were present had GKR burrows in the aerial imagery. This result applies mainly to natural habitats. Agricultural fields that lacked GKR burrows in the aerial imagery would be expected to be classified "GKR absent – high confidence."

Tipton Kangaroo Rat (TKR). The historical range of Tipton's kangaroo rat was the San Joaquin Valley from Lemoore south along the west side of the valley to Lost Hills, Buena Vista Lake and the southern edge of the valley east to Rose Station, and along the eastern side of the valley from the vicinity of Visalia south to Bakersfield. The project site is within TKR's historical range, as drawn in USFWS (2020).

The nearest TKR occurrences to the Project site in the CNDDB (Figure 8) are from two localities:

- Southeast of the intersection of I-5 and Twisselman Rd (CNDDB #27). The CNNDB record states 'burrow density was approximately 55 burrows/ha. Habitat consists of approximately 15 ha of Suaeda and Atriplex spinifera, site #85b (Williams 1985)'. This locality is 2 miles west of the southern border of the Project site; and
- Kern National Wildlife Refuge and Semitropic Ridge area. The notes in the CNNDB record (CNDDB #26) state '2004: 28 adults trapped in T26S, R22E Secs 21 & 26. Habitat consists of uncultivated land, dominated by iodine bush, atriplex scrub, shrub-marsh ecotone, & suaeda with scattered alkali playas and scalds. Bromus, Allenrolfea occidentalis, Tamarix, Orthocarpus. Approx 75 captured in Jul. 2004, 28 capt 16-20 Aug. 2006, Aug. 2007: 8 capt 9-12 Jul. Most of the area is grazed by sheep and flooded in winter; some sections are fallow or cultivated.'

The first CNDDB record above (#27) was based on burrow surveys (Williams 1985) in bush seepweed and spiny saltbush habitats, which are known to be suitable for TKR. The Project site contains 4.5 acres of this habitat in the northern part of the site, but no potential kangaroo rat burrows were found in this community. The current survey covered two small areas of iodine bush scrub, the larger of which was outside the Project boundary (along the Kern River Channel) and was live-trapped because it had the highest potential for TKR occurrence (no TKR were captured). The history of dry faming on the site with periodic tilling followed by its use for grazing over the last decade indicates that there is some potential for TKR to colonize the Project site, although habitat quality for TKR on the Project site is low due to the absence of shrubs. TKR do not occur in continuously cultivated areas, but can colonize formerly cultivated fields (Williams 1985).

The second TKR CNDDB record above (#26) from the Kern National Wildlife Refuge were from 1975 to 2007, when the species was recorded in iodine bush, saltbush (*Atriplex* spp) scrub, and bush seepweed, which are largely absent from the Project site. Recent trapping efforts at the refuge have not recorded any TKR (USFWS 2020), and TKR were not captured in iodine bush and bush seepweed habitats on the Project site.

The live-trapping survey recorded no TKR captures in seven nights of trapping. The Project site contains marginal habitat for TKR due to the near-absence of shrubs. No TKR were captured in the very small patch of iodine bush scrub in the southwestern part of the Project site, or in the larger patch of iodine bush scrub outside the northwestern boundary along the Kern River Channel. With high rainfall in recent months, grass and forb cover on the site is becoming dense; dense grassland/forb cover is unsuitable for TKR.

I certify that the information in this survey report and attached exhibits fully and accurately represents my work. Please contact me at 949.870.8878 if you have any questions.

Sincerely,



Phil Brylski, Ph.D.
Permit 148555-2

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Williams, D.F. 1985. A review of the population status of the Titpon kangaroo rat, *Dipodomys nitratoides nitratoides*. prepared for the US Fish & Wildlife Service, Sacramento. Final Report, Order No. 10181-4861 (ts) '84 SE-0020-4. 44 pp + appendices

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Attachment A

Biological Survey Work Plan,
April 15, 2021

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be "marked" using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

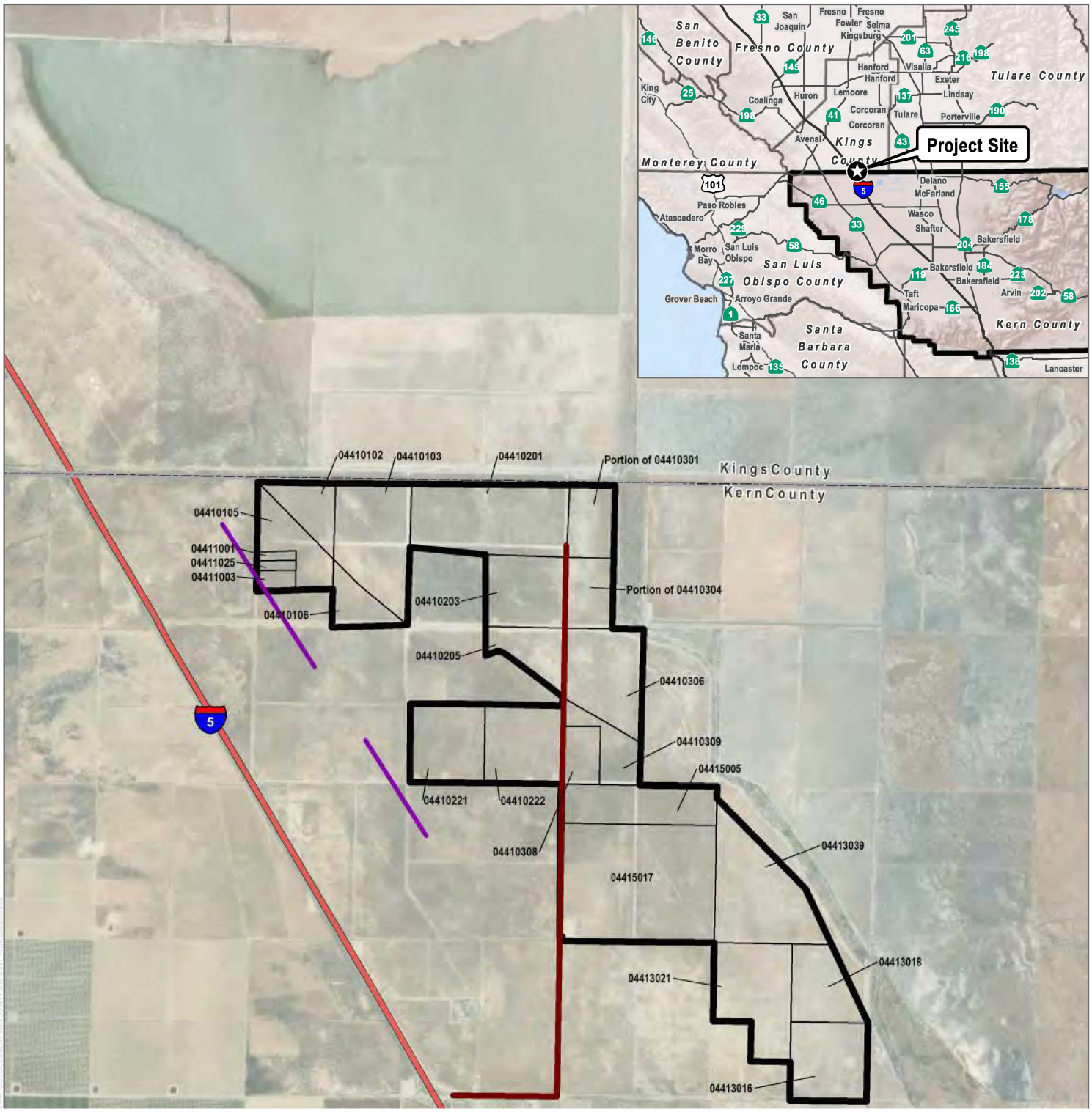
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

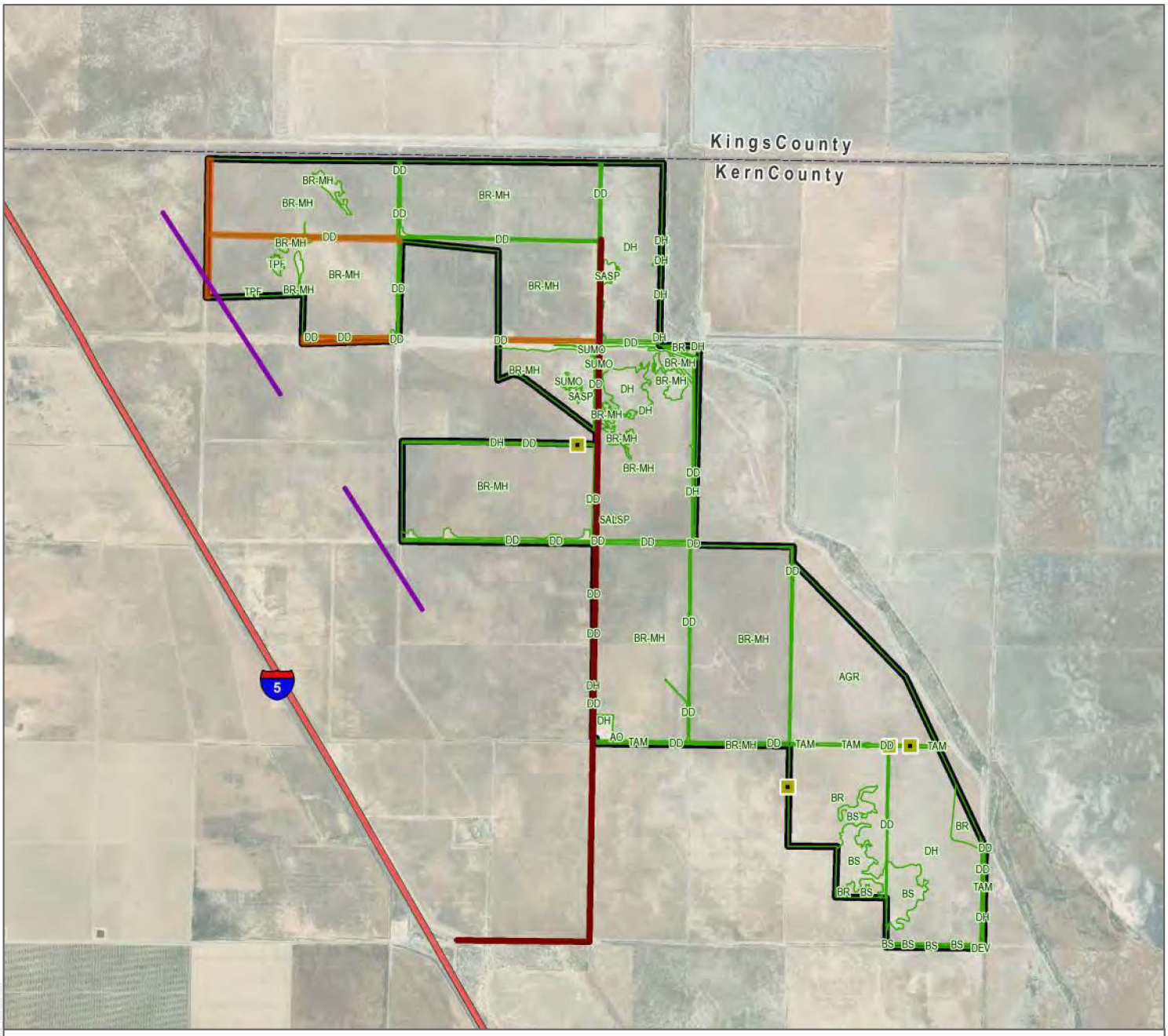
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Kern County
Santa Barbara County
Lancaster
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

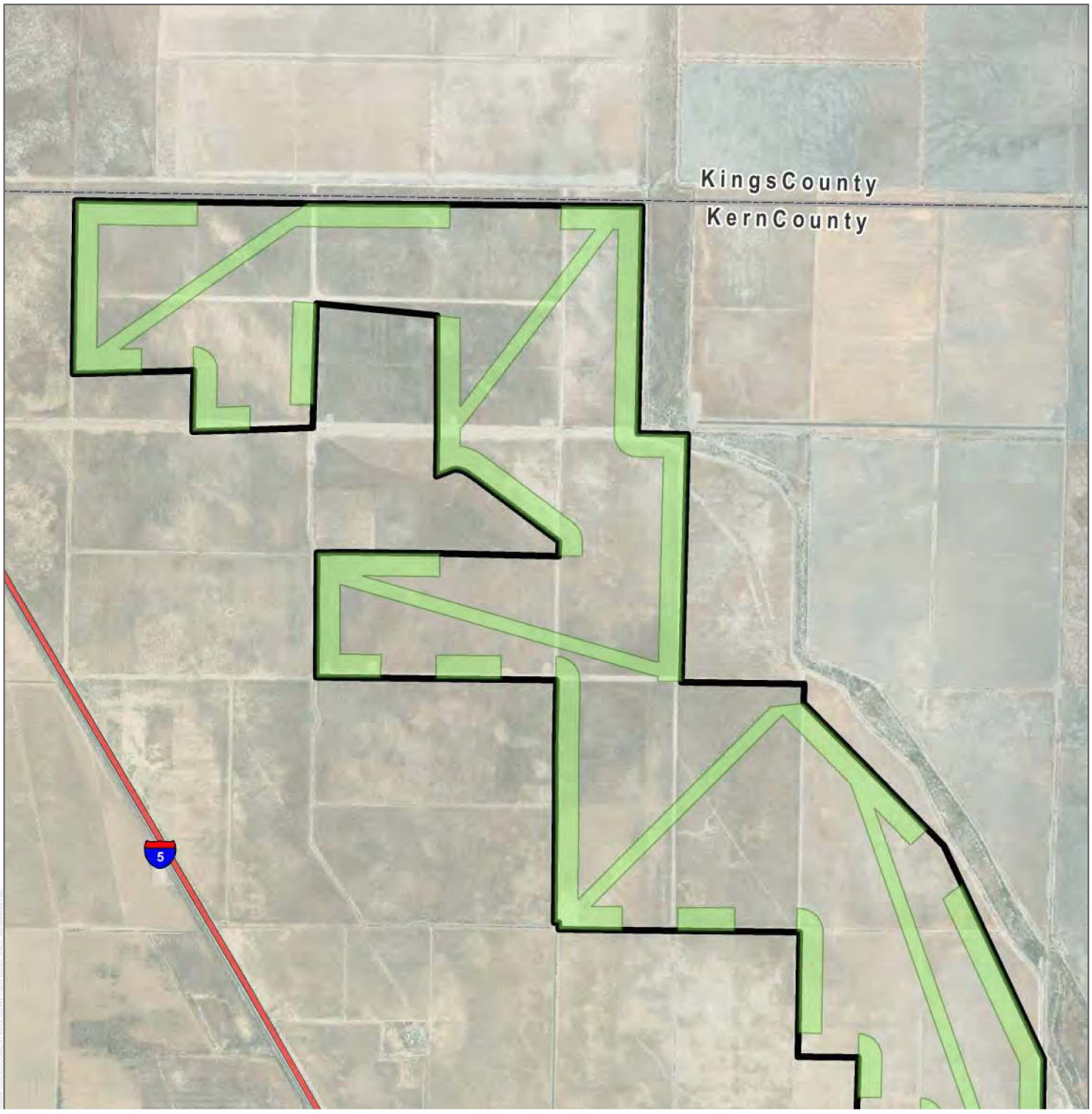
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

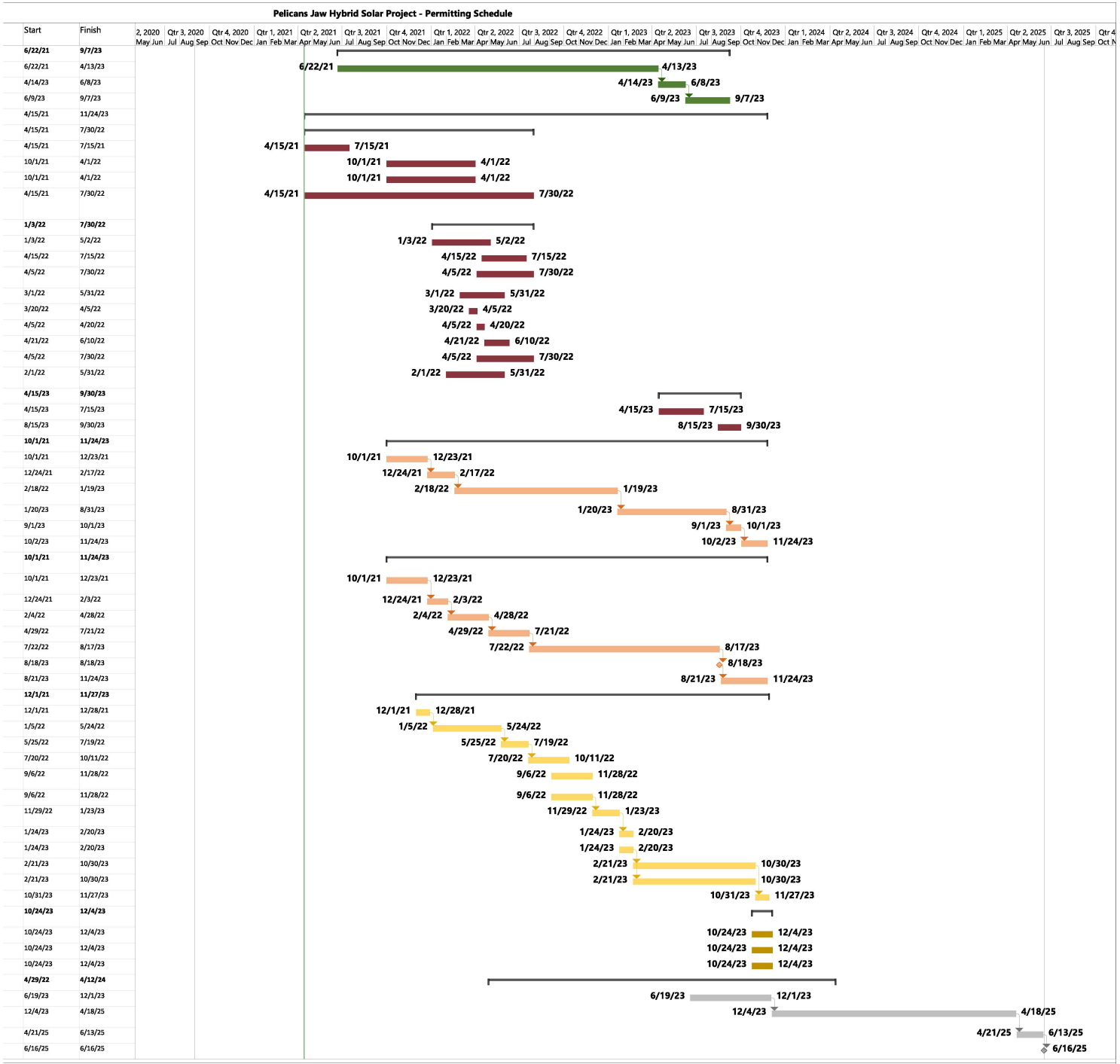
SALSP, Salsola spp. Semi-natural Association


Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

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From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
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T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment B

Biological Survey Work Plan Addendum,
January 13, 2023

Sapphos environmental inc.

January 13, 2023
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M10

TO: U.S. Fish and Wildlife Service
(Mr. Justin Sloan)

California Department of Fish and Wildlife
(Ms. Carrie Swanberg and Mr. Jeremy Pohlman)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Kern County
(Mr. Matthew Hall and Mr. Terrance Smalls)

Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, Mr. Thaer Flieh, and Mr. Karl Brutsaert)

Dudek
(Mr. Keith Carwana)

Bell Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Submittal of the Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan Kangaroo Rat Species Addendum

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) has been prepared to receive concurrence from the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW), for the proposed addendum for the Biological Survey Work Plan to conduct surveys for two special-status kangaroo rat species, in support of the Pelicans Jaw Hybrid Solar Project (Project). The burrow mapping and pedestrian transect surveys were completed as presented in the Pelicans Jaw Hybrid Solar Project-Biological Survey Work Plan, dated April 15, 2021, which was further reviewed via teleconference on April 28, 2021. Dudek completed the burrow mapping and pedestrian transect surveys for the approximately 3,260-acre Project and proposed access routes. Special-status kangaroo rat species were not observed during the burrow mapping and pedestrian transect survey effort. Small mammal burrows were mapped for the purposes for the trapping for presence protocol survey for special-status kangaroo rats including, giant kangaroo rat (*Dipodomys ingens*; state and federally endangered), and Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*; state and federally endangered).

Protocol-level special-status kangaroo rat trapping surveys are planned to begin for the Project in January 2023.

INTRODUCTION

This MFR has been prepared to seek concurrence from USFWS and the CDFW for the proposed addendum for the Biological Survey Work Plan: special-status kangaroo rat species, which will be conducted by Dudek for the Project to determine the presence of special-status kangaroo rat species, giant kangaroo rat, and Tipton kangaroo rat. Dudek is proposing to modify the USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (USFWS 2013). Dudek is proposing a two sampling schemes and shifting the survey window to January. The sampling scheme modification will accommodate the difference in concentration of suitable kangaroo rat species burrows within the Project. Dudek will use two sampling schemes: (1) traps along transects for areas with high concentration of suitable borrows, and (2) traps set up in circular stations for areas with low to moderate concentration of suitable borrows. While the shift in the survey window will allow the Applicant to gain presence knowledge of special-status kangaroo rats to allow for early consultation. In addition, this request is being provided to Kern County to support their role as Lead Agency pursuant to the California Environmental Quality Act.

SURVEY METHODS

Transect and Circular Surveys. The proposed two sampling schemes: (1) traps along transects for areas with high concentration of suitable borrows, and (2) traps set up in circular stations for areas with low to moderate concentration of suitable borrows will be conducted by Dudek following the USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats

Pelicans Jaw Solar, LLC (Applicant) is planning to begin the trapping of Kangaroo Rat Species surveys described herein starting in January 2023, unless otherwise directed by CDFW and/or USFWS. Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

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MEMORANDUM

To:	Justin Sloan – USFWS Carrie Swanberg and Jeremy Pohlman – CDFW Matthew Hall – Kern County
From:	Brock Ortega, Keith Carwana, Andrea Hernandez, and Phillip Brylski – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan: Kangaroo Rat Species Addendum
Date:	January 12, 2023
cc:	Tandy McMannes, Alphonso Jung, JungWoo Kim, and Karl Brutsaert – Pelicans Jaw Solar, LLC Marie Campbell and Sarah Sperling – Sapphos Environmental, Inc. Andrew Bell and Zachary Kearns – Bell-Kearns
Attachment(s):	Attachment A – Biological Survey Work Plan, April 15, 2021 Attachment B – USFWS and CDFW Meeting Notes, April 28, 2021 Attachment C – Resumes

Pelicans Jaw Solar, LLC is seeking a conditional use permit and general plan amendment for the development of a photovoltaic solar and battery energy storage facility herein referred to as the Pelicans Jaw Hybrid Solar Project, or Project, located on approximately 3,273 acres in unincorporated Kern County. Pelicans Jaw Solar, LLC submitted a Biological Survey Work Plan for the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) review on April 15, 2021 (Attachment A). A subsequent call with USFWS and CDFW occurred on April 28, 2021, to review and discuss the Biological Survey Work Plan (Attachment B). Pelicans Jaw Solar, LLC is in the process of implementing the approved work plan. This memorandum is intended to serve as an addendum to the April 15, 2021, work plan to revise kangaroo rat species (*Dipodomys sp.*) surveys. Previous addendums to the Biological Survey Work Plan were submitted to USFWS, CDFW, and Kern County on June 7, 2022, for San Joaquin kit fox (*Vulpes macrotis mutica;* SJKF) surveys and on August 1, 2022, for rare plant surveys.

Dudek had previously identified a list of special-status wildlife species that have the potential to occur within the Project site and surrounding area. The list was revised based on conversations with USFWS and CDFW on September 29, 2020, to identify the species that are anticipated to require some level of survey to inform environmental permitting. Three species of kangaroo rat have the potential to occur within the Project site, including giant kangaroo

Small Mammal Trapping

In accordance with the Biological Survey Work Plan (June 7, 2022, addendum), Dudek collected burrow resource data during the SJKF surveys conducted during June through August 2022. During the SJKF surveys, pedestrian transects were conducted for the entirety of the 3,273-acre site. Qualified biologists walked transects spaced between 30 and 100 feet depending on vegetative cover and other visual obstructions to provide 100% visual coverage of the Project site. All suitable burrows between 2-4 inches in size within the Project area were mapped as potential kangaroo rat burrows during the transect surveys. Signs of kangaroo rat were opportunistically sought, including potential scat. For instances where multiple burrows were found in a cluster, each individual burrow was identified, and the GPS position was recorded.

Suitable kangaroo rat burrows are shown in Figure 1. In addition, two kangaroo rat skulls were identified during the surveys. The skulls were examined by Philip Brylski, PhD (USFWS, Section 10(a) Survey Permit No. TE-148555-2). Based on the overall skull size, the degree of bullar inflation and the size and shape of the interparietal bone, they were determined to be Heermann's kangaroo rat (*Dipodomys heermanni*), which are not listed from a federal or state perspective. No other sign of kangaroo rat, such as tracks or tail drag, were observed. Based on the results of the pedestrian transect surveys and burrow mapping, Dudek is proposing to conduct trapping where the highest concentration of suitable small mammal burrows were mapped, to determine presence/absence of kangaroo rat species.

Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (USFWS 2013) with slight modifications. Pelicans Jaw Solar, LLC is proposing to implement two sampling schemes, including: (1) setting traps along line transects that have been drawn in areas where the highest concentrations of suitable kangaroo rat burrows were identified, and (2) setting traps at "circular stations" to sample areas where low to moderate concentrations of suitable kangaroo rat burrows were identified. For the transect lines, traps will be spaced approximately 25 meters apart, requiring a total of 122 traps. For the circular stations, six traps will be set for each circular station, requiring a total of 78 traps. In total, 200 traps will be set. Trapping will be led by Philip Brylski, PhD and assisted by Pedro Garcia (see Attachment C for resumes). The locations of the proposed transect lines and circular stations where the traps will be set are shown in Figure 2. Because trapping efforts are proposed for documenting the presence of kangaroo rat species, trapping will be conducted in areas with a higher concentration of potential burrows as documented during the SJKF surveys. Trapping is anticipated to occur in January 2023.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. The trapping period will consist of seven consecutive trap nights. Sherman™ live traps of 12 inches or greater lengths with shortened doors will be used (XLK: 2x2x12 inches and XLKP: 2 x 2.5 x 12 inches). Traps will be pre-baited with white proso millet, a mixture

will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

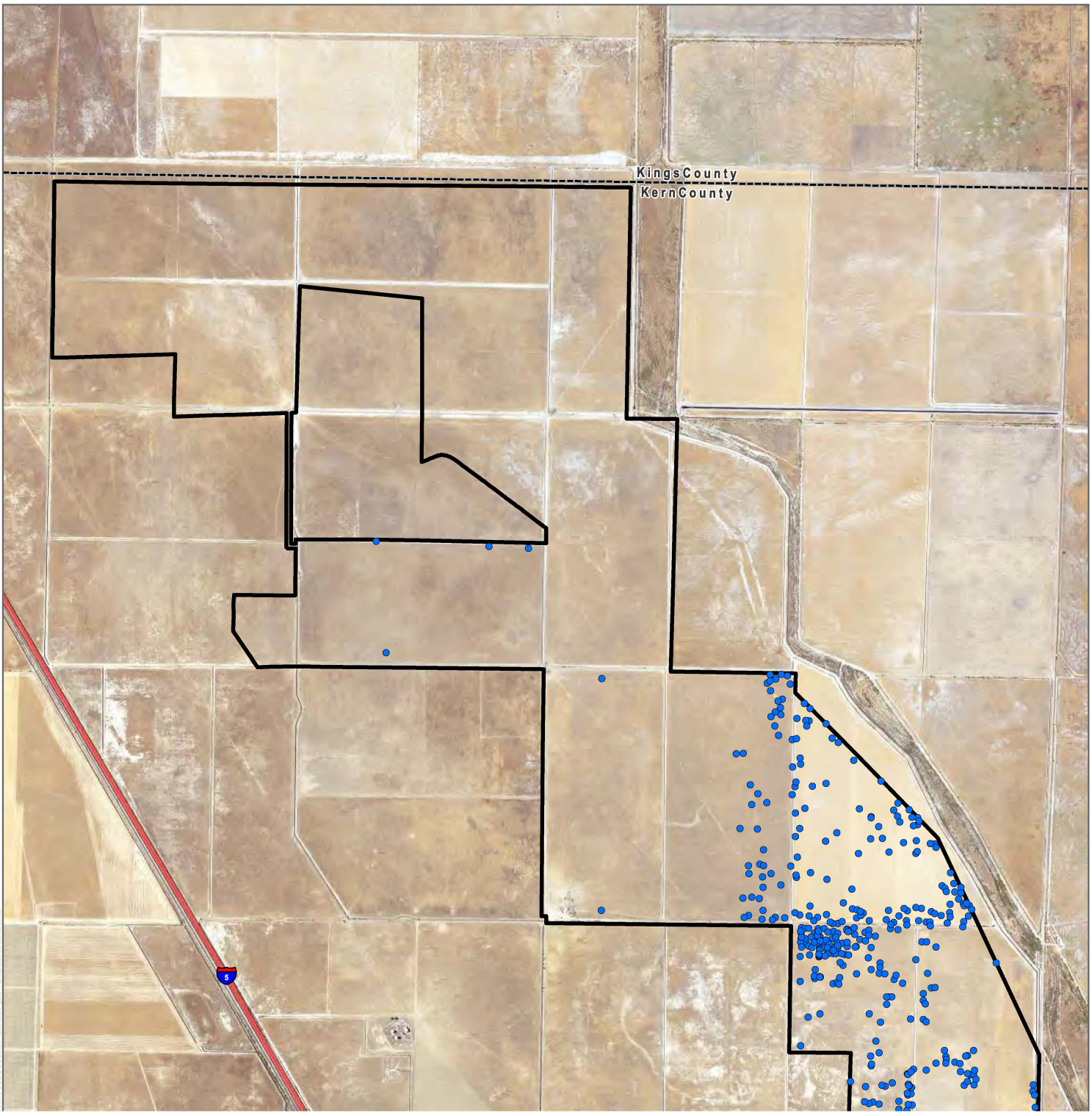
All captured animals will be identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Target animals may be "marked" using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from USFWS and CDFW.

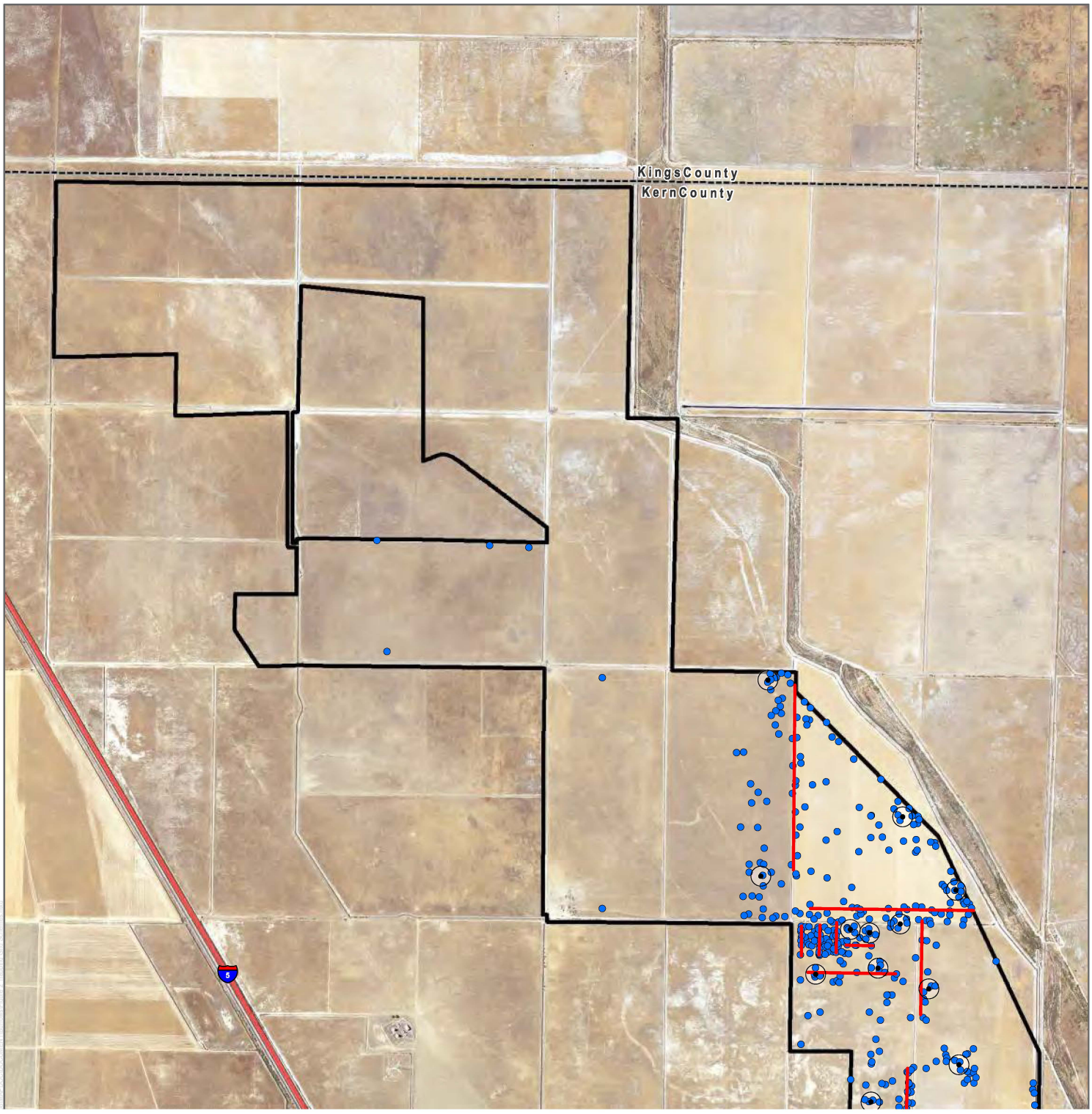
Agency Review and Discussion

While the optimum activity periods for kangaroo rat species is between April 1 and October 31, the kangaroo rat species are active year-round. Pelicans Jaw Solar, LLC would like to begin the modified protocol-level kangaroo rat species trapping activities in January 2023. As previously discussed, all weather-related recommendations included in the USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats (USFWS 2013) will be adhered to, including:

- During the threat of inclement weather, such as the National Weather Service prediction of a 40 percent or greater chance of rain, all traps will be closed.
- Should the air temperature exceed 105˚F (41˚C), all traps will be closed.
- If the air temperature is predicted to drop below 50˚F (10˚C) then the following measures will be taken to reduce the effects of the colder weather on captured kangaroo rats:
    - Once set, traps will be checked at a minimum interval of every 3 hours
    - Synthetic batting or other appropriate insulating material will be placed in the open trap
    - Additional food will be placed in the open trap
    - Trapping will cease if captured animals are found to be lethargic or otherwise are showing signs of a decrease of body temperature.

We have included our availability in the email to which this memorandum was attached to schedule a brief conference call should USFWS and/or CDFW have any questions. We are also happy to address any


Kings County
Kern County
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Attachment A

Biological Survey Work Plan

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MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be "marked" using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

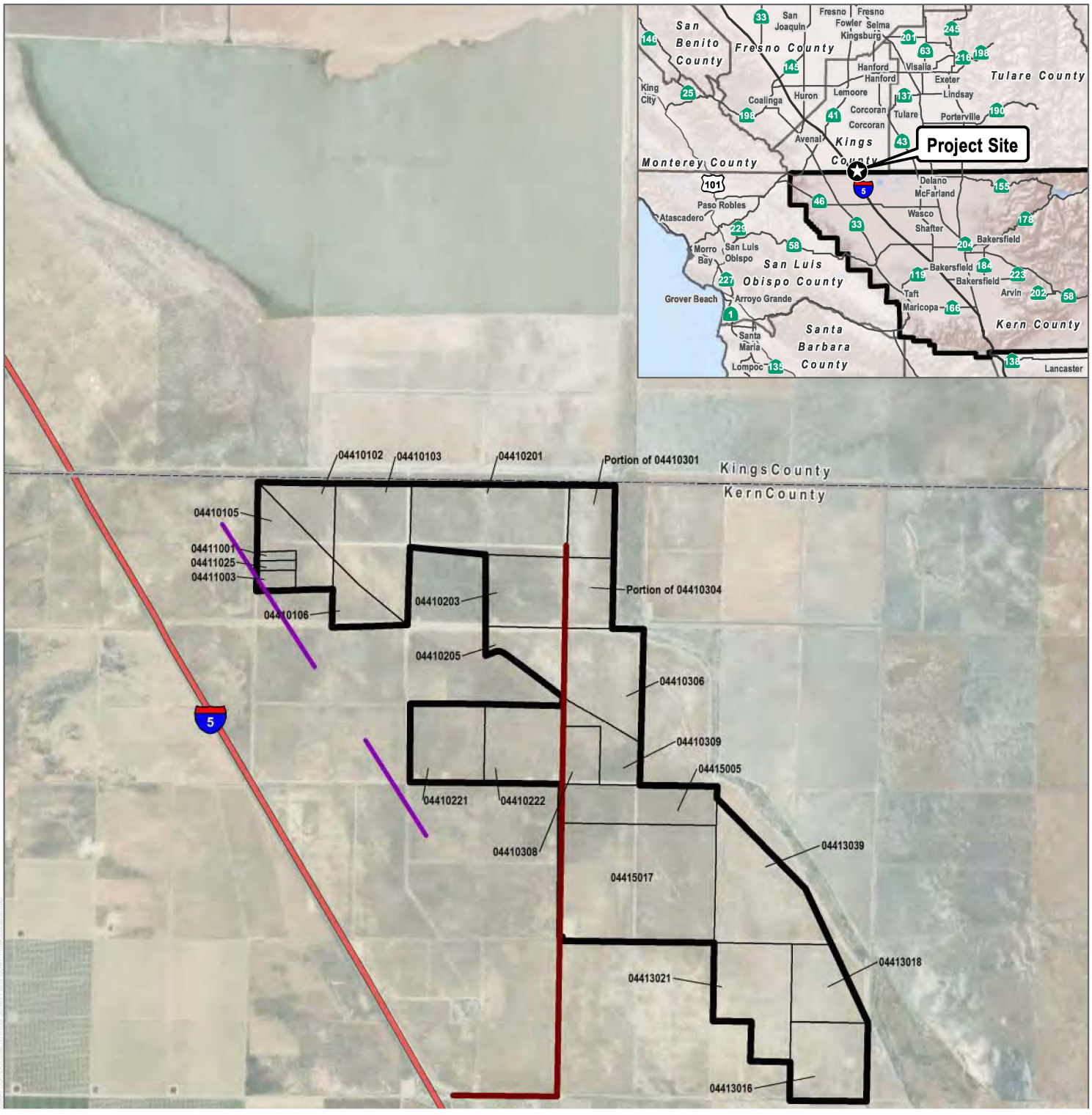
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

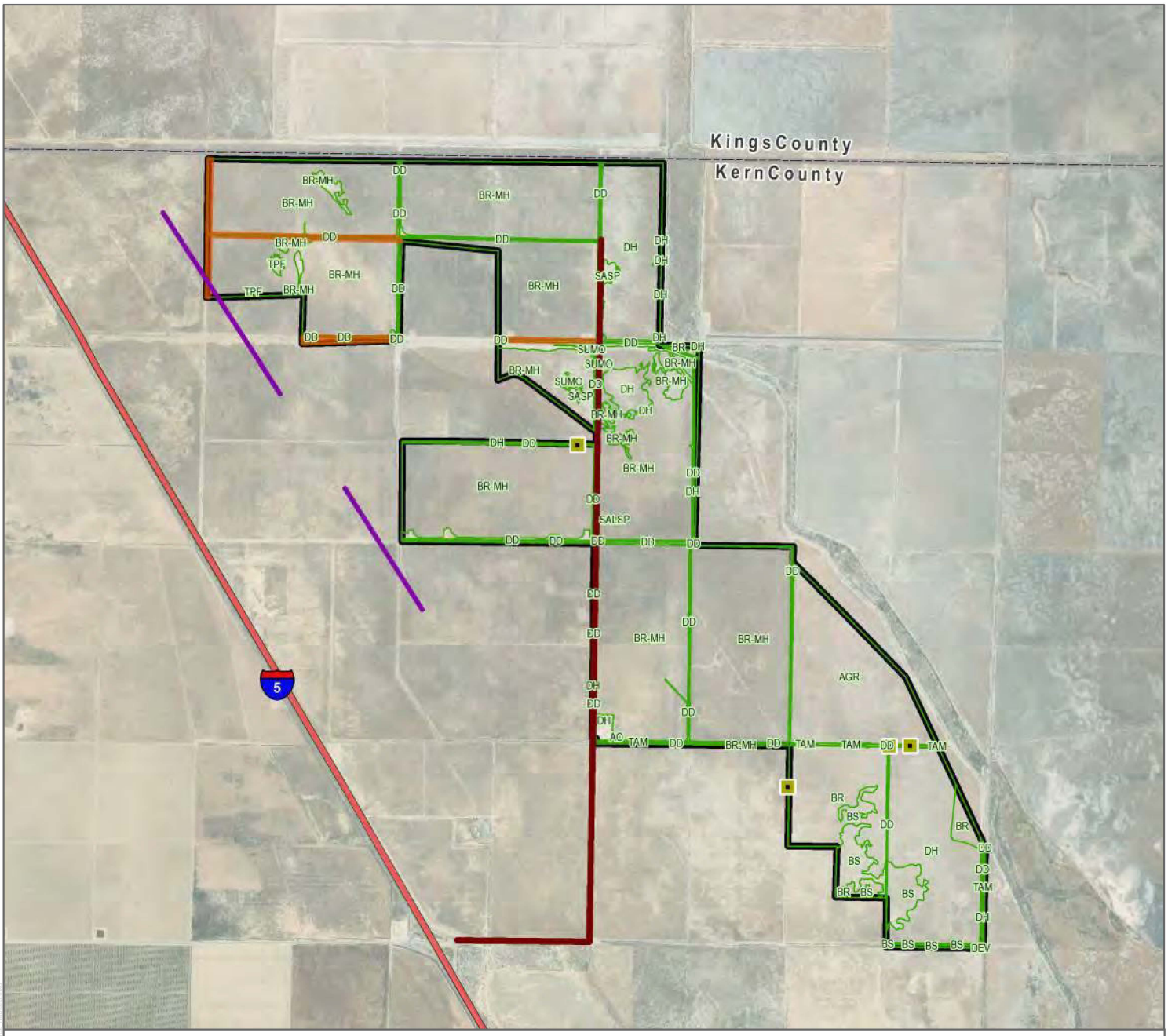
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Kern County
Santa Barbara County
Lancaster
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
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04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

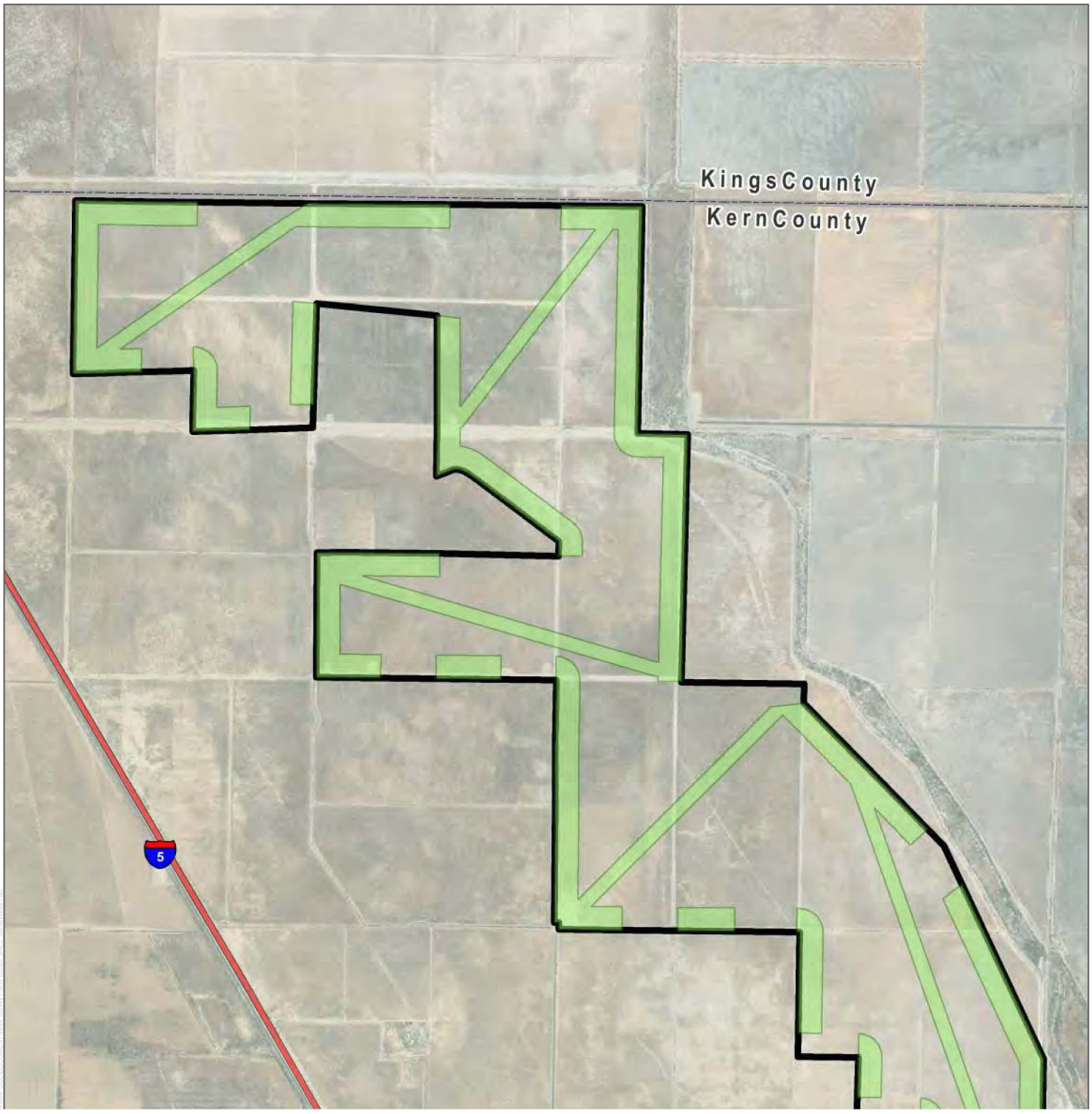
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

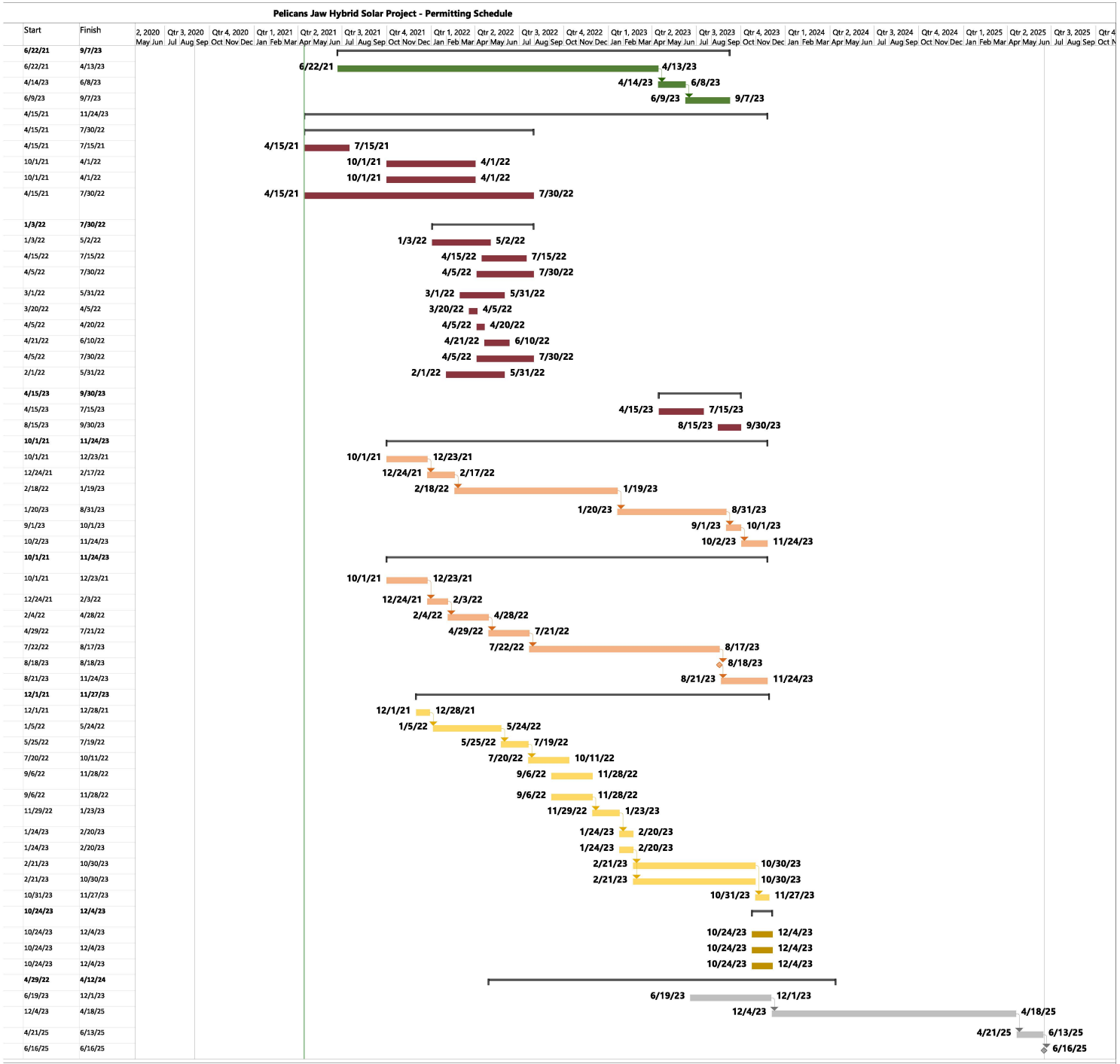
SALSP, Salsola spp. Semi-natural Association


Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

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From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
www.dudek.com

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment B

USFWS and CDFW Meeting Notes, April 28, 2021

PELICANS JAW HYBRID SOLAR PROJECT

BIOLOGICAL SURVEY WORK PLAN

Date:	April 28, 2021
Time:	3:00-4:00 PM
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Location:	Zoom Video Call
Attendees:	**USFWS** – Justin Sloan
	CDFW – Carrie Swanberg
	Pelicans Jaw Solar, LLC – Hun Kim, Alphonso Jung, Tae Kwak, and Tandy McMannes
	Cox, Castle & Nicholson – Clark Morrison
	Dudek – Brock Ortega, Keith Carwana, and Anna Bischoff

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1. Project Updates

- Dudek described the recently completed habitat assessment, vegetation mapping, and jurisdictional delineation for the Pelicans Jaw Hybrid Solar Project (Project).
    - Based on the results of the on-site surveys, including the presence of hydrophytic vegetation, and greater potential for sensitive species in the Kings County portion of the Project, Pelicans Jaw Solar, LLC decided to remove all Kings County parcels from the Project.
        - With the removal of the Kings County parcels, the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres.

2. Biological Survey Work Plan

- Dudek described the Biological Survey Work Plan dated April 15, 2021 and the proposed surveys to be completed in 2021 and 2022.
    - Pelicans Jaw Solar, LLC is proposing to proceed with blunt-nosed leopard lizard (BNLL) sample surveys in 2021 or 2022 on approximately 955 acres of the approximately 3,260-acre Project site. The BNLL sample surveys are intended to inform the CEQA analysis to be prepared in advance of the required BNLL protocol-level surveys and provide critical site-specific data.

- In addition to BNLL sample surveys, Pelicans Jaw Solar, LLC is anticipated to proceed with concurrent burrow mapping for burrowing owl, San Joaquin kit fox, American badger, and San Joaquin antelope squirrel in 2021.
    - Surveys for large branchipods and western spadefoot toad are anticipated to be initiated during the 2021 wet season.
        - Dudek noted that helicopters will no longer be used to complete large branchipods and western spadefoot toad surveys given the reduction in Project size and vehicle accessibility across the Kern County parcels.
        - USFWS indicated that there was a recent observation of vernal pool fairy shrimp in Kern County.
- Pelicans Jaw Solar, LLC anticipates completing the following surveys in 2022: golden eagle, kangaroo rat trapping, Swainson's hawk, tricolored blackbird, and Buena vista ornate shrew.
    - Dudek noted that a survey work plan will be prepared for Buena vista ornate shrew and small mammal trapping, prior to implementing the surveys and trapping efforts.

3. CDFW and USFWS Discussions

- CDFW recommended conducting full protocol level survey for BNLL but understood the need to conduct sample surveys to support the CEQA analysis in advance of full protocol level surveys within one-year of ground disturbing activities.

    - CDFW was comfortable with the BNLL sample survey area depicted in Figure 3 of the Biological Survey Work Plan.

    - CDFW recommended completing hatchling surveys as part of the proposed BNLL sample surveys.

        - **Action item:** Pelicans Jaw Solar, LLC and Dudek mentioned that they will look into adding hatchling surveys during the BNLL juvenile survey period of August 15 to September 30.

    - Dudek inquired if there is any leeway to begin ground disturbing activities slightly after the one-year BNLL survey period has expired.

        - CDFW indicated that it is their preference to have ground disturbing activities begin

        - CDFW offered to assist and answer any questions that may arise regarding a Streambed Alteration Agreement.

- USFWS inquired about the species anticipated to be included in the Habitat Conservation Plan (HCP)
    - Cox, Castle & Nicholson indicated that that the species to be included will be dependent on the results of the anticipated biological surveys.
    - Cox, Castle & Nicholson asked if USFWS can provide a sample HCP that covers similar species to those with the potential to occur on the Project site.
        - **Action item:** USFWS to provide HCP sample(s).
- In regard to compensatory mitigation, USFWS will request mitigation to the maximum extent practical.
    - USFWS did not want to provide a mitigation ratio at this time until the full suite of impacts is known.

4. Next Steps

- Pelicans Jaw Solar, LLC is anticipated to implement the Biological Survey Work Plan dated April 15, 2021. Pelicans Jaw Solar, LLC will inform CDFW and USFWS of any major changes to be implemented to the Biological Survey Work Plan.

Attachment C

Resumes

Phillip Brylski, PhD

DESIGNATED BIOLOGIST

Dr. Phillip Brylski is an ecologist/conservation biology scientist with over 30 years' professional experience. He has carried out conservation studies on California fauna, including focused surveys for sensitive species, California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) biological impact analyses, status reviews, and genetic studies. He has performed live-trapping surveys, visual surveys, and research on nearly every species of California heteromyid, as well as selected gophers, squirrels, rats and mice.

Education

University of California, Berkeley
PhD, Zoology, 1986

Yale University
MS, Forest Science, 1980

University of California, Berkeley
BS, Forestry, 1977

Certifications

USFWS, Section 10(a) Survey Permit No. TE-148555-1

- *San Bernardino kangaroo rat*
- *Stephens' kangaroo rat*
- *Giant kangaroo rat*
- *Tipton kangaroo rat*
- *Fresno kangaroo rat*
- *Pacific pocket mouse*
- *Amargosa vole*
- *Mohave ground squirrel*
- *Salt marsh harvest mouse*
- *Riparian woodrat*
- *MOU for most California Mammal Species of Special Concern (small mammals only)*

Relevant Previous Experience

Species Surveys

San Bernardino kangaroo rat (Dipodomys merriami parvus, SBKR)

- SBKR live-trapping survey for SoCalGas North-South gas line project, Reche Canyon, California. (2015)
- SBKR survey for Devils Canyon area, San Bernardino County Flood Control District, California. (2014)
- SBKR survey for California Department of Transportation (Caltrans) Interstate 15 Expansion Project, San Bernardino County, California. (2013, 2014)
- SBKR survey and relocation effort, State Department of Water Resources EBX II project site, Redlands, California. (2013)
- SBKR survey at a proposed SoCalGas gas repair site and access corridor in the North Fontana/Devore area of San Bernardino County, California. (2013)
- SBKR survey on the approximately 9.1 Acre Otto property, Redlands, California. (2012)
- SBKR survey for approximately one mile right-of-way (ROW) along Rialto Municipal airport, Rialto, California. (2012)

- SBKR survey for three Geotechnical Study Sites near Vulcan Materials Company's Muscoy Groin #2 Storm Drain Project Site, San Bernardino County, California. (2012)
- SBKR survey along an approximately 0.75-mile proposed AT&T telephone line repair site and access corridor in the Beacon/Devore area of San Bernardino County, California. (2012)
- SBKR survey at site of a proposed Southern California Edison (SCE) transmission tower replacement project along Lytle Creek, San Bernardino County, California. (2012)
- SBKR survey on the Robertson's Ready Mix/Cemex mine expansion and mitigation sites, San Bernardino County, California. (2011)
- SBKR percent area occupied (PAO) survey of the Santa Ana River Woolly Star Preserve Area, San Bernardino County, California. (2007–2011)
- SBKR survey at the La Rivera Surface Drainage Improvement Project Site, Riverside, Riverside County, California. (2011)
- Survey for SBKR and LAPM on the Soboba Horseshoe Grande Fee to Trust project area, Riverside County, California. (2011)
- SBKR survey of the Opal Avenue Mitigation Property, San Bernardino County, California. (2011)
- SBKR survey of the Mill Creek/Garnet Street and Cone Camp Road Sites, San Bernardino County, California. (2011)
- SBKR survey on an approximately 5 Acre Site on the Wooly Star Preserve Area in the City of Redlands, California. (2010)
- SBKR live-trapping survey, SCE Arrowhead project, San Bernardino County, California. (2009)
- SBKR survey of the SCE Alder-Declez project site, San Bernardino, California. (2009)
- SBKR Survey, Soboba Indian Reservation, Riverside County, California. (2009)
- SBKR survey at reference locations in the Woolly Star Preserve area, San Bernardino County, California. (2007–2012)

Stephens' kangaroo rat (Dipodomys stephensi, SKR)

- SKR survey, Fallbrook Naval Weapons Center, San Diego County, California. (2013)
- SKR and LAPM survey, Lake Perris Dam Remediation project, Riverside County, California. (2009, 2012)
- SKR and LAPM survey, SCE Alberhill System Project, Riverside County, California. (2011)
- SKR survey for the County Parks Oak Country II Trails Project, San Diego County, California. (2011)
- SKR survey for the proposed southern route of the San Diego Gas & Electric (SDG&E) Sunrise Powerlink project in San Diego County, California. (2010)
- SKR survey at The Center for Natural Land Management March SKR Preserve, March Air Force Base

- Focused Surveys for the PPM and SKR for the Marine Corps Base (MCB) Camp Pendleton Basewide Water Infrastructure (BWI) and Stuart Mesa Bridge Replacement (SMBR) project, San Diego County, California. (2011)
- PPM survey, Exchange Hospital, MCB Camp Pendleton, California. (2009)
- PPM survey for San Mateo North Population, California State Parks. (2010)
- PPM survey, Combat Marksmanship Range (CMR), MCB Camp Pendleton, California. (2010)
- PPM survey, 31 Area, MCB Camp Pendleton, California. (2010)
- PPM survey, Range 501, MCB Camp Pendleton, California. (2011)

Los Angeles pocket mouse (Perognathus longimembris brevinasus, LAPM)

- LAPM survey, Mt. San Jacinto Community College District, San Gorgonio Pass Campus, Banning, Riverside County, California. (2012)
- LAPM survey, SCE Transmission Line ROW, Murrieta, California. (2008)
- LAPM survey on the Banning Truck Weigh Station, Banning, California. (2010)
- LAPM survey on APN 459-020-067 (southern part), Riverside County, California. (2012)
- SKR and LAPM survey for the Lake Perris Dam Remediation Project, Riverside County, California.

Mohave ground squirrel (*Xerospermophilus mohavensis*, MGS)

- MGS live-trapping survey for SoCalGas North-South gas line project, California. (2015)
- MGS live-trapping survey for Adelanto Solar Project, California. (2013)
- MGS habitat assessment and live-trapping survey, North First Avenue Grade Separation and Bridge Replacement Project, Barstow, California. (20130
- MGS habitat assessment for the California Threatened Mohave Ground Squirrel (MGS) on the Fremont Valley System New Well 1-02 Project, APN 470-251-20-8, Kern County, California. (2012)
- MGS live-trapping survey for San Bernardino County Flood Control District, Amethyst Basin, Victorville, California. (2012)
- MGS live-trapping survey, CalTrans High Desert Corridor project, San Bernardino County, California. (2011)
- MGS surveys, Edwards Air Force Base (AFB), Kern County, California. (1994, 2009–2011, 2013)
- MGS live-trapping Survey, Mohave Element Energy, Kern County, California. (2012)
- MGS live-trapping survey, Snowline Joint Unified School District Support Services Complex, Phelan, California. (2008)
- MGS live-trapping survey, Snowline Joint Unified School District, High School #2, San Bernardino County, California. (2008)

Other Small Mammal Surveys

- Carried survey for cotton rats (*Sigmodon*) in support of the Imperial Irrigation District's Habitat Conservation Plan, California.
- Surveys for Palm Springs ground squirrel (*Spermophilus tereticaudus chlorus*) and Palm Springs pocket mouse (*Perognathus longimembris bangsi*), Desert Hot Springs, California. (2009)

Burrrowing owl (Athene cunicularia)

- Burrowing owl survey for the Falcon Ridge Substation Project, Rancho Cucamonga, Fontana, and Rialto, California (protocol survey). (2014)
- Burrowing owl survey for the Mt. San Jacinto Community College District, San Gorgonio Pass Campus, Banning, California (protocol survey). (2012)
- Burrowing owl survey at Hesperia Crosswalk school site, San Bernardino County, California (protocol survey). (2012)
- Burrowing owl survey at Menifee Wireless Facility, Menifee, California (protocol survey). (2012)
- Burrowing owl survey at SiteMaster site, Banning, California (protocol survey). (2013)
- Beaumont High School overpass burrowing owl survey, Beaumont, California (protocol survey). (2012)
- Habitat assessment for sensitive plants and burrowing owl survey at Perris Middle School and Central Kitchen, Perris, California (protocol survey).
- Habitat assessment for sensitive plants, burrowing owl survey, and Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis, San Jacinto, California (protocol survey).
- Desert tortoise (*Gopherus agassizii)* and burrowing owl survey (non-protocol survey) and rare plant assessment at SCE Oasis Substation Project site, Los Angeles County, California. (2009)
- Burrowing owl surveys (non-protocol sweeps) for SCE Tehachapi Renewable Transmission Project (TRTP), Los Angeles County, California. (2010–2012)
- San Diego Association of Governments (SANDAG) Regional burrowing survey, San Diego County, California (non-protocol survey). (2010)

Biological Assessments

- Antelope Valley Area Plan Update environmental impact report (EIR) (program level biological assessment), California. (2014)
- Anaheim Canyon Specific Plan EIR (program level biological assessment), Orange County, California. (2013)
- Perris Middle School and Central Kitchen habitat assessment for MSHCP consistency analysis, Perris,

- Carlsbad High School #2, San Diego County, California. (2010)
- Irvine Business Complex EIR, Irvine, California (program level biological assessment). (2009)
- Palm Springs Unified District Service Center, California. (2009)
- Bristol Street widening at 17th Street NES, Santa Ana, California. (2009)
- University High School Stadium project, Irvine, California. (2008)
- Tonner Canyon Vegetation Management Area, Los Angeles and San Bernardino Counties, California. (2008)
- Snowline Joint Unified School District, High School #2, Victorville, California. (2008)
- Vista Del Mar Elementary School, San Diego, California. (2008)
- Rowe School Site Biological Constraints Analysis, San Diego County, California. (2007)
- Snowline School District Support Services Complex Development Plan, Phelan, California. (2007)

Construction Monitoring

- Beacon Solar project MGS and desert tortoise monitoring, California City, California. (2013–2015)
- SCE TRTP construction monitor, California. (2010–2015)
- SBKR monitor for Caltrans Interstate 15 improvement project, California. (2013)
- PPM construction monitor, Camp Pendleton, California. (2012)
- SBKR monitor for SANBAG Palm Avenue grade separation project, California. (2013, 2014)
- Bighorn sheep (*Ovis Canadensis*) construction monitor for SDG&E Sunrise Power Link Project, California. (2012, 2013)

Selected Publications

Brylski, P., W.M. Miller, S. Dodd, and S. Montgomery. 2009. "Addendum to the Pilot Monitoring Project for the Pacific Pocket Mouse, Orange County, California." Prepared for the Center for Natural Lands Management.

Brylski, P., W.M. Miller, S. Dodd, and S. Montgomery. 2008. "Pilot Monitoring Project for the Pacific Pocket Mouse. CNLM Dana Point Preserve, Orange County, California." Prepared for the Center for Natural Lands Management.

Hedtke, S.M., K.R. Zamudio, C.A. Phillips, J. Losos, and P. Brylski. 2007. "Conservation genetics of the endangered Coachella Valley fringe-toed lizard (*Uma inornata*)." *Herpetologica.* 63(4): 411-420.

Swei, A. P.V. Brylski, W.D. Spencer, S.C. Dodd, and J.L. Patton. 2003. "Hierarchical genetic structure in fragmented populations of the Little Pocket Mouse (*Perognathus longimembris*) in Southern California." *Conservation Genetics.* 4(4):501—514.

State/Federal Reports

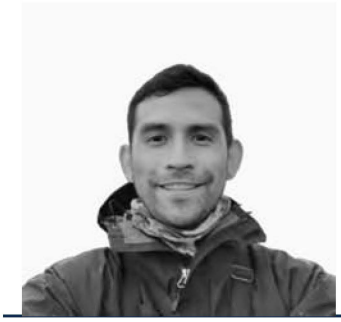
U.S. Fish and Wildlife Service, 1998. "Pacific Pocket Mouse (*Perognathus longimembris pacificus*) Recovery Plan." Portland, Oregon. Prepared by P. Brylski, L. Hayes and J. Avery.

Brylski, P. V., P. W. Collins, E. D. Pierson, W. E. Rainey, and T. E. Kucera. 1997. "Mammal Species of Special Concern in California." Draft Final Report Prepared for the California Department of Fish and Game, Wildlife Management Division, Bird and Mammal Conservation Program, Sacramento, California.

California Department of Fish and Game, 1990. "California wildlife habitat relationships system. Volume III: Mammals." Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds. California Interagency Wildlife Task Group, Sacramento, California.

Pedro Garcia

BIOLOGICAL MONITOR



Pedro Garcia is an environmental compliance specialist with 8 years' experience working in the public and private sectors in environmental research, natural resources management, and infrastructure development. Mr. Garcia has served as task manager and field lead in charge of coordinating teams of biologist and compliance monitors for pre-, during, and post-construction projects in Fresno, Kings, Tulare, Kern, Santa Barbara, and San Bernardino Counties. Other experience includes urban noise monitoring, geographic information system (GIS) mapping and analysis, and 10 years' experience leading and conducting urban and rural avian point counts and raptor surveys and leading crews in the fields of outdoor education, conservation, and habitat restoration. He provides compliance management support to project managers working on energy and transportation projects throughout the central valley and central coast of California.

In addition, Mr. Garcia has worked as a biologist for Dudek conducting reconnaissance-level, protocol-level, and pre-construction surveys, as well as conducting biological and compliance monitoring for construction projects. His field experience includes surveys for blunt-nosed leopard lizard (*Gambelia sila*), San Joaquin kit-fox (*Vulpes macrotis mutica*), nesting birds, burrowing owl (*Athene cunicularia*), American badger (*Taxidea taxus*), tri-colored blackbird (*Agelaius tricolor*), Swainson's hawk (*Buteo swainsoni*), and golden eagle (*Aquila chrysaetos*).

Education

California State University, Fresno
MS, Biology: Reconciliation Ecology, 2015
BS, Biology: Ecology, Evolution, and Organismal Science, 2010

Certifications

Geographic Information System (GIS)

WILD C.A.T.

eDNA: A Practical Workshop Certificate

Professional Affiliations

The Wildlife Society: Central Coast Chapter, San Joaquin Chapter, Western Section

Project Experience

Development

101 Garden Street, Woodbridge Capital Partners LLC, Santa Barbara, California. Conducted traffic and urban noise monitoring surveys to establish baseline data for addressing transportation-related noise sources for a future mix-use development project.

Bakersfield Metropolitan Sanitary Landfill Mod4 Expansion Project, County of Kern, California. Conducted multiple single-pass pedestrian transects with the goal of determining potential absence/presence of San Joaquin kit fox and to locate any active and inactive dens. Documented burrows of other species such as American badger, coyote (*Canis latrans*), and burrowing owl.

Energy

Desert Tortoise Nesting Bird Monitoring, San Bernardino County Public Works, California. Task manager in charge of scheduling and coordinating qualified biologists to conduct pre-construction surveys and biological monitoring on an as-needed basis for various countywide road improvement projects. In charge of submitting deliverables, billing drafts, and coordinating project needs with the assigned environmental management division manager.

California Department of Water Resources, San Joaquin Delta Branch, California. Served as a field lead in charge of conducting reconnaissance-level burrow mapping surveys for the San Joaquin and Delta branch of the California Aqueduct, spanning Kern and Kings Counties. Species surveyed for include American badger, burrowing owl, giant kangaroo rat (*Dipodomys ingens*), Tipton kangaroo rat (*Dipodomys nitratoides nitratoides*), and San Joaquin kit fox. Conducted protocol-level Swainson's hawk surveys throughout Kern, Kings, Merced, San Joaquin, and Stanislaus Counties, following the California Department of Fish and Wildlife (CDFW) endorsed protocol for the Central Valley.

Confidential Solar Project, Kern County, California. Served as field lead in charge of a team tasked with completing a Joshua tree (*Yucca brevifolia*) census survey of the 5,686-acre project area. Also served as biological/compliance monitor tasked with conducting pre-work sweeps for special-status species and nesting birds.

Confidential Solar Project, Fresno County, California. Conducted focused Swainson's hawk surveys for a nearly 2,000-acre project following the CDFW-endorsed protocol for the Central Valley, developed by the Swainson's Hawk Technical Advisory Committee. Surveys focused on locating nest structures and observing nest building, territorial and courtship displays, and copulating within a 1-mile and 5-mile buffer of the project boundary.

Confidential Wind Project, Merced County, California. Worked as a field biologist conducting all-day golden eagle and bald eagle (*Haliaeetus leucocephalus*) surveys, as well as 30-minute avian and raptor point count surveys, within a 2,100-acre project site. Completed quality assurance and quality control of the 2017 100-meter/800-meter/all-day survey reports and transcribed to updated digital (Kerata) format for data analysis.

Confidential Solar Projects, California. Conducted pre-construction site surveys for multiple projects in Fresno, Kings, and Merced Counties. Surveys focused on potential use by American badger, burrowing owl, San Joaquin kit fox and tri-colored blackbird. Monitored and hand excavated burrows potentially suitable for burrowing owl, desert kit fox (*Vulpes macrotis arsipus*), and San Joaquin kit fox.

(*Rana draytonii*). Additional field activities include construction monitoring and conducting all-day golden eagle nest surveys; 800-meter raptor surveys; special-status species pre-construction surveys for American badger, burrowing owl, California red-legged frog, and San Diego desert woodrat (*Neotoma lepida*); and general nest surveys. Working with lead biological staff, GIS analysts, and IT technical team in standardizing data to be collected and implemented into electronic survey forms for analysis.

Confidential Energy Project, Kern County, California. Served as compliance monitor tasked with conducting pre-construction surveys for special-status and general wildlife species, including American badger, desert kit fox, desert tortoise (*Gopherus agassizii*), golden eagle, and nesting birds for the 2,987-acre project area. Implemented passive relocation of burrowing owls along the project footprint, following the project's burrowing owl passive relocation plan. Served as a project-approved Swainson's hawk biologist and conducted protocol-level Swainson's hawk surveys following the CDFW-endorsed protocol for the Antelope Valley of Los Angeles and Kern Counties.

Tranquility Solar Power Project Avian Deterrent Study, Southern Power Company, Tranquility, California. Served as field biologist, conducting 30-minute avian point count surveys two times per week over a 3-month monitoring period. Coordinated with compliance management and project biologist in installing avian deterrents throughout four 50-acre blocks within a 2,000-acre project area to determine the effectiveness of avian and fatality avoidance strategies in relationship to panel performance. Worked closely with compliance management and project biologist in identifying necessary data to be collected and implemented into monitoring form for future analysis. Coordinated with compliance management, project biologist, and client operations and maintenance staff when new constraints were identified on the project and implemented appropriate monitoring strategies. Camera-monitored and hand excavated two inactive American badger dens that were voluntarily vacated. Compiled and conducted preliminary analysis of survey data. Collaborated in writing the final mitigation report for CDFW/Fresno County and Southern Power Company.

Transportation

California High-Speed Rail, Dragados–Flatiron Joint Venture, Fresno, Kings, and Tulare Counties, California. Providing compliance management and construction monitoring support for California High-Speed Rail CP2-3, a 69-mile-long route located within Fresno, Kings, and Tulare Counties. Coordinating with California High-Speed Rail environmental managers daily in identifying upcoming project activities and working with sub-consultants to provide biological monitors based on species-specific mitigation measures. Responsible for standardizing the weekly and daily biological monitoring schedule based off construction activities and environmental constraints outlined in the project BO and Incidental Take Permit. Conducting project-wide quality assurance and control of Environmentally Sensitive Area records by cross-referencing ArcCollector and Kerata/iForm Builder databases and following through with compliance management and lead project GIS personnel. Created standardized Migratory Bird Treaty Act and Swainson's hawk nest data sheets and providing client with weekly summary of environmental constraints. Coordinating scheduling of blunt-nosed leopard lizard (*Gambelia sila*) and

Relevant Previous Experience

ULTRA-FACES, California State University, Fresno, California. Project lead for the Urban Long-term Research Area - Fresno and Clovis Eco-social Study (ULTRA-FACES), a National Science Foundation and U.S. Forest Service funded project that studied the relationships between socioeconomic/political factors, disturbance regimes, and ecological factors and how these feedback into ecosystem services. Worked on GIS-based models analyzing bird species richness and abundance within the Fresno-Clovis Metropolitan Area against residential irrigation practices, tree diversity, urban noise, and community property values.

San Joaquin River Parkway and Conservation Trust, Fresno, California. Supervised and led Local Conservation Corps and California Conservation Corps members in habitat restoration projects along a 22-mile reach of the San Joaquin River between Friant Dam and Highway 99, with the purpose of creating accessible natural spaces for public use. Project lead and acting field manager for projects including invasive plant species removal (both mechanical and chemical), drip irrigation system installation/maintenance, raptor perch installation, and the planting of more than 10,000 native trees and shrubs. Daily project mapping and monitoring of both native and invasive flora along with remote data collection and GIS mapping of project sites. Monitoring of foraging Swainson's hawk and nesting bald eagle within the project boundary.

California Conservation Corps, Fresno, California. Worked as a special corpsmember to develop, teach and facilitate all California Conservation Corps member development programs: C.O.M.E.T. (orientation), Conservation Awareness Program, Career Development Transition, Blue Card State Driver Program, and Corps Member Advisory Board. Evaluated daily performance of twelve to thirty 18–25-year-old recruits of diverse cultures and backgrounds during monthly, week-long C.O.M.E.Ts. Networked with outside agencies and non-profit organizations to set up community volunteer opportunities; developed and maintained monthly member education, evaluation, and competency files; and managed the center's AmeriCorps Education Award Program scholarship files for all members.

Fresno Bird Count, Fresno, California. Helped create and manage the Fresno Bird Count, a citizen science based long-term monitoring program containing 460 survey sites with the purpose of gathering data on the abundance and richness of bird species in the Fresno-Clovis Metropolitan Area. Led bi-annual protocol training for more than 20 community volunteers assisting with point counts. Conducted 8 years of bird point count surveys with concurrent urban noise monitoring during peak breeding season and winter migration season.

Specialized Training

- **AEP 2018 CEQA Essentials Workshop, Fresno, California, November 2018.** Workshop that covered overview, case studies, and fundamentals of the California Environmental Quality Act and State Guidelines.
- **Wildlife Biologist Construction Awareness Training, Fish Camp, California, February 2019.** Completed the WILD C.A.T. training at the Western Section of The Wildlife Society Annual Meeting in Fish Camp,

demonstration and visual encounter survey. California red-legged frog evening spotlight survey. Observed 428 and handled 35 CTS larvae, observed 8 and handled 1 western pond turtle adult(s), and observed 8 and handled 3 California red-legged frog adults.

- **Environmental DNA: A Practical Workshop, Jack and Laura Dangermond Preserve, Santa Barbara County, California, July 2019.** Three-day lecture and field-based training workshop on the fundamentals and use of environmental DNA. Lecture focused on an overview of the basis, function, application, and parameters of the technology. Field component focused on collection of water and dirt samples in/near ponds testing for presence of sensitive species. Species observed include western pond turtle and California red-legged frog.
- **Fletcher Conservation Lands Conservation and Mitigation Banks. Alameda County, California, June 2019.** Under the supervision of qualified biologist Joseph DiDonato, conducted Fletcher Conservation Lands aquatic species surveys via seining for CTS in several ponds throughout the property. Species observed include CTS, California red-legged frog, Sierran treefrog (*Pseudacris sierra*), and California newt (*Taricha torosa*). Observed and handled 206 CTS larvae, 406 California newt larvae, and 80 California red-legged frog larvae and 1 adult.
- **San Joaquin Kit Fox Workshop, California Central Coast Chapter of The Wildlife Society, Carrizo Plains/Chimeneas Ranch, California, October 7–10, 2019.** Three-day lecture and field-based workshop that covered the life history, ecology, conservation status, and survey techniques for the San Joaquin kit fox in the Carrizo Plains core habitat area. Lectures were taught by knowledgeable professionals from state, federal, private, and non-profit organizations experienced with research, protection, and mitigation of the species. The field component included hands on experience monitoring known dens via camera traps, bait/scent stations, and diatomaceous earth; participating in the CDFW historic spotlighting surveys of Elkhorn Road and Soda Lake Road; and observing San Joaquin kit fox's main prey, giant kangaroo rat (*Dipodomys ingens*). Observed 114 individuals, 4 known dens, and 1 historic natal den.
- **San Joaquin Kit Fox Artificial Den Installation, Windwolves Preserve, Kern County, California, February 3, 2020.** Assisted in installing three artificial dens in and near known suitable habitat for San Joaquin kit fox at Windwolves Preserve to enhance satellite and linkage habitats.
- **Sonoma State University CTS Survey, Alton Preserve, Santa Rosa, California, February 14–15, 2020; March 15, 2020.** Assisted in graduate research on known populations of CTS within the Alton Preserve. Work included checking more than 300 pit fall traps for adult CTS migrating from upland habitat to breeding habitat and vise-versa. Species observed include CTS, California slender salamander (*Batrachoseps attenuatus*), and Sierran treefrog. Observed and handled 2 adult CTS.
- **California Spotted Owl Study, Sequoia and Kings Canyon National Parks, 2021.** Currently volunteering with the California spotted owl *(Strix occidentalis)* study, which includes locating, capturing, and color banding all spotted owls within the study area with the purpose of providing information on owl survival, reproduction, and diet in areas not managed for timber production.

Pedro Garcia Species Specific Resume – Dudek

Education

M.S. Biology: Reconciliation Ecology, California State University, Fresno; Fresno, CA, 2015

B.S. Biology: Ecology, Evolution, and Organismal Science, California State University, Fresno; Fresno, CA, 2010

Certifications

Certificate in Geographic Information Systems (GIS), California State University, Fresno, 2012.

California Department of Fish and Wildlife (CDFW) level II blunt-nosed leopard lizard (*Gambelia sila*; BNLL) surveyor, 2020.

Training/Workshops

AEP 2018 CEQA Essentials Workshop, Fresno, California, November 2018

Workshop that covered overview, case studies, and outlined fundamentals of the California Environmental Quality Act and State Guidelines.

Wildlife Biologist Construction Awareness Training, Fish Camp, California, February 2019

Completed the WILD C.A.T. training at the Western Section of The Wildlife Society Annual Meeting in Fish Camp, California. The training was held by experienced wildlife biologists and senior biological consulting staff and covered topics such as environmental policy, context for construction monitoring, implementing environmental compliance, and job-site health and safety practices.

California Tiger Salamander & Rare Pond Species Survey Techniques Workshop, Santa Rosa, CA, March 2019. Held by the Laguna de Santa Rosa Foundation and The Wildlife Project. Three-day field and lecture-based workshop on the conservation, ecology, identification, and survey protocol for California tiger salamander (*Ambystoma californiense*, CTS), California red-legged frog (*Rana draytonii*, CRLF), and western pond turtle (*Actinemys marmorata*, WPT). Assisted in construction of CTS exclusion fence and pit-fall traps; field tour of two locations with CTS highway crossing tunnels and critique of their construction and effectiveness; dip netting, measuring, and fin clipping of CTS larva used for genetic testing of hybridization with Eastern tiger salamander (*Ambystoma tigrinum*). WEPT trap demonstration and visual encounter survey. CRLF evening spotlight survey. Species observed and handled include:

- CTS: 428 larvae
- CRLF: 8 adults observed, 3 handled
- WPT: 8 observed, 1 handled

knowledgeable professionals from State, Federal, Private, and Non-profit organizations experienced with research, protection, and mitigation of SJKF. The field component included hands on experience monitoring known dens via camera traps, bait/scent stations, and diatomaceous earth tracking; participating in the CDFW historic spotlighting surveys of Elkhorn Road and Soda Lake Road; and observing San Joaquin kit fox's main prey, giant kangaroo rat (*Dipodomys ingens, GKR*). Species observed:

- SJKF 114 individuals, 4 known dens, 1 historic natal den.
- San Joaquin antelope squirrel: 15
- GKR: 102
- American badger: 5
- Coyote: 5

Buena Vista Lake Ornate Shrew Training Workshop, Virtual Meeting, April 21, 2021

Virtual lecture presented by Dr. Bryan Cypher (CSU, Stanislaus/Endangered Species Recovery Program) for the Buena Vista Lake ornate shrew (*Sorex ornatus relictus,* BVLOS). Topics included an overview of the life history of species (including going over mesic, xeric, and marginal habitats), conservation status and threats, field survey techniques, and future research potential. Survey techniques included known aspects of the shrew's general habitat requirements and camera trapping techniques compared to live trapping.

San Joaquin Kit Fox habitat study with ESRP, Panoche Valley Preserve, San Benito County, CA, October 6, 2021

Volunteered with Endangered Species Recover Program (ESRP) staff conducting field studies of San Joaquin kit fox at the Panoche Valley Preserve, which included trapping, taking biometric data, and collaring 3 adult SJKF.

California Rare Bumble Bees, Virtual Meeting, 2021 & 2022

All-day virtual lectures hosted by The Western Chapter of the Wildlife Society, presented by Richard Hatfield and Leif Richardson of the Xerces Society for Invertebrate Conservation. Topics included an introduction to bumble bee ecology, status, and threats to bumble bee conservation, BMPs, bumble bee survey and ID techniques, and an overview of the California Bumble Bee Atlas. An emphasis was made on the four bumble bee species of greatest conservation need: western bumble bee, Franklin's bumble bee, Crotch's bumble bee, and Suckley cuckoo bumble bee.

Basic Wetland Delineation, Wetland Training Institute, 2022

Completed the Basic Wetland Delineation training course by the Wetland Training Institute, which consisted of an online lecture series (24-hours) and a field practicum (16-hours) going over the Arid West and Western Mountains, Valleys, and Coast Supplements. Online lectures were led by Bob Pierce and Charlie Newling and the field practicum was led by Charlie Newling and Phil Scoles.

Giant Kangaroo Rat

Pedro Garcia

Project:	**Giant Kangaroo Rat Trapping – CNML**
Location:	Lokern Preserve, Kern County, California
Duration:	September 6-10, 2021; September 19-23, 2022
Permit #:	#TE-787644-7
Lead Biologist:	Bill Vanherweg: Permitted Biologist, 805.839.0375, bvan53@gmail.com Greg Warrick: Permitted Biologist, 661.858.3507, gwarrick@cnlm.org Ben Teton: Independent Investigator, 805.448.5170, bteton@cnlm.org Bobby Kamanski: Independent Investigator, 559.287.3311, bkamanski@cnlm.org
Work Description:	Under permitted biologists Bill Vanherweg, Greg Warrick, Ben Teton, and Bobby Kamanski conducted nocturnal protocol trapping for GKR, which included setting trapping grids, baiting, and checking Sherman traps, as well as processing (marking, weighing, sexing, recording, and releasing) captured small mammals for 5 nights with the CNLM at Lokern Preserve.
Estimated Trapping Hours:	52
Individuals Handled:	Giant kangaroo rat: **60** Short-nosed kangaroo rat: **56** Western harvest mouse: 1

Project:	**Giant Kangaroo Rat Trapping – CNML**
Location:	Panoche Valley Preserve, San Benito County, California
Duration:	October 4-8, 2021
Permit #:	TE-787644-7
Lead Biologist:	Bill Vanherweg: permit holder, 805.839.0375, bvan53@gmail.com Greg Warrick: Permitted Biologist, 661.858.3507, gwarrick@cnlm.org Steve Pruett: independent investigator, 661.421.0006, steve@pruettbio.com
Work Description:	Under biologists Bill Vanherweg, Greg Warrick, and Steve Pruett conducted nocturnal protocol trapping for GKR, which included setting trapping grids, baiting, and checking Sherman traps, as well as processing (marking, weighing, sexing, recording, and releasing) captured small mammals for 5 nights with the CNLM at Panoche Valley Preserve.
Estimated Trapping Hours:	50
Individuals Handled:	Giant kangaroo rat: **180**
Incidental Observations:	5 SJKF, 26 SJAS

Tipton Kangaroo Rat

Deer mouse: 5

Project:	**Tipton Kangaroo Rat Trapping – CNLM**
Location:	Semitropic Ridge Preserve, Kern County, California
Duration:	August 9-13, 2021; August 22-26, 2022
Permit #:	SC-003638
Lead Biologist:	Greg Warrick: Permit Holder, 661.858.3507, gwarrick@cnlm.org Ben Teton: Independent Investigator, 805.448.5170, bteton@cnlm.org
Work Description:	Under permitted biologists Greg Warrick and Ben Teton, conducted nocturnal protocol trapping for TKR, which included setting trapping grids, baiting, and checking Sherman traps, as well as processing (marking, weighing, sexing, recording, and releasing) captured small mammals for 5 nights with the CNLM at Semitropic Ridge Preserve.
Estimated Trapping Hours:	30
Individuals Handled:	**Tipton kangaroo rat: 70** Heermann's kangaroo rat: 28 San Joaquin pocket mouse: 11 Deer mouse: 2

Short-nosed Kangaroo Rat

Project:	**Short-nosed Kangaroo Rat Trapping – CNML**
Location:	Lost Hills Preserve, Kern County, California
Duration:	August 9-13, 2021
Permit #:	#SC-003638
Lead Biologist:	Greg Warrick, 661.858.3507, gwarrick@cnlm.org
Work Description:	Under permitted biologist Greg Warrick, conducted nocturnal protocol trapping for short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*), which included setting trapping grids, baiting, and checking Sherman traps, as well as processing (marking, weighing, sexing, recording, and releasing) captured small mammals for 5 nights with the CNLM at Lost Hills Preserve.
Estimated Trapping Hours:	16
Individuals Handled:	Short-nosed kangaroo rat: **22** San Joaquin pocket mouse: 3

San Joaquin Antelope Squirrel

Project:	**San Joaquin Kit Fox Workshop**
Location:	Carrizo Plain, San Luis Obispo County, CA
Duration:	October 7-10, 2019
Lead Biologist	[redacted]

Work Description:	Worked as field lead conducting species-specific burrow mapping for the San Joaquin branch of the CA DWR in Kings and Kern Counties. Species of interest included SJKF, SJAS, TKR, GKR, SJAS, BUOW, and AMBA.
Estimated Survey Hours:	40
Individuals Observed:	13

Project:	**San Joaquin Antelope Squirrel Trapping – Center of Natural Lands Management**
Location:	Panoche Valley Preserve, San Benito County, California
Duration:	October 18-22, 2021; October 3-7, 2022
Permit #/Lead Biologist:	Greg Warrick (#SC-003638): permit holder, 661.858.3507, gwarrick@cnlm.org Bill Vanherweg (#TE-787644-7): permit holder, 805.839.0375, bvan53@gmail.com Steve Pruett: independent investigator, 661.421.0006, steve@pruettbio.com Christopher Hauser: independent investigator, 831.238.0906, chauser@cnlm.org
Work Description:	Under biologists Greg Warrick, Bill Vanherweg, Steve Pruett, and Christopher Hauser, conducted diurnal protocol trapping for SJAS, which included setting trapping grids, baiting, and checking Sherman traps, as well as processing (marking, weighing, sexing, recording, and releasing) captured small mammals for 5 days with the Center of Natural Lands Management (CNLM) at Panoche Valley Preserve.
Estimated Trapping Hours:	51
Individuals Handled:	**San Joaquin antelope squirrel: 100** California ground squirrel: 6

San Joaquin Kit Fox

Project:	**California High-Speed Rail, Construction Package 2-3**
Location:	San Joaquin Valley, California
Duration:	March 2018–Ongoing
Permit #:	ITP #2081-2015-024-04; BO #08ESMF00-2012-F-0247-R006
Lead Biologist:	William Vanherweg, 805.839.0375, bvan53@gmail.com Nathan Moffett, 805.551.5540, n.moffett120@gmail.com Donna Noce, 661.331.0990, dmnoce@gmail.com Russell Sweet, 661.859.9445, rsweet@dudek.com
Work Description:	Conduct project-wide quality assurance and control of SJKF Environmentally Sensitive Area records by cross-referencing ESRI Field Maps with the digital survey form databases and following through with compliance management and lead project GIS

	technique for laying down tracking medium around the potential den opening and how to identify prints. Set up camera traps, reviewed footage for 4-nights of continuous monitoring, and hand excavated potential dens, with assistance by mini excavator, under the supervision of project-approved Designated Biologist Donna Noce. Set up camera traps and reviewed footage for 4-nights of continuous monitoring of potential dens and hand excavated and temporary blocked potential dens under the supervision of project-approved Designated Biologist Russell Sweet.
Estimated Survey Hours:	100+
Estimated Monitoring Hours:	350+
Individuals Observed:	0
Dens Observed:	400+ Potential dens
Dens Excavated:	50+ Potential dens
Project:	**Spotlight Training for California Highspeed Rail, Construction Package 2-3**
Location:	Bakersfield, California
Duration:	February 16, 2018
Permit #:	ITP #2081-2015-024-04; BO #08ESMF00-2012-F-0247-R006
Lead Biologist:	Russell Sweet, 661.859.9445, rsweet@dudek.com
Work Description:	Conducted spotlighting for SJKF at the California State University, Bakersfield campus with biologist Russell Sweet. Reviewed key characteristics of a suitable SJKF den as well as identifying characteristics of SJKF in the day and night such as relative size, markings, gate, behavior, and eye shine color.
Estimated Survey Hours:	5
Individuals Observed:	3
Dens Observed:	2 known dens
Project:	**Bakersfield Metropolitan Sanitary Landfill (Bena SLF) Mod4 Expansion Project**
Location:	Bakersfield, Kern County, California
Duration:	December 26, 2018; January 21, 2020
Permit #:	Kern County Waste Facilities Habitat Conservation Plan
Lead Biologist:	Russell Sweet; 661.859.9445, rsweet@dudek.com
Work Description:	Conducted single pass pedestrian transect surveys for SJKF, BUOW, and AMBA as part of the landfill's expansion plan. Compared SJKF track size and shape to coyote, and dog tracks. Documented burrows of other species including AMBA, BUOW, and coyote that could be used by kit fox.
Estimated Survey Hours:	14
Individuals Observed:	0

	species. Assisted in developing and independently led the project's WEAP training for the work crew, highlighting the sensitive biological species that have the potential to occur within the project area. Pre-construction geotech monitoring checking for potential sensitive bio resources including nesting birds.
Estimated Survey Hours:	16
Estimated Monitoring Hours:	8
Individuals Observed:	0
Dens Observed:	4 potential dens
Project:	**San Joaquin Kit Fox Workshop**
Location:	Carrizo Plains, San Luis Obispo County, CA
Duration:	October 7-10, 2019
Lead Biologist:	Dave Hacker; dave.hacker@sbcglobal.net Bryan Cypher; bcypher@esrp.csustan.edu
Work Description:	Three-day course that covered the life history, ecology, conservation status, and survey techniques for SJKF. Monitored known dens and historic natal dens via camera traps, bait/scent stations, and diatomaceous earth. Conducted two nights of spotlighting and population monitoring, including participating in the CDFW historic spotlighting surveys of Elkhorn Road and Soda Lake Road. Observed 100+ SJKF fox in varying habitat throughout the plains while learning to differentiate between juvenile coyote, red fox, grey fox, and domestic dog.
Estimated Survey Hours:	18
Individuals Observed:	114
Dens Observed:	4 known dens, 1 historic natal den
Project:	**Artificial Den Installation for San Joaquin kit fox**
Location:	Windwolves Preserve, Kern County, CA
Duration:	February 3, 2020
Lead Biologist:	Randi McCormick, 661.343.1078, randi@mccormickbiologicalinc.com
Work Description:	Installed three artificial SJKF dens in and near known suitable habitat for SJKF at Windwolves Preserve as a way to enhance satellite and linkage habitat.
Dens Install:	3
Project:	**Confidential Solar Project**
Location:	Merced County, California
Duration:	August 2021
Permit #	Pending
Lead Biologist:	Keith Babcock, 530.305.4064, kbabcock@dudek.com
Work Description:	Field lead in charge of conducting a planning-level survey for a

Pedro Garcia

Permit #	CUP Nos. 3550, 3551, 3552, 3553, & 3577
Lead Biologist:	Sean O'Brien, 415.999.7691, sobrien@dudek.com
Work Description:	Conducted reconnaissance-level, focused species, and protocol level pre-construction survey of a 1,288 acres project site with the goal of identifying potential suitable dens and burrows for SJKF, BUOW, and nesting birds. Re-evaluated sites and burrows that were previously identified in the Habitat Assessment and protocol survey report. Camera monitored potential dens to determine use by sensitive species. Fully hand excavated, backfilled, and compacted potential dens/burrows.
Estimated Survey Hours:	50
Individuals Observed:	0
Dens Observed & Excavated:	20 potential dens

Project:	**California Department of Water Resources**
Location:	San Joaquin Branch, California
Duration:	March 2021-Ongoing
Lead Biologist:	Russell Sweet; 661.859.9445, rsweet@dudek.com
Work Description:	Worked as field lead conducting species-specific burrow mapping for the San Joaquin branch of the CA DWR in Kings and Kern Counties as well as setting up camera and bait stations for SJKF following the DWR San Joaquin Kit Fox Revised Survey Methods, in coordination with USFW and CDFW. Species of interest included SJKF, SJAS, TKR, GKR, BUOW, and AMBA.
Estimated Survey Hours:	60
Individuals Observed:	0
Dens Observed:	4 known SJKF dens

Project:	**Confidential Solar Project**
Location:	Kern & Kings County, California
Duration:	2021-Current
Permit #:	Pending
Lead Biologist:	Brock Ortega, 619.884.0467, bortega@dudek.com
Work Description:	Conducted habitat assessment for a 200 MW solar project in Kern and Kings Counties, identifying and delineating suitable vegetation/landcover types for sensitive species, including SJKF, BUOW, AMBA, and TRBL. Set up camera and bait stations for SJKF following the 2011 U.S. Fish and Wildlife Service Standardized Recommendations For Protection Of The Endangered San Joaquin Kit Fox Prior To Or During Ground Disturbance. Observations were recorded in digital survey forms and mapped in Arc Field Maps.
Estimated Survey Hours:	20+
Dens Observed:	2 natal dens, 1 known den

	and burrow/den excavations for SJKF, AMBA, and CTS. Led a project wide WEAP training going over the biological and compliance measures for the special status species identified in the project's permits.
Estimated Monitoring Hours:	70+
Estimated Survey Hours:	70+
Estimated SJKF Excavation Hours:	20+

Project:	**Spotlighting for Lokern Preserve - CNLM**
Location:	Lokern Preserve, California
Duration:	September 21 & 22, 2022
Lead Biologist:	Bobby Kamanski: Independent Investigator, 559.287.3311, bkamanski@cnlm.org
Work Description:	Conducted spotlighting for SJKF at Lokern Preserve with biologists from CNLM within known and potential SJKF territories.
Estimated Survey Hours:	6
Individuals Observed:	6

Swainson's Hawk

Project:	**California State University, Fresno. Birds and Reptiles Course**
Location:	CSU, Fresno, Fresno, California
Duration:	Fall 2008 & Spring 2012
Lead Biologist:	Madhusudan Katti, 919.798.3223, leafwarbler@gmail.com
Work Description:	Attended the Birds and Reptiles course at CSU, Fresno in the Fall of 2008 and assisted in lecture and field for the Spring of 2012. The lecture component focused on anatomy, behavior, and ecology of birds, reptiles, and amphibians as well as techniques and field methods for identifying and studying various species. Field portion focused on visual and auditory queues used to identify birds as well as setting up pit-fall traps and use of pit-tags on amphibians. Field locations included Elkhorn Slough, San Luis National Wildlife Refuge, McKenzie Preserve, and Merced National Wildlife Refuge. Raptors observed include golden eagle, bald eagle (juvenile and adults), Swainson's hawk (*Buteo swainsoni*, SWHA), red-tailed hawk, red-shouldered hawk, Cooper's hawk, sharp-shinned hawk, peregrine falcon, American kestrel, great-horned owl, barn owl, and Sierra Newt.
Estimated Survey Hours:	30
SWHA Observed:	10+
Nests Observed:	0

Project:	**California Highspeed Rail, Construction Package 2-3**
Location:	San Joaquin Valley, California

	SWHA monthly deliverables and annual report for CDFW and USFWS. Coordinated scheduling of blunt-nosed leopard lizard and SWHA surveys, as well the implementation of trapping and excavation plan for Tipton kangaroo rat (*Dipodomys nitratoides nitratoides,* TKR*)* and San Joaquin antelope squirrel (*Ammospermophilus nelsoni*, SJAS). Worked with Designated Biologists in monitoring and excavating potential SJKF burrows. Trapping for TKR rat under the supervision of a designated biologist. Logistical support for BO approved BVLOS monitors for camera trapping of the species. Monitored and conducted passive relocation of BUOW along the project footprint, following a CDFW-approved Passive Relocation Plan. Worked as a visual observer to the unmanned aerial vehicle pilot in obtaining orthophotograph and LiDAR data for habitat mapping of the project footprint.
Construction Monitoring Hours:	300+
Estimated Survey Hours:	500+
SWHA Observed:	100+
Nests Observed:	60+
Project:	**Tranquility Solar Power Project Avian Deterrent Study**
Location:	Fresno County, California
Duration:	March-June 2018
Permit #:	EIR SCH#. 2013111056, Mitigation Measure 4.5-5b “Collision Reduction Strategy”
Lead Biologist:	Brock Ortega, 619.884.0467, bortega@dudek.com
Work Description:	Worked as lead field biologist conducting 30-minute avian point count surveys twice a week over a three-month monitoring period. Coordinated with compliance management and project biologist in installing avian deterrents throughout four 50-acre blocks within a 2,000-acre project area to determine the effectiveness of avian and fatality avoidance strategies in relationship to panel performance. Monitored foraging SWHA and golden eagle that were nesting outside of the project footprint. Throughout the three-month study period observe a total of 2,967 birds, comprised of 43 different species including sub-adult golden eagle, SWHA, red-tailed hawk, northern harrier, American kestrel, great-horned owl, white-tailed kite, turkey vulture, common raven, and American crow. Observations were recorded in digital survey forms ArcCollector.
Estimated Survey Hours:	100+
SWHA Observed:	12
Nests Observed:	0
Project:	**Gonzaga Ridge Wind Energy Repowering Project**
Location:	Merced County, California

	and mapped in ArcCollector and Field Maps as well as paper forms/maps.
Estimated Survey Hours:	200+
SWHA Observed:	2
Project:	**Scarlet & Sonrisa Solar Projects**
Location:	Fresno County, California
Duration:	2019; 2022
Permit #:	Pending
Lead Biologist:	Sean O'Brien, 415.999.7691, sobrien@dudek.com
Work Description:	Independently conducted focused SWHA surveys for a nearly 2,000-acre project following the CDFW-endorsed protocol for the Central Valley, developed by the Swainson's Hawk Technical Advisory Committee. Surveys focused on locating nest structures and observing nest building, territorial and courtship displays, as well as tracking the nest status within a ½-mile, 1-mile and 5-mile buffer of the project boundary. Observations were electronically recorded in digital survey forms and mapped in ArcCollector and Field Maps.
Estimated Survey Hours:	50+
SWHA Observed:	65+
Nests Observed:	8
Project:	**Strauss Wind Energy Project**
Location:	Santa Barbara County, California
Duration:	May 2018-Ongoing
Permit #:	ITP# 2081-2018-065-05; BO# SPL-2018-0019-CLH; LSAA# 1600-2018-0314-R5
Lead Biologist:	Brock Ortega, 619.884.0467, bortega@dudek.com
Work Description:	Biological field lead in charge of coordinating construction monitoring activities to align with measures outlined in the ITP, BO, and LSAA permits for a 5,600-acre project site located on rural, agriculturally zoned land on coastal ridges. BO approved monitor and surveyor for CRLF. Additional activities include biological construction monitor for covered activities involved with installation of up to 27 wind turbine generators and 46 transmission line pads; delineating, installing, and maintaining wildlife exclusion fence adjacent to CRLF habitat and other sensitive species outlined in the project's ITP, BO, and LSAA; Conducting preconstruction surveys for CRLF, San Diego desert woodrat, American badger (*Taxidea taxus*, AMBA), burrowing owl (*Athene cunicularia*, BUOW), legless lizard, coast horned lizard, and nesting birds; survey for and manage data for the project's Oak Tree Protection Plan; develop and implement trapping plan for San Diego desert woodrat, under a

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SWHA Observed:	2
Project:	**Beltran Ranch Solar**
Location:	Stanislaus County, California
Duration:	June 2020
Permit #:	CUP# 2011-11
Lead Biologist:	Ryan Henry, 510.601.2518, rhenry@dudek.com
Work Description:	Independently conducted focused SWHA surveys for a 1,720-acre project following the CDFW-endorsed protocol for the Central Valley, developed by the Swainson's hawk Technical Advisory Committee (SHTAC 2000). Surveys focused on observing and updating active and potentially active nests within a 1-mile and 5-mile buffer of the project boundary. Observations were recorded in digital survey forms and mapped in ArcCollector.
Estimated Survey Hours:	12
SWHA Observed:	15 Adults (Light, Intermediate, Dark), 1 sub-adult, 3 fledglings
Nests Observed:	1 active, 3 inactive
Project:	**Sanborn Solar**
Location:	Kern, California
Duration:	April 8th, April 25th, 2021
Permit #:	EIR SCH# 2019060259
Lead Biologist:	Dave Compton, 805.252.0557, dcompton@dudek.com
Work Description:	Served as a project-approved SWHA biologist conducting golden eagle and protocol-level SWHA surveys following the CDFW-endorsed protocol for the Antelope Valley of Los Angeles and Kern Counties.
Estimated Survey Hours:	10
SWHA Observed:	0
Nests Observed:	0
Project:	**California Department of Water Resources**
Location:	San Joaquin & Delta Branches, California
Duration:	2021
Lead Biologist:	Dave Compton, 805.252.0557, dcompton@dudek.com Laura Burris, 916.835.9671, lburris@dudek.com
Work Description:	Independently conducted protocol-level SWHA surveys throughout Kern, Kings, Merced, San Joaquin, and Stanislaus Counties following the CDFW-endorsed protocol for the Central Valley, developed by the Swainson's hawk Technical Advisory Committee. Observations were recorded in digital survey forms and mapped in Arc Field Maps.
Estimated Survey Hours:	105
SWHA Observed:	180 Adults (Light, Intermediate, Dark), 3 sub-adults

	a ½-mile buffer of the project boundary. Observations were recorded in digital survey forms and mapped in Arc Field Maps.
Estimated Survey Hours:	150+
SWHA Observed:	4
Nests Observed:	1

Project:	**B.F. Safety of Dams Modification Project**
Location:	Merced County, California
Duration:	2022-Current
Permit #:	ITP# 2081-2020-064-04; BO# 08ESMF00-2018-I-0791; LSAA# 1600-2021-0005-R4
Lead Biologist:	Sean O'Brien, 415.999.7691, sobrien@dudek.com
Work Description:	CDFW- and USFWS-approved Designated Biologist for SJKF and Designated monitor for CRLF and CTS for an 1,800-acre long-term dam modification project in Merced County. Raptor-related tasks include conducting bald eagle and golden eagle surveys within a 5-mile buffer of the project site, and SWHA and general raptor surveys within a ½-mile buffer. Observations were recorded in digital survey forms and mapped in Arc Field Maps. Raptors identified include golden eagle, bald eagle (adult, juvenile), SWHA, red-tailed hawk, northern harrier, American kestrel, great horned owl.
Estimated Survey Hours:	150+
SWHA Observed:	4
Nests Observed:	1

California Tiger Salamander

Project:	**California Highspeed Rail, Construction Package 2-3**
Location:	San Joaquin Valley, California
Duration:	February 2018–Ongoing
Permit #:	ITP# 2081-2015-024-04; BO# 08ESMF00-2012-F-0247-R006
Lead Biologist:	Randi McCormick, 661.343.1078, randi@mccormickbiologicalinc.com
Work Description:	CDFW-approved Designated Small Mammal Trapper (DSMT) for TKR and SJAS, Biological Monitor (BM) for SJKF and CTS, and Designated Biologist (DB) for SWHA. Level II surveyor for annual BNLL protocol surveys. Currently providing compliance management and construction monitoring support for the California High-Speed Rail (CHSR), CP2-3, a 69-mile-long route located within Fresno, Kings, and Tulare Counties. Coordinate with CHSR environmental managers daily in identifying upcoming project activities and working with sub-consultants to provide biological monitors based on species-specific mitigation measures. Coordinated burrow excavations for CTS following the project's CTS

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Lead Biologist:	Dave Cook (#TE-816187, #SCP-514), salamanderdave@sbcglobal.net Jeff Alvarez (# TE-27427, #SCP-40), jeff@thewildlifeproject.com
Work Description:	Attended a field and lecture-based training that gave in-depth insight into identifying features and life history traits of CTS. Went over current threats and protective measures including critical review of two locations with CTS roadway crossing tunnel. Assisted in construction of CTS pit-fall trap and exclusion fence arrays.
Estimated Survey Hours:	4
Individuals Observed:	CTS: 2 preserved male and female adult specimens
Project:	**Rare Pond Species Survey Techniques Workshop**
Location:	Alton Preserve, Former Sonoma County Landfill Site, & Laguna Environmental Center, Santa Rosa, California
Duration:	March 30-31, 2019
Permit #/Lead Biologist:	Dave Cook (#TE-816187, #SCP-514), salamanderdave@sbcglobal.net Jeff Alvarez (#TE-27427, #SCP-40), jeff@thewildlifeproject.com
Work Description:	Attended a field and lecture-based workshop on the conservation, ecology, identification, and survey protocol for CTS, CRLF, and WPT. Performed dip netting, measuring, and fin clipping of CTS larva used for genetic testing of hybridization with Eastern tiger salamander. WPT trap demonstration and visual encounter survey. CRLF evening spotlight survey.
Estimated Survey Hours:	4
Individuals Observed & Handled:	CTS: 428 larvae CRLF: 8 adults observed, 3 adults handled WPT: 9 observed, 1 handled
Project:	**Fletcher Conservation Lands Conservation and Mitigation Banks**
Location:	Livermore, Alameda County, California
Duration:	June 1, 2019; May 28, 2021
Permit #	#TE-213308-1
Lead Biologist:	Joseph DiDonato, jedidonato@gmail.com, 510.326.8175
Work Description:	Under the supervision of permitted biologist Joseph DiDonato, conducted FCL aquatic species surveys via seining for CTS in several ponds throughout the property. Species observed include CTS, CRLF, chorus frog, and California newt (*Taricha torosa*), and western toad (*Anaxyrus boreas*).
Estimated Survey Hours:	10
Individuals Observed & Handled:	CTS: 332 larvae CRLF: 82 larvae, 3 adults California newt: 454 larvae, 5 adults

	vise-versa. Species observed include CTS, slender salamander (*Batrachoseps attenuates*) and chorus frog (*Pseudacris cadaverina)*.
Estimated Survey Hours:	10
Individuals Observed & Handled:	CTS: 1 adult male, 1 adult female Slender salamander: 3

Project:	**B.F. Safety of Dams Modification Project**
Location:	Merced County, California
Duration:	2022-Ongoing
Permit #:	ITP# 2081-2020-064-04; BO# 2022-0047090; LSAA# 1600-2021-0005-R4
Lead Biologist:	Sean O'Brien, 415.999.7691, sobrien@dudek.com
Work Description:	CDFW- and USFWS-approved Designated Biologist for SJKF and Designated Monitor for CRLF and CTS for an 1,800-acre long-term dam modification project in Merced County. Tasks include preconstruction surveys for CTS, CRLF, SJKF, BUOW, AMBA, and nesting birds, construction monitoring, den monitoring via camera traps and tracking medium, and burrow/den excavations for SJKF, AMBA, and CTS. CTS burrow excavations under a project-approved CTS DB.
Estimated Monitoring Hours:	70+
Estimated Survey Hours:	70+
Estimated CTS Excavation Hours:	20+

California Red-legged Frog

Project:	**Strauss Wind Energy Project**
Location:	Santa Barbara County, California
Duration:	May 2018-Ongoing
Permit #:	ITP #2081-2018-065-05; BO #SPL-2018-0019-CLH
Lead Biologist:	Brock Ortega, 619.884.0467, bortega@dudek.com
Work Description:	Serve as field lead in charge of coordinating construction monitoring activities to align with measures outlined in the ITP, BO, and LSAA permits for a 5,600-acre project site located on rural, agriculturally zoned land on coastal ridges. Approved CRLF monitor under the project's USFW BO. Additional activities include delineating, installing, and maintaining wildlife exclusion fence adjacent to CRLF habitat and other sensitive species outlined in the project's ITP, BO, and LSAA as well as conducting follow-up habitat suitability surveys for CRLF within the project boundaries.
Monitoring Days:	24
Survey Hours:	16
Individuals Observed:	2 adults

	camera traps and tracking medium, and burrow/den excavations for SJKF, AMBA, and CTS.
Estimated Monitoring Hours:	70+
Estimated Survey Hours:	70+

Other Species

American Badger

Project:	**Tranquility Solar Power Project Avian Deterrent Study**
Location:	Fresno County, California
Duration:	March-June 2018
Permit #:	EIR SCH# 2013111056, Mitigation Measure 4.5-5b "Collision Reduction Strategy"
Lead Biologist:	Brock Ortega, 619.884.0467, bortega@dudek.com
Work Description:	Served as field biologist, conducting 30-minute avian point count surveys two times per week over a three-month monitoring period. As biologist on duty, camera-monitored and hand excavated two AMBA dens that were voluntarily vacated.
Individuals Observed:	1
Dens Observed:	1 Active, 1 Inactive

Project:	**San Joaquin Kit Fox Workshop**
Location:	Carrizo Plain, San Luis Obispo County, CA
Duration:	October 7-10, 2019
Lead Biologist:	Dave Hacker; dave.hacker@sbcglobal.net Bryan Cypher; bcypher@esrp.csustan.edu
Work Description:	Brief introduction to AMBA and how to differential dens from other species. Observed five individuals while conducting spotlighting activities for SJKF.
Estimated Survey Hours:	18
Individuals Observed:	5

Estimated Survey Hours:	8
Dens Observed:	5 potentially active, 1 inactive

Project:	**Strauss Wind Energy Project**
Location:	Santa Barbara County, California
Duration:	March 2020-Ongoing
Permit #:	IPT #2081-2018-065-05; BO #SPL-2018-0019-CLH
Work Description:	Conduct preconstruction burrow surveys for AMBA and BUOW and assisted in mapping, passively relocating, and excavating inactive, potentially active, and active AMBA dens.
Estimated Survey Hours:	40

Estimated Survey Hours: 16

Project: **B.F. Safety of Dams Modification Project**
Location: Merced County, California
Duration: 2022-Ongoing
Permit #: ITP# 2081-2020-064-04; BO# 2022-0047090; LSAA# 1600-2021-0005-R4
Lead Biologist: Sean O'Brien, 415.999.7691, sobrien@dudek.com
Work Description: CDFW- and USFWS-approved Designated Biologist for SJKF and Designated monitor for CRLF and CTS for an 1,800-acre long-term dam modification project in Merced County. Tasks include preconstruction surveys for CTS, CRLF, SJKF, BUOW, AMBA, and nesting birds, and construction monitoring.
Estimated Monitoring Hours: 40+
Estimated Survey Hours: 60+

Burrowing Owl

Project: **California Highspeed Rail, Construction Package 2-3**
Location: San Joaquin Valley, California
Duration: October 2018–Present
Permit #: ITP #2081-2015-024-04; BO #08ESMF00-2012-F-0247-R006
Lead Biologist: Randi McCormick, 661.343.1078, randi@mccormickbiologicalinc.com
Work Description: Monitored and implemented passive relocation of BUOW along the project footprint, following the project's approved burrowing owl passive relocation plan. Conducted subsequent monitoring and excavations of potential burrows.
Estimated Survey Hours: 30
Individuals Observed: 9
Burrows Observed: 3 active, 50+ potentially active (including satellite burrows)

Project: **American Kings Solar Project**
Location: Lemoore, Kings County, California
Duration: March 2019-2021
Permit #: CUP No 10-05
Lead Biologist: Brock Ortega, 619.884.0647, bortega@dudek.com
Work Description: Conducted reconnaissance-level, focused species pre-construction survey of a 974 acres project site with the goal of identifying potential suitable dens, burrows, and nesting habitat for SJKF, BUOW and tri-colored blackbird. Conducted pre-construction geotech monitoring checking for potential sensitive bio resources including nesting birds. Presented WEAP training for construction crews before start of ground disturbing activities.

	and to locate any active and inactive dens that may occur. Compared SJKF track size and shape to coyote and dog tracks. Documented burrows of other species such as AMBA, coyote, and BUOW that could be used by SJKF.
Estimated Survey Hours:	14
Individuals Observed:	0
Dens Observed:	280 Potential dens/burrows
Project:	**Little Bear Solar Project**
Location:	Mendota, Fresno County, California
Duration:	February 2019; January 2020; February 2020
Permit #	CUP Nos. 3550, 3551, 3552, 3553, & 3577
Lead Biologist:	Sean O'Brien, 415.999.7691, sobrien@dudek.com
Work Description:	Conducted reconnaissance-level, focused species, and protocol level pre-construction survey of a 1,288 acres project site with the goal of identifying potential suitable dens and burrows for BUOW, SJKF, and nesting birds. Re-evaluated sites and burrows that were previously identified in the HA and protocol survey report. Camera monitored potential dens to determine use by sensitive species. Fully hand excavated, backfilled, and compacted potential dens/burrows.
Estimated Survey Hours:	50
Individuals Observed:	0
Dens Observed:	20 Potential dens/burrows
Dens Excavated:	20 Potential dens/burrows
Project:	**Strauss Wind Energy Project**
Location:	Santa Barbara County, California
Duration:	March 2020-Ongoing
Permit #:	IPT #2081-2018-065-05; BO #SPL-2018-0019-CLH
Work Description:	Conduct preconstruction burrow surveys for BUOW and AMBA and assisted in mapping, passively relocating, and excavating inactive, potentially active, and active BUOW burrows.
Estimated Survey Hours:	40
Individuals Observed:	1
Burrows Observed:	1 Potentially Active, 3 Inactive
Project:	**Confidential Solar Project**
Location:	Fresno County, California
Duration:	April 2019
Lead Biologist:	Russel Sweet, 661.859.9445, rsweet@dudek.com
Work Description:	Conducted reconnaissance-level, focused species survey of a 974-acre project site with the goal of identifying potential suitable burrows for BUOW.

	project area. Implemented passive relocation of BUOW along the project footprint, following the project's burrowing owl passive relocation plan. Conducted subsequent monitoring and excavations of potential burrows, including **two inactive desert kit fox natal dens**.
Estimated Survey Hours:	40
Individuals Observed:	1
Burrows Observed/Excavated:	6

Project:	**Confidential Solar Project**
Location:	Merced County, California
Duration:	August 2021
Permit #	Pending
Lead Biologist:	Keith Babcock, 530.305.4064, kbabcock@dudek.com
Work Description:	Field lead in charge of conducting a planning-level survey for a proposed 110-megawatt solar facility on a 1,223 acres project site with the goal of identifying potential suitable habitat for local, state, and federally protected special-status species, including SJKF, BUOW, AMBA, CTS, CRLF, and TCBL. Follow up included writing a Biological Resource Assessment based on field survey results and desktop review of local, state, and federal databases.
Estimated Survey Hours:	40
Individuals Observed:	0

Project:	**California Department of Water Resources**
Location:	San Joaquin Branch, California
Duration:	March 2021-Ongoing
Lead Biologist:	Russell Sweet; 661.859.9445, rsweet@dudek.com
Work Description:	Worked as field lead conducting species-specific burrow mapping for the San Joaquin branch of the CA DWR in Kings and Kern Counties as well as setting up camera and bait stations for SJKF following the DWR San Joaquin Kit Fox Revised Survey Methods, in coordination with USFW and CDFW. Species of interest included SJKF, SJAS, TKR, GKR, BUOW, and AMBA.
Estimated Survey Hours:	60
Individuals Observed:	13
Potential Burrows/Nests:	5

Buena Vista Lake Ornate Shrew

Project:	**BVLOS Training Workshop**
Location:	Virtual Meeting
Duration:	April 21, 2021
Lead Biologist:	Bryan Cypher; bcypher@esrp.csustan.edu

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Work Description:	Set up camera and bait stations along CA aqueduct alignment within suitable and marginally suitable habitat for BVLOS, following the USFW Camera Survey Recommendations for Detecting Presence of the Buena Vista Slake Ornate Shrew. This included a review of potentially suitable micro-habitats along the Aqueduct ROW.
Survey Hours:	8
Individuals Observed:	0

Project:	**California High-Speed Rail, Construction Package 2-3**
Location:	San Joaquin Valley, California
Duration:	July 11-16, 2022
Permit #:	ITP #2081-2015-024-04; BO #08ESMF00-2012-F-0247-R006
Lead Biologist:	Tom Dayton, 714.624.3117, thomasrdayton@gmail.com
Work Description	Alongside BVLOS DB Tom Dayton, set up camera and bait stations within suitable habitat for BVLOS per the CHSR BO mapped areas. Assisted in re-baiting and processing cameras. Camera/bait stations were set up following the U.S. Fish and Wildlife Service's Camera Survey Recommendations for Detecting Presence of the Buena Vista Lake Ornate Shrew.
Survey Hours:	6
Individuals Observed:	Western deer mouse, house mouse

Blunt-nosed Leopard Lizard

Project:	**Independent Survey Performed**
Location:	Pixley Wildlife Refuge, Tulare County, California
Duration:	July 19, 2018; May 8, 2019
Level II:	Rainey Reedy, 661.529.8034, rainey.reedy@gmail.com
Work Description:	Visited Pixley Wildlife Refuge with BNLL Level II Rainey Reedy, Jaime Waite, and Cody Andrews. Independently observed and correctly identified several male and female adult BNLL.
Individuals Observed:	4 adult males, 3 adult females

Project:	**California Highspeed Rail, Construction Package 2-3**
Location:	San Joaquin Valley, California
Duration:	2018-Current
Permit #:	ITP #2081-2015-024-04; BO #08ESMF00-2012-F-0247-R006
Lead Biologist:	Randi McCormick, 661.343.1078, randi@mccormickbiologicalinc.com
Work Description:	Conducted single pass pedestrian transects surveying for presence of BNLL following the CDFW 2004 Survey Protocol and revised October 2019 Protocol. Documented all special status wildlife identified and recorded data for all lizard species observed during surveys

Individuals Observed:	1 hatchling

Project:	**Independent Survey Performed**
Location:	Pixley Wildlife Refuge, Tulare County, California
Duration:	September 25, 2022
Work Description:	Led an independent survey at the Pixley Wildlife Refuge with BNLL Level I surveyors. Trained Level I surveyors in general life history and identification of the species as a wrap up to the 2022 BNLL season.
Individuals Observed:	1 adult female, 2 adults unknown, 2 hatchlings

Crotch's Bumble Bee

Project:	**California Highspeed Rail, Construction Package 2-3**
Location:	Fresno, Kings, Tulare Counties, California
Duration:	July 2021, May-June 2022
Permit #:	MSAA 1600-2015-0033-R4
Lead Biologist:	Randi McCormick, 661.343.1078, randi@mccormickbiologicalinc.com
Work Description:	CDFW-approved biologist for Crotch's Bumble Bee (*Bombus crotchii*). Conducted CHSR-approved presence/absence surveys for CBB following the Draft-Crotch's Bumble Bee Survey Protocol for the High-Speed Rail Project.
Estimated Survey Hours:	35+
CBB Observed:	0

California Spotted Owl

Project:	**California Spotted Owl Long Term Study**
Location:	Sequoia and Kings Canyon, California
Duration:	April-August 2021
Permit #:	SEKI-2021-SCI-0004
Lead Biologist:	Thomas Munton, 559-323-3203, tmunton@fs.fed.us
Work Description:	Volunteered with the California spotted owl (*Strix occidentalis*) study, led by permitted biologist Thomas Munton, which includes locating, capturing, and color banding all spotted owls within the study area with the purpose of providing information on owl survival, reproduction, and diet in areas not managed for timber production.
Estimated Survey Hours:	42.5
Individuals Observed:	6 adult males, 5 adult females, 1 fledgling

Attachment C

Phil Brylski, Ph.D Resume

Phillip Brylski, PhD

DESIGNATED BIOLOGIST

Dr. Phillip Brylski is an ecologist/conservation biology scientist with over 30 years' professional experience. He has carried out conservation studies on California fauna, including focused surveys for sensitive species, California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) biological impact analyses, status reviews, and genetic studies. He has performed live-trapping surveys, visual surveys, and research on nearly every species of California heteromyid, as well as selected gophers, squirrels, rats and mice.

Education

University of California, Berkeley
PhD, Zoology, 1986

Yale University
MS, Forest Science, 1980

University of California, Berkeley
BS, Forestry, 1977

Certifications

USFWS, Section 10(a) Survey Permit No. TE-148555-1

- *San Bernardino kangaroo rat*
- *Stephens' kangaroo rat*
- *Giant kangaroo rat*
- *Tipton kangaroo rat*
- *Fresno kangaroo rat*
- *Pacific pocket mouse*
- *Amargosa vole*
- *Mohave ground squirrel*
- *Salt marsh harvest mouse*
- *Riparian woodrat*
- *MOU for most California Mammal Species of Special Concern (small mammals only)*

Relevant Previous Experience

Species Surveys

San Bernardino kangaroo rat (Dipodomys merriami parvus, SBKR)

- SBKR live-trapping survey for SoCalGas North-South gas line project, Reche Canyon, California. (2015)
- SBKR survey for Devils Canyon area, San Bernardino County Flood Control District, California. (2014)
- SBKR survey for California Department of Transportation (Caltrans) Interstate 15 Expansion Project, San Bernardino County, California. (2013, 2014)
- SBKR survey and relocation effort, State Department of Water Resources EBX II project site, Redlands, California. (2013)
- SBKR survey at a proposed SoCalGas gas repair site and access corridor in the North Fontana/Devore area of San Bernardino County, California. (2013)
- SBKR survey on the approximately 9.1 Acre Otto property, Redlands, California. (2012)
- SBKR survey for approximately one mile right-of-way (ROW) along Rialto Municipal airport, Rialto, California. (2012)

- SBKR survey for three Geotechnical Study Sites near Vulcan Materials Company's Muscoy Groin #2 Storm Drain Project Site, San Bernardino County, California. (2012)
- SBKR survey along an approximately 0.75-mile proposed AT&T telephone line repair site and access corridor in the Beacon/Devore area of San Bernardino County, California. (2012)
- SBKR survey at site of a proposed Southern California Edison (SCE) transmission tower replacement project along Lytle Creek, San Bernardino County, California. (2012)
- SBKR survey on the Robertson's Ready Mix/Cemex mine expansion and mitigation sites, San Bernardino County, California. (2011)
- SBKR percent area occupied (PAO) survey of the Santa Ana River Woolly Star Preserve Area, San Bernardino County, California. (2007–2011)
- SBKR survey at the La Rivera Surface Drainage Improvement Project Site, Riverside, Riverside County, California. (2011)
- Survey for SBKR and LAPM on the Soboba Horseshoe Grande Fee to Trust project area, Riverside County, California. (2011)
- SBKR survey of the Opal Avenue Mitigation Property, San Bernardino County, California. (2011)
- SBKR survey of the Mill Creek/Garnet Street and Cone Camp Road Sites, San Bernardino County, California. (2011)
- SBKR survey on an approximately 5 Acre Site on the Wooly Star Preserve Area in the City of Redlands, California. (2010)
- SBKR live-trapping survey, SCE Arrowhead project, San Bernardino County, California. (2009)
- SBKR survey of the SCE Alder-Declez project site, San Bernardino, California. (2009)
- SBKR Survey, Soboba Indian Reservation, Riverside County, California. (2009)
- SBKR survey at reference locations in the Woolly Star Preserve area, San Bernardino County, California. (2007–2012)

Stephens' kangaroo rat (Dipodomys stephensi, SKR)

- SKR survey, Fallbrook Naval Weapons Center, San Diego County, California. (2013)
- SKR and LAPM survey, Lake Perris Dam Remediation project, Riverside County, California. (2009, 2012)
- SKR and LAPM survey, SCE Alberhill System Project, Riverside County, California. (2011)
- SKR survey for the County Parks Oak Country II Trails Project, San Diego County, California. (2011)
- SKR survey for the proposed southern route of the San Diego Gas & Electric (SDG&E) Sunrise Powerlink project in San Diego County, California. (2010)
- SKR survey at The Center for Natural Land Management March SKR Preserve, March Air Force Base

- Focused Surveys for the PPM and SKR for the Marine Corps Base (MCB) Camp Pendleton Basewide Water Infrastructure (BWI) and Stuart Mesa Bridge Replacement (SMBR) project, San Diego County, California. (2011)
- PPM survey, Exchange Hospital, MCB Camp Pendleton, California. (2009)
- PPM survey for San Mateo North Population, California State Parks. (2010)
- PPM survey, Combat Marksmanship Range (CMR), MCB Camp Pendleton, California. (2010)
- PPM survey, 31 Area, MCB Camp Pendleton, California. (2010)
- PPM survey, Range 501, MCB Camp Pendleton, California. (2011)

Los Angeles pocket mouse (Perognathus longimembris brevinasus, LAPM)

- LAPM survey, Mt. San Jacinto Community College District, San Gorgonio Pass Campus, Banning, Riverside County, California. (2012)
- LAPM survey, SCE Transmission Line ROW, Murrieta, California. (2008)
- LAPM survey on the Banning Truck Weigh Station, Banning, California. (2010)
- LAPM survey on APN 459-020-067 (southern part), Riverside County, California. (2012)
- SKR and LAPM survey for the Lake Perris Dam Remediation Project, Riverside County, California.

Mohave ground squirrel (*Xerospermophilus mohavensis*, MGS)

- MGS live-trapping survey for SoCalGas North-South gas line project, California. (2015)
- MGS live-trapping survey for Adelanto Solar Project, California. (2013)
- MGS habitat assessment and live-trapping survey, North First Avenue Grade Separation and Bridge Replacement Project, Barstow, California. (20130
- MGS habitat assessment for the California Threatened Mohave Ground Squirrel (MGS) on the Fremont Valley System New Well 1-02 Project, APN 470-251-20-8, Kern County, California. (2012)
- MGS live-trapping survey for San Bernardino County Flood Control District, Amethyst Basin, Victorville, California. (2012)
- MGS live-trapping survey, CalTrans High Desert Corridor project, San Bernardino County, California. (2011)
- MGS surveys, Edwards Air Force Base (AFB), Kern County, California. (1994, 2009–2011, 2013)
- MGS live-trapping Survey, Mohave Element Energy, Kern County, California. (2012)
- MGS live-trapping survey, Snowline Joint Unified School District Support Services Complex, Phelan, California. (2008)
- MGS live-trapping survey, Snowline Joint Unified School District, High School #2, San Bernardino County, California. (2008)

Other Small Mammal Surveys

- Carried survey for cotton rats (*Sigmodon*) in support of the Imperial Irrigation District's Habitat Conservation Plan, California.
- Surveys for Palm Springs ground squirrel (*Spermophilus tereticaudus chlorus*) and Palm Springs pocket mouse (*Perognathus longimembris bangsi*), Desert Hot Springs, California. (2009)

Burrrowing owl (Athene cunicularia)

- Burrowing owl survey for the Falcon Ridge Substation Project, Rancho Cucamonga, Fontana, and Rialto, California (protocol survey). (2014)
- Burrowing owl survey for the Mt. San Jacinto Community College District, San Gorgonio Pass Campus, Banning, California (protocol survey). (2012)
- Burrowing owl survey at Hesperia Crosswalk school site, San Bernardino County, California (protocol survey). (2012)
- Burrowing owl survey at Menifee Wireless Facility, Menifee, California (protocol survey). (2012)
- Burrowing owl survey at SiteMaster site, Banning, California (protocol survey). (2013)
- Beaumont High School overpass burrowing owl survey, Beaumont, California (protocol survey). (2012)
- Habitat assessment for sensitive plants and burrowing owl survey at Perris Middle School and Central Kitchen, Perris, California (protocol survey).
- Habitat assessment for sensitive plants, burrowing owl survey, and Multiple Species Habitat Conservation Plan (MSHCP) consistency analysis, San Jacinto, California (protocol survey).
- Desert tortoise (*Gopherus agassizii)* and burrowing owl survey (non-protocol survey) and rare plant assessment at SCE Oasis Substation Project site, Los Angeles County, California. (2009)
- Burrowing owl surveys (non-protocol sweeps) for SCE Tehachapi Renewable Transmission Project (TRTP), Los Angeles County, California. (2010–2012)
- San Diego Association of Governments (SANDAG) Regional burrowing survey, San Diego County, California (non-protocol survey). (2010)

Biological Assessments

- Antelope Valley Area Plan Update environmental impact report (EIR) (program level biological assessment), California. (2014)
- Anaheim Canyon Specific Plan EIR (program level biological assessment), Orange County, California. (2013)
- Perris Middle School and Central Kitchen habitat assessment for MSHCP consistency analysis, Perris,

- Carlsbad High School #2, San Diego County, California. (2010)
- Irvine Business Complex EIR, Irvine, California (program level biological assessment). (2009)
- Palm Springs Unified District Service Center, California. (2009)
- Bristol Street widening at 17th Street NES, Santa Ana, California. (2009)
- University High School Stadium project, Irvine, California. (2008)
- Tonner Canyon Vegetation Management Area, Los Angeles and San Bernardino Counties, California. (2008)
- Snowline Joint Unified School District, High School #2, Victorville, California. (2008)
- Vista Del Mar Elementary School, San Diego, California. (2008)
- Rowe School Site Biological Constraints Analysis, San Diego County, California. (2007)
- Snowline School District Support Services Complex Development Plan, Phelan, California. (2007)

Construction Monitoring

- Beacon Solar project MGS and desert tortoise monitoring, California City, California. (2013–2015)
- SCE TRTP construction monitor, California. (2010–2015)
- SBKR monitor for Caltrans Interstate 15 improvement project, California. (2013)
- PPM construction monitor, Camp Pendleton, California. (2012)
- SBKR monitor for SANBAG Palm Avenue grade separation project, California. (2013, 2014)
- Bighorn sheep (*Ovis Canadensis*) construction monitor for SDG&E Sunrise Power Link Project, California. (2012, 2013)

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Swei, A. P.V. Brylski, W.D. Spencer, S.C. Dodd, and J.L. Patton. 2003. "Hierarchical genetic structure in fragmented populations of the Little Pocket Mouse (*Perognathus longimembris*) in Southern California." *Conservation Genetics.* 4(4):501—514.

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California Department of Fish and Game, 1990. "California wildlife habitat relationships system. Volume III: Mammals." Zeiner, D. C., W. F. Laudenslayer, Jr., K. E. Mayer, and M. White, eds. California Interagency Wildlife Task Group, Sacramento, California.

Attachment D

Photo Log



Photo 1. Degraded kangaroo rat burrow complex in the west-central part of the Project site.





Photo 3. Burrow built in roadside berm in southwestern part of the Project site where HKR was captured.





Photo 5. Dense grassland-mixed herb habitat with tumbleweed in the southeastern part of the Project site, looking north.





Photo 7. Dried grassland in May 2022, southeastern part of the Project site looking west.

Attachment E

Historical Aerial Photos



Photo 1. Aerial photo of project site in 1956 (source: UCSB 2023)

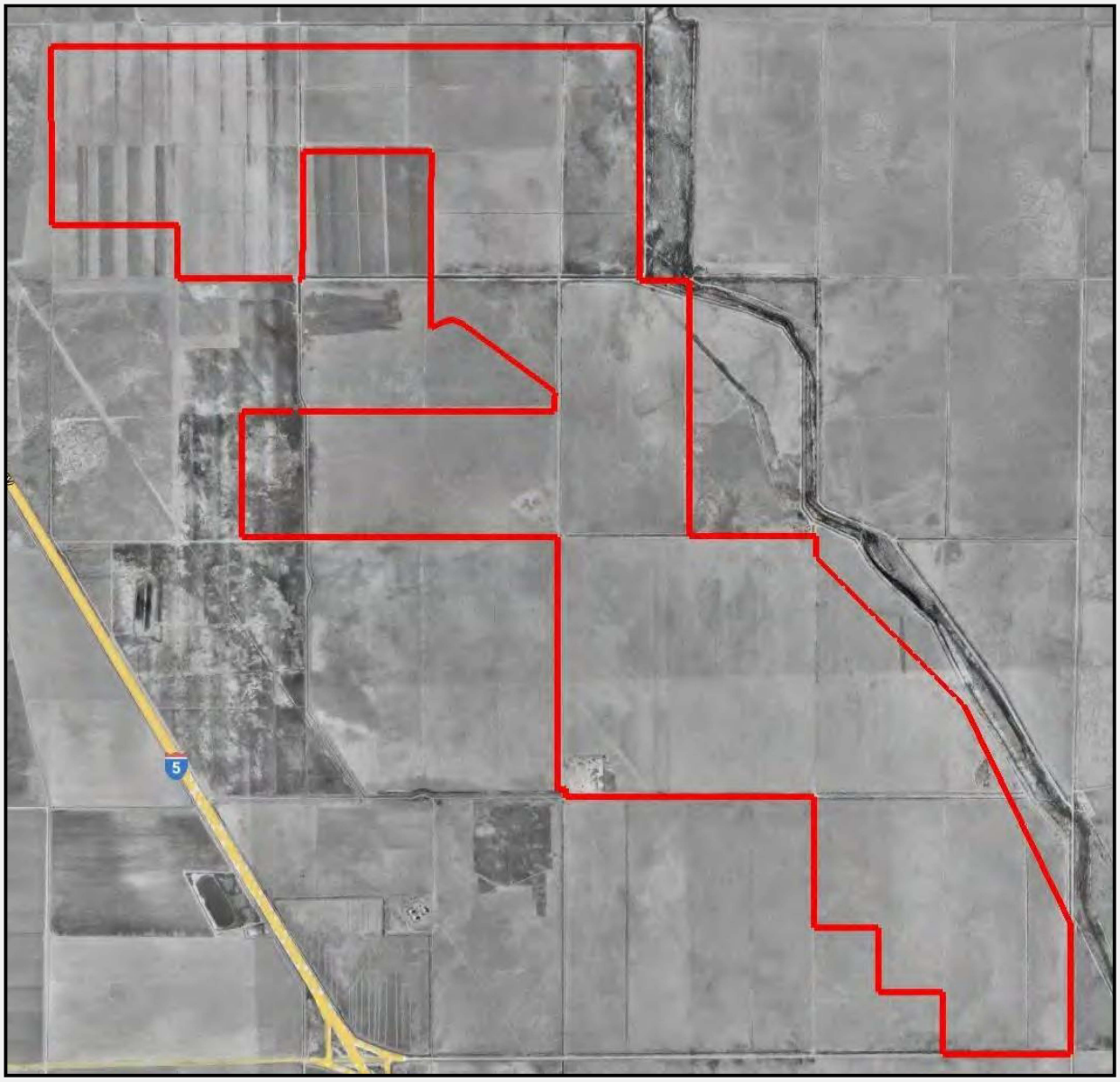


Photo 2. Aerial photo in March 1994 (source: Google Earth 2023)

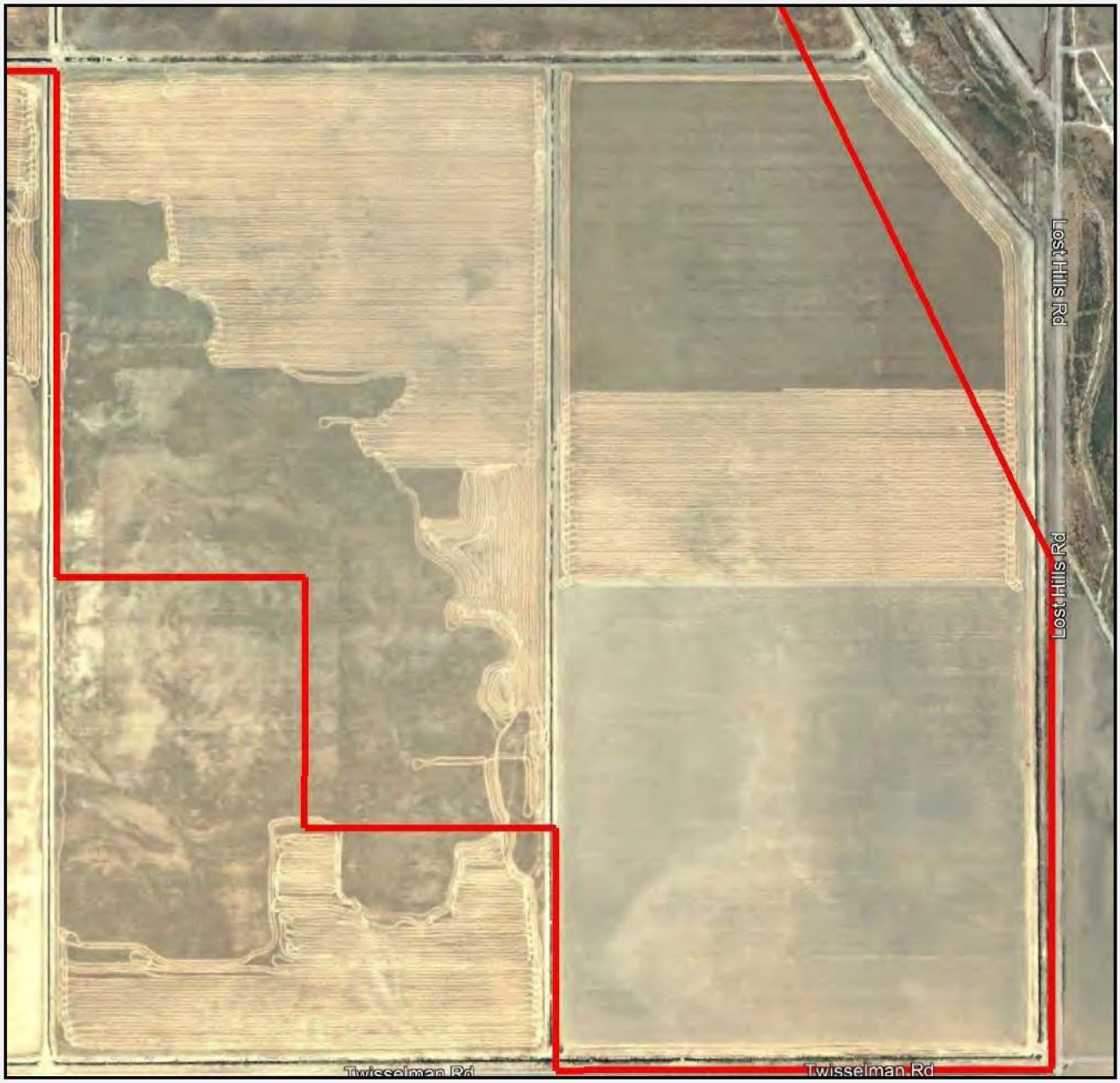
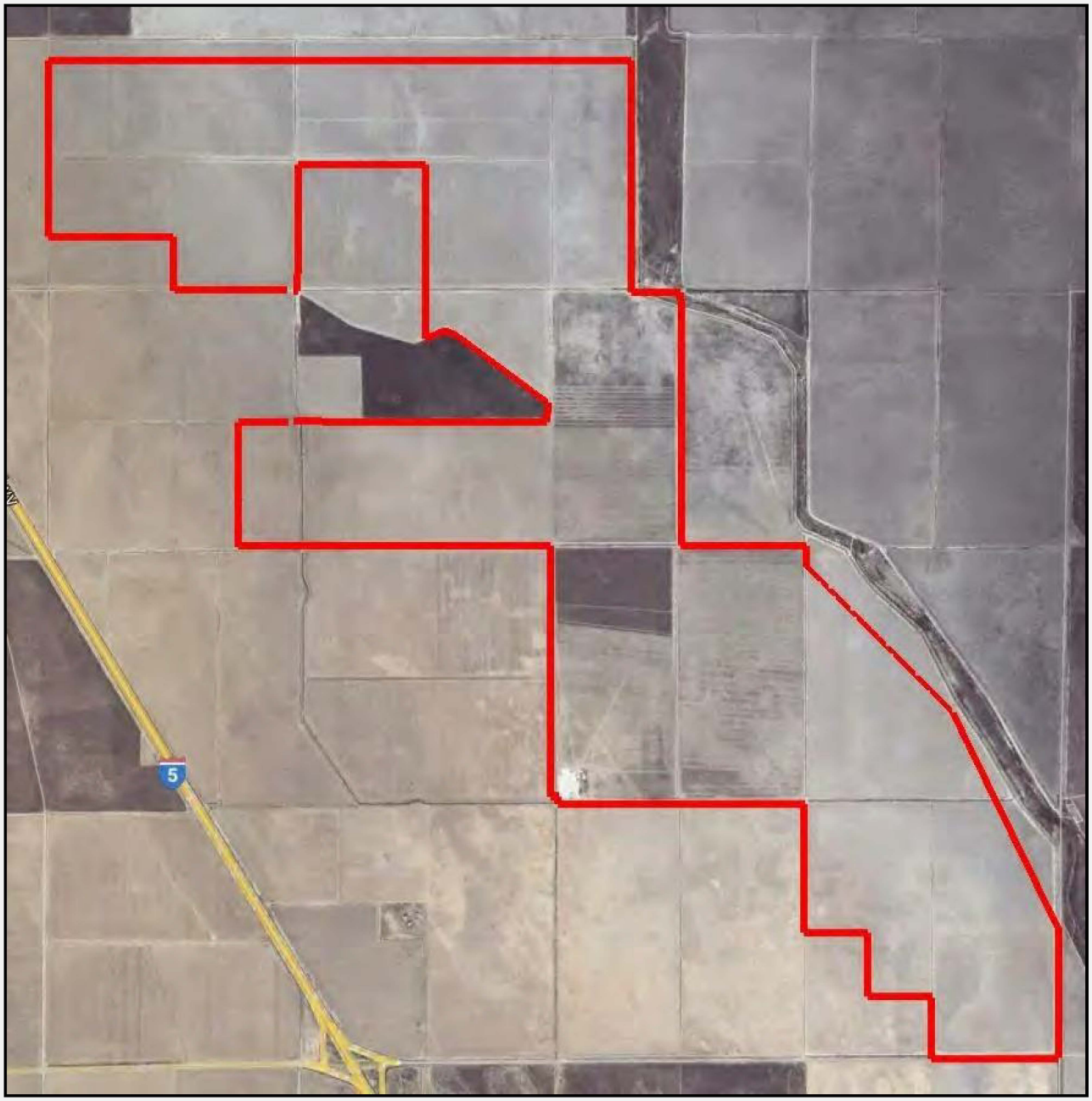


Photo 3 Aerial photo, March 2005 (source: Google Earth 2023)


5

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DUDEK

MEMORANDUM

To:	Larry Bonner and Jeremy Pohlman – California Department of Fish and Wildlife Justin Sloan – U.S. Fish and Wildlife Service Terrance Smalls – Kern County
From:	Brock Ortega, Keith Carwana, and Andrea Hernandez – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard (BNLL) Protocol Level, Adult Season Survey Preliminary Results
Date:	August 14, 2023
cc:	Alphonso Jung, Tandy McMannes, JungWoo Kim, Sean Mantucca, Matt Stucky, and Karl Brutsaert – Pelicans Jaw Solar, LLC Andrew Bell – Bell-Kearns, Ltd. Marie Campbell and Sarah Sperling – Sapphos Environmental, Inc.
Attachments:	A – Blunt-nosed Leopard Lizard Protocol Level Survey Notification, April 6, 2023 B – CDFW BNLL 10 Meter Transect Survey Request, April 11, 2023 C – BNLL Protocol Level Survey Extension, July 12, 2023 D - BNLL Refence Check Photographs E - 2021 BNLL Sample Survey Letter Report
Figure:	1 – Project Location 2 – Survey Area

Executive Summary

This memorandum provides the preliminary results of protocol-level surveys for adult blunt-nosed leopard lizard (BNLL; *Gambelia silus*) undertaken in support of the Pelicans Jaw Hybrid Solar Project (Project), located on approximately 3,371 acres in unincorporated Kern County, California. The surveys conformed to the Blunt-nosed Leopard Lizard Protocol Level Survey Notification submitted to the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) on April 6, 2023 (see Attachment A) and the 2019 CDFW "Approved Survey Methodology for the Blunt-Nosed Leopard Lizard". In addition, the surveys were performed in accordance with a request received from CDFW dated April 11, 2023 that survey transect widths be no more than 10 meters to compensate for detection of BNLL in dense vegetation (see Attachment B).

Dudek began conducting protocol-level BNLL surveys to determine any potential of BNLL at the Project site on April 15, 2023. Cooler temperatures and inclement weather including high sustained wind speeds and a wildfire on land

National Wildlife Refuge from publicly accessible roads on July 19, July 24, and July 29, 2023 to provide evidence that BNLL are visible outside of the BNLL adult survey season. The Pixley National Wildlife Refuge is located approximately 22 miles northeast of the Project site. Adult BNLL were observed during each of the three reference checks at the Pixley National Wildlife Refuge. Photographs of adult BNLL at the reference site are included as Attachment D.

The adult season BNLL surveys were completed on July 29, 2023; 12 survey passes were completed at the Project site and no adult blunt-nosed leopard lizards were detected.

1 Introduction

The purpose of this memorandum is to provide the preliminary results of adult, protocol-level surveys for BNLL, undertaken in support of the Project. The goal in undertaking the surveys is to assess the potential presence of BNLL at the Project, for which Pelicans Jaw Solar, LLC is seeking a Conditional Use Permit (CUP) and General Plan Amendment (GPA) for the development of a photovoltaic solar and energy storage facility. BNLL is listed as "endangered" pursuant to the federal Endangered Species Act (ESA) and is afforded "fully protected" status pursuant to the California Fish and Game Code. On July 10, 2023, California Governor Gavin Newsom signed Senate Bill (SB) 147. SB 147 authorizes project-specific incidental take of fully protected species for certain infrastructure projects, including photovoltaic solar projects and any associated electric transmission project.

2 Project Description

The proposed Project would include up to 500-megawatt (MW) of photovoltaic solar generation and a 500 MW battery energy storage system (BESS) with a capacity up to 4,000-megawatt hour (MWhr) of energy storage on approximately 3,371 acres of privately owned land across 26 parcels (Figure 1, Project Location). The Project would primarily consist of photovoltaic (PV) panels, a single-axis tracker system, inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector substation, generation interconnection (gen-tie) line, access roads, security fence, an operations and maintenance (O&M) facility, and a supervisory control and data acquisition (SCADA) system.

The Project would also include a Pacific Gas and Electric (PG&E) switching station that would interconnect with the existing PG&E 230 kilovolt (kV) overhead transmission lines that traverse the west side Project site. In addition, approximately 13.3 miles of optical ground wire (OPGW) line would be installed to provide communication between the proposed PG&E switching station and the existing PG&E Arco Substation, which is located approximately 8.5

capacity of approximately 2,000 MWh (up to 250 MW). The operational life of the Project is anticipated to be 35 years.

Two points of access are being proposed from Twisselman Road to provide ingress/egress to the Project site including:

- An approximately one-mile-long access road extending north from Twisselman Road to the southwest corner of APN 044-150-170.
- An access road extending from the intersection of Twisselman Road and the southeast corner of APN 044-130-160.

Each access road would be up to 24 feet wide with up to five-foot-wide shoulders on each side for a total width of 34 feet. The access roads would include an up to 24-foot-wide unpaved driveway with up to 5-foot shoulders on either side, for a total driveway width of 34-feet.

Location

The Project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5, located approximately 2 miles to the west. The Project site and surrounding properties are currently vacant and have been used for cattle and sheep grazing over the past 10 years.

Project location details were recorded from USGS topographic quadrangle and the County Assessor's Parcel Maps:

- **County:** Kern
- **U.S. Geological Survey (USGS) 7.5-Minute Quadrangle (Quad):** West Camp and Lone Tree Well
- **Latitude, Longitude:** 38.473731, -121.184568 (centroid, decimal degrees).
- **Assessor Parcel Numbers (APNs):** 044-101-02, 044-101-03, 044-101-05, 044-101-06, 044-102-01, 044-102-03, 044-102-05, 044-102-21, 044-102-22, 044-103-01 (portion of), 044-103-04 (portion of), 044-103-06 (portion of), 044-103-08, 044-103-09 (portion of), 044-110-01, 044-110-03, 044-110-25, 044-130-16, 044-130-18, 044-130-21, 044-130-39, 044-150-05, 044-150-17, 044-102-23, 044-101-16, and 044-101-11 (portion of).

3,371-acre Project site. The sample surveys for the hatchling season consisted of two survey passes with the first survey pass consisting of 964 acres and the second survey pass consisting of 945 acres of the approximately 3,371-acre Project site. Dudek completed the adult BNLL sample surveys on July 8, 2021. The BNLL hatchling surveys were completed on September 29, 2021. No BNLL were observed during the adult and hatchling season sample survey effort in 2021. A letter report documenting the results of the sample surveys are included as Attachment E.

4 Methods

Literature Review

Dudek evaluated range data available through the California Natural Diversity Database (CNDDB). The CNDDB shows a single BNLL within the Project site, in 1974**.** Additionally, the USFWS and CDFW BNLL range mappers place the Project within the current range of the species (CDFW 2023; USFWS 2023).

Surveys

BNLL surveys followed the revised 2019 CDFW "Approved Survey Methodology for the Blunt-Nosed Leopard Lizard" and the Blunt-nosed Leopard Lizard Level Survey Notification submitted to USFWS and CDFW on April 6, 2023 (see Attachment A).

Above average rainfall during the 2022 – 2023 rainy season led to increased vegetation growth on the Project site. As a result, CDFW recommended 10-meter survey transects via email on April 11, 2023 (see Attachment B), which is the most conservative transect width as defined by the 2019 CDFW BNLL survey protocol. The 2019 CDFW BNLL survey protocol recommends 10-meter-wide transects where shrubs are fairly numerous (>30% cover) and/or the herbaceous vegetation is dense and tall (>30 cm) and transects as wide as 20 meters where few shrubs and shorter herbaceous vegetation (<10 cm) is present. The survey implemented the 10-meter transects requested by CDFW.

Cool temperatures and inclement weather during April, May, and June 2023 resulted in 25 potential survey days that were too cold to conduct protocol surveys within the April 15 to July 15 adult BNLL survey time frame. The 2019 CDFW BNLL survey protocol requires surveys to occur when the air temperature is between 77°F and 95°F. Three additional survey days were lost due to high sustained wind speeds, which prevented surveys from being conducted within protocol conditions. The 2019 CDFW BNLL survey protocol requires that surveys be conducted when sustained wind velocity is below 10 mph. One survey day was cancelled due to a wildfire on land just outside

approximately 1,378-acre area during the extended survey period of July 16 through July 29, 2023. Figure 2 shows the areas where all 12 survey passes were completed prior to July 15, 2023 and the areas where all 12 survey passes were completed during the extended survey period of July 16 though July 29, 2023.

The adult season surveys consisted of qualified biologists walking parallel to one another at a distance of 10 meters (32.8 feet). As required by the CDFW protocol, surveys were conducted between 8:00 a.m. and 2:00 p.m., and were limited to periods during the optimal temperature range for detecting this species 77°F to 95°F (25°C-35°C) at 1-2 cm above ground on a surface representing the survey area. Surveys were not conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeded 10 mph. Surveys consisted of teams of one Level II surveyor for every three Level I surveyors on each date including holidays when weather conditions met survey protocols.

Surveyors recorded the following observations daily in monitoring logs:

- Time of day, cloud cover, wind speed, soil temperature, and air temperature;
- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect; and
- Special-status species observed during the survey effort.

BNLL Reference Sightings

BNLL reference signings were used to inform the BNLL 2023 full protocol-level surveys to demonstrate that the surveys were undertaken when BNLL were observed at comparable nearby locations. The use of reference sightings increases the reliability of using results of the survey results as the basis for the characterization of existing condition, and related impact analysis in the CEQA environmental impact report.

Dudek conducted BNLL reference checks at the Pixley National Wildlife Refuge using public access roads on July 19, July 24, and July 29, 2023. Each reference check is summarized below:

- **July 19, 2023** – Surveys were conducted from 12:00 pm to 1:30 pm when ground temperatures ranged from 92.5°F to 94.0°F. Two adult BNLL were observed at the Pixley National Wildlife Refuge. Photos are included in Attachment D.
- **July 24, 2023** – Surveys were conducted from 9:30 am to 10:15 am when ground temperatures ranged from 90.1°F to 95.0°F. Three adult females and one adult male, all with breeding colors were observed at the Pixley National Wildlife Refuge. Photos are included in Attachment D.
- **July 29, 2023** - Surveys were conducted from 8:30 am to 9:30 am when ground temperatures ranged from

(*Uta stansburiana*), 52 California whiptails (*Aspidoscelis tigris*), 2 western fence lizards (*Sceloporus occidentalis*), 9 gopher snakes (*Pituophis catenifer*), and 35 western rattlesnakes (*Crotalus oreganus*).

Next Steps

Pelicans Jaw Solar, LLC is anticipated to conduct full protocol-level surveys for BNLL during the hatchling season, August 15 to September 30, 2023. A full-survey report will be submitted to describe the results of the adult and hatchling BNLL surveys at the completion of the hatchling surveys.

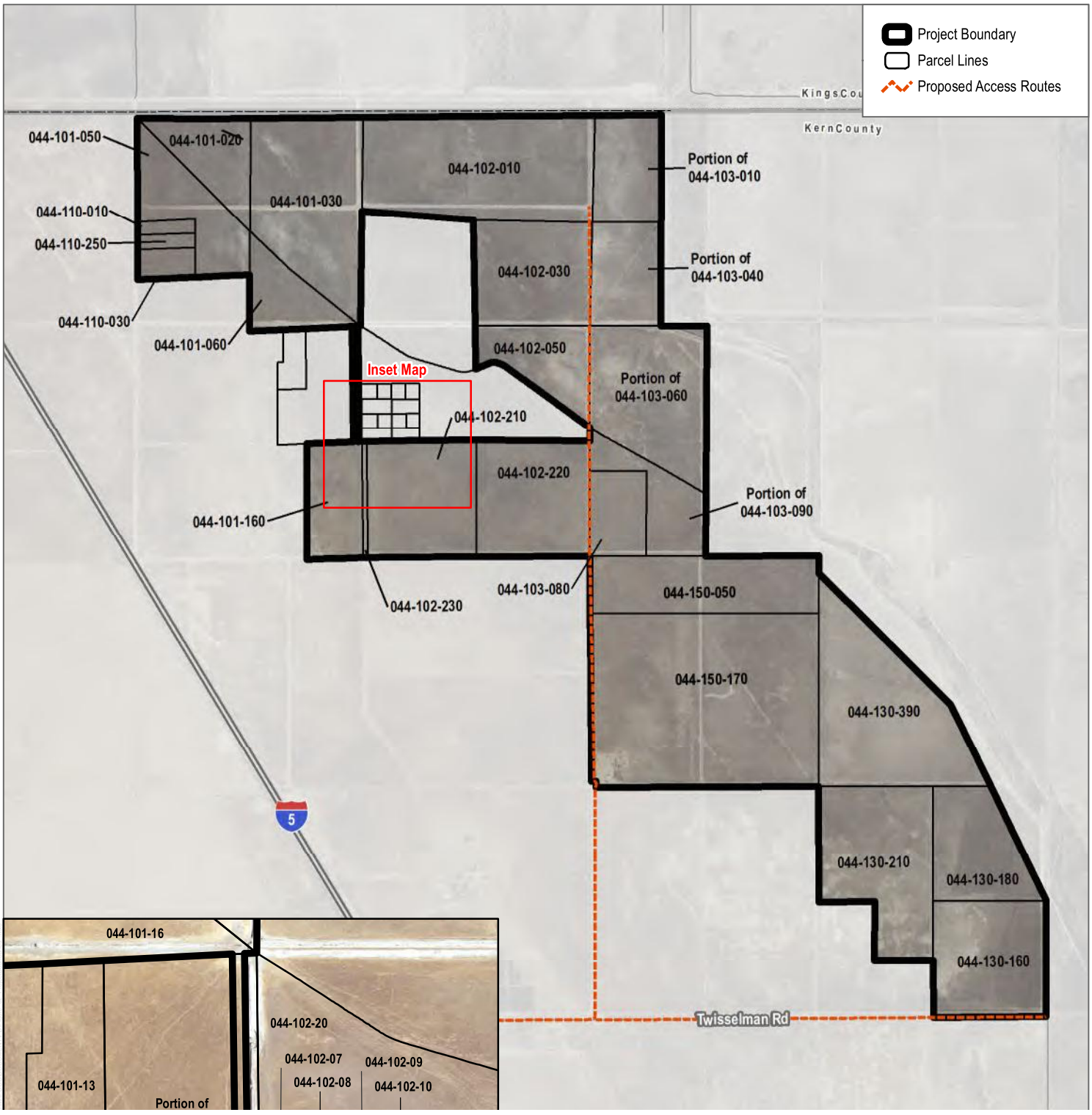
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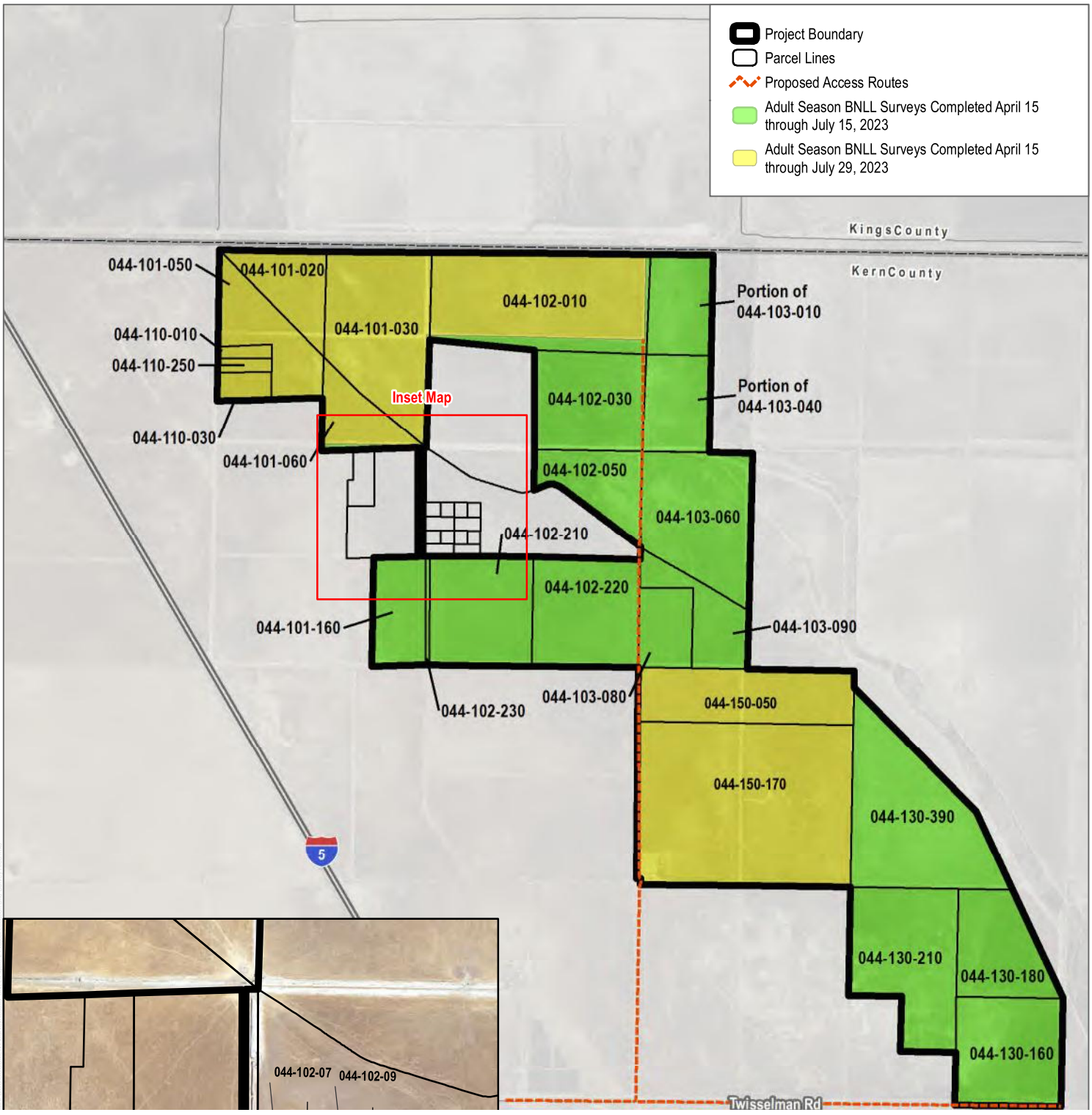
CDFW (California Department of Fish and Wildlife). 2019. Approved Survey Methodology for the Blunt-Nosed Leopard Lizard). October 2019.

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USFWS (United States Fish and Wildlife Service). 2022. *Gambelia silus*. Accessed April 2023. https://www.fws.gov/species/blunt-nosed-leopard-lizard-gambelia-silus/map


Project Boundary
Parcel Lines
Proposed Access Routes
Kings Co
Kern County
044-101-050
044-101-020
044-102-010
Portion of
044-103-010
044-101-030
044-110-010
044-110-250
044-102-030
Portion of
044-103-040
044-110-030
044-101-060
044-102-050
Inset Map
Portion of
044-103-060
044-102-210
044-102-220
Portion of
044-103-090
044-101-160
044-103-080
044-102-230
044-150-050
044-150-170
044-130-390
5
044-130-210
044-130-180
044-130-160
Twisselman Rd
044-101-16
044-102-20
044-102-07
044-102-09
044-102-08
044-102-10
044-101-13
Portion of


Project Boundary
Parcel Lines
Proposed Access Routes
Adult Season BNLL Surveys Completed April 15 through July 15, 2023
Adult Season BNLL Surveys Completed April 15 through July 29, 2023
Kings County
Kern County
044-101-050
044-101-020
044-102-010
Portion of 044-103-010
044-110-010
044-110-250
044-101-030
Inset Map
044-102-030
Portion of 044-103-040
044-110-030
044-101-060
044-102-050
044-103-060
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044-103-080
044-150-050
044-150-170
044-130-390
5
044-130-210
044-130-180
044-130-160
044-102-07
044-102-09
Twisselman Rd

Attachment A

Blunt-nosed Leopard Lizard Protocol Level Survey Notification, April 6, 2023

Sapphos environmental inc.

April 6, 2023
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M18

TO: U.S. Fish and Wildlife Service
(Mr. Justin Sloan)

California Department of Fish and Wildlife
(Mr. Lawrence Bonner and Mr. Jeremy Pohlman)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Kern County
(Mr. Terrance Smalls)

Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Alphonso Chang-Su Jung, Mr. Sean Mantucca, and Mr. Karl Brutsaert)

Dudek
(Mr. Keith Carwana)

Bell Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Submittal of the Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard Protocol Level Survey Notification

ATTACHMENT: 1. Pelicans Jaw Hybrid Solar Project – Blunt-nosed

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) is intended to notify the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) of the proposed commencement of protocol blunt-nosed leopard lizard (*Gambelia sila*; BNLL) surveys, as described in the approved work plan to determine the presence or absence of BNLL at the Project, beginning April 15, 2023 (Attachment 1, *Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard Protocol Level Survey Notification*). Due to the level of effort required to perform this survey, it is respectfully requested that CDFW and/or USFWS respond as soon as possible if there are any concerns regarding any part of this survey proposal. Dudek is not proposing any variances to the protocol and understands that this survey is valid for one year. Dudek, acting on behalf of the Pelicans Jaw Solar, LLC team, submitted a Biological Survey Work Plan for the USFWS and CDFW for review on April 15, 2021 (Attachment 1.A., *Biological Survey Work Plan*). A subsequent call with USFWS and CDFW occurred on April 28, 2021, to review and discuss the Biological Survey Work Plan (Attachment 1.B, *Pelicans Jaw Biological Survey Work Plan Meeting Notes*). The BNLL sample survey methods and results were summarized in a memorandum submitted to USFWS, CDFW, and Kern County on August 18, 2022 (Attachment 1.C, *Memorandum for the Record No. 8: BNLL Sample Survey Results*).

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

DUDEK
27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

To:	Larry Bonner and Jeremy Pohlman – California Department of Fish and Wildlife Justin Sloan – U.S. Fish and Wildlife Service Terrance Smalls and Katrina Slayton – Kern County
From:	Brock Ortega, Shana Carey, and Keith Carwana - Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard Protocol Level Survey Notification
Date:	April 6, 2023
Attachments:	A – Biological Survey Work Plan, April 15, 2021 B – Biological Survey Work Plan Meeting Notes, April 28, 2021 C –Blunt-nosed Leopard Lizard 2021 Sample Survey Report

Introduction and Specific Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit and general plan amendment for the development of a photovoltaic solar and battery energy storage facility herein referred to as the Pelicans Jaw Hybrid Solar Project, or Project, located on approximately 3,371 acres in unincorporated Kern County. Pelicans Jaw Solar, LLC submitted a Biological Survey Work Plan for the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) review on April 15, 2021 (Attachment A). A subsequent call with USFWS and CDFW occurred on April 28, 2021, to review and discuss the Biological Survey Work Plan (Attachment B).

Pelicans Jaw Solar, LLC is in the process of implementing the approved work plan. Pelicans Jaw Solar, LLC will be conducting protocol-level blunt-nosed leopard lizard (*Gambelia sila*; BNLL) surveys as described in the approved work plan to determine the presence or absence of BNLL at the Project, beginning April 15, 2023.

Specific Request – ***Due to the level of effort required to perform this survey we respectfully request that CDFW and/or USFWS let us know as soon as possible if there are any concerns regarding any part of this survey proposal. We are not proposing any variances to the protocol and understand that this survey is valid for one year.***

Project Description

site, which would connect with the existing PG&E 230-kilovolt (kV) overhead transmission lines that traverse the Project site.

Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023.

Background

Pelicans Jaw Solar, LLC previously conducted adult and hatchling season sample surveys for BNLL in 2021. The goal in undertaking the sample surveys was to inform the CEQA lead agency (Kern County) of the presence, potential presence, or absence of BNLL. The BNLL sample surveys were completed in accordance with Biological Survey Work Plan dated April 15, 2021. Dudek completed the adult BNLL surveys on July 8, 2021. The BNLL hatchling surveys were completed on September 29, 2021.

No BNLL adults were observed during the adult season sample survey effort. No BNLL hatchlings were observed during the hatchling sample survey effort. The BNLL sample survey methods and results were summarized in a memorandum submitted to USFWS, CDFW, and Kern County on August 18, 2022 (Attachment C).

BNLL Protocol Level Surveys

BNLL surveys will follow the revised CDFW (October 2019) "Approved Survey Methodology for the Blunt-Nosed Leopard Lizard." The entire Project area will be covered 12 times during the adult season (April 15 through July 15) and 5 times during the juvenile season (August 15 through September 30), within very strict limits defined by the time of day, temperature, and other parameters. The surveys will be performed by one Level II biologist for every three Level I biologists.

Adult Season BNLL Surveys: The adult season surveys will include 12 full coverage surveys, with qualified biologists walking parallel to one another at a distance of 20 meters (65.6 feet) when "herbaceous vegetation is under 30 cm (11.8 inches)." In denser and taller vegetation, transects would be narrowed to approximately 15 meters (49.2 feet). As required by the CDFW protocol, surveys will be conducted between 8:00 a.m. and 2:00 p.m., and will be limited to periods during the optimal temperature range for detecting this species 77°F to 95°F (25°C-35°C) at 1-2 cm above ground on a surface representing the survey area. Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph.

Surveyors will record the following observations daily:

- Time of day, cloud cover, wind speed, soil temperature, and air temperature;
- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;
- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).
- Any additional special-status species observed during the survey effort will be recorded.

Please do not hesitate to contact Brock Ortega at (760) 479-4854 or bortega@dudek.com with any questions.

Attachment A

Biological Survey Work Plan,
April 15, 2021

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Western Spadefoot Toad

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be “marked” using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

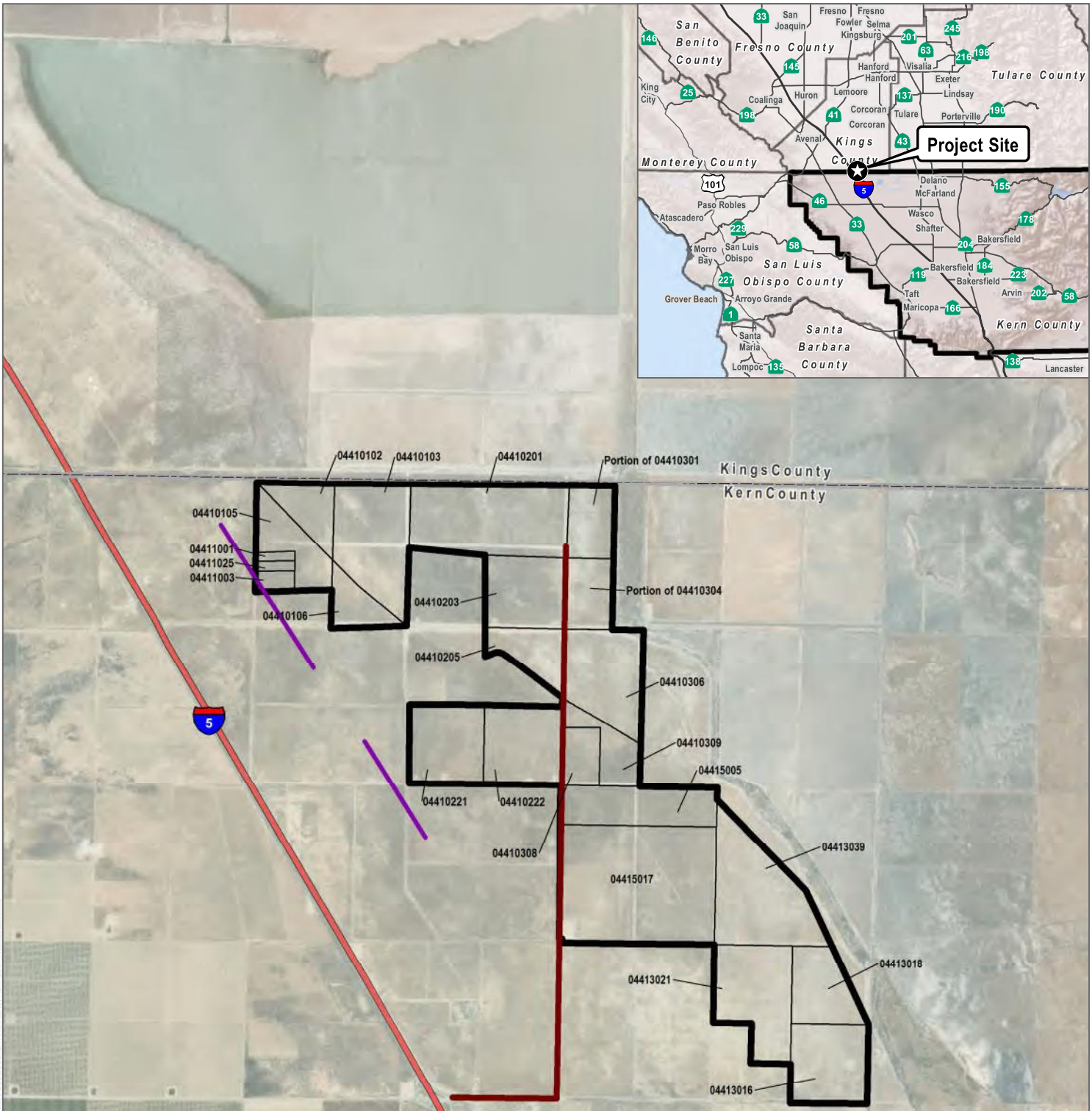
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

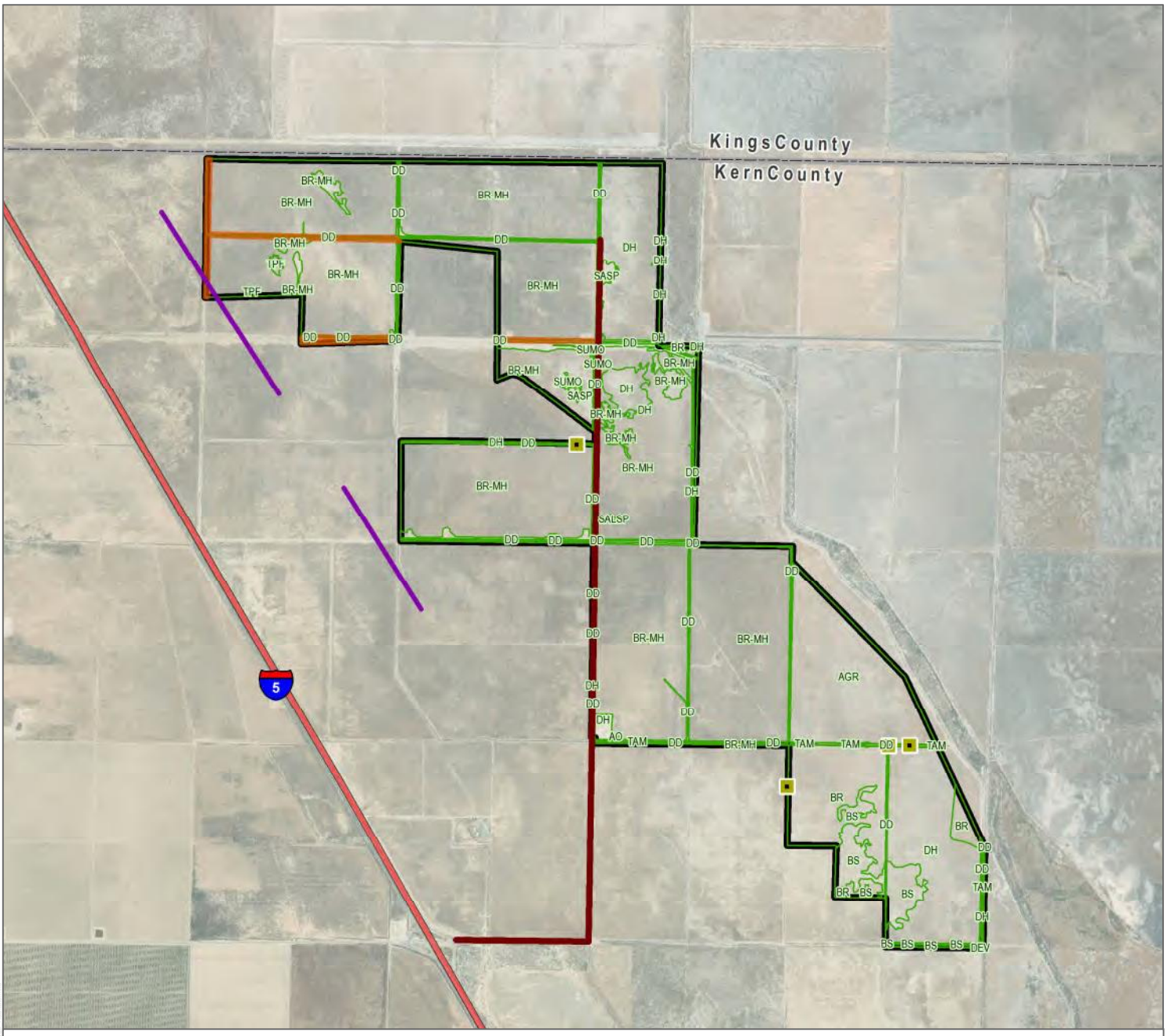
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

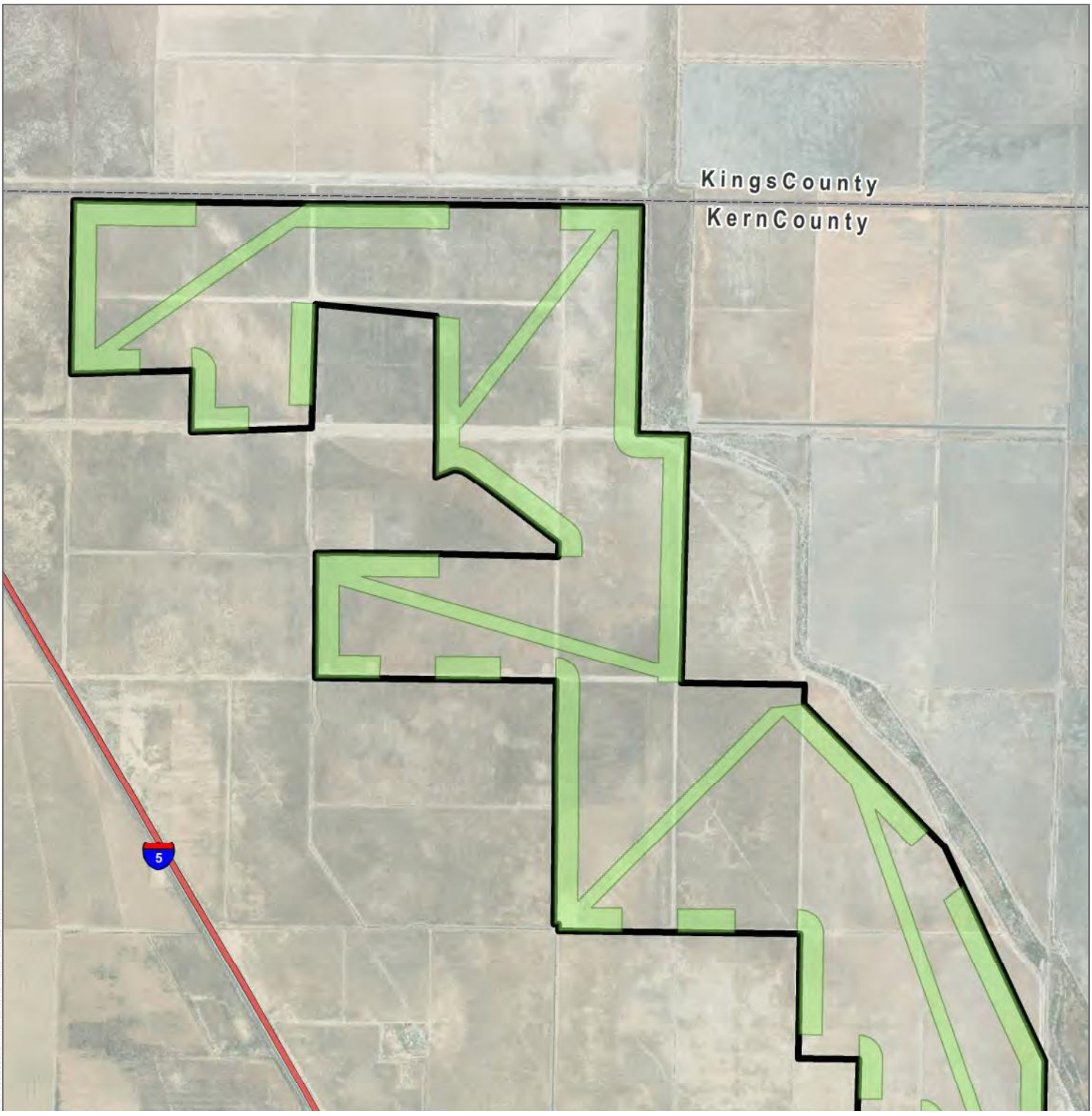
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

SALSP, Salsola spp. Semi-natural Association

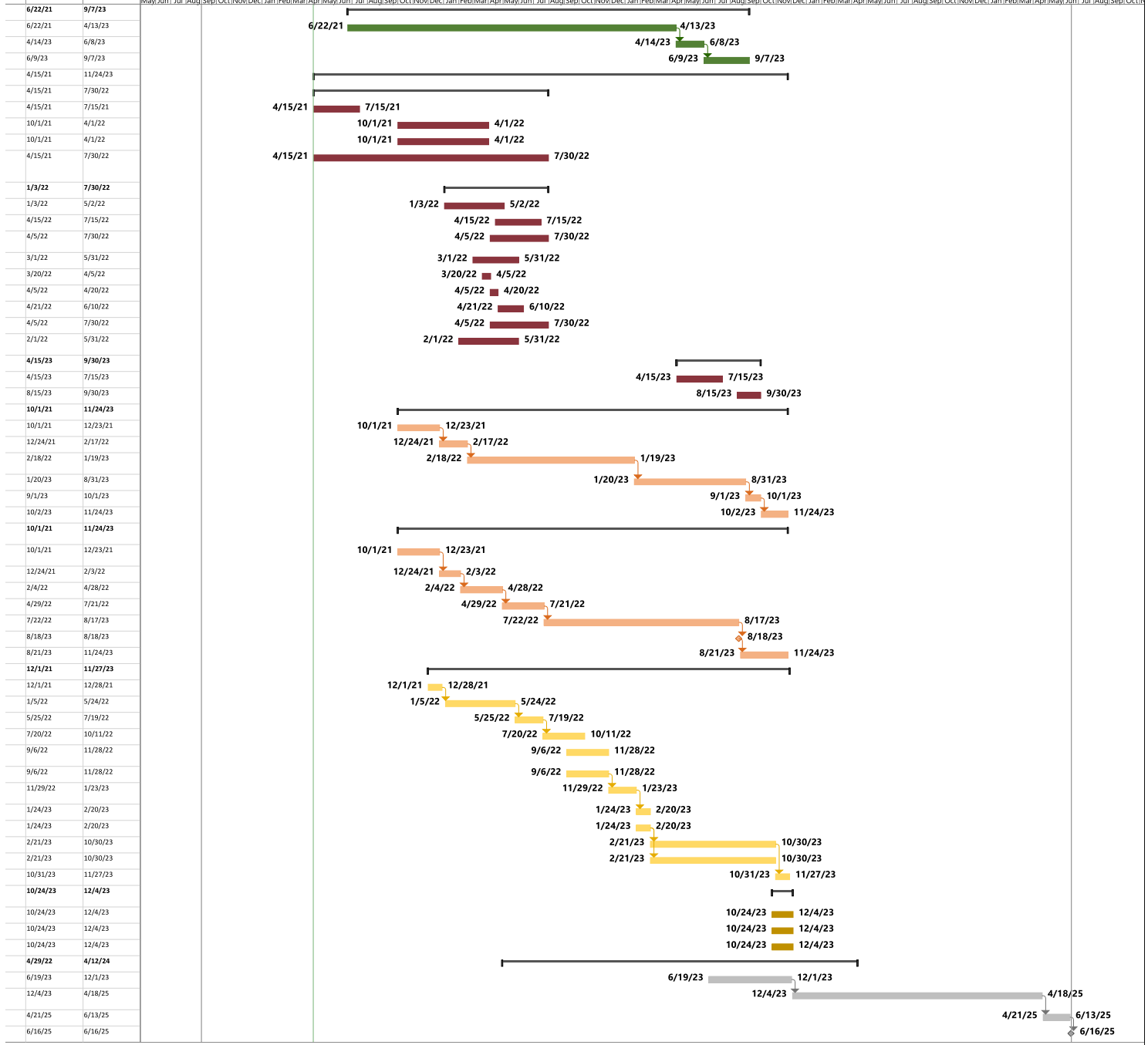

Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule

Start	Finish
6/22/21	**9/7/23**
6/22/21	4/13/23
4/14/23	6/8/23
6/9/23	9/7/23
4/15/21	11/24/23
4/15/21	7/30/22
4/15/21	7/15/21
10/1/21	4/1/22
10/1/21	4/1/22
4/15/21	7/30/22
1/3/22	**7/30/22**
1/3/22	5/2/22
4/15/22	7/15/22
4/5/22	7/30/22
3/1/22	5/31/22
3/20/22	4/5/22
4/5/22	4/20/22
4/21/22	6/10/22
4/5/22	7/30/22
2/1/22	5/31/22
4/15/23	**9/30/23**
4/15/23	7/15/23
8/15/23	9/30/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/17/22
2/18/22	1/19/23
1/20/23	8/31/23
9/1/23	10/1/23
10/2/23	11/24/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/3/22
2/4/22	4/28/22
4/29/22	7/21/22
7/22/22	8/17/23
8/18/23	8/18/23
8/21/23	11/24/23
12/1/21	**11/27/23**
12/1/21	12/28/21
1/5/22	5/24/22
5/25/22	7/19/22
7/20/22	10/11/22
9/6/22	11/28/22
9/6/22	11/28/22
11/29/22	1/23/23
1/24/23	2/20/23
1/24/23	2/20/23
2/21/23	10/30/23
2/21/23	10/30/23
10/31/23	11/27/23
10/24/23	**12/4/23**
10/24/23	12/4/23
10/24/23	12/4/23
10/24/23	12/4/23
4/29/22	**4/12/24**
6/19/23	12/1/23
12/4/23	4/18/25
4/21/25	6/13/25
6/16/25	6/16/25



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

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From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
www.dudek.com

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment B

Biological Survey Work Plan Meeting Notes,
April 28, 2021

PELICANS JAW HYBRID SOLAR PROJECT

BIOLOGICAL SURVEY WORK PLAN

Date:	April 28, 2021
Time:	3:00-4:00 PM
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Location:	Zoom Video Call
Attendees:	**USFWS** – Justin Sloan
	CDFW – Carrie Swanberg
	Pelicans Jaw Solar, LLC – Hun Kim, Alphonso Jung, Tae Kwak, and Tandy McMannes
	Cox, Castle & Nicholson – Clark Morrison
	Dudek – Brock Ortega, Keith Carwana, and Anna Bischoff

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1. Project Updates

- Dudek described the recently completed habitat assessment, vegetation mapping, and jurisdictional delineation for the Pelicans Jaw Hybrid Solar Project (Project).
    - Based on the results of the on-site surveys, including the presence of hydrophytic vegetation, and greater potential for sensitive species in the Kings County portion of the Project, Pelicans Jaw Solar, LLC decided to remove all Kings County parcels from the Project.
        - With the removal of the Kings County parcels, the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres.

2. Biological Survey Work Plan

- Dudek described the Biological Survey Work Plan dated April 15, 2021 and the proposed surveys to be completed in 2021 and 2022.
    - Pelicans Jaw Solar, LLC is proposing to proceed with blunt-nosed leopard lizard (BNLL) sample surveys in 2021 or 2022 on approximately 955 acres of the approximately 3,260-acre Project site. The BNLL sample surveys are intended to inform the CEQA analysis to be prepared in advance of the required BNLL protocol-level surveys and provide critical site-specific data.

- In addition to BNLL sample surveys, Pelicans Jaw Solar, LLC is anticipated to proceed with concurrent burrow mapping for burrowing owl, San Joaquin kit fox, American badger, and San Joaquin antelope squirrel in 2021.
    - Surveys for large branchipods and western spadefoot toad are anticipated to be initiated during the 2021 wet season.
        - Dudek noted that helicopters will no longer be used to complete large branchipods and western spadefoot toad surveys given the reduction in Project size and vehicle accessibility across the Kern County parcels.
        - USFWS indicated that there was a recent observation of vernal pool fairy shrimp in Kern County.
- Pelicans Jaw Solar, LLC anticipates completing the following surveys in 2022: golden eagle, kangaroo rat trapping, Swainson's hawk, tricolored blackbird, and Buena vista ornate shrew.
    - Dudek noted that a survey work plan will be prepared for Buena vista ornate shrew and small mammal trapping, prior to implementing the surveys and trapping efforts.

3. CDFW and USFWS Discussions

- CDFW recommended conducting full protocol level survey for BNLL but understood the need to conduct sample surveys to support the CEQA analysis in advance of full protocol level surveys within one-year of ground disturbing activities.
    - CDFW was comfortable with the BNLL sample survey area depicted in Figure 3 of the Biological Survey Work Plan.
    - CDFW recommended completing hatchling surveys as part of the proposed BNLL sample surveys.
        - **Action item:** Pelicans Jaw Solar, LLC and Dudek mentioned that they will look into adding hatchling surveys during the BNLL juvenile survey period of August 15 to September 30.
    - Dudek inquired if there is any leeway to begin ground disturbing activities slightly after the one-year BNLL survey period has expired.
        - CDFW indicated that it is their preference to have ground disturbing activities begin

        - CDFW offered to assist and answer any questions that may arise regarding a Streambed Alteration Agreement.

- USFWS inquired about the species anticipated to be included in the Habitat Conservation Plan (HCP)
    - Cox, Castle & Nicholson indicated that that the species to be included will be dependent on the results of the anticipated biological surveys.
    - Cox, Castle & Nicholson asked if USFWS can provide a sample HCP that covers similar species to those with the potential to occur on the Project site.
        - **Action item:** USFWS to provide HCP sample(s).
- In regard to compensatory mitigation, USFWS will request mitigation to the maximum extent practical.
    - USFWS did not want to provide a mitigation ratio at this time until the full suite of impacts is known.

4. Next Steps

- Pelicans Jaw Solar, LLC is anticipated to implement the Biological Survey Work Plan dated April 15, 2021. Pelicans Jaw Solar, LLC will inform CDFW and USFWS of any major changes to be implemented to the Biological Survey Work Plan.

Attachment C

Blunt-nosed Leopard Lizard 2021 Sample Survey Report

Sapphos environmental inc.

August 18,2022
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M08

TO: U.S. Fish and Wildlife Service
(Mr. Justin Sloan)

California Department of Fish and Wildlife
(Ms. Carrie Swanberg)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Kern County
(Mr. Matthew Hall and Mr. Terrance Smalls)

Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, Mr. Thaer Flieh, and Mr. Karl Brutsaert)

Dudek
(Mr. Keith Carwana)

Bell Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Submittal of the Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard 2021 Sample Survey Results

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) has been prepared to provide the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) with the report, prepared by Dudek, documenting the results of the Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results for the Pelicans Jaw Hybrid Solar Project (Project). The surveys were completed as presented in the Pelicans Jaw Hybrid Solar Project-Biological Survey Work Plan, dated April 15, 2022, which was further reviewed via teleconference on April 28, 2021. The BNLL adult and hatchling season sample surveys were completed for the approximately 3,273-acre Project and proposed access routes. No BNLL adults were observed during the adult season sample survey effort; nor were BNLL hatchlings observed during the hatchling sample survey effort.

Protocol-level BNLL adult and hatchlings season surveys are planned for the Project in the Fall of 2023.

INTRODUCTION

This MFR has been prepared to provide the USFWS and the CDFW with the report documenting the results of BNLL adult and hatchling season sample surveys conducted by Dudek for the Project. The BNLL sample surveys were completed in accordance with the Biological Survey Work Plan submitted to the USFWS and CDFW on April 15, 2021, which was further reviewed via teleconference on April 28, 2021. Dudek completed the adult BNLL surveys on July 8, 2021. The adult BNLL survey was led by principal investigator Ms. Emme Nix. The BNLL hatchling surveys were completed on September 29, 2021. The hatchling survey was led by principal investigator Ms. Nicole Gaudenti. This MFR transmits the results of the BNLL sample adult and hatchling surveys (Attachment 1, *Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results*). In addition, this MFR is being provided to Kern County to support their role as Lead Agency pursuant to the California Environmental Quality Act, in preparation of an environmental impact report for the Project.

SURVEY RESULTS

Blunt Nosed Leopard lizard. No BNLL adults were observed during the adult season sample survey effort. No BNLL hatchlings were observed during the hatchling sample survey effort. Additional BNLL surveys are proposed to be conducted concurrent with the preparation and consideration of the EIR. The additional surveys will be consistent with CDFW and USFWS survey protocols.

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760 942 5147 F 760 632 0164

MEMORANDUM

To:	Justin Sloan – U.S. Fish and Wildlife Service (USFWS) Carrie Swanberg – California Department of Fish and Wildlife (CDFW)
From:	Brock Ortega and Keith Carwana– Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results
Date:	August 18, 2022
cc:	Alphonso Jung, Tandy McMannes, Hun Kim, JungWoo Kim, and Karl Brutsaert – Pelicans Jaw Solar, LLC Andrew Bell – Bell-Kearns, Ltd. Marie Campbell and Sarah Sperling – Sapphos Environmental, Inc.
Attachment(s):	Figure 1 – Project Location Figure 2 – Blunt-nosed Leopard Lizard Survey Overview Figure 3A - Blunt-nosed Leopard Lizard – Survey Results Figure 3B - Blunt-nosed Leopard Lizard – Survey Results Attachment A – Project Schedule Attachment B – Biological Survey Work Plan Attachment C – Resumes of Principal Investigators Attachment D – Reference Sightings for the Blunt-Nosed Leopard Lizard 2021 Sample Survey Results Attachment E – Monitoring Logs Attachment F – Wildlife Observations

Executive Summary

This memorandum provides results of adult and hatchling season sample surveys for blunt-nosed leopard lizard (BNLL; *Gambelia silus*) undertaken in support of the Pelicans Jaw Hybrid Solar Project (Project), located in the unincorporated territory of Kern County, California. The sample surveys conformed to the Biological Survey Work Plan submitted to the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) on April 15, 2021, and reviewed via teleconference on April 28, 2021. Emme Nix served as the Principal Investigator for the adult surveys. Nicole Gaudenti served as the Principal Investigator for the hatchling

the Kern County Board of Supervisors in Fall 2023. The anticipated schedule would allow the surveys to be completed within one year of construction in accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW 2019).

Introduction

The purpose of this memorandum is to provide results of adult and hatchling season sample surveys for blunt-nosed leopard lizard ([BNLL] *Gambelia silus*), undertaken in support of the Project. The goal in undertaking the investigation is to assess the potential presence or absence of BNLL at the Project, for which the Applicant is seeking a CUP and GPA for the development of a photovoltaic solar facility. BNLL is listed as "endangered" pursuant to the federal Endangered Species Act (ESA) and is afforded "fully protected" status pursuant to the California Fish and Game Code. A sampling survey was performed during the BNLL adult and hatchling season of 2021 to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and to provide additional critical site-specific data.

The sample surveys are intended to inform the CEQA lead agency of the presence, potential presence, or absence of BNLL. This survey will be used to inform the Biological Resources Technical Report (BRTR) that will be submitted by the Applicant to Kern County to provide information characterizing the baseline conditions at the Project site, in relation to BNLL. The sample surveys will also support an assessment of the need for an incidental take permit under Section 10(a)(1) of the federal ESA. There are no "take" provisions for fully protected species, pursuant to the California Fish and Game Code, so if determined present, the Project would need to evaluate avoidance and minimization measures. This memorandum will also be used by the Applicant and the County to determine if there is a nexus for requiring compensatory mitigation, and where compensatory mitigation is determined to be warranted, quantifying the aerial extent of impact and the appropriate mitigation ratio.

Project Description

The Project will include up to 500-megawatt (MW) of photovoltaic solar generation and a battery energy storage system (BESS) with a capacity of up to 2,000 megawatt-hours (MWhr). The Project will primarily consist of photovoltaic (PV) solar panels, a single-axis tracker system, inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector substation, generation interconnection (gen-tie) line, access roads, security fence, an operations and maintenance (O&M) facility, and a supervisory control and data acquisition (SCADA) system. The Project will also include a Pacific Gas and Electric (PG&E) switching station that would interconnect with the existing PG&E 230-kilovolt (kV) overhead transmission lines that traverse the Project site. The PG&E switching station will be located on-site.

Two points of access are being proposed from Twisselman Road to provide ingress/egress to the Project site including:

- An approximately one-mile-long access road extending north from Twisselman Road to the southwest corner of APN 044-150-170.
- An access road extending from the intersection of Twisselman Road and the southeast corner of APN 044-130-160.

Each access road would include a 24-foot-wide unpaved driveway with up to 5-foot shoulders on either side, for a total width of 34-feet.

Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A).

Location

The Project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5, located approximately 2 miles to the west. The Project site and surrounding properties are currently vacant and have historically been used for livestock grazing.

Project location details were recorded from USGS topographic quadrangle and the County Assessor's Parcel Maps:

- **County**: Kern
- **U.S. Geological Survey (USGS) 7.5-Minute Quadrangle (Quad)**: West Camp and Lone Tree Well
- **Latitude, Longitude**: 38.473731, -121.184568 (centroid, decimal degrees).
- **Assessor Parcel Numbers (APNs)**: 044-101-020, 044-101-030, 044-101-050, 044-101-060, 044-102-010, 044-102-030, 044-102-050, 044-130-390, 044-102-220, 044-103-010, 044-103-040, 044-103-060 (portion of), 044-103-080, 044-150-050, 044-150-170, 044-103-090 (portion of), 044-110-030, 044-110-250, 044-130-160, 044-130-180, 044-130-210, 044-102-210, and 044-110-010.

It is important to note that since the adult and hatchling season sample surveys for BNLL were completed, approximately 13 acres have been added to the Project to accommodate an alternate point of interconnection and an above or below ground 34.5-kV collector line to connect the central portion of the Project site to the northwest

BNLL in the area. Additionally, the USFWS and CDFW BNLL range mappers place the Project within the current range of the species (CDFW 2021; USFWS 2022).

Methods

To meet the proposed commercial operation date of the fourth quarter 2024, Dudek has prepared a Biological Survey Work Plan (Attachment B) that was submitted to USFWS and CDFW on April 15, 2021, and discussed and accepted by USFWS and CDFW during a subsequent conference call on April 28, 2021.

The sample surveys included a perimeter sample area, and five internal band transects equating to approximately 964 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 2). The perimeter sample area consisted of an approximate 500-foot-wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional diagonal band transects were surveyed across the site as shown in Figure 2. These transects were intended to supplement the perimeter area and were 300-feet wide. The sample areas were chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation mapping was completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas were designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Sampling surveys were performed using a five-visit survey protocol for the adult season and two-visit survey protocol for the hatchling season. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within five days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys were performed sequentially across the site; beginning with the perimeter and progressing from transects 1 through 5. Each subsequent survey pass used the same sequence.

For the adult season sample surveys, three initial passes were completed within the original transect layout from May 23, 2021 through June 16, 2021. After these initial passes, some areas were classified as low-quality habitat for BNLL due to a lack of rodent burrows or vegetation canopy to provide refugia. After consultation with CDFW on June 23, 2021, modifications were made to the sample areas and additional transects were added, focusing on areas with a higher likelihood of BNLL occurrence and to provide additional coverage of the Project site (Figure 2). Passes four and five were completed using these new survey areas rather than the original areas, per consultation with CDFW. Passes four and five were completed from June 28, 2021, through July 8, 2021.

The sample surveys conformed to the Biological Survey Work Plan submitted to USFWS and CDFW. Emme Nix served as the Principal Investigator for the adult surveys (please see Appendix C for resume). Ms. Nix has coauthored two peer reviewed articles on the species and has previously performed protocol surveys for BNLL with the Bureau of Land Management, including studying the thermal ecology of the species. Ms. Nix has performed approximately 1,000 hours of BNLL protocol level surveys and has handled over 120 individual BNLLs (Attachment C, Principal Investigator Resumes).

Nicole Gaudenti served as the Principal Investigator for the hatchling surveys . Ms. Gaudenti has authored and coauthored several peer reviewed articles on BNLL and has performed protocol level surveys including over 900 hours of BNLL surveys and handled over 80 individual BNLLs (Attachment C, Principal Investigator Resumes).

In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team consisted of one Level II biologist for every three Level I biologists, all walking each transect in parallel and visually surveying for BNLL. Although the original survey design called for surveyors to be spaced at 17 meters apart when walking the transects, many of the survey areas had been recently grazed by cattle and had very little vegetation cover. In these instances, surveyors increased transect widths to 20 meters.

Surveys were not conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeded 10 mph. Surveys were limited to periods during the optimal temperature range for detecting BNLL, which is approximately 77 F to 95 F (25 C – 35 C). Minor exceptions to the temperature constraints were made for the sample surveys. For example, start temperatures of 75 F and end temperatures of 97 F occurred in some instances. In these cases, the Level II biologist used their extensive field experience with BNLL to make their best professional judgment regarding whether to continue surveying. Surveyors also looked for aboveground presence of the common, smaller-bodied side-blotched lizard (*Uta stansburiana*) to assess whether the larger-bodied BNLL would be aboveground as well.

Surveyors recorded the following observations daily:

- Time of day, cloud cover, wind speed, soil temperature, and air temperature; and
- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect.

In addition to surveying for BNLL, all surveyors opportunistically surveyed for other sensitive species.

BNLL Reference Sightings

119.401520) and one sub-adult directly adjacent within the annual grassland habitat (35.777785, - 119.401645). Both sightings were adjacent to each other, approximately 16.5 miles east of the Project.

BNLL Adult Season Sample Surveys Results

No blunt-nosed leopard lizards were detected within the sample survey areas during the adult season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects per survey pass were evaluated within the Project boundaries during the first three passes with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects per survey pass were evaluated during the final two passes within the revised transect areas. Other reptile species observed during surveys included: side-blotched lizards, California whiptails (*Aspidoscelis tigris*), gopher snakes (*Pituophis catenifer*), and western rattlesnakes (*Crotalus oreganus*).

Copies of the monitoring logs have been included as Attachment E and are summarized in Table 1, below. Please note that adult season survey pass #1 required five days of surveys whereas all subsequent surveys required four days of survey to cover all areas within the sample survey area. The additional day of surveys was primarily related to the surveyors becoming oriented with the Project site and how to access each of the survey areas.

Table 1. Summary of BNLL Adult Season Sample Surveys

Survey Date	Time		Air Temperature (°F)		Surveyors (**Bold = Level II**; Plain text = Level I)	BNLL Observations
	Start	End	Start	End		
Adult Season (Sample Survey Pass #1)						
5/23/2021	7:45 am	1:56 pm	75.5	92.2	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, Josh McLaughlin, and Sophia Weber (site orientation)	0
5/24/2021	8:05 am	2:00 pm	77	93	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0

5/27/2021	8:59 am	12:05 pm	75	93.5	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
Adult Season (Sample Survey Pass #2)						
5/30/2021	7:20 am	1:21 pm	72.5	95.2	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
5/31/2021	7:19 am	11:32 am	81.8	97.4	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
6/1/2021	6:54 am	10:29 am	78.4	97	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
6/2/2021	7:00 am	10:23 am	75.4	97.4	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Jakob Dewhurst	0
Adult Season (Sample Survey Pass #3)						
6/13/2021	7:25 am	1:33 pm	75	97	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
6/14/2021	7:54 am	12:59 pm	75.7	96	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
					Emme Nix, Grace Sanclemente,	

Adult Season (Sample Survey Pass #4, Revised Survey Area)						
6/28/2021	7:15 am	11:30 am	78	93	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
6/29/2021	8:00 am	10:01 am	75.2	89.6	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
6/30/2021	7:42 am	11:07 am	77.1	92.3	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
7/1/2021	7:47 am	9:37 am	75.9	91	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
Adult Season (Sample Survey Pass #5, Revised Survey Area)						
7/6/2021	7:22 am	11:32 am	75.5	88.6	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0
7/7/2021	8:03 am	12:08 pm	75.9	97.9	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0
7/8/2021	7:48 am	11:09 pm	76.7	97.9	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0

BNLL Hatchling Season Sample Surveys Results

No blunt-nosed leopard lizards were detected within the sample survey areas during the hatchling season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects were evaluated within the Project boundaries during the first pass with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects were evaluated during the second pass within the revised transect areas. Other reptile species observed during surveys included: side-blotched lizards and western rattlesnakes

Table 2. Summary of BNLL Hatchling Season Sample Surveys

Survey Date	Time		Air Temperature (°F)		Surveyors (**Bold = Level II**; Plain text = Level I)	BNLL Observations
	Start	End	Start	End		
Hatchling Season (Sample Survey Pass #1)						
9/19/2021	8:30 am	12:30 pm	75	89	**Nicole Gaudenti, Tamara Bryant**, Teodora Ungureanu, Garry Turner	0
9/20/2021	9:00 am	1:30 pm	76	89	**Nicole Gaudenti**, Teodora Ungureanu, Sarah Mendez, Garry Turner	0
9/21/2021	9:00 am	1:00 pm	78	91	**Nicole Gaudenti,** Teodora Ungureanu, Sarah Mendez, Garry Turner	0
9/22/2021	8:30 am	1:00 pm	76	93	**Nicole Gaudenti,** Teodora Ungureanu, Garry Turner, Sarah Mendez	0
Hatchling Season (Sample Survey Pass #2)						
9/26/2021	8:30 am	12:30 pm	75	90	**Nicole Gaudenti, Tamara Bryant**, Sophia Weber, Teodora Ungureanu	0
9/27/2021	8:30 am	12:00 pm	70	87	**Nicole Gaudenti, Tamara Bryant**, Sophia Weber, Jakob Dewhurst	0
9/28/2021	9:51 am	1:00 pm	70.6	75.8	**Tamara Bryant**, Andrea Dransfield,	0

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek collected burrow resource data during the BNLL adult and hatchling season sample surveys in 2021, noting all suitable burrow resources that met the criteria and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figures 2, 3A, and 3B; Attachment F). While walking the BNLL transects, surveyors recorded all burrows larger than 4-inch in diameter that appeared active. A burrow was considered active if it was observed to continue into the ground as far as the observer could see and if there were no spider webs in the entrance.

Surveyors were conservative when considering a burrow active and unless there was fresh dirt piled outside, fresh scat, or paw prints, most burrows were marked as "unknown" when collecting data. Surveyors were also conservative when determining the species that created the burrow. Kit fox burrows were definitively mapped only when kit fox scat piles were found within the immediate nearby area. Burrowing owl burrows were mapped only when the distinct "white cast" or owl pellets were found in the immediate nearby area or burrow mouth. Badger burrows were marked when claw marks were seen on each of the rounded lateral sides of a burrow entrance.

Five wildlife cameras during the adult season surveys and three wildlife cameras during the hatchling season surveys were deployed to areas with high concentrations of potentially active burrows in different locations to document the species that occupied each of these areas. The cameras were left in place to passively see what was using the burrow. The locations of the wildlife cameras are shown in Figure 2 and photos of wildlife captured are shown in Attachment F. Photos were captured of an active American badger burrow during adult season surveys and photos of San Joaquin kit fox were captured during both adult and hatchling season surveys.

A desiccated kangaroo rat (*Dipodomys sp.*) carcass was discovered during hatchling season surveys on September 27, 2021, in APN 04415017. The carcass could not be identified to species level due to the deteriorated condition of the carcass.

No nesting birds were observed on-site. A single Swainson's hawk (*Buteo swainsoni*) was observed flying overhead (Attachment F) during the surveys on June 14, 2021, but no active nests were identified within the Project site and no other observations were made during subsequent surveys. Protocol level Swainson's hawk surveys were conducted March 2022 through June 2022 and have been reported separately.

A single Golden Eagle (*Aquila chrysaetos*) was observed flying overhead during surveys on September 22, 2021. No active nests were identified within the Project site and no subsequent observations were made. Surveys for golden eagle were completed in January 2022 and have been reported separately.

investigation was completed at the Burrow Points such as setting up and monitoring the burrows with wildlife cameras (apart from the eight wildlife cameras discussed above), using tracking medium such as diatomaceous earth, or other methods.

Additional BNLL burrow resource data will also be collected during surveys anticipated to be conducted in 2022, including surveys for SJKF. The data collected in 2022 will cover additional Project areas beyond those included in the BNLL sample survey areas. Dudek is conducting SJKF survey including transect surveys and camera monitoring in accordance with the Biological Survey Work Plan Addendum submitted to USFWS and CDFW on June 7, 2022.

Next Steps

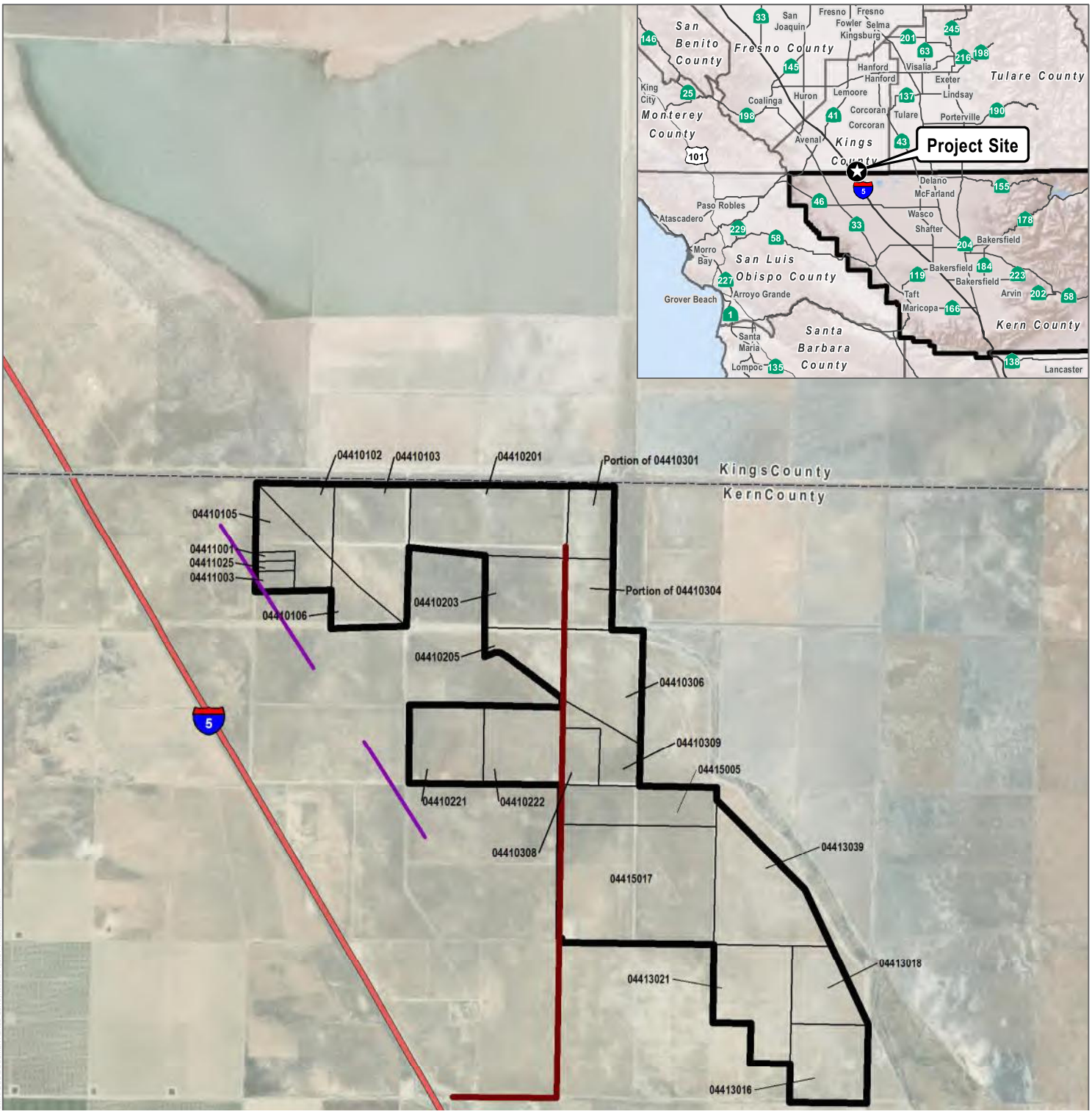
Pelicans Jaw Solar, LLC is anticipated to conduct full protocol-level surveys for BNLL during both the adult and hatchling seasons during preparation of the environmental impact report being prepared in support to of the consideration of approval of the CUP and GPA, by the Kern County Board of Supervisors, in Fall 2023. The anticipated schedule would allow the surveys to be completed within one year of construction in accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019).

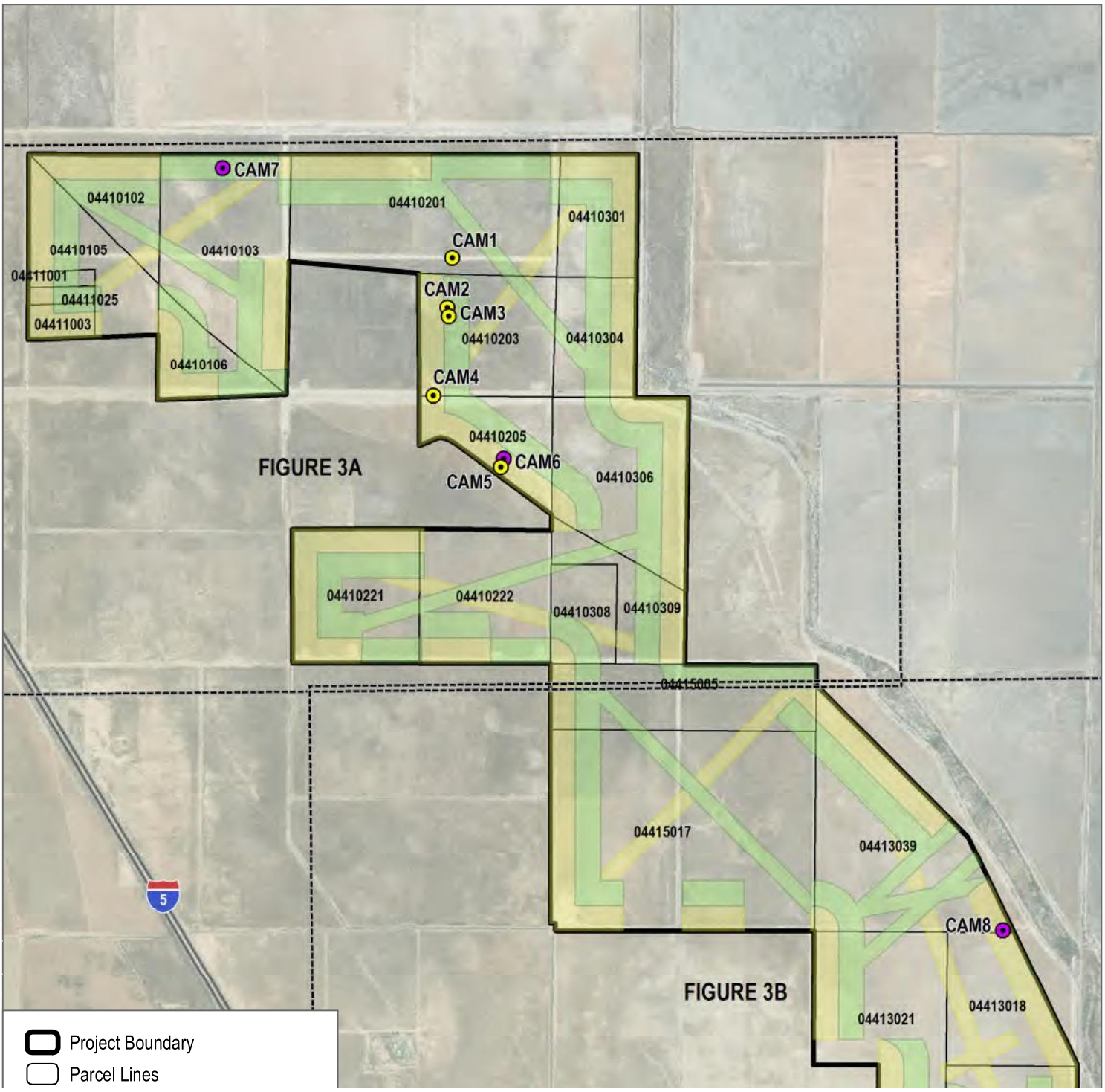
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CDFW (California Department of Fish and Wildlife). 2019. Approved Survey Methodology for the Blunt-Nosed Leopard Lizard). October 2019.

CDFW (California Department of Fish and Wildlife). 2021. Blunt Nosed Leopard Lizard Range CWHR R019. Updated May 2021. Accessed July 2022. https://gis.data.cnra.ca.gov/datasets/CDFW::blunt-nosed-leopard-lizard-range-cwhr-r019-ds1726/explore?location=35.839654%2C-119.639523%2C11.92

USFWS (United States Fish and Wildlife Service). 2022. *Gambelia silus*. Accessed July 2022. https://www.fws.gov/species/blunt-nosed-leopard-lizard-gambelia-silus/map


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Fresno
Hanford
Visalia
Tulare
Lemoore
Coalinga
Huron
Avenal
Corcoran
Delano
McFarland
Wasco
Shafter
Bakersfield
Taft
Maricopa
Arvin
Lancaster
Paso Robles
Atascadero
Morro Bay
Grover Beach
Arroyo Grande
Santa Maria
Lompoc
Porterville
Exeter
Lindsay
Kingsburg
Selma
Fowler
San Joaquin
King City
04410102
04410103
04410201
Portion of 04410301
Kings County
Kern County
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5


CAM7
04410102
04410201
04410301
CAM1
04410105
04410103
04411001
CAM2
04411025
CAM3
04411003
04410203
04410304
04410106
CAM4
04410205
CAM6
FIGURE 3A
CAM5
04410306
04410221
04410222
04410308
04410309
04415005
04415017
04413039
CAM8
FIGURE 3B
04413021
04413018
5
Project Boundary
Parcel Lines

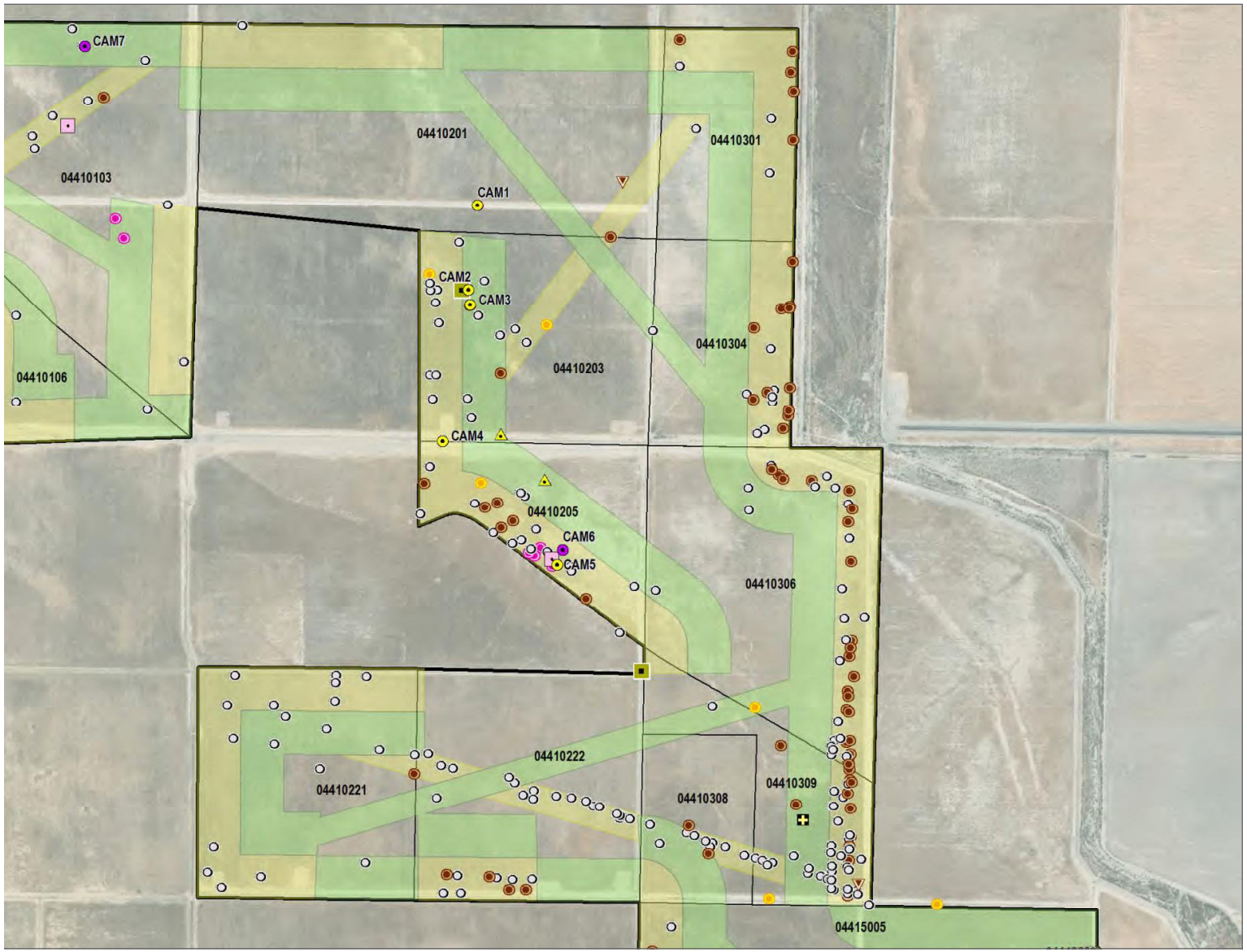


FIGURE 3A

Burrow Survey Results

Pelicans Jaw Hybrid Solar Project

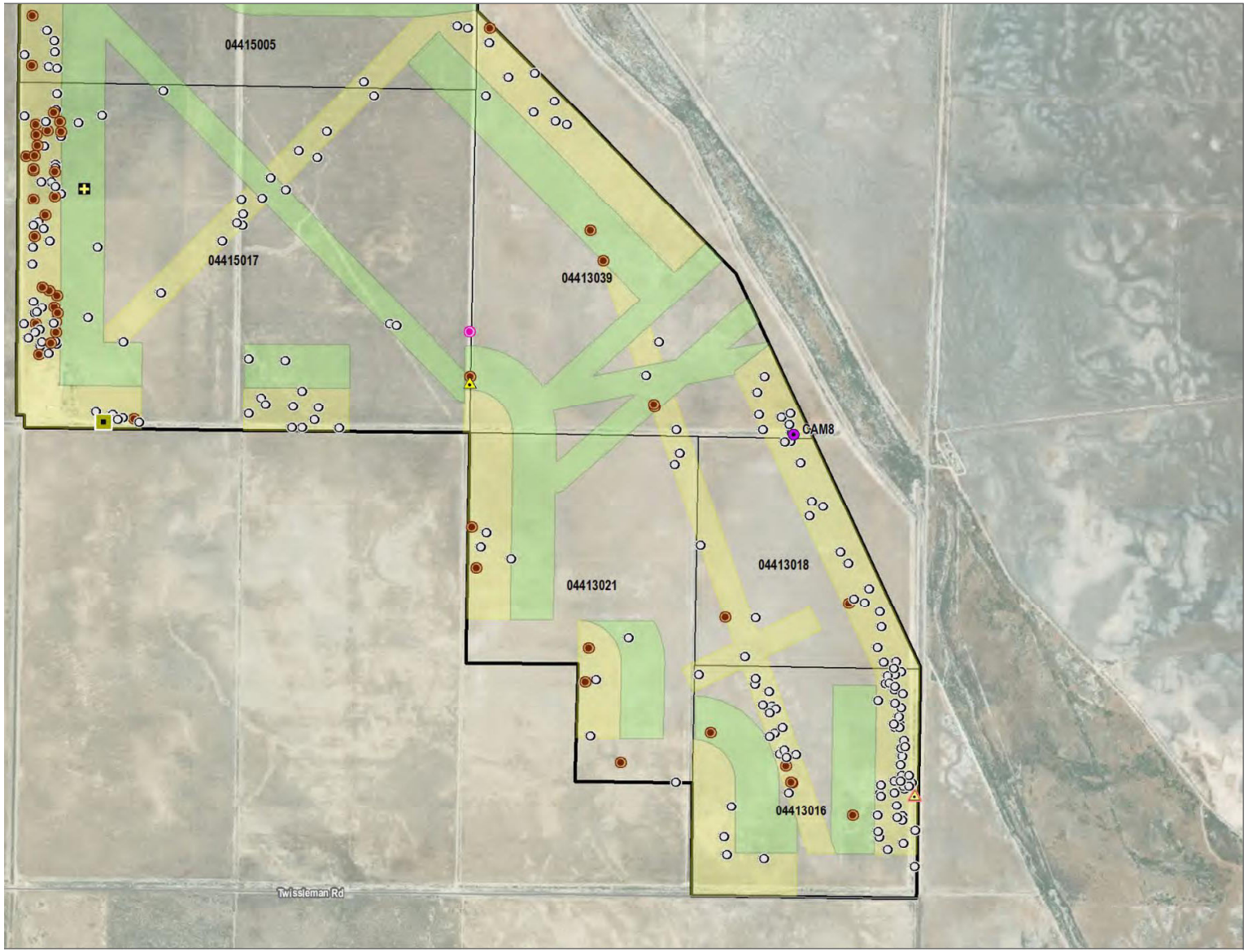


FIGURE 3B

Burrow Survey Results

Pelicans Jaw Hybrid Solar Project

Attachment A

Project Schedule

Attachment B

Biological Survey Work Plan

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760 942 5147 F 760 632 0164

MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Western Spadefoot Toad

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be “marked” using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

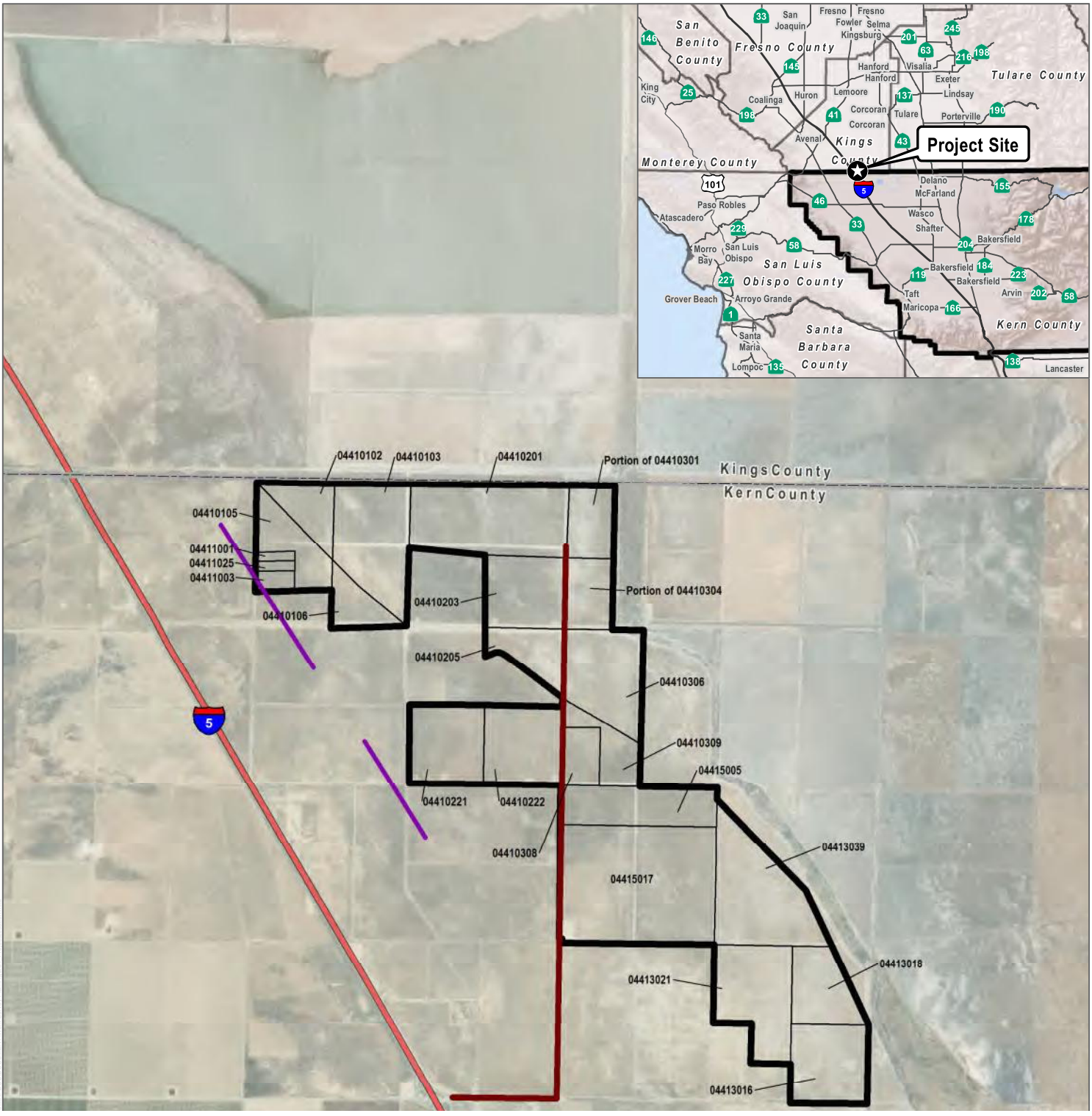
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

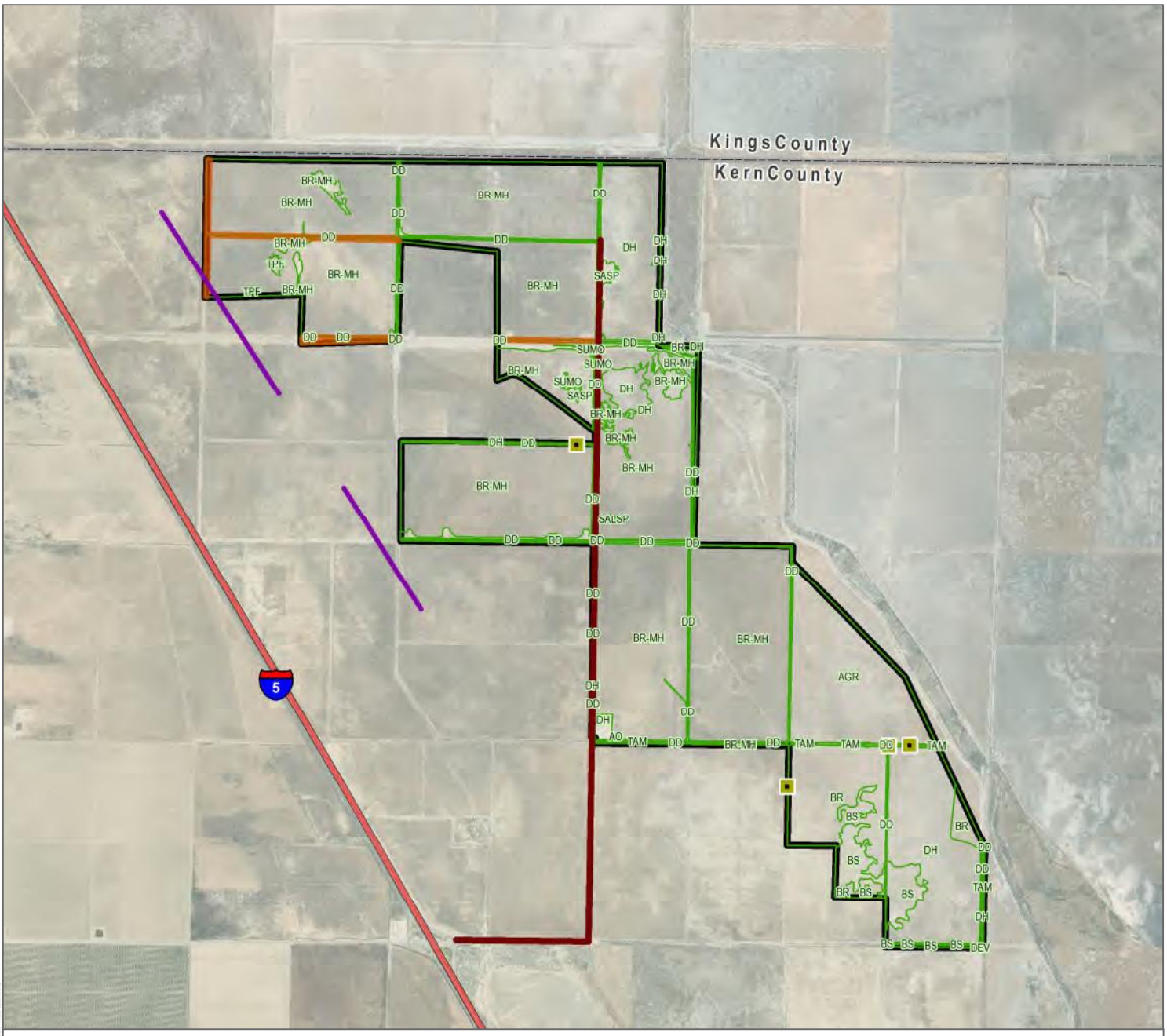
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Kern County
Santa Barbara County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

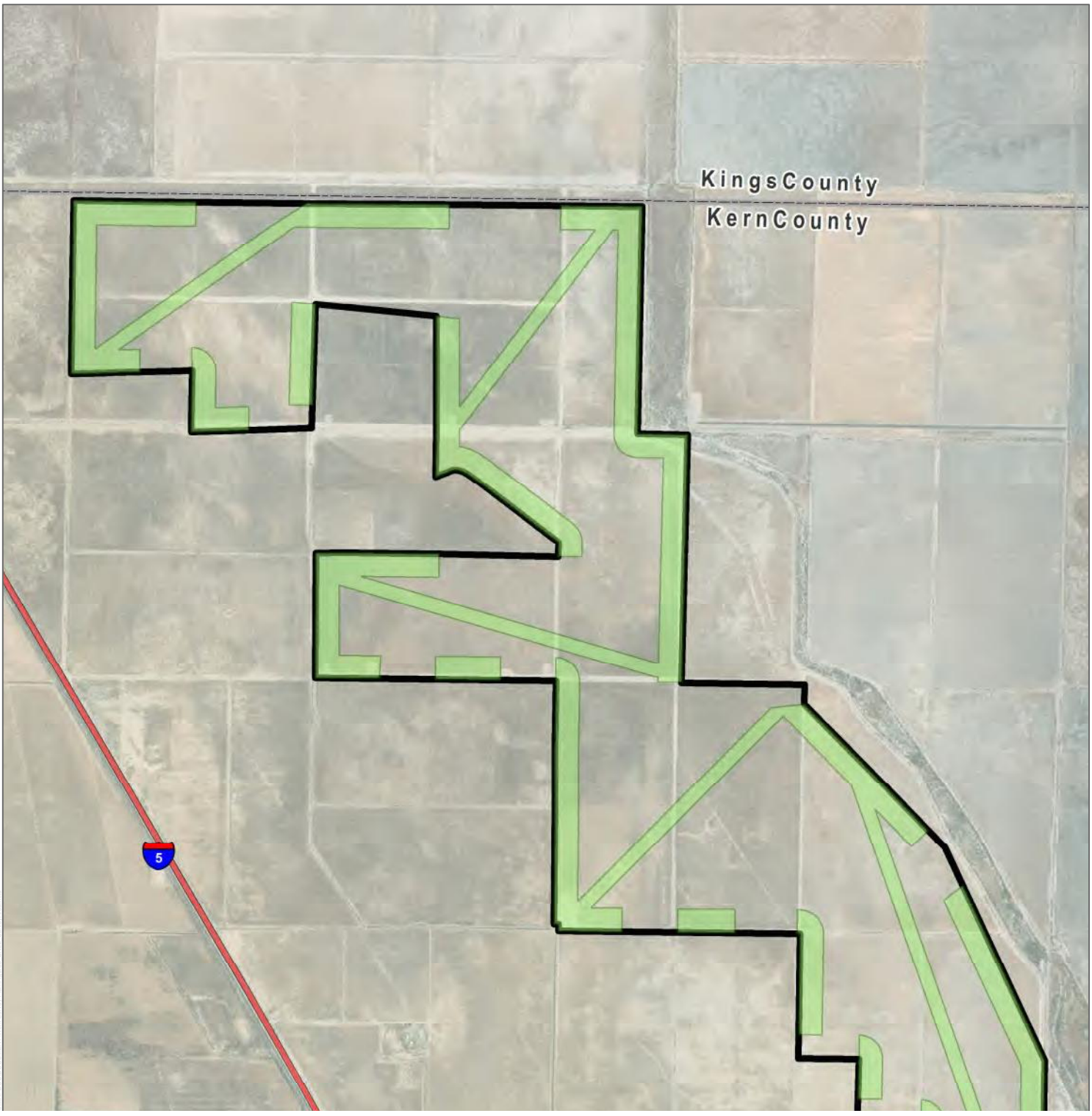
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

SALSP, Salsola spp. Semi-natural Association

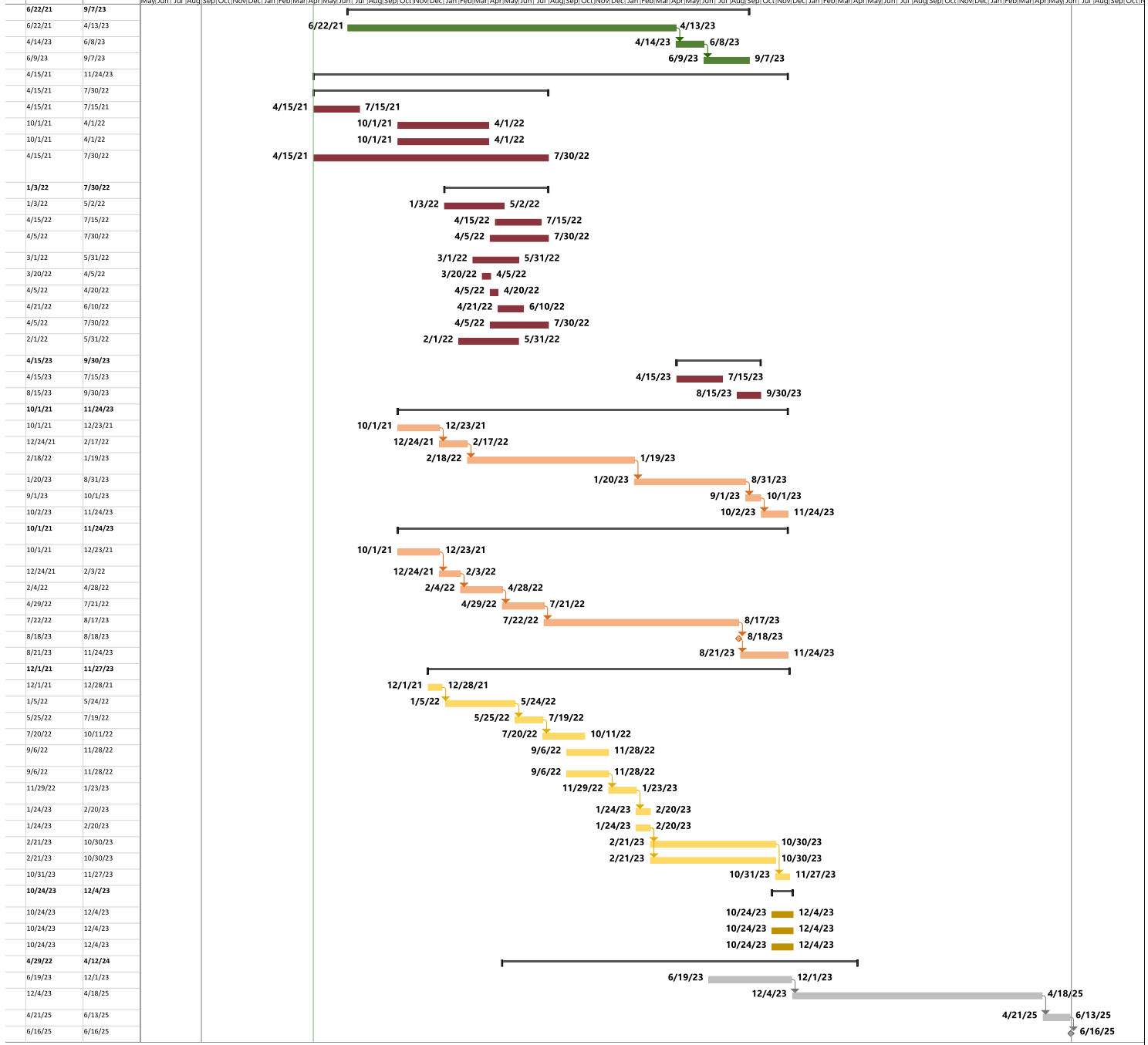

Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule

Start	Finish
6/22/21	**9/7/23**
6/22/21	4/13/23
4/14/23	6/8/23
6/9/23	9/7/23
4/15/21	11/24/23
4/15/21	7/30/22
4/15/21	7/15/21
10/1/21	4/1/22
10/1/21	4/1/22
4/15/21	7/30/22
1/3/22	**7/30/22**
1/3/22	5/2/22
4/15/22	7/15/22
4/5/22	7/30/22
3/1/22	5/31/22
3/20/22	4/5/22
4/5/22	4/20/22
4/21/22	6/10/22
4/5/22	7/30/22
2/1/22	5/31/22
4/15/23	**9/30/23**
4/15/23	7/15/23
8/15/23	9/30/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/17/22
2/18/22	1/19/23
1/20/23	8/31/23
9/1/23	10/1/23
10/2/23	11/24/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/3/22
2/4/22	4/28/22
4/29/22	7/21/22
7/22/22	8/17/23
8/18/23	8/18/23
8/21/23	11/24/23
12/1/21	**11/27/23**
12/1/21	12/28/21
1/5/22	5/24/22
5/25/22	7/19/22
7/20/22	10/11/22
9/6/22	11/28/22
9/6/22	11/28/22
11/29/22	1/23/23
1/24/23	2/20/23
1/24/23	2/20/23
2/21/23	10/30/23
2/21/23	10/30/23
10/31/23	11/27/23
10/24/23	**12/4/23**
10/24/23	12/4/23
10/24/23	12/4/23
10/24/23	12/4/23
4/29/22	**4/12/24**
6/19/23	12/1/23
12/4/23	4/18/25
4/21/25	6/13/25
6/16/25	6/16/25



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

---

From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
www.dudek.com

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760 942 5147 F 760 632 0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment C

Resumes of Principal Investigators

Emmeleia Nix

BIOLOGIST

Emmeleia Nix is a Biologist with 5 years of professional field experience in biological surveying and monitoring, including ecological surveying, habitatand watershed assessments, soil auguring, bird banding, and rangeland and stream surveying. Nix is comfortable capturing and handling a variety of animals, including venomous reptiles and large mammals, with experience in tissue and blood sample collection/analysis, several injection techniques and necropsy. Research and academic experience includes historical data entry; geographical information system-based data analysis; permit report preparation; grant proposal reviews; co-authoring manuscripts; and presentation preparation. Recently, Nix has completed surveys for blunt-nosed leopard lizard (*Gambelia sila*) hatchlings and adults in accordance with CDFW Survey Protocol Guidelines. Ms. Nix has completed over 1,000 hours of blunt-nosed leopard lizard protocol surveys and has handled approximately 120 individuals. Additional project field work has includedrattlesnake telemetry and surveying/monitoring for California red-legged frogs(*Rana draytonii*), foothill yellow-legged frogs (*Rana sierrae*), and salamanders.

Education

University of California, Davis (PhD program)

Miami University and San Diego Zoo's Institute for Conservation Research MA, Biology (General), 2021

California Polytechnic State University, San Luis Obispo

BS, Animal Science, 2018

York School, 2014

Certifications

Firefighter II

Dudek Project Experience

Pelicans Jaw Hybrid Solar Project, Kern County, California. Conducted blunt-nosed leopard lizard adult surveys to provide biologicalfindings/constraints in previously disturbed habitat for the proposedconstruction of a solar field. Surveys were conducted in accordance with CDFW Survey Protocol Guidelines.

Relevant Previous Experience

Biological Science Technician, BLM, Marina, California. Employed as a seasonal biological technician for the BLM Marina office's wildlife biologist. Assisted with threatened and endangered species recovery efforts in a variety of ways. Conducted field work, such as a telemetry project involving blunt-nosed leopard lizards and the projects mentioned below. Performed geographic information system–based data analysis, presentation preparation, co-authored manuscripts, reviewed grant proposals, prepared permit reports, and assisted with stream surveys and watershed assessments. (2019-2021)

Specialized Training

- Completed qualifications to become a Firefighter II and begin training as a Resource Advisor (READ) for biological resources on wildfires.

Publications and Presentations

Gaudenti, N., **Nix, E.,** Maier, P., Westphal, M.F., Taylor, E.N. (2021). Habitat heterogeneity affects the thermal ecology of an endangered lizard. *Ecology and Evolution, 11*(21):14843-14856. doi: 10.1002/ece3.8170.

Lortie, C.J., Filazzola, A., Brown, C., Lucero, J., Zuliani, M., Ghazian, N., Haas, S., Owen, M., Butterfield, H.S., **Nix, E.** and Westphal, M. (2021). Facilitation promotes plant invasions and indirect negative interactions. *Oikos*, in press.https://doi.org/10.1111/oik.08443

Claunch, N., **Nix, E.**, Royal, A.E., Burgos, L., Corn, M., DuBois, P.M., Ivey, K., King, E., Rucker, K., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E.N. (2020). Body size impacts critical thermal maximum measurements in lizards. *Journal of Experimental Zoology Part A, 335*, 96-107.

Westphal, M. & **Nix, E.** (2020). *Resurveys for Foothill Yellow-legged Frog, Rana boylii, in the Southern Diablo Range.* PRESENTATION at the Declining Amphibian Populations Task Force Annual Meeting, 2020.

Ivey, K.N., Cornwall, M., Crowell, H., Ghazian, N., **Nix, E.**, Owen, M., Zuliani, M., Lortie, C.J., Westphal, M., Taylor, E. (2020). Thermal Ecology of the Federally Endangered Blunt-nosed Leopard Lizard (*Gambelia sila*). *Conservation Physiology, 8*(1).

Lortie, C.J, Braun, J., Westphal, M.F., Noble, T., Zuliani, M., **Nix, E.**, Ghazian, N., Owen, M., Butterfield, H.S. (2020). Shrub and vegetation cover predict resource selection use by an endangered species of desert lizard. *Nature Scientific Reports, 10*:4884

Westphal, M.F., Kiemnex-Tyburczy, K.M., **Nix, E.**, Westphal, M.F., Gruber, E. (2019). *Timing of Larval Development in a Sympatric Population of Taricha torosa and T. granulosa.* POSTER PRESENTATION at the Joint

Royal, A.E., Claunch, N.M., DuBois, P.M., Ivey, K.N., King, E., **Nix**, **E.**, Rucker, K.A., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E. (2017). *Body Size Effect on Thermal Tolerance in Certain Species of Sceloporus.* POSTER PRESENTATION at the Joint Meeting of Ichthyologists and Herpetologists, 2017.

Rucker, K.A., Claunch, N.M., DuBois, P.M., Ivey, K.N., King, E., **Nix**, **E.**, Royal, A.E., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E. (2017). *Testing the effect of blood oxygen carrying capacity on thermal tolerance in lizards.* POSTER PRESENTATION at the Joint Meeting of Ichthyologists and Herpetologists, 2017.

DUDEK

Nicole Gaudenti

BIOLOGIST

Nicole Gaudenti is a Biologist with 6 years' professional experience working with a variety of species of wildlife in California, including blunt-nosed leopard lizards, Belding's ground squirrel, giant kangaroo rats, antelope squirrels. Ms. Gaudenti has significant experience surveying working with blunt-nosed leopard lizards, including surveying for, handling, telemetry, morphometrics, blood draw, tail tipping, and behavioral observations.

Education

California Polytechnic State University, San Luis Obispo, CA

MS, Biological Sciences, 2021

University of San Francisco

BS, Biology, emphasis in Ecology, 2015

Certifications

North American Banding Council Bander Certification, Passerines & Near Passerines

Relevant Experience

Oceano Dunes State Vehicular Recreation Area, Oceano Dunes, California. Senior Park Aide. Scoping for and monitoring nests of snowy plovers and California least terns. Experience with finding plover and tern nests, walking out to nests, assisting chick banding from a distance, monitoring blood survival, and searching for avian and mammalian predators.

California Polytechnic State University, San Luis Obispo, California. Graduate Assistant. Conducted 900+ hours surveying for blunt-nosed leopard lizards and handled over 80 individuals. Quantified the importance of shrubs in the thermoregulation of BNLL in the Carrizo Plain, CA. Coordinated a two-year summer field season; trained and supervised two students in telemetry; conducted daily relocations (2,000+ relocations) and weekly recovery of deployed temperature models and stationary temperature data (10,000+ temperature measurements). Conducted statistical analysis.

Point Blue Conservation Science, Palomarin Field Station, California. Research Assistant. Banded passerine birds, hummingbirds, and small raptors: 350+ individuals banded and 600+ handled. Skilled in extracting birds out of mist-nests, aging and sexing, collecting morphometric data, and banding. Performed daily area-search surveys. Spent one season nest-searching for wrentits, song sparrows, and Wilson's warblers; monitored 30+ nests, banded nestlings; territory-mapped all songbirds on 36-hectare study plot; target-netted certain individuals for color banding.

University of San Francisco, San Francisco, California. Research Assistant for Principal Investigator Scott Nunes, Ph.D. Investigated male breeding dispersal in Belding's ground squirrel using microsatellite DNA analysis by mark-

Ivey, K. Cornwall, M., Ghazian, N., Nix, E., Owen, M., Zuliani, M., Gaudenti, N., Maier, P., Westphal, M., Lortie, C., Taylor, E. “Temperature-based activity estimation accurately predicts surface activity but not microhabitat use in an endangered heliothermic lizard”. Amphibian & Reptile Conservation. (Accepted)

Gaudenti, N., Nix, E., Maier, P., Westphal, M., Taylor, E., “Habitat heterogeneity affects the thermal ecology of the federally endangered blunt-nosed leopard lizard”. Ecology & Evolution. (Submitted)

Gaudenti, N. “Habitat heterogeneity affects the thermal ecology of the federally endangered blunt-nosed leopard lizard”. 2021. Unpubl. Master’s thesis, California Polytechnic State University, San Luis Obispo, 33 pp.

Presentations

Gaudenti, N. Maier, P. Westphal, M., Taylor. E. 2020. “Habitat heterogeneity impacts the thermal ecology of blunt-nosed leopard lizards”, Presentation at The Wildlife Society- Western Section, Redding, CA.

Attachment D

Reference Sightings for the Blunt-Nosed Leopard Lizard
2021 Sample Survey Results

Sapphos environmental inc.

August 18, 2022
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M09

TO: Dudek
(Mr. Keith Carwana)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, Mr. Thaer Flieh, and Mr. Karl Brutsaert)

Bell-Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Reference Sightings for the Blunt-Nosed Leopard Lizard 2021 Sample Survey Results

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) documents reference sightings used to

INTRODUCTION

This MFR documents reference sightings used to inform the blunt-nosed leopard lizard 2021 sample surveys. Inclusion of reference sightings in the BNLL 2021 Sample Survey Results report demonstrates that the sample surveys were undertaken when BNLL were observed at comparable nearby locations. The use of reference sightings increases the reliability of using results of the of the BNLL 2021 Sample Survey Results report as the basis for the characterization of existing condition, and related impact analysis in the environmental impact report under preparation by Kern County, to support the evaluation and decision-making related to the proposed project, as required pursuant to the California Environmental Quality Act. The incidental sightings provided below occurred in Kern County, at the similar elevation to the Project.

REFERENCE SIGHTINGS

The California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Service (USFWS) are both in receipt of documentation of 2021 BNLL survey efforts that produced positive observations of BNLL and were used as reference sightings BNLL 2021 Sample Survey.

One BNLL adult was observed on May 10, 2021, on a dirt road within annual grassland habitat (35.776681, -119.401126) approximately 16.5 miles east of the Project. The sighting was observed by Mr. Christopher Russ (Level II BNLL Surveyor) and confirmed by Mr. Colton Parrish (Level II BNLL Surveyor).[1]

Two BNLL individuals were observed on June 8, 2021, one adult male in a cleared dirt construction area within annual grassland habitat (35.777809, -119.401520) and one sub-adult directly adjacent within the annual grassland habitat (35.777785, -119.401645). Both sightings were adjacent to each other, approximately 16.5 miles east of the Project. The sightings were observed by Ms. Rachel Sechan (Level II BNLL Surveyor) and were confirmed by Mr. Alex Brown (Level II BNLL Surveyor).[2]

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

Attachment E

Monitoring Logs

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17478	
Date	*2021-05-23*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:45 AM–1:56 PM*
Conditions	*Air Temp: 75.5–92.2°F; Ground Temp: 79.3–115°F; 0% cloud cover; 0–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:45:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*79.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.9*

Survey Conditions	
Status	*End*
Time	*13:56:00*
TEMPERATURE	*°F*
Air Temp	*92.2*
Air Temp	*92.2*
Soil Temp	*115*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.5*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber, and Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	
Number of Tiger Whiptails Observed	*0*
NOTES	*Found scat by the far south edge of the project site by the canal but after further investigation it is assumed to be whiptail scat*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15453	
Date	*2021-05-24*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:05 AM–2:00 PM*
Conditions	*Air Temp: 77–93°F; Clear*
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:05:00*
TEMPERATURE	*°F*
Air Temp	*77*
Air Temp	*77*
Soil Temp	*75*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Sky	*Clear*

Survey Conditions	
Status	*End*
Time	*14:00:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*97*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Sky	*Clear*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Lower right quadrant is mix of sparse grassland with medium burrow density at bottom and then turns into field of discarded pistachio shells with no burrows, grass, or vegetation. Left lower quadrant is heavily grazed rangeland with high burrow activity but no shrubs. Field 3 up from bottom right had higher biomass but the soil was densely packed and no rodent burrows.*
Overall habitat quality	*Habitat quality in pistachio shell field is very poor. The bottom left quadrant is okay habitat quality but lacks a complex vegetation community to provide habitat heterogeneity and elevate the area to high quality habitat. The 3rd field up from the bottom right side was very poor habitat quality. The soil was too hard for BNLL to burrow and there were no rodent burrows on the landscape.*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*10–25%*
% Bare Ground	*50–75%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3.35*
NOTES	

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*05241439EN-01-01*
Record Lat/Long	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15495	
Date	*2021-05-25*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*San Diego*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:33 AM–2:00 PM*
Conditions	*Air Temp: 77–97°F; Ground Temp: 89–99°F; 10–30% cloud cover; 1–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:33:00*
TEMPERATURE	*°F*
Air Temp	*77*
Air Temp	*77*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*14:00:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*99*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*30*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*4.3*

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 15552	
Date	*2021-05-26*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:32 AM–1:10 PM*
Conditions	*77.5–94°F; 0–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:32:00*
TEMPERATURE	*°F*
Air Temp	*77.5*
Air Temp	*77.5*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Notes	*Ground temp 80.5F*

Survey Conditions	
Status	*End*
Time	*13:10:00*
TEMPERATURE	*°F*
Air Temp	*94*
Air Temp	*94*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*50–75%*
% Bare Ground	*50–75%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15615	
Date	*2021-05-27*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:59 AM–12:05 PM*
Conditions	*Air Temp: 75–93.5°F; Ground Temp: 81.5–97.6°F; 0–10% cloud cover; 1–9 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:59:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*81.5*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*12:05:00*
TEMPERATURE	*°F*
Air Temp	*93.5*
Air Temp	*93.5*
Soil Temp	*97.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland. No shrubs.*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*50–75%*
% Bare Ground	*25–50%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*2.85*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15759	
Date	*2021-05-30*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:20 AM–1:21 PM*
Conditions	*Air Temp: 75.5–95.2°F; Ground Temp: 75.8–128.1°F; 0% cloud cover; 1–8.6 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:20:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*75.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*13:21:00*
TEMPERATURE	*°F*
Air Temp	*95.2*
Air Temp	*95.2*
Soil Temp	*128.1*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*2*

FORMS DUDEK FIELD DATA REPORT

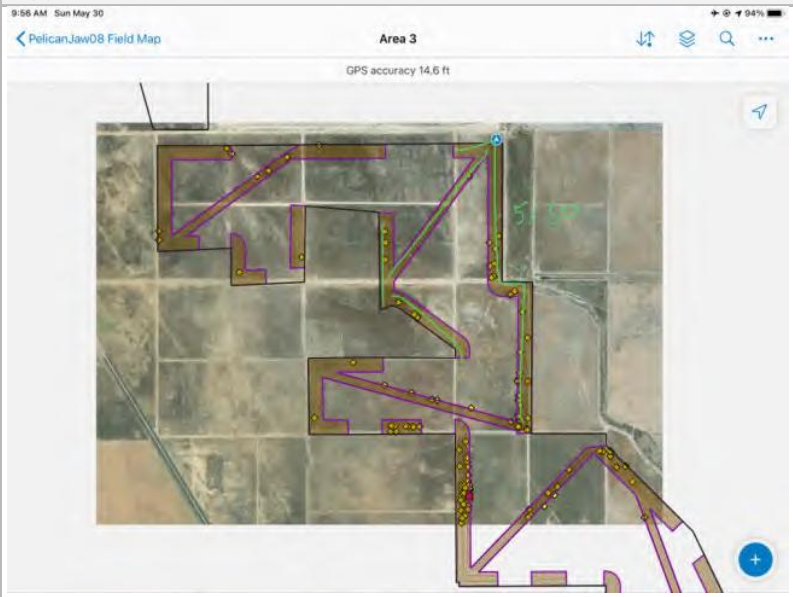
Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*
NOTES	

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*06011519EN-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*BCC/SSC*

Photo(s)	
Type	*Photo*
Photo	
Description	*Burrowing owl observed perched along existing fence. Two BUOW observed in area. Point added to Collector.*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*06011522EN-02-02*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed 5/30*

Photos	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*Burrowing owl sighted in survey area on existing fence.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15750	
Date	*2021-05-31*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:19 AM–11:32 PM*
Conditions	*Air Temp: 81.8–97.4°F; Ground Temp: 84.4–97°F; 0% cloud cover; 1–3 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:19:00*
TEMPERATURE	*°F*
Air Temp	*81.8*
Air Temp	*81.8*
Soil Temp	*84.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*23:32:00*
TEMPERATURE	*°F*
Air Temp	*97.4*
Air Temp	*97.4*
Soil Temp	*97*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Notes	*Had checked temp around 1030AM and it was 94F. Surveys were stopped approximately one hour later.*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3.7 mi of transect, 5 miles of total distance*

Photos

Type	*Photo*
Photo	
Description	*Area surveyed today.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15753	
Date	*2021-06-01*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*6:54 AM–10:29 AM*
Conditions	*Air Temp: 78.4–97°F; Ground Temp: 79.3–114.3°F; 0% cloud cover; 0–7.3 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:54:00*
TEMPERATURE	*°F*
Air Temp	*78.4*
Air Temp	*78.4*
Soil Temp	*79.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

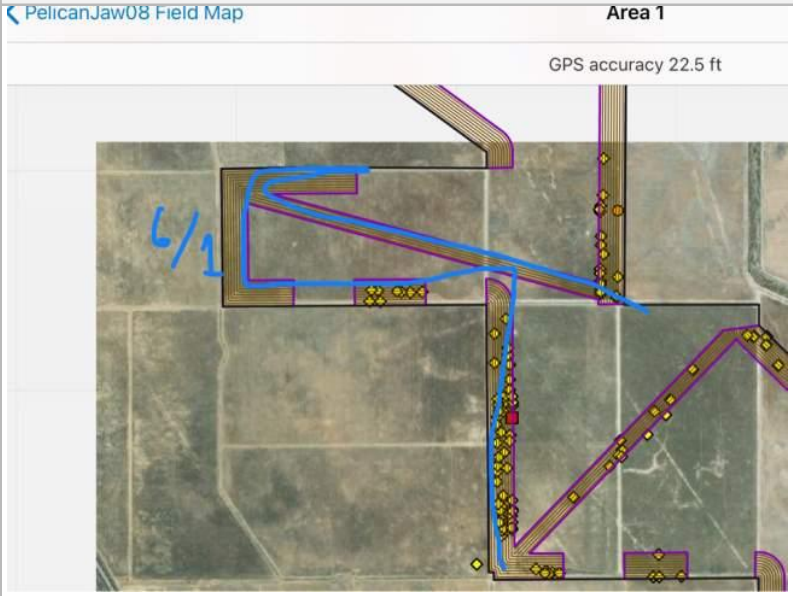
Survey Conditions	
Status	*End*
Time	*10:29:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*114.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*4.4*

Photos

Type	*Photo*
Photo	
Description	*Survey area for 6/1/21.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16119	
Date	*2021-06-02*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:00 AM–10:23 AM*
Conditions	*Air Temp: 75.4–101.4°F; Ground Temp: 80.1–127°F; 0% cloud cover; 1–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:00:00*
TEMPERATURE	*°F*
Air Temp	*75.4*
Air Temp	*75.4*
Soil Temp	*80.1*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*10:23:00*
TEMPERATURE	*°F*
Air Temp	*97.4*
Air Temp	*97.4*
Soil Temp	*127*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	*Temperature increased towards the end of the survey. Survey ended at 10:30 am.*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17421	
Date	*2021-06-13*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Select Transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:25 AM–1:33 PM*
Conditions	*Air Temp: 75–97°F; Ground Temp: 80.4–130°F; 0% cloud cover; 0–9 mph wind*
Visit Type	
Notes	*We spent time looking at the canal at the far south boundary of the project site where we had previously encountered potential BNLL scat. We found more identical scat and spotted a large whip tail lizard (Aspidoscelis tigris) down in the canal. This leads me to believe that the scat we originally found is likely from a whip tail.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:25:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*80.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*13:33:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*130*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Tiger Whiptails Observed	*1*

Photos	
Type	*Photo*
Photo	
Description	*Example of the scat observed, likely from a whip tail.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16122	
Date	*2021-06-14*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:54 AM–12:59 PM*
Conditions	*Air Temp: 75.7–96°F; Ground Temp: 78.3–126°F; 0% cloud cover; 0–6 mph wind*
Visit Type	
Notes	*Swainsons hawk observed flying overhead at beginning of survey. No active nest was observed. Burrowing owl seen in same location as from Pass 2. Location noted in Collector.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:54:00*
TEMPERATURE	*°F*
Air Temp	*75.7*
Air Temp	*75.7*
Soil Temp	*78.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*12:59:00*
TEMPERATURE	*°F*
Air Temp	*96*
Air Temp	*96*
Soil Temp	*126*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	
Survey Pass	*Adult Season Survey Pass 3*
Survey Pass	*Adult Season Survey Pass 3*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*

Wildlife List

Species Name	*Swainson's hawk (Buteo swainsoni), B-SWHA*
Observation ID (Copy and paste into Collector)	*06141523EN-01-01*
Record Lat/Long	
Federal and State Status	*BCC/ST*

Photos

Type	*Photo*
Photo	
Description	*Area surveyed 6/14*

FORMS DUDEK FIELD DATA REPORT

Photo	
Description	*SWHA1 observed flying overhead.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16377	
Date	*2021-06-15*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:32 AM–1:32 PM*
Conditions	*Air Temp: 75.1–83°F; Ground Temp: 76–98°F; 0% cloud cover; 1–13 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:32:00*
TEMPERATURE	*°F*
Air Temp	*77.1*
Air Temp	*77.1*
Soil Temp	*78*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*N/A*
Notes	*Did not take average wind speed during survey.*

Survey Conditions	
Time	*10:40:00*
TEMPERATURE	*°F*
Air Temp	*83*
Air Temp	*83*
Soil Temp	*98*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*3*
Average Wind (mph, to tenths of a mile)	*8*
Notes	

FORMS FIELD DATA REPORT

Survey Conditions

Status	*End*
Time	*13:32:00*
TEMPERATURE	*°F*
Air Temp	*92*
Air Temp	*92*
Soil Temp	*132*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*
Average Wind (mph, to tenths of a mile)	*N/A*
Notes	*Did not take average wind speed.*

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*See attachment*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
NOTES	

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16380	
Date	*2021-06-16*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:16 AM–9:58 AM*
Conditions	*Air Temp: 75–89.6°F; Ground Temp: 75.8–98.8°F; 10–40% cloud cover; 0–9 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:16:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*75.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*40*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1*
Notes	*Thin hazy clouds. Slight overcast. Warm out with almost no breeze*

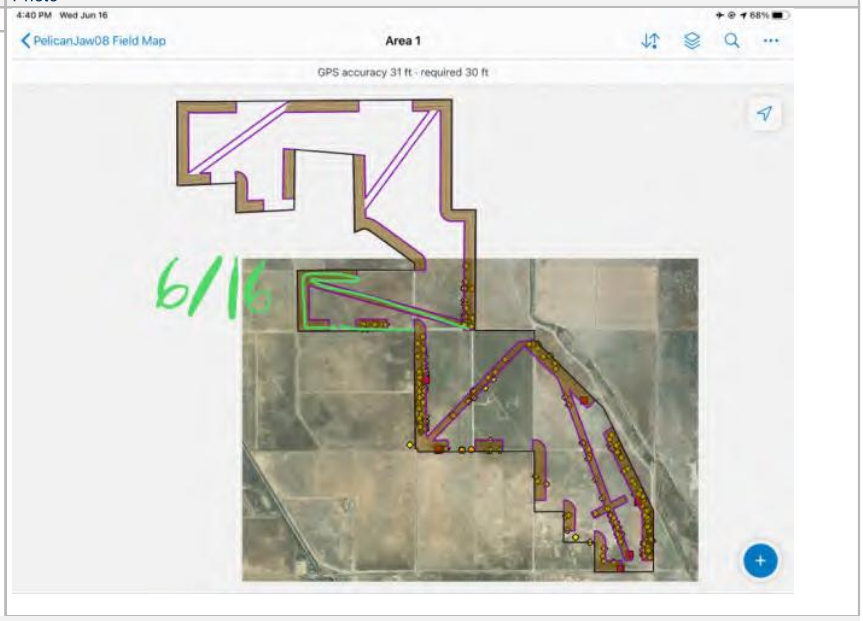
Survey Conditions	
Status	*End*
Time	*09:58:00*
TEMPERATURE	*°F*
Air Temp	*89.6*
Air Temp	*89.6*
Soil Temp	*98.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*2*
Average Wind (mph, to tenths of a mile)	*5.5*
Notes	*A bit hazy out but not truly overcast*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*See attachment*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*114*

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16719	
Date	*2021-06-28*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:15 AM–11:30 AM*
Conditions	*Air Temp: 78–93°F; Ground Temp: 83–108°F; 0% cloud cover; 0–8 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:15:00*
TEMPERATURE	*°F*
Air Temp	*78*
Air Temp	*78*
Soil Temp	*83*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*5*
Average Wind (mph, to tenths of a mile)	*6.5*

Survey Conditions	
Status	*End*
Time	*11:30:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*108*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0.5*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*53*
Number of Tiger Whiptails Observed	*0*

Photos	
Type	*Photo*
Photo	
Description	*View from south end of Project site, showing survey area.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16746	
Date	*2021-06-29*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:00 AM–10:01 AM*
Conditions	*Air Temp: 75.2–89.6°F; Ground Temp: 75.7–82.7°F; 10% cloud cover; 0–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:00:00*
TEMPERATURE	*°F*
Air Temp	*75.2*
Air Temp	*75.2*
Soil Temp	*75.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.6*

Survey Conditions	
Status	*End*
Time	*10:01:00*
TEMPERATURE	*°F*
Air Temp	*89.6*
Air Temp	*89.6*
Soil Temp	*82.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.6*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*34*
Number of Tiger Whiptails Observed	*0*

Photos

Type	*Photo showing general survey area.*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16776	
Date	*2021-06-30*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:42 AM–11:07 AM*
Conditions	*Air Temp: 77.1–92.3°F; Ground Temp: 82.2–89.9°F; 10% cloud cover; 4–10.7 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:42:00*
TEMPERATURE	*°F*
Air Temp	*77.1*
Air Temp	*77.1*
Soil Temp	*82.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*8.5*
Average Wind (mph, to tenths of a mile)	*9.0*

Survey Conditions	
Status	*End*
Time	*11:07:00*
TEMPERATURE	*°F*
Air Temp	*92.3*
Air Temp	*92.3*
Soil Temp	*89.9*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*4*
Average Wind (mph, to tenths of a mile)	*3.2*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*113*
Number of Tiger Whiptails Observed	*0*

Photos

Type	*Photo showing general survey area*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16821	
Date	*2021-07-01*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	Kern County
Survey Area	*Select Transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:47 AM–9:37 AM*
Conditions	*Air Temp: 75.9–91°F; Ground Temp: 78–86.4°F; 0% cloud cover; 0–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:47:00*
TEMPERATURE	*°F*
Air Temp	*75.9*
Air Temp	*75.9*
Soil Temp	*78*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*5*
Average Wind (mph, to tenths of a mile)	*4.2*

Survey Conditions	
Status	*End*
Time	*09:37:00*
TEMPERATURE	*°F*
Air Temp	*91*
Air Temp	*91*
Soil Temp	*86.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*7.1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*33*
Number of Tiger Whiptails Observed	*0*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17424	
Date	*2021-07-06*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:22 AM–11:32 AM*
Conditions	*Air Temp: 75.5–88.6°F; Ground Temp: 75.6–94.7°F; 0% cloud cover; 1–7.7 mph wind*
Visit Type	
Notes	*Began 2nd pass of revised transects and then set up 3 wildlife cameras at suspected active burrows*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:22:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*75.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*1.5*

Survey Conditions	
Time	*09:18:00*
TEMPERATURE	*°F*
Air Temp	*88.6*
Air Temp	*88.6*
Soil Temp	*94.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*5*
Notes	*Taken midway through survey to confirm protocol compliance.*

FORMS FIELD DATA REPORT

Survey Conditions

Status	*End*
Time	*11:32:00*
TEMPERATURE	*°F*
Air Temp	*97.5*
Air Temp	*97.5*
Soil Temp	*97.9*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.3*

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
NOTES	

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17427	
Date	*2021-07-07*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:03 AM–12:08 PM*
Conditions	*Air Temp: 75.9–97.9°F; Ground Temp: 75–93.6°F; 0% cloud cover; 0–3 mph wind*
Visit Type	
Notes	*2nd pass of revised transects. Burrowing owl observed. Checked wildlife cameras and set up an additional one.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:03:00*
TEMPERATURE	*°F*
Air Temp	*75.9*
Air Temp	*75.9*
Soil Temp	*75*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.8*

Survey Conditions	
Status	*End*
Time	*12:08:00*
TEMPERATURE	*°F*
Air Temp	*97.9*
Air Temp	*97.9*
Soil Temp	*93.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*1*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*07120908EN-01-01*
Record Lat/Long	
Federal and State Status	*BCC/SSC*

Wildlife List	
Species Name	*American badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07140945EN-02-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Spotted on CAM2*

Photo(s)	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*American badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07140945EN-03-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen on CAM4*

Photo(s)	
Type	*Photo*
Photo	
Description	*AMBA seen on CAM4*

Wildlife List	
Species Name	*Coyote (), B-COYO*
Observation ID (Copy and paste into Collector)	*07191725EN-04-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen on CAM1. Juvenile.*

Photo(s)	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*COYO seen on CAM1*

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed on 7/7/21*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17430	
Date	*2021-07-08*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Second pass of the revised transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:48 AM–11:09 AM*
Conditions	*Air Temp: 76.7–97.9°F; Ground Temp: 77.8–97.2°F; 0% cloud cover; 0–7.4 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*Concluded the second pass of revised transects and final pass of survey area.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:48:00*
TEMPERATURE	*°F*
Air Temp	*76.7*
Air Temp	*76.7*
Soil Temp	*77.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.4*

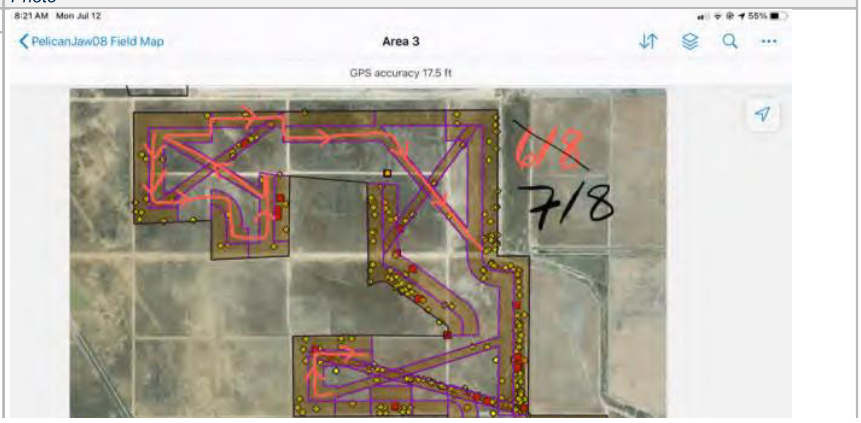
Survey Conditions	
Status	*End*
Time	*11:09:00*
TEMPERATURE	*°F*
Air Temp	*97.9*
Air Temp	*97.9*
Soil Temp	*97.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	

Wildlife List	
Species Name	*American Badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07120827EN-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen in project area near canal while driving to transect. We stopped to take a photo but it had already gone into the canal. By the time we got out of the car, we could not find it and it was likely in one of a few nearby burrows.*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*07120827EN-02-02*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18717	
Date	*2021-09-19*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04413018, 04413021, 04413016*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:30 PM*
Conditions	*Air Temp: 75–89°F; 0–10% cloud cover*
Visit Type	
Wildlife Species Count Summary	*common raven, 9*
Notes	*Unknown mouse sp. (small, not a kangaroo rat) seen running into burrow @ 1052. Few grasshoppers, beetles. Dead juvenile coyote carcass. Fresh evidence of kangaroo rat activity throughout*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*12:30:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Teodora Ungureanu, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*26*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*09290716NG-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09290724NG-02-04*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290724NG-03-04*
Record Lat/Long	
Federal and State Status	

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09290721NG-04-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*High count 9*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18720	
Date	*2021-09-20*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410221, 04410222, 0410308*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:00 AM–1:30 PM*
Conditions	*Air Temp: 76–89°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:30:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*3.4*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Sarah Mendez, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*52*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*09290734NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*BCC/SSC*
Notes	*Flushed from burrow entrance and flew down along ditch. Point taken in collector with updated ID from this record*

Special-Status Wildlife Observation	
Start observation time	*07:34:00*
End observation time	*09:54:00*
Lat/Long	*0.000000,0.000000*
Detection	*Observed*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Unknown*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Behavior	
Nectar Species	*N/A*
Color band information (if any)	
Vegetation Community(ies)	*Unvegetated Channel/Wash*
Habitat Quality	*Fair*
Immediate Land Use	*Agriculture ditch*
Surrounding Land Use	*Agriculture*
Visible Disturbances	
Threats	
Notes	*35.748342, -119.707729, point in collector under this same ID*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18723	
Date	*2021-09-21*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04415017, 04410309, 04410304, 04410203, 04410205*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:00 AM–1:00 PM*
Conditions	*Air Temp: 78–91°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*78*
Air Temp	*78*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*91*
Air Temp	*91*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*4*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Sarah Mendez, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*31*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09290753NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*

Wildlife List	
Species Name	*black-tailed jackrabbit (Lepus californicus), M-BTJR*
Observation ID (Copy and paste into Collector)	*09290755NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*@ 0942*

Wildlife List	
Species Name	*barn owl (Tyto alba), B-BAOW*
Observation ID (Copy and paste into Collector)	*09290756NG-03-03*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*Flushed out of tree near some large pipes @ 1057*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290757NG-04-04*
Record Lat/Long	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*turkey vulture (Cathartes aura), B-TUVU*
Observation ID (Copy and paste into Collector)	*09290757NG-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290757NG-06-06*
Record Lat/Long	
Notes	*@ 1122*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18741	
Date	*2021-09-22*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410201, 04410102, 04411003, 04410106*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–1:00 PM*
Conditions	*Air Temp: 76–93°F; Ground Temp: 89°F; 0% cloud cover*
Visit Type	
Notes	*Finished first pass, set up 3 burrow cams. Golden eagle flyover seen, no nests observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Garry Turner, Sarah Mendez*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*24*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*golden eagle (Aquila chrysaetos), B-GOEA*
Observation ID (Copy and paste into Collector)	*09291139NG-01-01*
Record Lat/Long	
Federal and State Status	*None/FP, WL*

Special-Status Wildlife Observation	
Start observation time	*13:19:00*
Lat/Long	*0.000000,0.000000*
Detection	*Observed*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Unknown*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Nectar Species	*N/A*
Color band information (if any)	
Habitat Quality	*Fair*
Immediate Land Use	*Agriculture*
Threats	

Wildlife List	
Species Name	*western rattlesnake (Crotalus oreganus), R-WERA*
Observation ID (Copy and paste into Collector)	*09291145NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Sign*
Federal and State Status	*None/None*

FORMS DUDEK FIELD DATA REPORT

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09291146NG-03-03*
Record Lat/Long	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18744	
Date	*2021-09-26*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410203, 04410205, 04410221, 04410222, 04410309*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:30 PM*
Conditions	*Air Temp: 75–90°F; Ground Temp: 74–92°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*74*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*8*

Survey Conditions	
Status	*End*
Time	*12:30:00*
TEMPERATURE	*°F*
Air Temp	*90*
Air Temp	*90*
Soil Temp	*92*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Sophia Weber, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*48*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*coyote (Canis latrans), M-COYO*
Observation ID (Copy and paste into Collector)	*09291221NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*Adult coyote sighted @ 1104 running E to W*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09291223NG-03-03*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18747	
Date	*2021-09-27*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04413039, 04415017, 04415005*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:00 PM*
Conditions	*Air Temp: 70–87°F; Ground Temp: 67–89°F; 0% cloud cover*
Visit Type	
Notes	*1039 snakeskin found, likely gopher snake - scales not keeled*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Soil Temp	*67*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*4*

Survey Conditions	
Status	*End*
Time	*12:00:00*
TEMPERATURE	*°F*
Air Temp	*87*
Air Temp	*87*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*7*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Sophia Weber, Jakob Dewhurst*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*22*
Number of Tiger Whiptails Observed	*0*

Wildlife List

Species Name	*kangaroo rat (Dipodomys sp.), M-KARA*
Observation ID (Copy and paste into Collector)	*09291235NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Sign*
Federal and State Status	*None/None*
Notes	*Carcass found in active burrow mouth*

Photo(s)

Type	*Photo*
Photo	
Description	*4 toes*

FORMS FIELD DATA REPORT

Photo(s)

Type	*Photo*
Photo	

Photos

Type	*Photo*
Photo	

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 18774	
Date	*2021-09-28*
Biologist	*Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*Pelicans Jaw*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:51 AM–1:00 PM*
Conditions	*Air Temp: 70.6–75.8°F; Ground Temp: 72.4–77.3°F; 80–90% cloud cover; 3.2–6 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:51:00*
TEMPERATURE	*°F*
Air Temp	*70.6*
Air Temp	*70.6*
Soil Temp	*72.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*90*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*3.2*
Notes	

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*75.8*
Air Temp	*75.8*
Soil Temp	*77.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*80*
WIND	*mph*
Wind	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Level II Surveyor(s)	*Tamara Bryant*
Level I Surveyor(s)	*Andrea Dransfield, Jakob Dewhurst, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*15*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*red-tailed hawk (Buteo jamaicensis), B-RTHA*
Observation ID (Copy and paste into Collector)	*09301025TB-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*09301026TB-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09301026TB-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09301027TB-04-04*
Record Lat/Long	

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 18777	
Date	*2021-09-29*
Biologist	*Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*Transect*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:42 AM–12:48 PM*
Conditions	*Air Temp: 76.3–83.6°F; Ground Temp: 78.4–86.2°F; 0% cloud cover; 0–2.2 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*All camera's were removed from the survey areas.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:42:00*
TEMPERATURE	*°F*
Air Temp	*76.3*
Air Temp	*76.3*
Soil Temp	*78.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.2*

Survey Conditions	
Status	*End*
Time	*12:48:00*
TEMPERATURE	*°F*
Air Temp	*83.6*
Air Temp	*83.6*
Soil Temp	*86.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.7*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Level II Surveyor(s)	*Tamara Bryant*
Level I Surveyor(s)	*Andrea Dransfield, Jakob Dewhurst, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*44*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*turkey vulture (Cathartes aura), B-TUVU*
Observation ID (Copy and paste into Collector)	*09301257TB-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*09301259TB-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*house finch (Haemorhous mexicanus), B-HOFI*
Observation ID (Copy and paste into Collector)	*09301300TB-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

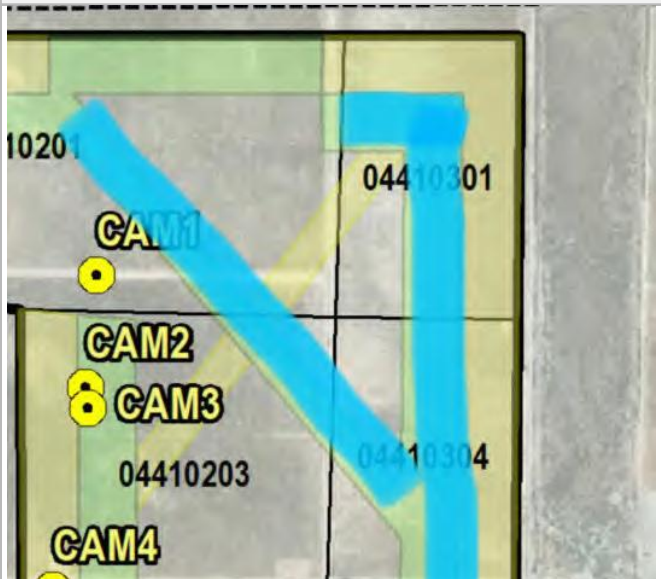
Wildlife List	
Species Name	*northern mockingbird (Mimus polyglottos), B-NOMO*
Observation ID (Copy and paste into Collector)	*09301300TB-04-04*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09301300TB-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*American crow (Corvus brachyrhynchos), B-AMCR*
Observation ID (Copy and paste into Collector)	*09301301TB-06-06*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*white-crowned sparrow (Zonotrichia leucophrys), B-WCSP*
Observation ID (Copy and paste into Collector)	*09301302TB-07-07*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	

FORMS DUDEK FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*The BNLL survey area is in green*

Attachment F

Wildlife Observations



Camera 5 – San Joaquin kit fox





One of two burrowing owl observations in APNs 04410203 and 04410205 during adult season surveys (please see Figure 3A)





Camera 7 – San Joaquin Kit Fox. Camera indicates incorrect date due to camera malfunction. Photo was taken between 9/19/2021 and 9/29/2021.





A desiccated kangaroo rat carcass (*Dipodomys sp.*) discovered during hatchling season surveys in APN 04415017. Species-level identification could not be completed due to the condition of the carcass.



Attachment B

CDFW BNLL 10 Meter Transect Survey Request,
April 11, 2023

Keith Carwana

From: Keith Carwana
Sent: Thursday, August 3, 2023 12:39 PM
To: Keith Carwana
Subject: FW: RE: Submittal of the Pelicans Jaw Hybrid Solar Project -- BNLL Protocol Level Survey Notification

--------- **Original Message** ---------

Sender : Pohlman, Jeremy@Wildlife <Jeremy.Pohlman@Wildlife.ca.gov>

Date : 2023-04-11 08:03 (GMT+9)

Title : RE: Submittal of the Pelicans Jaw Hybrid Solar Project -- Blunted Nosed Leopard Lizard Protocol Level Survey Notification

To : Marie Campbell<mcampbell@sapphosenvironmental.com>, Justin_Sloan@fws.gov<Justin_Sloan@fws.gov>, Bonner, Lawrence(Larry)@Wildlife<Lawrence.Bonner@Wildlife.ca.gov>

CC : Sarah Sperling<SSperling@sapphosenvironmental.com>, Terrance Smalls<smallst@kerncounty.com>, Tandy McMannes<t.mcmannes@samsung.com>, 정창수<alfonso.jung@samsung.com>, 'Sean Mantucca'<Sean@sbenergy.com>, 'Karl Brutsaert'<Karl@sbenergy.com>

Hi Marie,

Thank you for sending the Blunt Nosed Leopard Lizard Survey Protocol along for CDFW's input. The protocol looks appropriate for surveys. I did have one minor comment. The protocol for adult season surveys states, "In denser and taller vegetation, transects would be narrowed to approximately 15 meters (49.2 feet)." CDFW recommends the transect width be no more than 10 meters as outlined in the 2019 CDFW Approved Survey Methodology for the Blunt-Nosed Leopard Lizard to compensate for detection of BNLL in dense vegetation.

Please let me if you have any questions about the recommendation.

Cheers,

Jeremy Pohlman | Senior Environmental Scientist (Specialist) | California Department of Fish and Wildlife | Central Regi on Renewable Energy Program | 3196 S. Higuera, Suite A, San Luis Obispo, CA 93401 | (Mobile) 805-503-2375

NEW for Rails, Roads, and Renewables!

Subject: RE: Submittal of the Pelicans Jaw Hybrid Solar Project -- Blunted Nosed Leopard Lizard Protocol Level Survey No tification

Thank you, Marie. CDFW is reviewing the work plan now and will reach out with any questions or concerns.

Cheers,

Jeremy Pohlman | Senior Environmental Scientist (Specialist) | California Department of Fish and Wildlife | Central Regi on Renewable Energy Program | 3196 S. Higuera, Suite A, San Luis Obispo, CA 93401 | (Mobile) 805-503-2375

NEW for Rails, Roads, and Renewables!
RRR.R4@wildlife.ca.gov (please use this email address for all permit-related submittals and administrative program questions)

From: Marie Campbell <mcampbell@sapphosenvironmental.com>
Sent: Thursday, April 6, 2023 12:00 PM
To: Justin_Sloan@fws.gov; Bonner, Lawrence(Larry)@Wildlife <Lawrence.Bonner@Wildlife.ca.gov>; Pohlman, Jeremy@ Wildlife <Jeremy.Pohlman@Wildlife.ca.gov>
Cc: Sarah Sperling <SSperling@sapphosenvironmental.com>; Terrance Smalls <smallst@kerncounty.com>; Tandy McMa nnes <t.mcmannes@samsung.com>; Alphonso (Chang-Su) Jung <alfonso.jung@samsung.com>; 'Sean Mantucca' <Sean @sbenergy.com>; 'Karl Brutsaert' <Karl@sbenergy.com>
Subject: Submittal of the Pelicans Jaw Hybrid Solar Project -- Blunted Nosed Leopard Lizard Protocol Level Survey Notific ation

WARNING: This message is from an external source. Verify the sender and exercise caution when clicking links or opening attachme nts.

Good morning, Justin, Larry, and Jeremy,
As discussed previously, this email, inclusive of attachments, serves as notification of U.S. Fish and Wildlife Service and t he California Department of Fish and Wildlife of Blunt Nosed Leopard Lizard Protocol Level Survey scheduled to start o n April 15, 2023, contingent on suitable weather conditions.
Thank you for your consideration.

Marie Campbell
Principal and CEO
430 North Halstead St.
Pasadena, CA 91107
Tel: (626) 683-3547 ext. 103
Fax: (626) 628-1745

General Manager / Renewable Energy Group / SAMSUNG C&T CORPORATION

Mobile: +82-10-4337-2059 Tel: +82-2-2145-2668

E-mail : **alfonso.jung@samsung.com**, changsu.jung@gmail.com

http://www.samsungcnt.com

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Attachment C

BNLL Protocol Level Survey Extension, July 12, 2023

Sapphos environmental inc.

July 12, 2023
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M21

TO: California Department of Fish and Wildlife
(Mr. Lawrence Bonner and Mr. Jeremy Pohlman)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Kern County
(Mr. Terrance Smalls)

Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Alphonso Chang-Su Jung, Mr. Sean Mantucca, Mr. Matt Stucky, and Mr. Karl Brutsaert)

Dudek
(Mr. Keith Carwana)

Bell Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Blunt-Nosed Leopard Lizard Protocol Level Survey Notification—Request for Time Extension

ATTACHMENT: 1. Dudek Pelicans Jaw Hybrid Solar Project – Blunt-

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) requests the ability to continue blunt-nosed leopard lizard (*Gambelia sila*; BNLL) protocol surveys, in support of the Pelicans Jaw Hybrid Solar Project, in Kern County for 14 additional days, until July 29, 2023 (Attachment 1, *Dudek Pelicans Jaw Hybrid Solar Project – Blunt-Nosed Leopard Lizard Protocol Level Survey Extension*). The BNLL surveys were initiated on April 15, 2023, pursuant to the April 6, 2023, notice provided to the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) of the proposed commencement of protocol BNLL surveys. Several factors have contributed to the inability to complete the surveys by July 15, 2023:

- Decreasing the transect width from 20 meters to 10 meters, in response to request from CDFW, essentially doubling the number of transects
- 25 days in April, May, and June had cool temperatures and inclement weather preventing surveys
- 3 days in April, May, and June had excessive wind speeds precluding surveys
- 1 additional day lost due to compliance with CalFire recommendation to vacate due to a fire on the adjacent property
- Excessive heat in July reduced time with allowable temperatures to as little as 1 hour.

A total of 30 days were not suitable to conduct surveys between April 15 and July 12, 2023, and it is anticipated that the fully compliant BNLL protocol survey can be completed by July 29, 2023, with permission from the USFWS to continue surveys for 14 days beyond July 15, 2023.

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

DUDEK
27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

To:	Larry Bonner and Jeremy Pohlman – California Department of Fish and Wildlife Justin Sloan – U.S. Fish and Wildlife Service Terrance Smalls – Kern County
From:	Brock Ortega, Emma Hansen-Smith, and Keith Carwana - Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard Protocol Level Survey Extension
Date:	July 12, 2023
Attachments:	A – Blunt-nosed Lizard Protocol Level Survey Notification

Introduction and Specific Request

On April 6, 2023, Pelicans Jaw Solar, LLC provided a memorandum to the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) to notify CDFW and USFWS of protocol-level blunt-nosed leopard lizard (*Gambelia sila*; BNLL) surveys to be conducted at the Pelicans Jaw Hybrid Solar Project (Project) located on approximately 3,371 acres in unincorporated Kern County, California (**Attachment A**).

Above average rainfall during the 2022 – 2023 rainy season led to increased vegetation growth on the Project site. As a result, CDFW recommended 10-meter survey transects via email on April 10, 2023, which is the most conservative transect width as defined by the 2019 CDFW BNLL survey protocol. The 2019 CDFW BNLL survey protocol recommends 10-meter-wide transects where shrubs are fairly numerous (>30% cover) and/or the herbaceous vegetation is dense and tall (>30 cm) and transects as wide as 20 meters where few shrubs and shorter herbaceous vegetation (<10 cm) is present.

Pelicans Jaw Solar, LLC began conducting protocol-level BNLL surveys as described in the approved work plan to determine the presence or absence of BNLL at the Pelicans Jaw Hybrid Solar Project (Project), beginning April 15, 2023.

Cool temperatures and inclement weather during April, May, and June resulted in 25 potential survey days that

As of July 7, 2023, approximately 1,500 surveyor days have been performed during the Pelicans Jaw 2023 adult season. This includes conducting surveys with a team of 40 plus qualified BNLL surveyors consisting of teams of one Level II surveyor for every three Level I surveyors on each date including holidays when weather conditions met survey protocols. No BNLL have been identified during the surveys to date.

Pelicans Jaw Solar, LLC would like to request CDFW and USFWS authorization to continue surveys for up to two weeks beyond the close of the adult BNLL survey season of July 15, 2023, to July 29, 2023. Surveys will continue be conducted in accordance with the 2019 CDFW BNLL survey protocol and will allow Pelicans Jaw Solar, LLC to clear additional areas for construction up to one year from completion of the BNLL hatchling surveys on September 30, 2023.

We, appreciate CDFW and USFWS's consideration and please do not hesitate to contact Brock Ortega at (760) 479-4854 or bortega@dudek.com with any questions.

Attachment A

Blunt-nosed Lizard Protocol Level Survey Notification

Sapphos environmental inc.

April 6, 2023
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M18

TO: U.S. Fish and Wildlife Service
(Mr. Justin Sloan)

California Department of Fish and Wildlife
(Mr. Lawrence Bonner and Mr. Jeremy Pohlman)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Kern County
(Mr. Terrance Smalls)

Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Alphonso Chang-Su Jung, Mr. Sean Mantucca, and Mr. Karl Brutsaert)

Dudek
(Mr. Keith Carwana)

Bell Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Submittal of the Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard Protocol Level Survey Notification

ATTACHMENT: 1. Pelicans Jaw Hybrid Solar Project – Blunt-nosed

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) is intended to notify the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) of the proposed commencement of protocol blunt-nosed leopard lizard (*Gambelia sila*; BNLL) surveys, as described in the approved work plan to determine the presence or absence of BNLL at the Project, beginning April 15, 2023 (Attachment 1, *Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard Protocol Level Survey Notification*). Due to the level of effort required to perform this survey, it is respectfully requested that CDFW and/or USFWS respond as soon as possible if there are any concerns regarding any part of this survey proposal. Dudek is not proposing any variances to the protocol and understands that this survey is valid for one year. Dudek, acting on behalf of the Pelicans Jaw Solar, LLC team, submitted a Biological Survey Work Plan for the USFWS and CDFW for review on April 15, 2021 (Attachment 1.A., *Biological Survey Work Plan*). A subsequent call with USFWS and CDFW occurred on April 28, 2021, to review and discuss the Biological Survey Work Plan (Attachment 1.B, *Pelicans Jaw Biological Survey Work Plan Meeting Notes*). The BNLL sample survey methods and results were summarized in a memorandum submitted to USFWS, CDFW, and Kern County on August 18, 2022 (Attachment 1.C, *Memorandum for the Record No. 8: BNLL Sample Survey Results*).

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

DUDEK
27372 CALLE ARROYO
SAN JUAN CAPISTRANO, CALIFORNIA 92675
T 949.450.2525 F 949.450.2626

To:	Larry Bonner and Jeremy Pohlman – California Department of Fish and Wildlife Justin Sloan – U.S. Fish and Wildlife Service Terrance Smalls and Katrina Slayton – Kern County
From:	Brock Ortega, Shana Carey, and Keith Carwana - Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard Protocol Level Survey Notification
Date:	April 6, 2023
Attachments:	A – Biological Survey Work Plan, April 15, 2021 B – Biological Survey Work Plan Meeting Notes, April 28, 2021 C –Blunt-nosed Leopard Lizard 2021 Sample Survey Report

Introduction and Specific Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit and general plan amendment for the development of a photovoltaic solar and battery energy storage facility herein referred to as the Pelicans Jaw Hybrid Solar Project, or Project, located on approximately 3,371 acres in unincorporated Kern County. Pelicans Jaw Solar, LLC submitted a Biological Survey Work Plan for the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) review on April 15, 2021 (Attachment A). A subsequent call with USFWS and CDFW occurred on April 28, 2021, to review and discuss the Biological Survey Work Plan (Attachment B).

Pelicans Jaw Solar, LLC is in the process of implementing the approved work plan. Pelicans Jaw Solar, LLC will be conducting protocol-level blunt-nosed leopard lizard (*Gambelia sila*; BNLL) surveys as described in the approved work plan to determine the presence or absence of BNLL at the Project, beginning April 15, 2023.

Specific Request – ***Due to the level of effort required to perform this survey we respectfully request that CDFW and/or USFWS let us know as soon as possible if there are any concerns regarding any part of this survey proposal. We are not proposing any variances to the protocol and understand that this survey is valid for one year.***

Project Description

site, which would connect with the existing PG&E 230-kilovolt (kV) overhead transmission lines that traverse the Project site.

Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023.

Background

Pelicans Jaw Solar, LLC previously conducted adult and hatchling season sample surveys for BNLL in 2021. The goal in undertaking the sample surveys was to inform the CEQA lead agency (Kern County) of the presence, potential presence, or absence of BNLL. The BNLL sample surveys were completed in accordance with Biological Survey Work Plan dated April 15, 2021. Dudek completed the adult BNLL surveys on July 8, 2021. The BNLL hatchling surveys were completed on September 29, 2021.

No BNLL adults were observed during the adult season sample survey effort. No BNLL hatchlings were observed during the hatchling sample survey effort. The BNLL sample survey methods and results were summarized in a memorandum submitted to USFWS, CDFW, and Kern County on August 18, 2022 (Attachment C).

BNLL Protocol Level Surveys

BNLL surveys will follow the revised CDFW (October 2019) "Approved Survey Methodology for the Blunt-Nosed Leopard Lizard." The entire Project area will be covered 12 times during the adult season (April 15 through July 15) and 5 times during the juvenile season (August 15 through September 30), within very strict limits defined by the time of day, temperature, and other parameters. The surveys will be performed by one Level II biologist for every three Level I biologists.

Adult Season BNLL Surveys: The adult season surveys will include 12 full coverage surveys, with qualified biologists walking parallel to one another at a distance of 20 meters (65.6 feet) when "herbaceous vegetation is under 30 cm (11.8 inches)." In denser and taller vegetation, transects would be narrowed to approximately 15 meters (49.2 feet). As required by the CDFW protocol, surveys will be conducted between 8:00 a.m. and 2:00 p.m., and will be limited to periods during the optimal temperature range for detecting this species 77°F to 95°F (25°C-35°C) at 1-2 cm above ground on a surface representing the survey area. Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph.

Surveyors will record the following observations daily:

- Time of day, cloud cover, wind speed, soil temperature, and air temperature;
- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;
- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).
- Any additional special-status species observed during the survey effort will be recorded.

Please do not hesitate to contact Brock Ortega at (760) 479-4854 or bortega@dudek.com with any questions.

Attachment A

Biological Survey Work Plan,
April 15, 2021

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Western Spadefoot Toad

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be “marked” using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

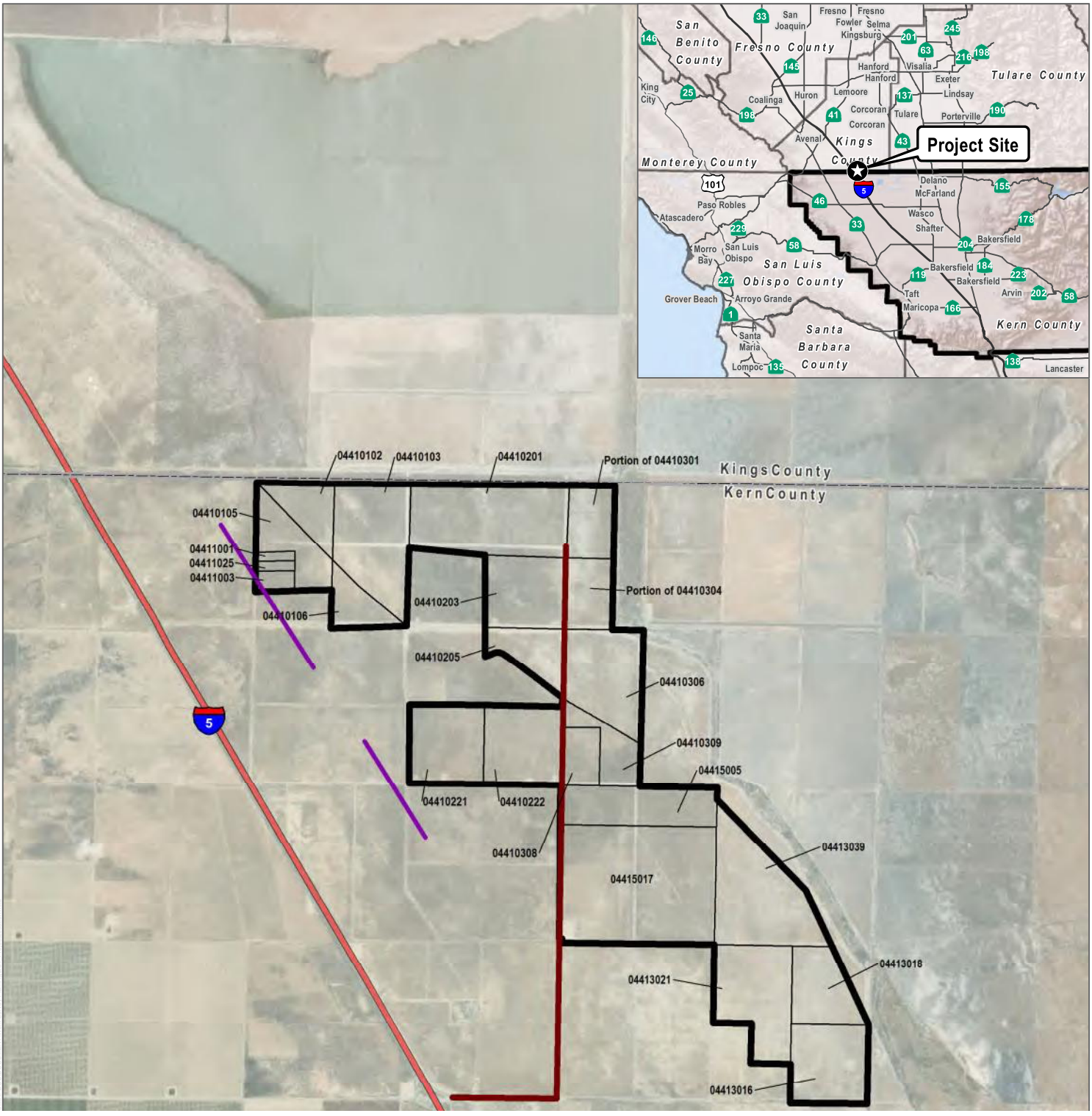
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

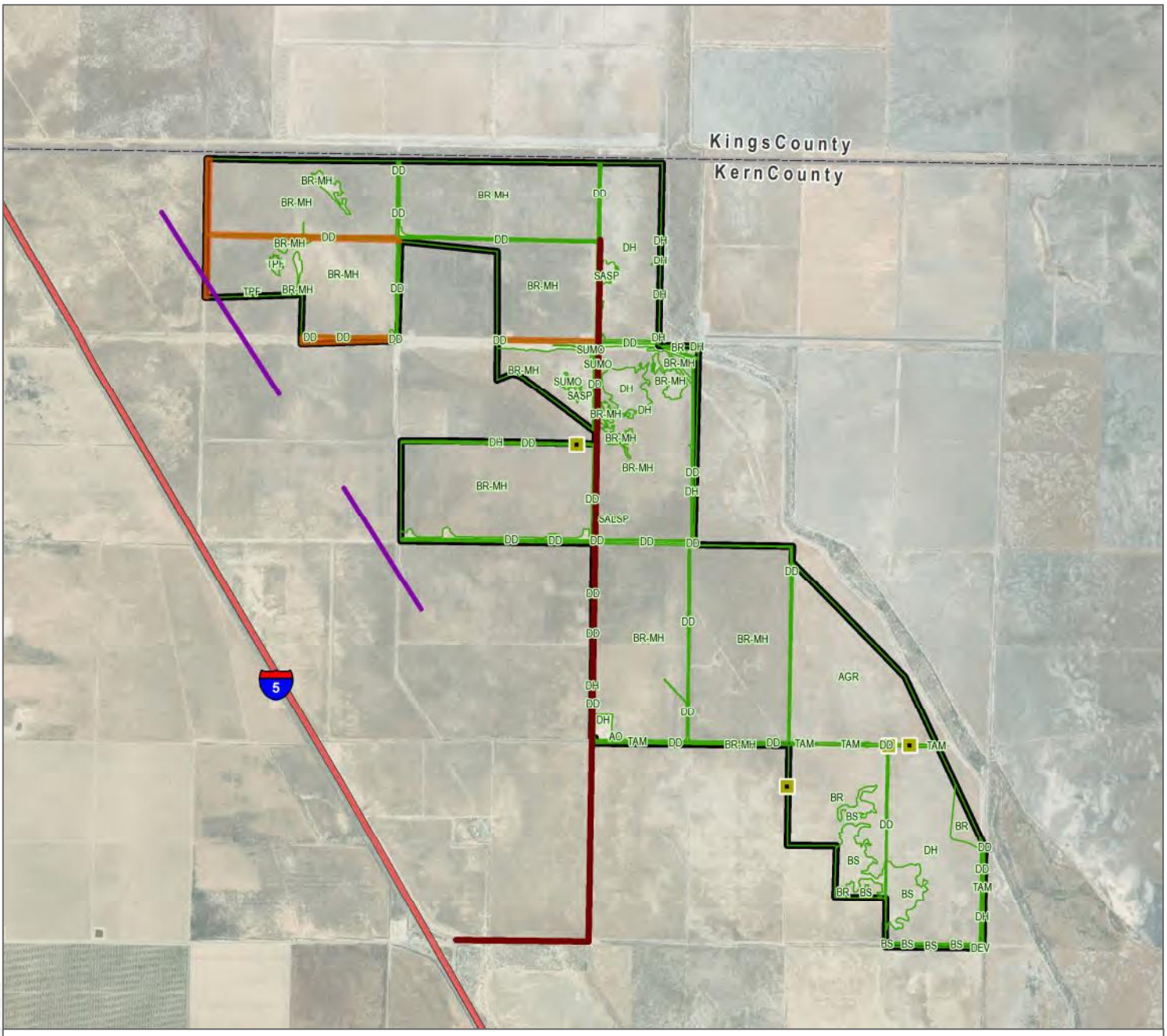
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

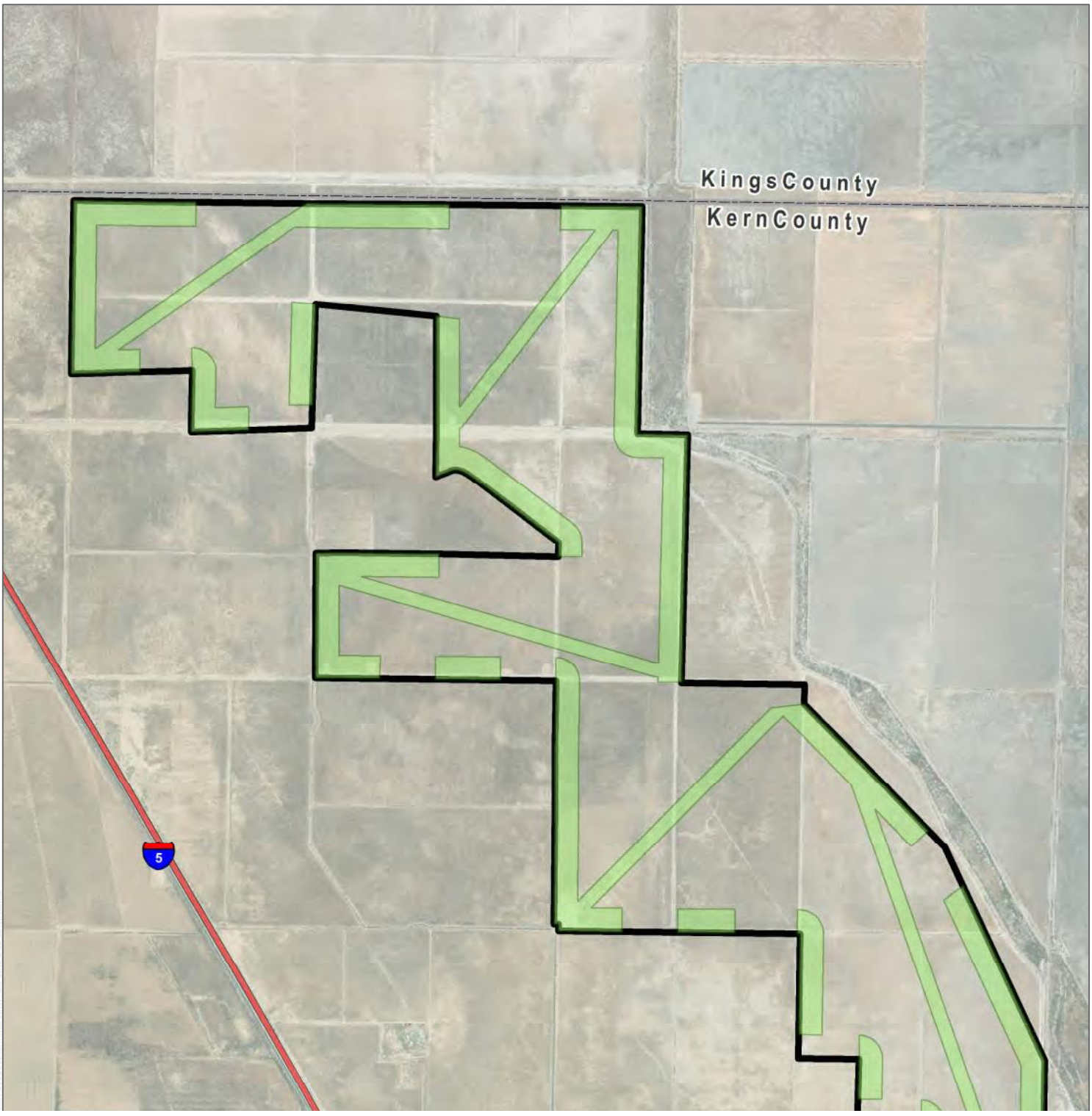
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

SALSP, Salsola spp. Semi-natural Association

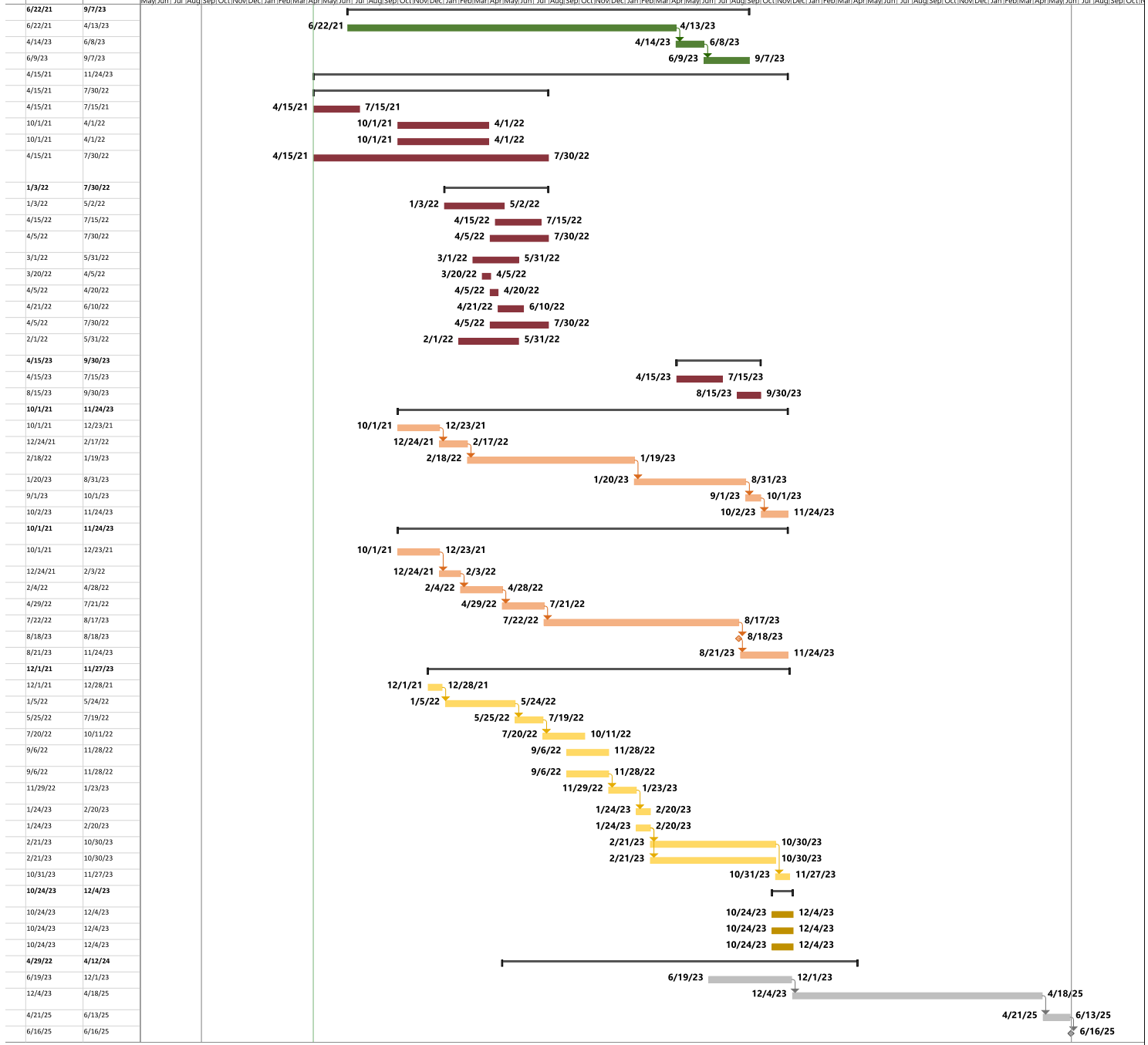

Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule

Start	Finish
6/22/21	**9/7/23**
6/22/21	4/13/23
4/14/23	6/8/23
6/9/23	9/7/23
4/15/21	11/24/23
4/15/21	7/30/22
4/15/21	7/15/21
10/1/21	4/1/22
10/1/21	4/1/22
4/15/21	7/30/22
1/3/22	**7/30/22**
1/3/22	5/2/22
4/15/22	7/15/22
4/5/22	7/30/22
3/1/22	5/31/22
3/20/22	4/5/22
4/5/22	4/20/22
4/21/22	6/10/22
4/5/22	7/30/22
2/1/22	5/31/22
4/15/23	**9/30/23**
4/15/23	7/15/23
8/15/23	9/30/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/17/22
2/18/22	1/19/23
1/20/23	8/31/23
9/1/23	10/1/23
10/2/23	11/24/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/3/22
2/4/22	4/28/22
4/29/22	7/21/22
7/22/22	8/17/23
8/18/23	8/18/23
8/21/23	11/24/23
12/1/21	**11/27/23**
12/1/21	12/28/21
1/5/22	5/24/22
5/25/22	7/19/22
7/20/22	10/11/22
9/6/22	11/28/22
9/6/22	11/28/22
11/29/22	1/23/23
1/24/23	2/20/23
1/24/23	2/20/23
2/21/23	10/30/23
2/21/23	10/30/23
10/31/23	11/27/23
10/24/23	**12/4/23**
10/24/23	12/4/23
10/24/23	12/4/23
10/24/23	12/4/23
4/29/22	**4/12/24**
6/19/23	12/1/23
12/4/23	4/18/25
4/21/25	6/13/25
6/16/25	6/16/25



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

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From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
www.dudek.com

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 F 760.632.0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment B

Biological Survey Work Plan Meeting Notes,
April 28, 2021

PELICANS JAW HYBRID SOLAR PROJECT

BIOLOGICAL SURVEY WORK PLAN

Date:	April 28, 2021
Time:	3:00-4:00 PM
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Location:	Zoom Video Call
Attendees:	**USFWS** – Justin Sloan
	CDFW – Carrie Swanberg
	Pelicans Jaw Solar, LLC – Hun Kim, Alphonso Jung, Tae Kwak, and Tandy McMannes
	Cox, Castle & Nicholson – Clark Morrison
	Dudek – Brock Ortega, Keith Carwana, and Anna Bischoff

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1. Project Updates

- Dudek described the recently completed habitat assessment, vegetation mapping, and jurisdictional delineation for the Pelicans Jaw Hybrid Solar Project (Project).
    - Based on the results of the on-site surveys, including the presence of hydrophytic vegetation, and greater potential for sensitive species in the Kings County portion of the Project, Pelicans Jaw Solar, LLC decided to remove all Kings County parcels from the Project.
        - With the removal of the Kings County parcels, the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres.

2. Biological Survey Work Plan

- Dudek described the Biological Survey Work Plan dated April 15, 2021 and the proposed surveys to be completed in 2021 and 2022.
    - Pelicans Jaw Solar, LLC is proposing to proceed with blunt-nosed leopard lizard (BNLL) sample surveys in 2021 or 2022 on approximately 955 acres of the approximately 3,260-acre Project site. The BNLL sample surveys are intended to inform the CEQA analysis to be prepared in advance of the required BNLL protocol-level surveys and provide critical site-specific data.

- In addition to BNLL sample surveys, Pelicans Jaw Solar, LLC is anticipated to proceed with concurrent burrow mapping for burrowing owl, San Joaquin kit fox, American badger, and San Joaquin antelope squirrel in 2021.
    - Surveys for large branchipods and western spadefoot toad are anticipated to be initiated during the 2021 wet season.
        - Dudek noted that helicopters will no longer be used to complete large branchipods and western spadefoot toad surveys given the reduction in Project size and vehicle accessibility across the Kern County parcels.
        - USFWS indicated that there was a recent observation of vernal pool fairy shrimp in Kern County.
- Pelicans Jaw Solar, LLC anticipates completing the following surveys in 2022: golden eagle, kangaroo rat trapping, Swainson's hawk, tricolored blackbird, and Buena vista ornate shrew.
    - Dudek noted that a survey work plan will be prepared for Buena vista ornate shrew and small mammal trapping, prior to implementing the surveys and trapping efforts.

3. CDFW and USFWS Discussions

- CDFW recommended conducting full protocol level survey for BNLL but understood the need to conduct sample surveys to support the CEQA analysis in advance of full protocol level surveys within one-year of ground disturbing activities.
    - CDFW was comfortable with the BNLL sample survey area depicted in Figure 3 of the Biological Survey Work Plan.
    - CDFW recommended completing hatchling surveys as part of the proposed BNLL sample surveys.
        - **Action item:** Pelicans Jaw Solar, LLC and Dudek mentioned that they will look into adding hatchling surveys during the BNLL juvenile survey period of August 15 to September 30.
    - Dudek inquired if there is any leeway to begin ground disturbing activities slightly after the one-year BNLL survey period has expired.
        - CDFW indicated that it is their preference to have ground disturbing activities begin

        - CDFW offered to assist and answer any questions that may arise regarding a Streambed Alteration Agreement.

- USFWS inquired about the species anticipated to be included in the Habitat Conservation Plan (HCP)
    - Cox, Castle & Nicholson indicated that that the species to be included will be dependent on the results of the anticipated biological surveys.
    - Cox, Castle & Nicholson asked if USFWS can provide a sample HCP that covers similar species to those with the potential to occur on the Project site.
        - **Action item:** USFWS to provide HCP sample(s).
- In regard to compensatory mitigation, USFWS will request mitigation to the maximum extent practical.
    - USFWS did not want to provide a mitigation ratio at this time until the full suite of impacts is known.

4. Next Steps

- Pelicans Jaw Solar, LLC is anticipated to implement the Biological Survey Work Plan dated April 15, 2021. Pelicans Jaw Solar, LLC will inform CDFW and USFWS of any major changes to be implemented to the Biological Survey Work Plan.

Attachment C

Blunt-nosed Leopard Lizard 2021 Sample Survey Report

Sapphos environmental inc.

August 18,2022
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M08

TO: U.S. Fish and Wildlife Service
(Mr. Justin Sloan)

California Department of Fish and Wildlife
(Ms. Carrie Swanberg)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Kern County
(Mr. Matthew Hall and Mr. Terrance Smalls)

Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, Mr. Thaer Flieh, and Mr. Karl Brutsaert)

Dudek
(Mr. Keith Carwana)

Bell Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Submittal of the Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard 2021 Sample Survey Results

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) has been prepared to provide the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) with the report, prepared by Dudek, documenting the results of the Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results for the Pelicans Jaw Hybrid Solar Project (Project). The surveys were completed as presented in the Pelicans Jaw Hybrid Solar Project-Biological Survey Work Plan, dated April 15, 2022, which was further reviewed via teleconference on April 28, 2021. The BNLL adult and hatchling season sample surveys were completed for the approximately 3,273-acre Project and proposed access routes. No BNLL adults were observed during the adult season sample survey effort; nor were BNLL hatchlings observed during the hatchling sample survey effort.

Protocol-level BNLL adult and hatchlings season surveys are planned for the Project in the Fall of 2023.

INTRODUCTION

This MFR has been prepared to provide the USFWS and the CDFW with the report documenting the results of BNLL adult and hatchling season sample surveys conducted by Dudek for the Project. The BNLL sample surveys were completed in accordance with the Biological Survey Work Plan submitted to the USFWS and CDFW on April 15, 2021, which was further reviewed via teleconference on April 28, 2021. Dudek completed the adult BNLL surveys on July 8, 2021. The adult BNLL survey was led by principal investigator Ms. Emme Nix. The BNLL hatchling surveys were completed on September 29, 2021. The hatchling survey was led by principal investigator Ms. Nicole Gaudenti. This MFR transmits the results of the BNLL sample adult and hatchling surveys (Attachment 1, *Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results*). In addition, this MFR is being provided to Kern County to support their role as Lead Agency pursuant to the California Environmental Quality Act, in preparation of an environmental impact report for the Project.

SURVEY RESULTS

Blunt Nosed Leopard lizard. No BNLL adults were observed during the adult season sample survey effort. No BNLL hatchlings were observed during the hatchling sample survey effort. Additional BNLL surveys are proposed to be conducted concurrent with the preparation and consideration of the EIR. The additional surveys will be consistent with CDFW and USFWS survey protocols.

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760 942 5147 F 760 632 0164

MEMORANDUM

To:	Justin Sloan – U.S. Fish and Wildlife Service (USFWS) Carrie Swanberg – California Department of Fish and Wildlife (CDFW)
From:	Brock Ortega and Keith Carwana– Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results
Date:	August 18, 2022
cc:	Alphonso Jung, Tandy McMannes, Hun Kim, JungWoo Kim, and Karl Brutsaert – Pelicans Jaw Solar, LLC Andrew Bell – Bell-Kearns, Ltd. Marie Campbell and Sarah Sperling – Sapphos Environmental, Inc.
Attachment(s):	Figure 1 – Project Location Figure 2 – Blunt-nosed Leopard Lizard Survey Overview Figure 3A - Blunt-nosed Leopard Lizard – Survey Results Figure 3B - Blunt-nosed Leopard Lizard – Survey Results Attachment A – Project Schedule Attachment B – Biological Survey Work Plan Attachment C – Resumes of Principal Investigators Attachment D – Reference Sightings for the Blunt-Nosed Leopard Lizard 2021 Sample Survey Results Attachment E – Monitoring Logs Attachment F – Wildlife Observations

Executive Summary

This memorandum provides results of adult and hatchling season sample surveys for blunt-nosed leopard lizard (BNLL; *Gambelia silus*) undertaken in support of the Pelicans Jaw Hybrid Solar Project (Project), located in the unincorporated territory of Kern County, California. The sample surveys conformed to the Biological Survey Work Plan submitted to the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) on April 15, 2021, and reviewed via teleconference on April 28, 2021. Emme Nix served as the Principal Investigator for the adult surveys. Nicole Gaudenti served as the Principal Investigator for the hatchling

the Kern County Board of Supervisors in Fall 2023. The anticipated schedule would allow the surveys to be completed within one year of construction in accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW 2019).

Introduction

The purpose of this memorandum is to provide results of adult and hatchling season sample surveys for blunt-nosed leopard lizard ([BNLL] *Gambelia silus*), undertaken in support of the Project. The goal in undertaking the investigation is to assess the potential presence or absence of BNLL at the Project, for which the Applicant is seeking a CUP and GPA for the development of a photovoltaic solar facility. BNLL is listed as "endangered" pursuant to the federal Endangered Species Act (ESA) and is afforded "fully protected" status pursuant to the California Fish and Game Code. A sampling survey was performed during the BNLL adult and hatchling season of 2021 to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and to provide additional critical site-specific data.

The sample surveys are intended to inform the CEQA lead agency of the presence, potential presence, or absence of BNLL. This survey will be used to inform the Biological Resources Technical Report (BRTR) that will be submitted by the Applicant to Kern County to provide information characterizing the baseline conditions at the Project site, in relation to BNLL. The sample surveys will also support an assessment of the need for an incidental take permit under Section 10(a)(1) of the federal ESA. There are no "take" provisions for fully protected species, pursuant to the California Fish and Game Code, so if determined present, the Project would need to evaluate avoidance and minimization measures. This memorandum will also be used by the Applicant and the County to determine if there is a nexus for requiring compensatory mitigation, and where compensatory mitigation is determined to be warranted, quantifying the aerial extent of impact and the appropriate mitigation ratio.

Project Description

The Project will include up to 500-megawatt (MW) of photovoltaic solar generation and a battery energy storage system (BESS) with a capacity of up to 2,000 megawatt-hours (MWhr). The Project will primarily consist of photovoltaic (PV) solar panels, a single-axis tracker system, inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector substation, generation interconnection (gen-tie) line, access roads, security fence, an operations and maintenance (O&M) facility, and a supervisory control and data acquisition (SCADA) system. The Project will also include a Pacific Gas and Electric (PG&E) switching station that would interconnect with the existing PG&E 230-kilovolt (kV) overhead transmission lines that traverse the Project site. The PG&E switching station will be located on-site.

Two points of access are being proposed from Twisselman Road to provide ingress/egress to the Project site including:

- An approximately one-mile-long access road extending north from Twisselman Road to the southwest corner of APN 044-150-170.
- An access road extending from the intersection of Twisselman Road and the southeast corner of APN 044-130-160.

Each access road would include a 24-foot-wide unpaved driveway with up to 5-foot shoulders on either side, for a total width of 34-feet.

Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A).

Location

The Project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5, located approximately 2 miles to the west. The Project site and surrounding properties are currently vacant and have historically been used for livestock grazing.

Project location details were recorded from USGS topographic quadrangle and the County Assessor's Parcel Maps:

- **County**: Kern
- **U.S. Geological Survey (USGS) 7.5-Minute Quadrangle (Quad)**: West Camp and Lone Tree Well
- **Latitude, Longitude**: 38.473731, -121.184568 (centroid, decimal degrees).
- **Assessor Parcel Numbers (APNs)**: 044-101-020, 044-101-030, 044-101-050, 044-101-060, 044-102-010, 044-102-030, 044-102-050, 044-130-390, 044-102-220, 044-103-010, 044-103-040, 044-103-060 (portion of), 044-103-080, 044-150-050, 044-150-170, 044-103-090 (portion of), 044-110-030, 044-110-250, 044-130-160, 044-130-180, 044-130-210, 044-102-210, and 044-110-010.

It is important to note that since the adult and hatchling season sample surveys for BNLL were completed, approximately 13 acres have been added to the Project to accommodate an alternate point of interconnection and an above or below ground 34.5-kV collector line to connect the central portion of the Project site to the northwest

BNLL in the area. Additionally, the USFWS and CDFW BNLL range mappers place the Project within the current range of the species (CDFW 2021; USFWS 2022).

Methods

To meet the proposed commercial operation date of the fourth quarter 2024, Dudek has prepared a Biological Survey Work Plan (Attachment B) that was submitted to USFWS and CDFW on April 15, 2021, and discussed and accepted by USFWS and CDFW during a subsequent conference call on April 28, 2021.

The sample surveys included a perimeter sample area, and five internal band transects equating to approximately 964 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 2). The perimeter sample area consisted of an approximate 500-foot-wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional diagonal band transects were surveyed across the site as shown in Figure 2. These transects were intended to supplement the perimeter area and were 300-feet wide. The sample areas were chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation mapping was completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas were designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Sampling surveys were performed using a five-visit survey protocol for the adult season and two-visit survey protocol for the hatchling season. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within five days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys were performed sequentially across the site; beginning with the perimeter and progressing from transects 1 through 5. Each subsequent survey pass used the same sequence.

For the adult season sample surveys, three initial passes were completed within the original transect layout from May 23, 2021 through June 16, 2021. After these initial passes, some areas were classified as low-quality habitat for BNLL due to a lack of rodent burrows or vegetation canopy to provide refugia. After consultation with CDFW on June 23, 2021, modifications were made to the sample areas and additional transects were added, focusing on areas with a higher likelihood of BNLL occurrence and to provide additional coverage of the Project site (Figure 2). Passes four and five were completed using these new survey areas rather than the original areas, per consultation with CDFW. Passes four and five were completed from June 28, 2021, through July 8, 2021.

The sample surveys conformed to the Biological Survey Work Plan submitted to USFWS and CDFW. Emme Nix served as the Principal Investigator for the adult surveys (please see Appendix C for resume). Ms. Nix has coauthored two peer reviewed articles on the species and has previously performed protocol surveys for BNLL with the Bureau of Land Management, including studying the thermal ecology of the species. Ms. Nix has performed approximately 1,000 hours of BNLL protocol level surveys and has handled over 120 individual BNLLs (Attachment C, Principal Investigator Resumes).

Nicole Gaudenti served as the Principal Investigator for the hatchling surveys . Ms. Gaudenti has authored and coauthored several peer reviewed articles on BNLL and has performed protocol level surveys including over 900 hours of BNLL surveys and handled over 80 individual BNLLs (Attachment C, Principal Investigator Resumes).

In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team consisted of one Level II biologist for every three Level I biologists, all walking each transect in parallel and visually surveying for BNLL. Although the original survey design called for surveyors to be spaced at 17 meters apart when walking the transects, many of the survey areas had been recently grazed by cattle and had very little vegetation cover. In these instances, surveyors increased transect widths to 20 meters.

Surveys were not conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeded 10 mph. Surveys were limited to periods during the optimal temperature range for detecting BNLL, which is approximately 77 F to 95 F (25 C – 35 C). Minor exceptions to the temperature constraints were made for the sample surveys. For example, start temperatures of 75 F and end temperatures of 97 F occurred in some instances. In these cases, the Level II biologist used their extensive field experience with BNLL to make their best professional judgment regarding whether to continue surveying. Surveyors also looked for aboveground presence of the common, smaller-bodied side-blotched lizard (*Uta stansburiana*) to assess whether the larger-bodied BNLL would be aboveground as well.

Surveyors recorded the following observations daily:

- Time of day, cloud cover, wind speed, soil temperature, and air temperature; and
- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect.

In addition to surveying for BNLL, all surveyors opportunistically surveyed for other sensitive species.

BNLL Reference Sightings

119.401520) and one sub-adult directly adjacent within the annual grassland habitat (35.777785, - 119.401645). Both sightings were adjacent to each other, approximately 16.5 miles east of the Project.

BNLL Adult Season Sample Surveys Results

No blunt-nosed leopard lizards were detected within the sample survey areas during the adult season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects per survey pass were evaluated within the Project boundaries during the first three passes with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects per survey pass were evaluated during the final two passes within the revised transect areas. Other reptile species observed during surveys included: side-blotched lizards, California whiptails (*Aspidoscelis tigris*), gopher snakes (*Pituophis catenifer*), and western rattlesnakes (*Crotalus oreganus*).

Copies of the monitoring logs have been included as Attachment E and are summarized in Table 1, below. Please note that adult season survey pass #1 required five days of surveys whereas all subsequent surveys required four days of survey to cover all areas within the sample survey area. The additional day of surveys was primarily related to the surveyors becoming oriented with the Project site and how to access each of the survey areas.

Table 1. Summary of BNLL Adult Season Sample Surveys

Survey Date	Time		Air Temperature (°F)		Surveyors (**Bold = Level II**; Plain text = Level I)	BNLL Observations
	Start	End	Start	End		
Adult Season (Sample Survey Pass #1)						
5/23/2021	7:45 am	1:56 pm	75.5	92.2	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, Josh McLaughlin, and Sophia Weber (site orientation)	0
5/24/2021	8:05 am	2:00 pm	77	93	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0

5/27/2021	8:59 am	12:05 pm	75	93.5	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
Adult Season (Sample Survey Pass #2)						
5/30/2021	7:20 am	1:21 pm	72.5	95.2	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
5/31/2021	7:19 am	11:32 am	81.8	97.4	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
6/1/2021	6:54 am	10:29 am	78.4	97	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
6/2/2021	7:00 am	10:23 am	75.4	97.4	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Jakob Dewhurst	0
Adult Season (Sample Survey Pass #3)						
6/13/2021	7:25 am	1:33 pm	75	97	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
6/14/2021	7:54 am	12:59 pm	75.7	96	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
					Emme Nix, Grace Sanclemente,	

Adult Season (Sample Survey Pass #4, Revised Survey Area)						
6/28/2021	7:15 am	11:30 am	78	93	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
6/29/2021	8:00 am	10:01 am	75.2	89.6	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
6/30/2021	7:42 am	11:07 am	77.1	92.3	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
7/1/2021	7:47 am	9:37 am	75.9	91	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
Adult Season (Sample Survey Pass #5, Revised Survey Area)						
7/6/2021	7:22 am	11:32 am	75.5	88.6	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0
7/7/2021	8:03 am	12:08 pm	75.9	97.9	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0
7/8/2021	7:48 am	11:09 pm	76.7	97.9	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0

BNLL Hatchling Season Sample Surveys Results

No blunt-nosed leopard lizards were detected within the sample survey areas during the hatchling season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects were evaluated within the Project boundaries during the first pass with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects were evaluated during the second pass within the revised transect areas. Other reptile species observed during surveys included: side-blotched lizards and western rattlesnakes

Table 2. Summary of BNLL Hatchling Season Sample Surveys

Survey Date	Time		Air Temperature (°F)		Surveyors (**Bold = Level II**; Plain text = Level I)	BNLL Observations
	Start	End	Start	End		
Hatchling Season (Sample Survey Pass #1)						
9/19/2021	8:30 am	12:30 pm	75	89	**Nicole Gaudenti, Tamara Bryant**, Teodora Ungureanu, Garry Turner	0
9/20/2021	9:00 am	1:30 pm	76	89	**Nicole Gaudenti**, Teodora Ungureanu, Sarah Mendez, Garry Turner	0
9/21/2021	9:00 am	1:00 pm	78	91	**Nicole Gaudenti,** Teodora Ungureanu, Sarah Mendez, Garry Turner	0
9/22/2021	8:30 am	1:00 pm	76	93	**Nicole Gaudenti,** Teodora Ungureanu, Garry Turner, Sarah Mendez	0
Hatchling Season (Sample Survey Pass #2)						
9/26/2021	8:30 am	12:30 pm	75	90	**Nicole Gaudenti, Tamara Bryant**, Sophia Weber, Teodora Ungureanu	0
9/27/2021	8:30 am	12:00 pm	70	87	**Nicole Gaudenti, Tamara Bryant**, Sophia Weber, Jakob Dewhurst	0
9/28/2021	9:51 am	1:00 pm	70.6	75.8	**Tamara Bryant**, Andrea Dransfield,	0

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek collected burrow resource data during the BNLL adult and hatchling season sample surveys in 2021, noting all suitable burrow resources that met the criteria and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figures 2, 3A, and 3B; Attachment F). While walking the BNLL transects, surveyors recorded all burrows larger than 4-inch in diameter that appeared active. A burrow was considered active if it was observed to continue into the ground as far as the observer could see and if there were no spider webs in the entrance.

Surveyors were conservative when considering a burrow active and unless there was fresh dirt piled outside, fresh scat, or paw prints, most burrows were marked as "unknown" when collecting data. Surveyors were also conservative when determining the species that created the burrow. Kit fox burrows were definitively mapped only when kit fox scat piles were found within the immediate nearby area. Burrowing owl burrows were mapped only when the distinct "white cast" or owl pellets were found in the immediate nearby area or burrow mouth. Badger burrows were marked when claw marks were seen on each of the rounded lateral sides of a burrow entrance.

Five wildlife cameras during the adult season surveys and three wildlife cameras during the hatchling season surveys were deployed to areas with high concentrations of potentially active burrows in different locations to document the species that occupied each of these areas. The cameras were left in place to passively see what was using the burrow. The locations of the wildlife cameras are shown in Figure 2 and photos of wildlife captured are shown in Attachment F. Photos were captured of an active American badger burrow during adult season surveys and photos of San Joaquin kit fox were captured during both adult and hatchling season surveys.

A desiccated kangaroo rat (*Dipodomys sp.*) carcass was discovered during hatchling season surveys on September 27, 2021, in APN 04415017. The carcass could not be identified to species level due to the deteriorated condition of the carcass.

No nesting birds were observed on-site. A single Swainson's hawk (*Buteo swainsoni*) was observed flying overhead (Attachment F) during the surveys on June 14, 2021, but no active nests were identified within the Project site and no other observations were made during subsequent surveys. Protocol level Swainson's hawk surveys were conducted March 2022 through June 2022 and have been reported separately.

A single Golden Eagle (*Aquila chrysaetos*) was observed flying overhead during surveys on September 22, 2021. No active nests were identified within the Project site and no subsequent observations were made. Surveys for golden eagle were completed in January 2022 and have been reported separately.

investigation was completed at the Burrow Points such as setting up and monitoring the burrows with wildlife cameras (apart from the eight wildlife cameras discussed above), using tracking medium such as diatomaceous earth, or other methods.

Additional BNLL burrow resource data will also be collected during surveys anticipated to be conducted in 2022, including surveys for SJKF. The data collected in 2022 will cover additional Project areas beyond those included in the BNLL sample survey areas. Dudek is conducting SJKF survey including transect surveys and camera monitoring in accordance with the Biological Survey Work Plan Addendum submitted to USFWS and CDFW on June 7, 2022.

Next Steps

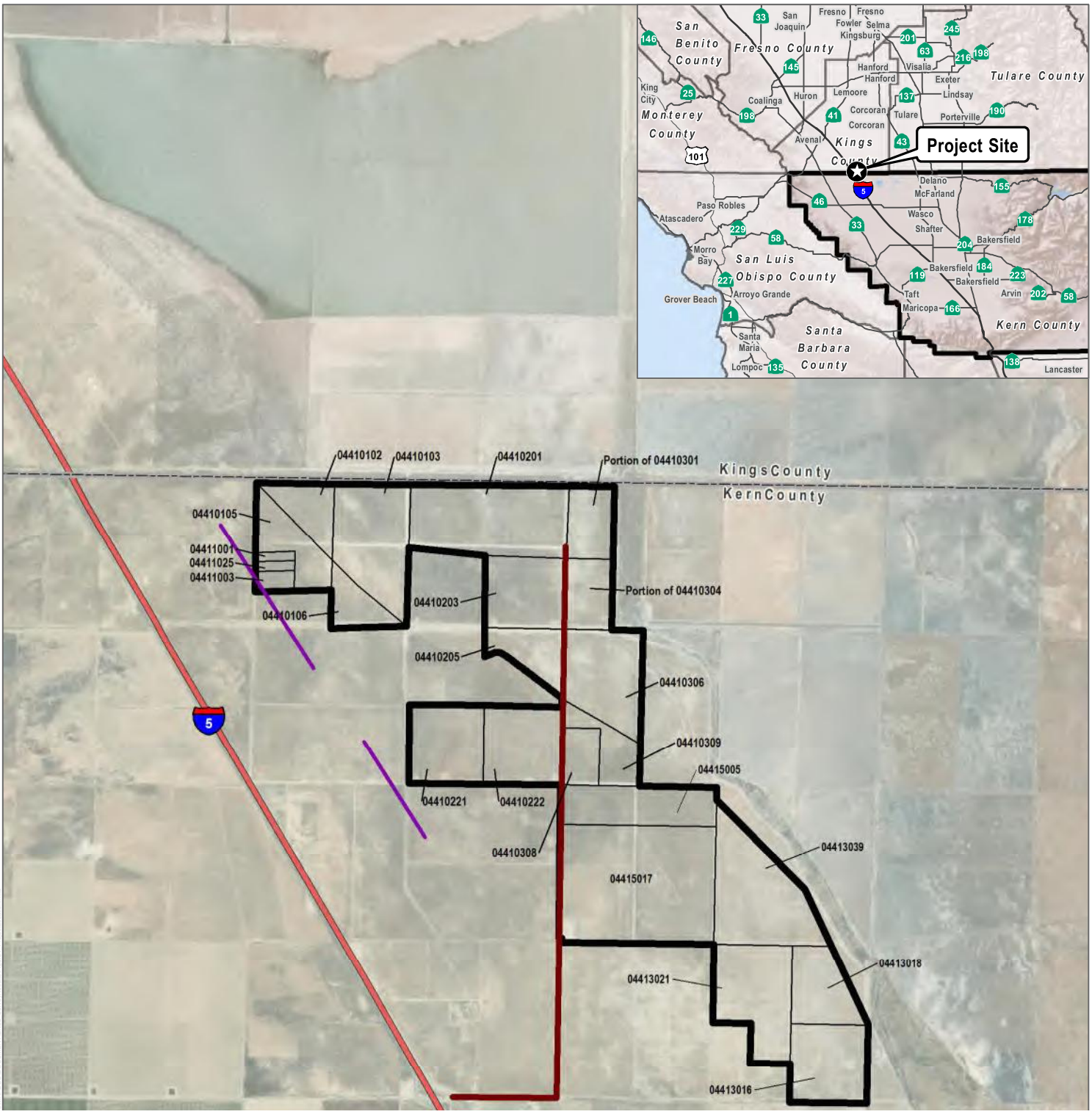
Pelicans Jaw Solar, LLC is anticipated to conduct full protocol-level surveys for BNLL during both the adult and hatchling seasons during preparation of the environmental impact report being prepared in support to of the consideration of approval of the CUP and GPA, by the Kern County Board of Supervisors, in Fall 2023. The anticipated schedule would allow the surveys to be completed within one year of construction in accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019).

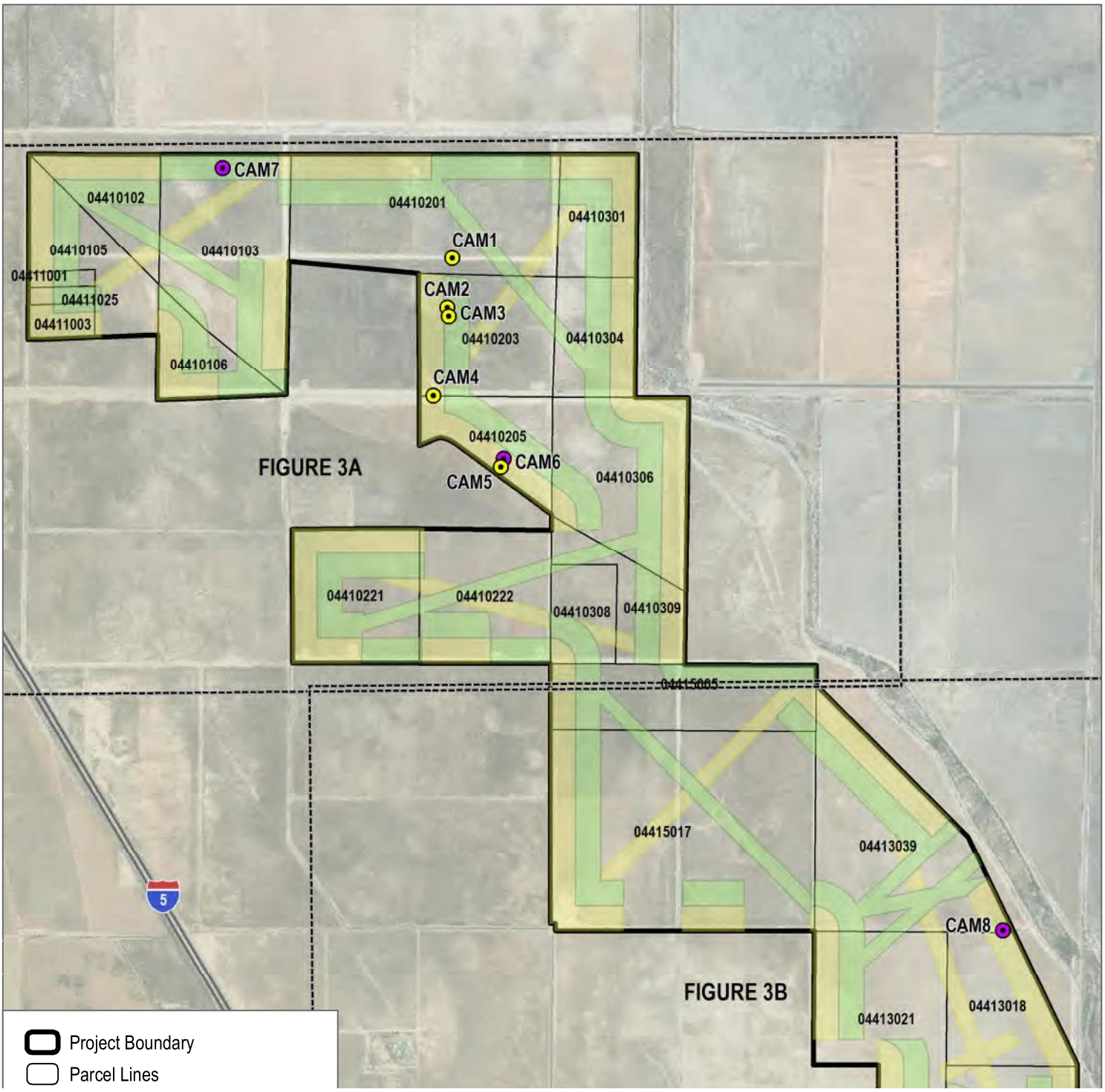
References

CDFW (California Department of Fish and Wildlife). 2019. Approved Survey Methodology for the Blunt-Nosed Leopard Lizard). October 2019.

CDFW (California Department of Fish and Wildlife). 2021. Blunt Nosed Leopard Lizard Range CWHR R019. Updated May 2021. Accessed July 2022. https://gis.data.cnra.ca.gov/datasets/CDFW::blunt-nosed-leopard-lizard-range-cwhr-r019-ds1726/explore?location=35.839654%2C-119.639523%2C11.92

USFWS (United States Fish and Wildlife Service). 2022. *Gambelia silus*. Accessed July 2022. https://www.fws.gov/species/blunt-nosed-leopard-lizard-gambelia-silus/map


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Fresno
Hanford
Visalia
Tulare
Lemoore
Coalinga
Huron
Avenal
Corcoran
Delano
McFarland
Wasco
Shafter
Bakersfield
Taft
Maricopa
Arvin
Lancaster
Paso Robles
Atascadero
Morro Bay
Grover Beach
Arroyo Grande
Santa Maria
Lompoc
Porterville
Exeter
Lindsay
Kingsburg
Selma
Fowler
San Joaquin
King City
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04410103
04410201
Portion of 04410301
Kings County
Kern County
04410105
04411001
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04411003
04410106
04410203
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04410205
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04415005
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CAM6
FIGURE 3A
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FIGURE 3B
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Project Boundary
Parcel Lines

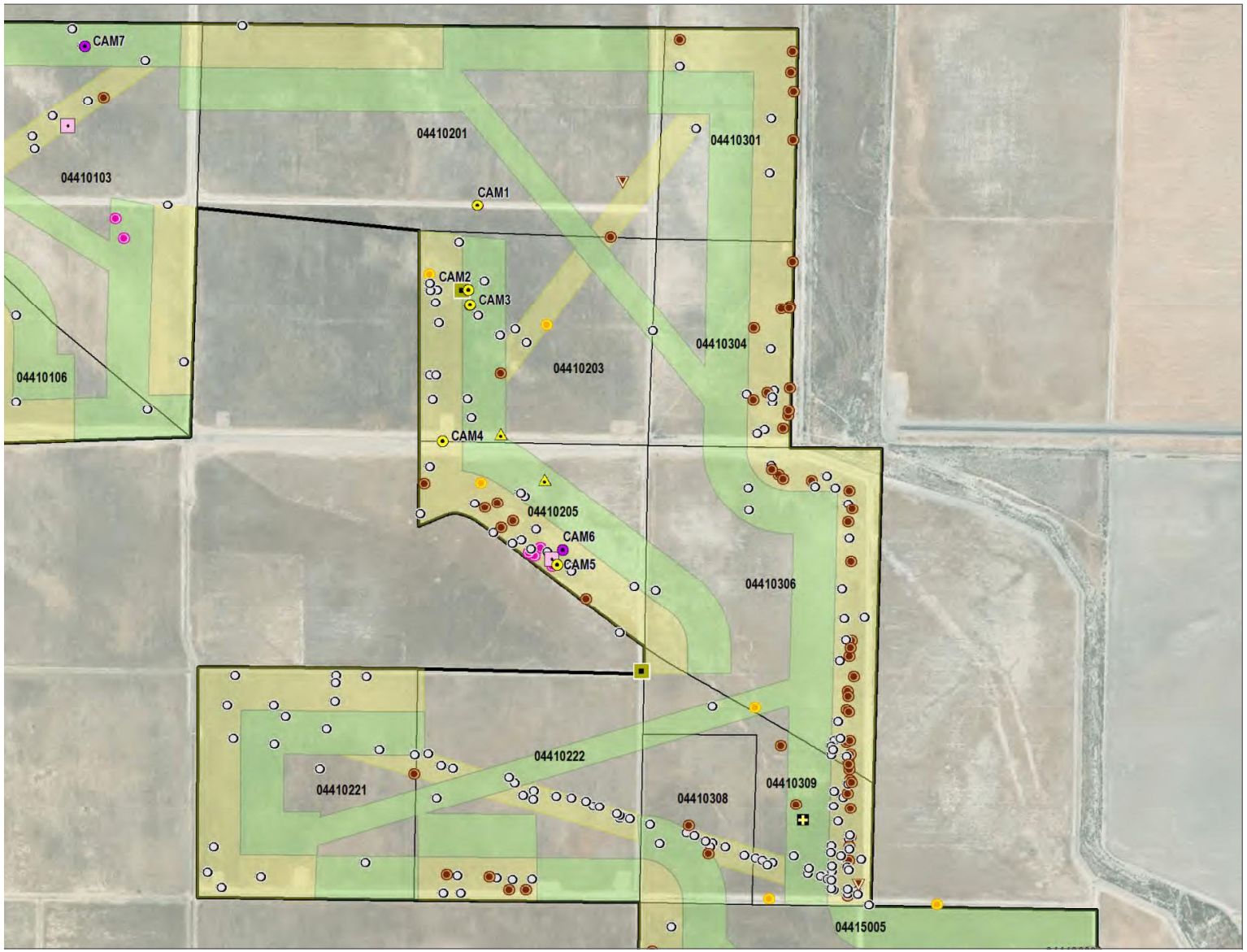


FIGURE 3A

Burrow Survey Results

Pelicans Jaw Hybrid Solar Project

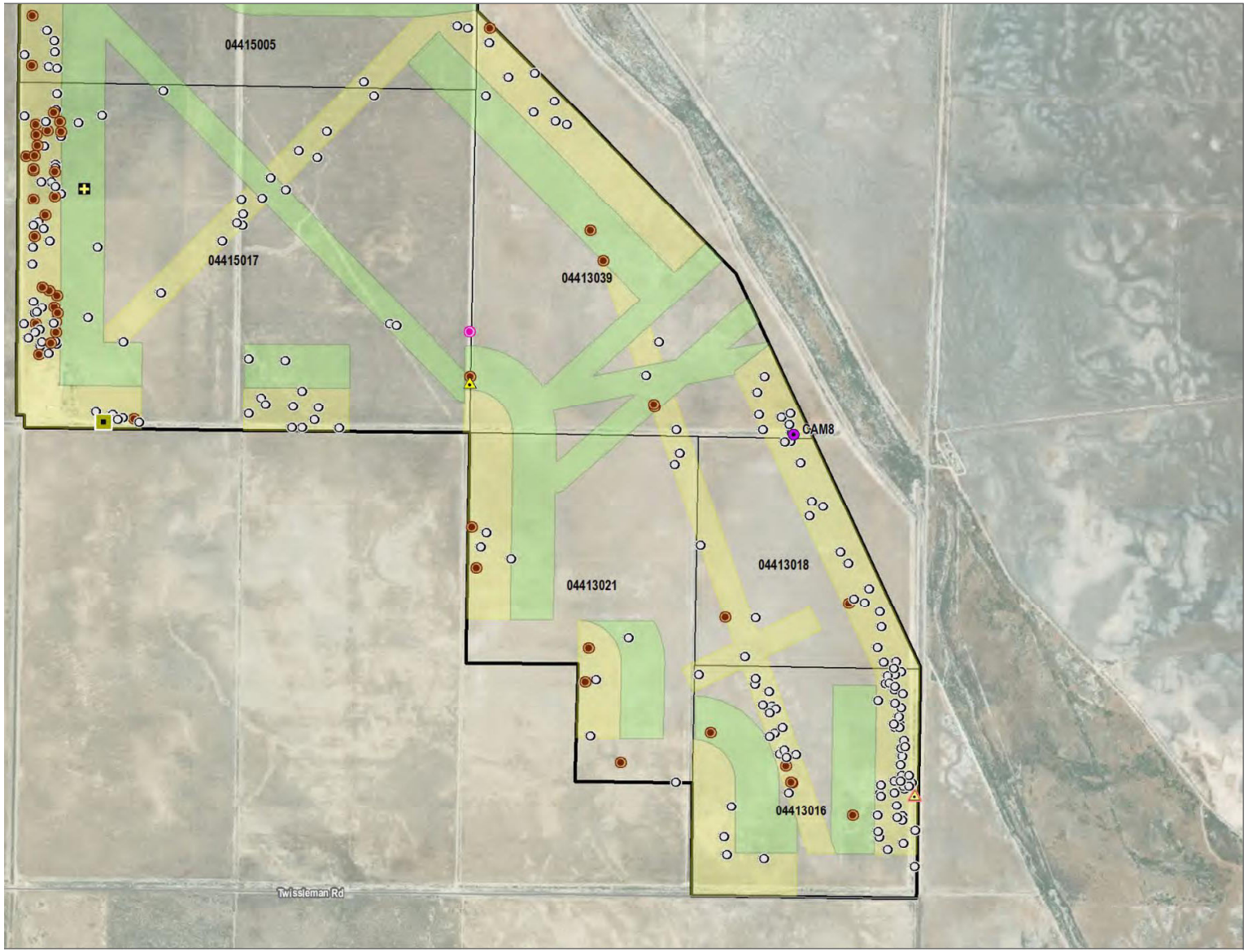


FIGURE 3B

Burrow Survey Results

Pelicans Jaw Hybrid Solar Project

Attachment A

Project Schedule

Attachment B

Biological Survey Work Plan

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MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Western Spadefoot Toad

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be “marked” using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

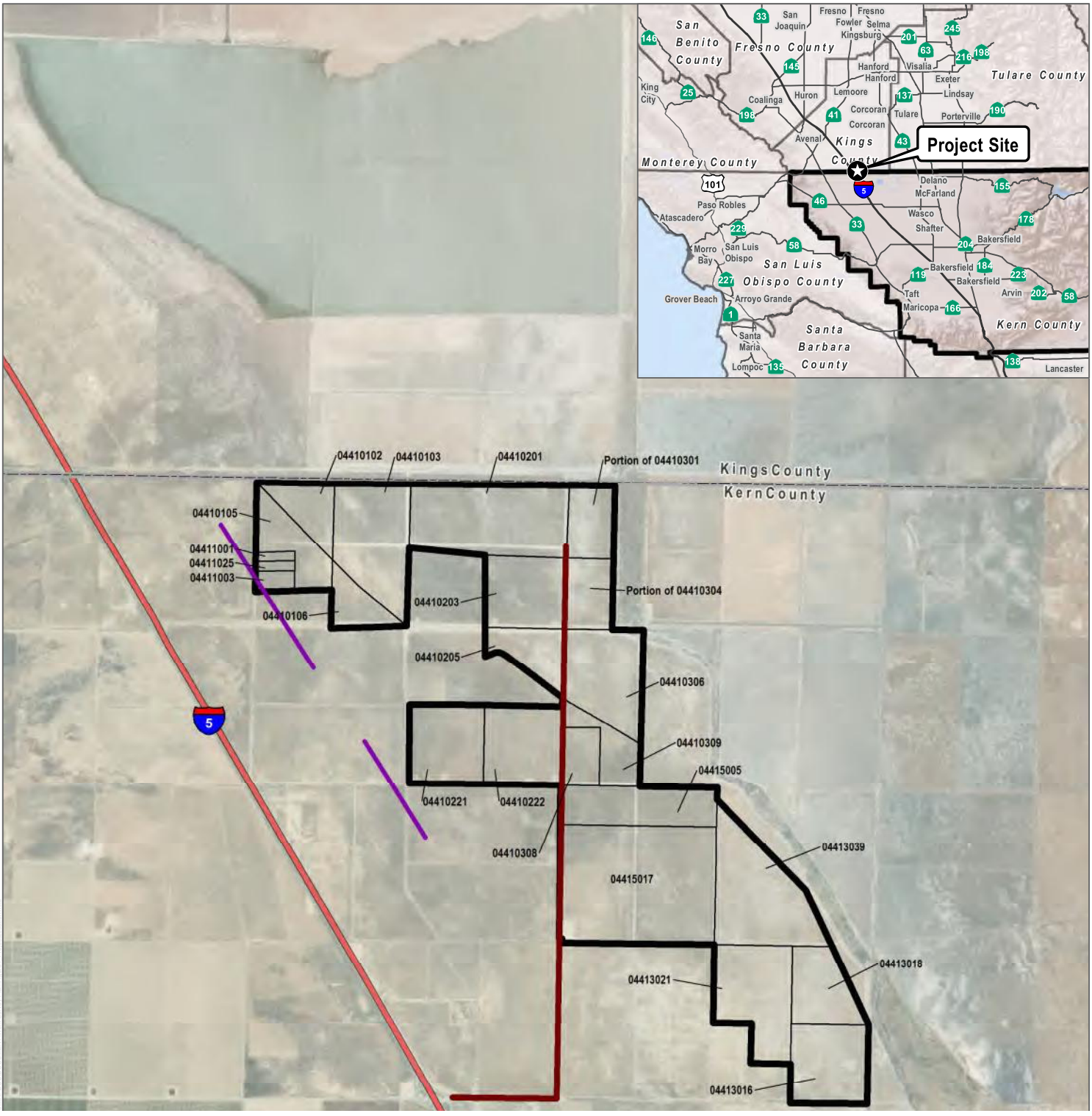
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

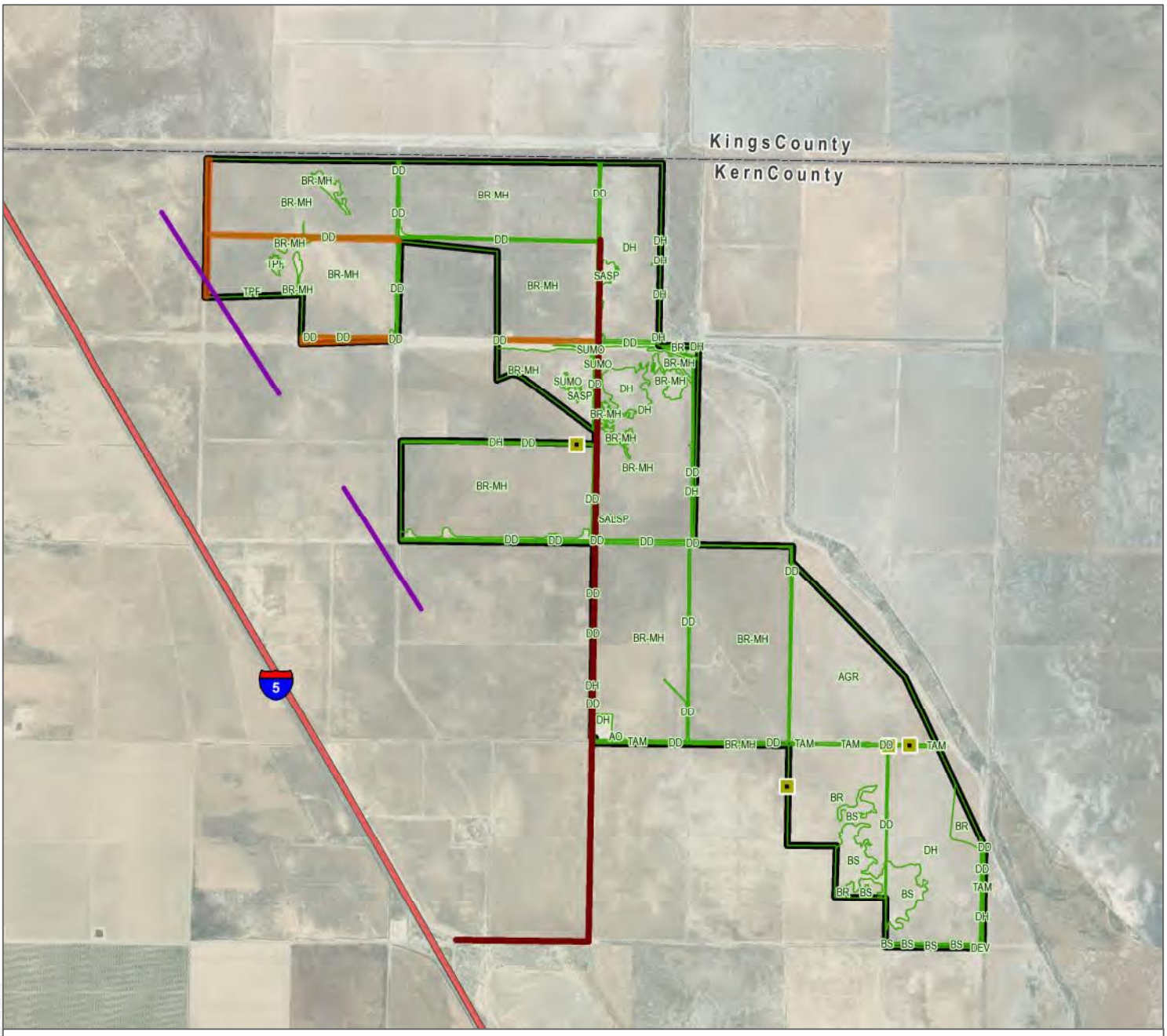
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Kern County
Santa Barbara County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

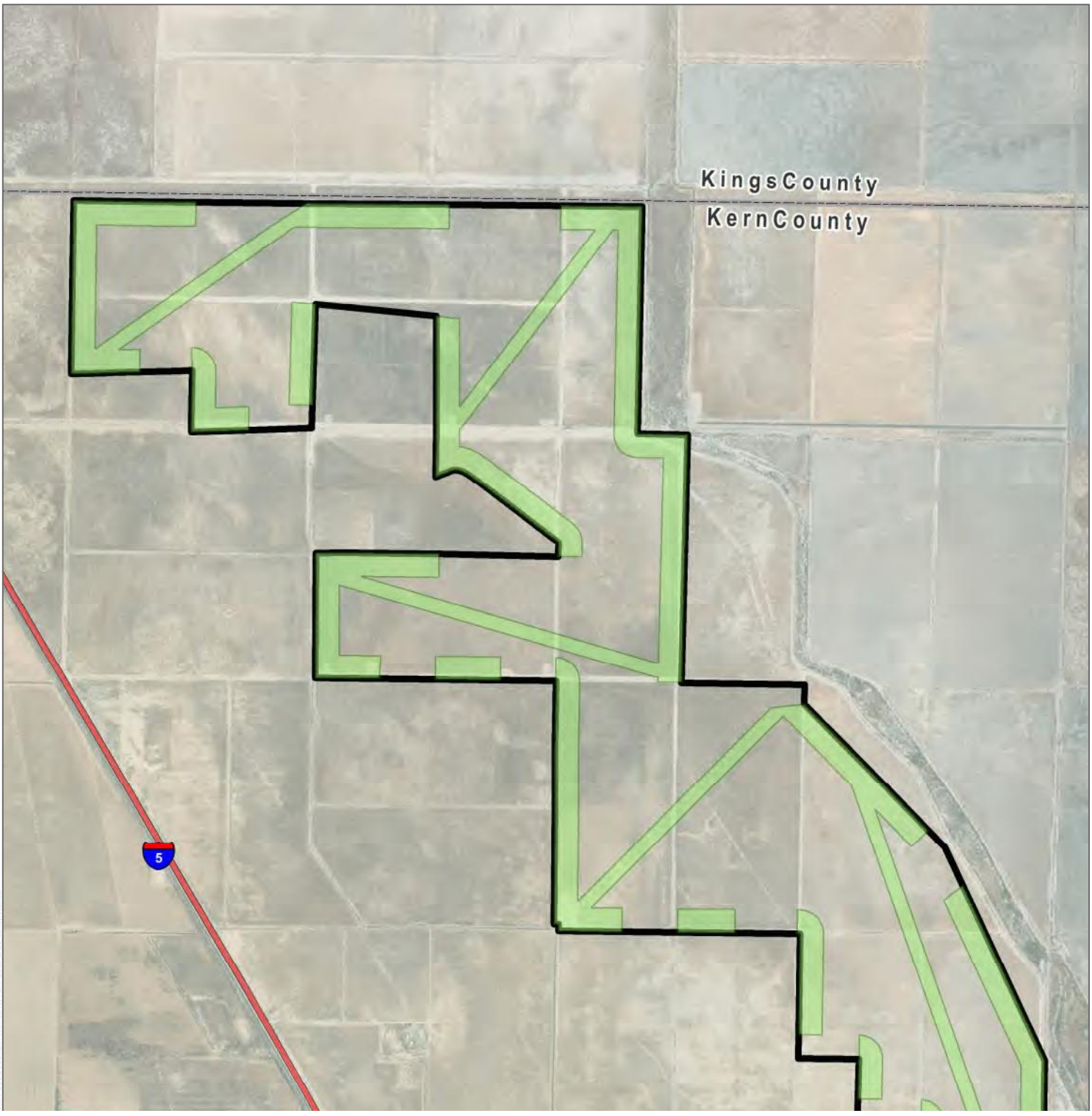
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

SALSP, Salsola spp. Semi-natural Association

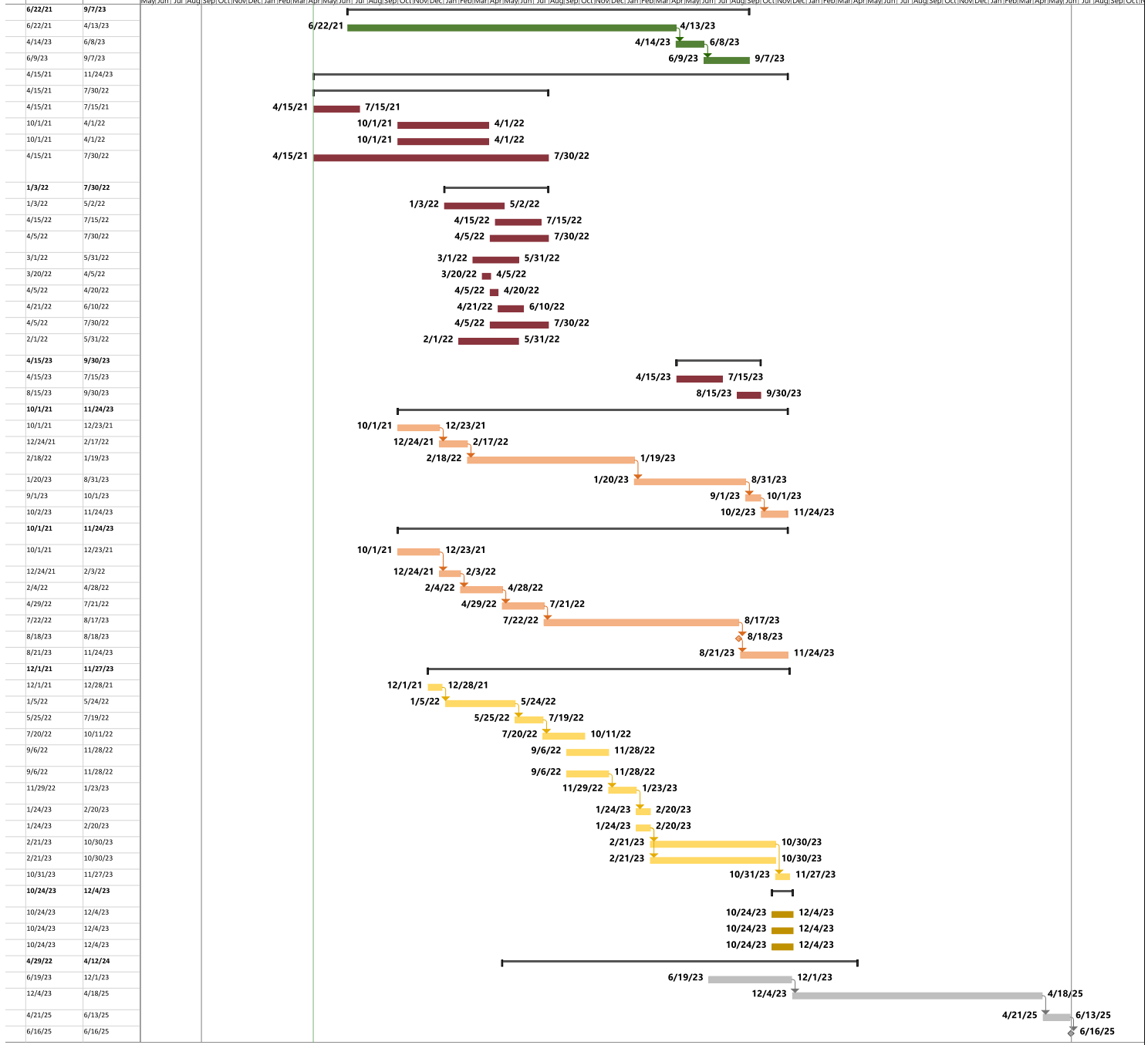

Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule

Start	Finish
6/22/21	**9/7/23**
6/22/21	4/13/23
4/14/23	6/8/23
6/9/23	9/7/23
4/15/21	11/24/23
4/15/21	7/30/22
4/15/21	7/15/21
10/1/21	4/1/22
10/1/21	4/1/22
4/15/21	7/30/22
1/3/22	**7/30/22**
1/3/22	5/2/22
4/15/22	7/15/22
4/5/22	7/30/22
3/1/22	5/31/22
3/20/22	4/5/22
4/5/22	4/20/22
4/21/22	6/10/22
4/5/22	7/30/22
2/1/22	5/31/22
4/15/23	**9/30/23**
4/15/23	7/15/23
8/15/23	9/30/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/17/22
2/18/22	1/19/23
1/20/23	8/31/23
9/1/23	10/1/23
10/2/23	11/24/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/3/22
2/4/22	4/28/22
4/29/22	7/21/22
7/22/22	8/17/23
8/18/23	8/18/23
8/21/23	11/24/23
12/1/21	**11/27/23**
12/1/21	12/28/21
1/5/22	5/24/22
5/25/22	7/19/22
7/20/22	10/11/22
9/6/22	11/28/22
9/6/22	11/28/22
11/29/22	1/23/23
1/24/23	2/20/23
1/24/23	2/20/23
2/21/23	10/30/23
2/21/23	10/30/23
10/31/23	11/27/23
10/24/23	**12/4/23**
10/24/23	12/4/23
10/24/23	12/4/23
10/24/23	12/4/23
4/29/22	**4/12/24**
6/19/23	12/1/23
12/4/23	4/18/25
4/21/25	6/13/25
6/16/25	6/16/25



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

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From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
www.dudek.com

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760 942 5147 F 760 632 0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment C

Resumes of Principal Investigators

Emmeleia Nix

BIOLOGIST

Emmeleia Nix is a Biologist with 5 years of professional field experience in biological surveying and monitoring, including ecological surveying, habitatand watershed assessments, soil auguring, bird banding, and rangeland and stream surveying. Nix is comfortable capturing and handling a variety of animals, including venomous reptiles and large mammals, with experience in tissue and blood sample collection/analysis, several injection techniques and necropsy. Research and academic experience includes historical data entry; geographical information system-based data analysis; permit report preparation; grant proposal reviews; co-authoring manuscripts; and presentation preparation. Recently, Nix has completed surveys for blunt-nosed leopard lizard (*Gambelia sila*) hatchlings and adults in accordance with CDFW Survey Protocol Guidelines. Ms. Nix has completed over 1,000 hours of blunt-nosed leopard lizard protocol surveys and has handled approximately 120 individuals. Additional project field work has includedrattlesnake telemetry and surveying/monitoring for California red-legged frogs(*Rana draytonii*), foothill yellow-legged frogs (*Rana sierrae*), and salamanders.

Education

University of California, Davis (PhD program)

Miami University and San Diego Zoo's Institute for Conservation Research MA, Biology (General), 2021

California Polytechnic State University, San Luis Obispo

BS, Animal Science, 2018

York School, 2014

Certifications

Firefighter II

Dudek Project Experience

Pelicans Jaw Hybrid Solar Project, Kern County, California. Conducted blunt-nosed leopard lizard adult surveys to provide biologicalfindings/constraints in previously disturbed habitat for the proposedconstruction of a solar field. Surveys were conducted in accordance with CDFW Survey Protocol Guidelines.

Relevant Previous Experience

Biological Science Technician, BLM, Marina, California. Employed as a seasonal biological technician for the BLM Marina office's wildlife biologist. Assisted with threatened and endangered species recovery efforts in a variety of ways. Conducted field work, such as a telemetry project involving blunt-nosed leopard lizards and the projects mentioned below. Performed geographic information system–based data analysis, presentation preparation, co-authored manuscripts, reviewed grant proposals, prepared permit reports, and assisted with stream surveys and watershed assessments. (2019-2021)

Specialized Training

- Completed qualifications to become a Firefighter II and begin training as a Resource Advisor (READ) for biological resources on wildfires.

Publications and Presentations

Gaudenti, N., **Nix, E.,** Maier, P., Westphal, M.F., Taylor, E.N. (2021). Habitat heterogeneity affects the thermal ecology of an endangered lizard. *Ecology and Evolution, 11*(21):14843-14856. doi: 10.1002/ece3.8170.

Lortie, C.J., Filazzola, A., Brown, C., Lucero, J., Zuliani, M., Ghazian, N., Haas, S., Owen, M., Butterfield, H.S., **Nix, E.** and Westphal, M. (2021). Facilitation promotes plant invasions and indirect negative interactions. *Oikos*, in press.https://doi.org/10.1111/oik.08443

Claunch, N., **Nix, E.**, Royal, A.E., Burgos, L., Corn, M., DuBois, P.M., Ivey, K., King, E., Rucker, K., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E.N. (2020). Body size impacts critical thermal maximum measurements in lizards. *Journal of Experimental Zoology Part A, 335*, 96-107.

Westphal, M. & **Nix, E.** (2020). *Resurveys for Foothill Yellow-legged Frog, Rana boylii, in the Southern Diablo Range.* PRESENTATION at the Declining Amphibian Populations Task Force Annual Meeting, 2020.

Ivey, K.N., Cornwall, M., Crowell, H., Ghazian, N., **Nix, E.**, Owen, M., Zuliani, M., Lortie, C.J., Westphal, M., Taylor, E. (2020). Thermal Ecology of the Federally Endangered Blunt-nosed Leopard Lizard (*Gambelia sila*). *Conservation Physiology, 8*(1).

Lortie, C.J, Braun, J., Westphal, M.F., Noble, T., Zuliani, M., **Nix, E.**, Ghazian, N., Owen, M., Butterfield, H.S. (2020). Shrub and vegetation cover predict resource selection use by an endangered species of desert lizard. *Nature Scientific Reports, 10*:4884

Westphal, M.F., Kiemnex-Tyburczy, K.M., **Nix, E.**, Westphal, M.F., Gruber, E. (2019). *Timing of Larval Development in a Sympatric Population of Taricha torosa and T. granulosa.* POSTER PRESENTATION at the Joint

Royal, A.E., Claunch, N.M., DuBois, P.M., Ivey, K.N., King, E., **Nix**, **E.**, Rucker, K.A., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E. (2017). *Body Size Effect on Thermal Tolerance in Certain Species of Sceloporus.* POSTER PRESENTATION at the Joint Meeting of Ichthyologists and Herpetologists, 2017.

Rucker, K.A., Claunch, N.M., DuBois, P.M., Ivey, K.N., King, E., **Nix**, **E.**, Royal, A.E., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E. (2017). *Testing the effect of blood oxygen carrying capacity on thermal tolerance in lizards.* POSTER PRESENTATION at the Joint Meeting of Ichthyologists and Herpetologists, 2017.

DUDEK

Nicole Gaudenti

BIOLOGIST

Nicole Gaudenti is a Biologist with 6 years' professional experience working with a variety of species of wildlife in California, including blunt-nosed leopard lizards, Belding's ground squirrel, giant kangaroo rats, antelope squirrels. Ms. Gaudenti has significant experience surveying working with blunt-nosed leopard lizards, including surveying for, handling, telemetry, morphometrics, blood draw, tail tipping, and behavioral observations.

Education

California Polytechnic State University, San Luis Obispo, CA

MS, Biological Sciences, 2021

University of San Francisco

BS, Biology, emphasis in Ecology, 2015

Certifications

North American Banding Council Bander Certification, Passerines & Near Passerines

Relevant Experience

Oceano Dunes State Vehicular Recreation Area, Oceano Dunes, California. Senior Park Aide. Scoping for and monitoring nests of snowy plovers and California least terns. Experience with finding plover and tern nests, walking out to nests, assisting chick banding from a distance, monitoring blood survival, and searching for avian and mammalian predators.

California Polytechnic State University, San Luis Obispo, California. Graduate Assistant. Conducted 900+ hours surveying for blunt-nosed leopard lizards and handled over 80 individuals. Quantified the importance of shrubs in the thermoregulation of BNLL in the Carrizo Plain, CA. Coordinated a two-year summer field season; trained and supervised two students in telemetry; conducted daily relocations (2,000+ relocations) and weekly recovery of deployed temperature models and stationary temperature data (10,000+ temperature measurements). Conducted statistical analysis.

Point Blue Conservation Science, Palomarin Field Station, California. Research Assistant. Banded passerine birds, hummingbirds, and small raptors: 350+ individuals banded and 600+ handled. Skilled in extracting birds out of mist-nests, aging and sexing, collecting morphometric data, and banding. Performed daily area-search surveys. Spent one season nest-searching for wrentits, song sparrows, and Wilson's warblers; monitored 30+ nests, banded nestlings; territory-mapped all songbirds on 36-hectare study plot; target-netted certain individuals for color banding.

University of San Francisco, San Francisco, California. Research Assistant for Principal Investigator Scott Nunes, Ph.D. Investigated male breeding dispersal in Belding's ground squirrel using microsatellite DNA analysis by mark-

Ivey, K. Cornwall, M., Ghazian, N., Nix, E., Owen, M., Zuliani, M., Gaudenti, N., Maier, P., Westphal, M., Lortie, C., Taylor, E. “Temperature-based activity estimation accurately predicts surface activity but not microhabitat use in an endangered heliothermic lizard”. Amphibian & Reptile Conservation. (Accepted)

Gaudenti, N., Nix, E., Maier, P., Westphal, M., Taylor, E., “Habitat heterogeneity affects the thermal ecology of the federally endangered blunt-nosed leopard lizard”. Ecology & Evolution. (Submitted)

Gaudenti, N. “Habitat heterogeneity affects the thermal ecology of the federally endangered blunt-nosed leopard lizard”. 2021. Unpubl. Master’s thesis, California Polytechnic State University, San Luis Obispo, 33 pp.

Presentations

Gaudenti, N. Maier, P. Westphal, M., Taylor. E. 2020. “Habitat heterogeneity impacts the thermal ecology of blunt-nosed leopard lizards”, Presentation at The Wildlife Society- Western Section, Redding, CA.

Attachment D

Reference Sightings for the Blunt-Nosed Leopard Lizard
2021 Sample Survey Results

Sapphos environmental inc.

August 18, 2022
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M09

TO: Dudek
(Mr. Keith Carwana)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, Mr. Thaer Flieh, and Mr. Karl Brutsaert)

Bell-Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Reference Sightings for the Blunt-Nosed Leopard Lizard 2021 Sample Survey Results

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) documents reference sightings used to

INTRODUCTION

This MFR documents reference sightings used to inform the blunt-nosed leopard lizard 2021 sample surveys. Inclusion of reference sightings in the BNLL 2021 Sample Survey Results report demonstrates that the sample surveys were undertaken when BNLL were observed at comparable nearby locations. The use of reference sightings increases the reliability of using results of the of the BNLL 2021 Sample Survey Results report as the basis for the characterization of existing condition, and related impact analysis in the environmental impact report under preparation by Kern County, to support the evaluation and decision-making related to the proposed project, as required pursuant to the California Environmental Quality Act. The incidental sightings provided below occurred in Kern County, at the similar elevation to the Project.

REFERENCE SIGHTINGS

The California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Service (USFWS) are both in receipt of documentation of 2021 BNLL survey efforts that produced positive observations of BNLL and were used as reference sightings BNLL 2021 Sample Survey.

One BNLL adult was observed on May 10, 2021, on a dirt road within annual grassland habitat (35.776681, -119.401126) approximately 16.5 miles east of the Project. The sighting was observed by Mr. Christopher Russ (Level II BNLL Surveyor) and confirmed by Mr. Colton Parrish (Level II BNLL Surveyor).[1]

Two BNLL individuals were observed on June 8, 2021, one adult male in a cleared dirt construction area within annual grassland habitat (35.777809, -119.401520) and one sub-adult directly adjacent within the annual grassland habitat (35.777785, -119.401645). Both sightings were adjacent to each other, approximately 16.5 miles east of the Project. The sightings were observed by Ms. Rachel Sechan (Level II BNLL Surveyor) and were confirmed by Mr. Alex Brown (Level II BNLL Surveyor).[2]

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

Attachment E

Monitoring Logs

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17478	
Date	*2021-05-23*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:45 AM–1:56 PM*
Conditions	*Air Temp: 75.5–92.2°F; Ground Temp: 79.3–115°F; 0% cloud cover; 0–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:45:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*79.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.9*

Survey Conditions	
Status	*End*
Time	*13:56:00*
TEMPERATURE	*°F*
Air Temp	*92.2*
Air Temp	*92.2*
Soil Temp	*115*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.5*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber, and Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	
Number of Tiger Whiptails Observed	*0*
NOTES	*Found scat by the far south edge of the project site by the canal but after further investigation it is assumed to be whiptail scat*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15453	
Date	*2021-05-24*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:05 AM–2:00 PM*
Conditions	*Air Temp: 77–93°F; Clear*
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:05:00*
TEMPERATURE	*°F*
Air Temp	*77*
Air Temp	*77*
Soil Temp	*75*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Sky	*Clear*

Survey Conditions	
Status	*End*
Time	*14:00:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*97*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Sky	*Clear*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Lower right quadrant is mix of sparse grassland with medium burrow density at bottom and then turns into field of discarded pistachio shells with no burrows, grass, or vegetation. Left lower quadrant is heavily grazed rangeland with high burrow activity but no shrubs. Field 3 up from bottom right had higher biomass but the soil was densely packed and no rodent burrows.*
Overall habitat quality	*Habitat quality in pistachio shell field is very poor. The bottom left quadrant is okay habitat quality but lacks a complex vegetation community to provide habitat heterogeneity and elevate the area to high quality habitat. The 3rd field up from the bottom right side was very poor habitat quality. The soil was too hard for BNLL to burrow and there were no rodent burrows on the landscape.*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*10–25%*
% Bare Ground	*50–75%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3.35*
NOTES	

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*05241439EN-01-01*
Record Lat/Long	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15495	
Date	*2021-05-25*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*San Diego*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:33 AM–2:00 PM*
Conditions	*Air Temp: 77–97°F; Ground Temp: 89–99°F; 10–30% cloud cover; 1–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:33:00*
TEMPERATURE	*°F*
Air Temp	*77*
Air Temp	*77*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*14:00:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*99*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*30*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*4.3*

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 15552	
Date	*2021-05-26*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:32 AM–1:10 PM*
Conditions	*77.5–94°F; 0–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:32:00*
TEMPERATURE	*°F*
Air Temp	*77.5*
Air Temp	*77.5*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Notes	*Ground temp 80.5F*

Survey Conditions	
Status	*End*
Time	*13:10:00*
TEMPERATURE	*°F*
Air Temp	*94*
Air Temp	*94*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*50–75%*
% Bare Ground	*50–75%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15615	
Date	*2021-05-27*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:59 AM–12:05 PM*
Conditions	*Air Temp: 75–93.5°F; Ground Temp: 81.5–97.6°F; 0–10% cloud cover; 1–9 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:59:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*81.5*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*12:05:00*
TEMPERATURE	*°F*
Air Temp	*93.5*
Air Temp	*93.5*
Soil Temp	*97.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland. No shrubs.*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*50–75%*
% Bare Ground	*25–50%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*2.85*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15759	
Date	*2021-05-30*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:20 AM–1:21 PM*
Conditions	*Air Temp: 75.5–95.2°F; Ground Temp: 75.8–128.1°F; 0% cloud cover; 1–8.6 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:20:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*75.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*13:21:00*
TEMPERATURE	*°F*
Air Temp	*95.2*
Air Temp	*95.2*
Soil Temp	*128.1*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*2*

FORMS DUDEK FIELD DATA REPORT

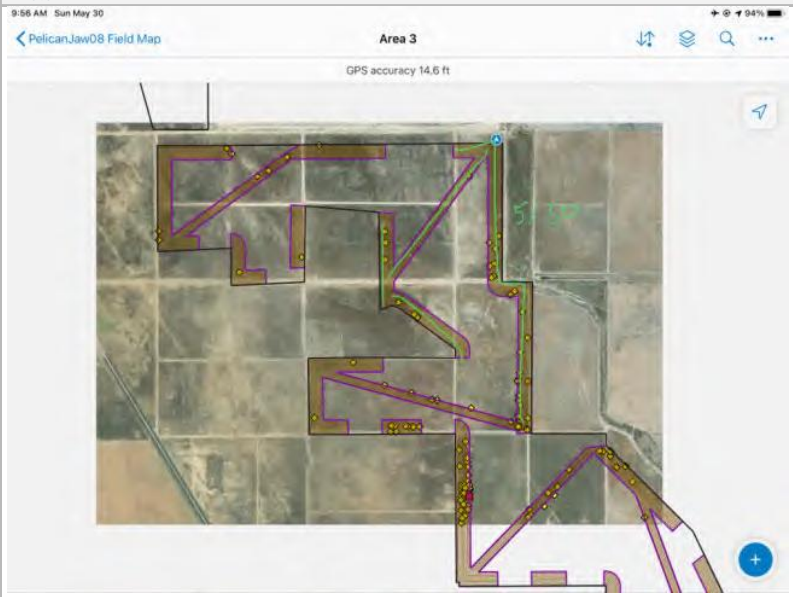
Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*
NOTES	

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*06011519EN-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*BCC/SSC*

Photo(s)	
Type	*Photo*
Photo	
Description	*Burrowing owl observed perched along existing fence. Two BUOW observed in area. Point added to Collector.*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*06011522EN-02-02*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed 5/30*

Photos	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*Burrowing owl sighted in survey area on existing fence.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15750	
Date	*2021-05-31*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:19 AM–11:32 PM*
Conditions	*Air Temp: 81.8–97.4°F; Ground Temp: 84.4–97°F; 0% cloud cover; 1–3 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:19:00*
TEMPERATURE	*°F*
Air Temp	*81.8*
Air Temp	*81.8*
Soil Temp	*84.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*23:32:00*
TEMPERATURE	*°F*
Air Temp	*97.4*
Air Temp	*97.4*
Soil Temp	*97*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Notes	*Had checked temp around 1030AM and it was 94F. Surveys were stopped approximately one hour later.*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3.7 mi of transect, 5 miles of total distance*

Photos

Type	*Photo*
Photo	
Description	*Area surveyed today.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15753	
Date	*2021-06-01*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*6:54 AM–10:29 AM*
Conditions	*Air Temp: 78.4–97°F; Ground Temp: 79.3–114.3°F; 0% cloud cover; 0–7.3 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:54:00*
TEMPERATURE	*°F*
Air Temp	*78.4*
Air Temp	*78.4*
Soil Temp	*79.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

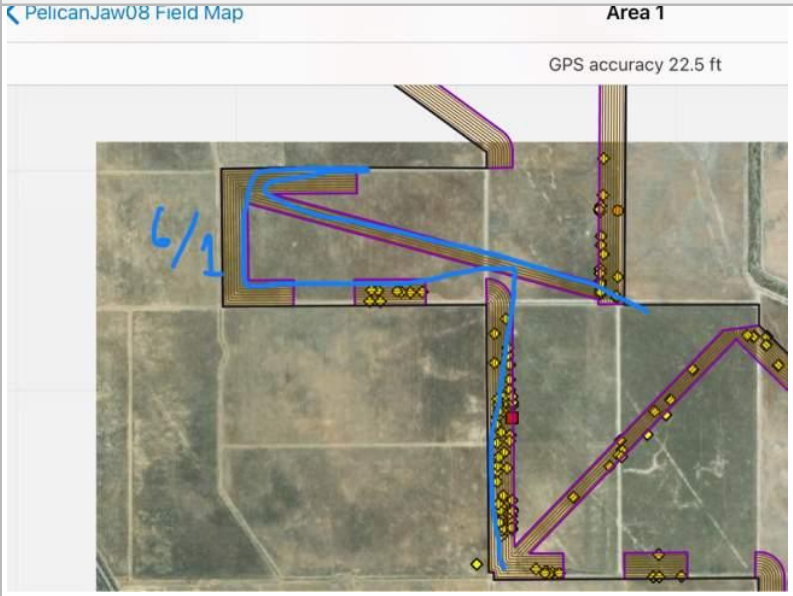
Survey Conditions	
Status	*End*
Time	*10:29:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*114.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*4.4*

Photos

Type	*Photo*
Photo	
Description	*Survey area for 6/1/21.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16119	
Date	*2021-06-02*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:00 AM–10:23 AM*
Conditions	*Air Temp: 75.4–101.4°F; Ground Temp: 80.1–127°F; 0% cloud cover; 1–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:00:00*
TEMPERATURE	*°F*
Air Temp	*75.4*
Air Temp	*75.4*
Soil Temp	*80.1*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*10:23:00*
TEMPERATURE	*°F*
Air Temp	*97.4*
Air Temp	*97.4*
Soil Temp	*127*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	*Temperature increased towards the end of the survey. Survey ended at 10:30 am.*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17421	
Date	*2021-06-13*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Select Transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:25 AM–1:33 PM*
Conditions	*Air Temp: 75–97°F; Ground Temp: 80.4–130°F; 0% cloud cover; 0–9 mph wind*
Visit Type	
Notes	*We spent time looking at the canal at the far south boundary of the project site where we had previously encountered potential BNLL scat. We found more identical scat and spotted a large whip tail lizard (Aspidoscelis tigris) down in the canal. This leads me to believe that the scat we originally found is likely from a whip tail.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:25:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*80.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*13:33:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*130*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Tiger Whiptails Observed	*1*

Photos	
Type	*Photo*
Photo	
Description	*Example of the scat observed, likely from a whip tail.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16122	
Date	*2021-06-14*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:54 AM–12:59 PM*
Conditions	*Air Temp: 75.7–96°F; Ground Temp: 78.3–126°F; 0% cloud cover; 0–6 mph wind*
Visit Type	
Notes	*Swainsons hawk observed flying overhead at beginning of survey. No active nest was observed. Burrowing owl seen in same location as from Pass 2. Location noted in Collector.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:54:00*
TEMPERATURE	*°F*
Air Temp	*75.7*
Air Temp	*75.7*
Soil Temp	*78.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*12:59:00*
TEMPERATURE	*°F*
Air Temp	*96*
Air Temp	*96*
Soil Temp	*126*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	
Survey Pass	*Adult Season Survey Pass 3*
Survey Pass	*Adult Season Survey Pass 3*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*

Wildlife List

Species Name	*Swainson's hawk (Buteo swainsoni), B-SWHA*
Observation ID (Copy and paste into Collector)	*06141523EN-01-01*
Record Lat/Long	
Federal and State Status	*BCC/ST*

Photos

Type	*Photo*
Photo	
Description	*Area surveyed 6/14*

FORMS DUDEK FIELD DATA REPORT

Photo	
Description	*SWHA1 observed flying overhead.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16377	
Date	*2021-06-15*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:32 AM–1:32 PM*
Conditions	*Air Temp: 75.1–83°F; Ground Temp: 76–98°F; 0% cloud cover; 1–13 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:32:00*
TEMPERATURE	*°F*
Air Temp	*77.1*
Air Temp	*77.1*
Soil Temp	*78*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*N/A*
Notes	*Did not take average wind speed during survey.*

Survey Conditions	
Time	*10:40:00*
TEMPERATURE	*°F*
Air Temp	*83*
Air Temp	*83*
Soil Temp	*98*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*3*
Average Wind (mph, to tenths of a mile)	*8*
Notes	

FORMS FIELD DATA REPORT

Survey Conditions

Status	*End*
Time	*13:32:00*
TEMPERATURE	*°F*
Air Temp	*92*
Air Temp	*92*
Soil Temp	*132*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*
Average Wind (mph, to tenths of a mile)	*N/A*
Notes	*Did not take average wind speed.*

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*See attachment*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
NOTES	

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16380	
Date	*2021-06-16*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:16 AM–9:58 AM*
Conditions	*Air Temp: 75–89.6°F; Ground Temp: 75.8–98.8°F; 10–40% cloud cover; 0–9 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:16:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*75.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*40*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1*
Notes	*Thin hazy clouds. Slight overcast. Warm out with almost no breeze*

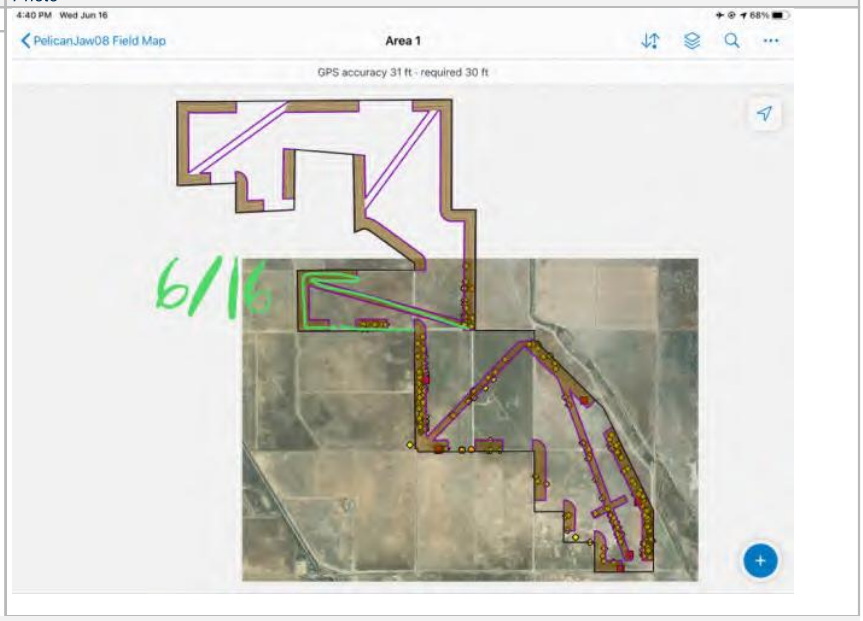
Survey Conditions	
Status	*End*
Time	*09:58:00*
TEMPERATURE	*°F*
Air Temp	*89.6*
Air Temp	*89.6*
Soil Temp	*98.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*2*
Average Wind (mph, to tenths of a mile)	*5.5*
Notes	*A bit hazy out but not truly overcast*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*See attachment*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*114*

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16719	
Date	*2021-06-28*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:15 AM–11:30 AM*
Conditions	*Air Temp: 78–93°F; Ground Temp: 83–108°F; 0% cloud cover; 0–8 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:15:00*
TEMPERATURE	*°F*
Air Temp	*78*
Air Temp	*78*
Soil Temp	*83*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*5*
Average Wind (mph, to tenths of a mile)	*6.5*

Survey Conditions	
Status	*End*
Time	*11:30:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*108*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0.5*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*53*
Number of Tiger Whiptails Observed	*0*

Photos	
Type	*Photo*
Photo	
Description	*View from south end of Project site, showing survey area.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16746	
Date	*2021-06-29*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:00 AM–10:01 AM*
Conditions	*Air Temp: 75.2–89.6°F; Ground Temp: 75.7–82.7°F; 10% cloud cover; 0–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:00:00*
TEMPERATURE	*°F*
Air Temp	*75.2*
Air Temp	*75.2*
Soil Temp	*75.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.6*

Survey Conditions	
Status	*End*
Time	*10:01:00*
TEMPERATURE	*°F*
Air Temp	*89.6*
Air Temp	*89.6*
Soil Temp	*82.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.6*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*34*
Number of Tiger Whiptails Observed	*0*

Photos

Type	*Photo showing general survey area.*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16776	
Date	*2021-06-30*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:42 AM–11:07 AM*
Conditions	*Air Temp: 77.1–92.3°F; Ground Temp: 82.2–89.9°F; 10% cloud cover; 4–10.7 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:42:00*
TEMPERATURE	*°F*
Air Temp	*77.1*
Air Temp	*77.1*
Soil Temp	*82.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*8.5*
Average Wind (mph, to tenths of a mile)	*9.0*

Survey Conditions	
Status	*End*
Time	*11:07:00*
TEMPERATURE	*°F*
Air Temp	*92.3*
Air Temp	*92.3*
Soil Temp	*89.9*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*4*
Average Wind (mph, to tenths of a mile)	*3.2*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*113*
Number of Tiger Whiptails Observed	*0*

Photos

Type	*Photo showing general survey area*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16821	
Date	*2021-07-01*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	Kern County
Survey Area	*Select Transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:47 AM–9:37 AM*
Conditions	*Air Temp: 75.9–91°F; Ground Temp: 78–86.4°F; 0% cloud cover; 0–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:47:00*
TEMPERATURE	*°F*
Air Temp	*75.9*
Air Temp	*75.9*
Soil Temp	*78*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*5*
Average Wind (mph, to tenths of a mile)	*4.2*

Survey Conditions	
Status	*End*
Time	*09:37:00*
TEMPERATURE	*°F*
Air Temp	*91*
Air Temp	*91*
Soil Temp	*86.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*7.1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*33*
Number of Tiger Whiptails Observed	*0*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17424	
Date	*2021-07-06*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:22 AM–11:32 AM*
Conditions	*Air Temp: 75.5–88.6°F; Ground Temp: 75.6–94.7°F; 0% cloud cover; 1–7.7 mph wind*
Visit Type	
Notes	*Began 2nd pass of revised transects and then set up 3 wildlife cameras at suspected active burrows*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:22:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*75.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*1.5*

Survey Conditions	
Time	*09:18:00*
TEMPERATURE	*°F*
Air Temp	*88.6*
Air Temp	*88.6*
Soil Temp	*94.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*5*
Notes	*Taken midway through survey to confirm protocol compliance.*

FORMS FIELD DATA REPORT

Survey Conditions

Status	*End*
Time	*11:32:00*
TEMPERATURE	*°F*
Air Temp	*97.5*
Air Temp	*97.5*
Soil Temp	*97.9*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.3*

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
NOTES	

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17427	
Date	*2021-07-07*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:03 AM–12:08 PM*
Conditions	*Air Temp: 75.9–97.9°F; Ground Temp: 75–93.6°F; 0% cloud cover; 0–3 mph wind*
Visit Type	
Notes	*2nd pass of revised transects. Burrowing owl observed. Checked wildlife cameras and set up an additional one.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:03:00*
TEMPERATURE	*°F*
Air Temp	*75.9*
Air Temp	*75.9*
Soil Temp	*75*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.8*

Survey Conditions	
Status	*End*
Time	*12:08:00*
TEMPERATURE	*°F*
Air Temp	*97.9*
Air Temp	*97.9*
Soil Temp	*93.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*1*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*07120908EN-01-01*
Record Lat/Long	
Federal and State Status	*BCC/SSC*

Wildlife List	
Species Name	*American badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07140945EN-02-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Spotted on CAM2*

Photo(s)	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*American badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07140945EN-03-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen on CAM4*

Photo(s)	
Type	*Photo*
Photo	
Description	*AMBA seen on CAM4*

Wildlife List	
Species Name	*Coyote (), B-COYO*
Observation ID (Copy and paste into Collector)	*07191725EN-04-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen on CAM1. Juvenile.*

Photo(s)	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*COYO seen on CAM1*

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed on 7/7/21*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17430	
Date	*2021-07-08*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Second pass of the revised transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:48 AM–11:09 AM*
Conditions	*Air Temp: 76.7–97.9°F; Ground Temp: 77.8–97.2°F; 0% cloud cover; 0–7.4 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*Concluded the second pass of revised transects and final pass of survey area.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:48:00*
TEMPERATURE	*°F*
Air Temp	*76.7*
Air Temp	*76.7*
Soil Temp	*77.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.4*

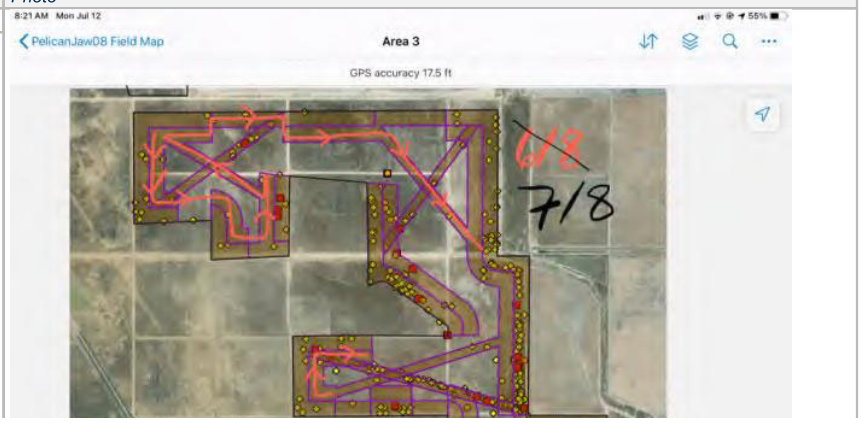
Survey Conditions	
Status	*End*
Time	*11:09:00*
TEMPERATURE	*°F*
Air Temp	*97.9*
Air Temp	*97.9*
Soil Temp	*97.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	

Wildlife List	
Species Name	*American Badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07120827EN-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen in project area near canal while driving to transect. We stopped to take a photo but it had already gone into the canal. By the time we got out of the car, we could not find it and it was likely in one of a few nearby burrows.*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*07120827EN-02-02*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18717	
Date	*2021-09-19*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04413018, 04413021, 04413016*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:30 PM*
Conditions	*Air Temp: 75–89°F; 0–10% cloud cover*
Visit Type	
Wildlife Species Count Summary	*common raven, 9*
Notes	*Unknown mouse sp. (small, not a kangaroo rat) seen running into burrow @ 1052. Few grasshoppers, beetles. Dead juvenile coyote carcass. Fresh evidence of kangaroo rat activity throughout*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*12:30:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Teodora Ungureanu, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*26*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*09290716NG-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09290724NG-02-04*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290724NG-03-04*
Record Lat/Long	
Federal and State Status	

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09290721NG-04-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*High count 9*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18720	
Date	*2021-09-20*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410221, 04410222, 0410308*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:00 AM–1:30 PM*
Conditions	*Air Temp: 76–89°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:30:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*3.4*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Sarah Mendez, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*52*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*09290734NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*BCC/SSC*
Notes	*Flushed from burrow entrance and flew down along ditch. Point taken in collector with updated ID from this record*

Special-Status Wildlife Observation	
Start observation time	*07:34:00*
End observation time	*09:54:00*
Lat/Long	*0.000000,0.000000*
Detection	*Observed*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Unknown*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Behavior	
Nectar Species	*N/A*
Color band information (if any)	
Vegetation Community(ies)	*Unvegetated Channel/Wash*
Habitat Quality	*Fair*
Immediate Land Use	*Agriculture ditch*
Surrounding Land Use	*Agriculture*
Visible Disturbances	
Threats	
Notes	*35.748342, -119.707729, point in collector under this same ID*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18723	
Date	*2021-09-21*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04415017, 04410309, 04410304, 04410203, 04410205*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:00 AM–1:00 PM*
Conditions	*Air Temp: 78–91°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*78*
Air Temp	*78*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*91*
Air Temp	*91*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*4*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Sarah Mendez, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*31*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09290753NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*

Wildlife List	
Species Name	*black-tailed jackrabbit (Lepus californicus), M-BTJR*
Observation ID (Copy and paste into Collector)	*09290755NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*@ 0942*

Wildlife List	
Species Name	*barn owl (Tyto alba), B-BAOW*
Observation ID (Copy and paste into Collector)	*09290756NG-03-03*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*Flushed out of tree near some large pipes @ 1057*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290757NG-04-04*
Record Lat/Long	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*turkey vulture (Cathartes aura), B-TUVU*
Observation ID (Copy and paste into Collector)	*09290757NG-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290757NG-06-06*
Record Lat/Long	
Notes	*@ 1122*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18741	
Date	*2021-09-22*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410201, 04410102, 04411003, 04410106*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–1:00 PM*
Conditions	*Air Temp: 76–93°F; Ground Temp: 89°F; 0% cloud cover*
Visit Type	
Notes	*Finished first pass, set up 3 burrow cams. Golden eagle flyover seen, no nests observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Garry Turner, Sarah Mendez*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*24*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*golden eagle (Aquila chrysaetos), B-GOEA*
Observation ID (Copy and paste into Collector)	*09291139NG-01-01*
Record Lat/Long	
Federal and State Status	*None/FP, WL*

Special-Status Wildlife Observation	
Start observation time	*13:19:00*
Lat/Long	*0.000000,0.000000*
Detection	*Observed*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Unknown*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Nectar Species	*N/A*
Color band information (if any)	
Habitat Quality	*Fair*
Immediate Land Use	*Agriculture*
Threats	

Wildlife List	
Species Name	*western rattlesnake (Crotalus oreganus), R-WERA*
Observation ID (Copy and paste into Collector)	*09291145NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Sign*
Federal and State Status	*None/None*

FORMS DUDEK FIELD DATA REPORT

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09291146NG-03-03*
Record Lat/Long	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18744	
Date	*2021-09-26*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410203, 04410205, 04410221, 04410222, 04410309*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:30 PM*
Conditions	*Air Temp: 75–90°F; Ground Temp: 74–92°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*74*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*8*

Survey Conditions	
Status	*End*
Time	*12:30:00*
TEMPERATURE	*°F*
Air Temp	*90*
Air Temp	*90*
Soil Temp	*92*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Sophia Weber, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*48*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*coyote (Canis latrans), M-COYO*
Observation ID (Copy and paste into Collector)	*09291221NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*Adult coyote sighted @ 1104 running E to W*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09291223NG-03-03*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18747	
Date	*2021-09-27*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04413039, 04415017, 04415005*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:00 PM*
Conditions	*Air Temp: 70–87°F; Ground Temp: 67–89°F; 0% cloud cover*
Visit Type	
Notes	*1039 snakeskin found, likely gopher snake - scales not keeled*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Soil Temp	*67*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*4*

Survey Conditions	
Status	*End*
Time	*12:00:00*
TEMPERATURE	*°F*
Air Temp	*87*
Air Temp	*87*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*7*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Sophia Weber, Jakob Dewhurst*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*22*
Number of Tiger Whiptails Observed	*0*

Wildlife List

Species Name	*kangaroo rat (Dipodomys sp.), M-KARA*
Observation ID (Copy and paste into Collector)	*09291235NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Sign*
Federal and State Status	*None/None*
Notes	*Carcass found in active burrow mouth*

Photo(s)

Type	*Photo*
Photo	
Description	*4 toes*

FORMS FIELD DATA REPORT

Photo(s)

Type	*Photo*
Photo	

Photos

Type	*Photo*
Photo	

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 18774	
Date	*2021-09-28*
Biologist	*Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*Pelicans Jaw*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:51 AM–1:00 PM*
Conditions	*Air Temp: 70.6–75.8°F; Ground Temp: 72.4–77.3°F; 80–90% cloud cover; 3.2–6 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:51:00*
TEMPERATURE	*°F*
Air Temp	*70.6*
Air Temp	*70.6*
Soil Temp	*72.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*90*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*3.2*
Notes	

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*75.8*
Air Temp	*75.8*
Soil Temp	*77.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*80*
WIND	*mph*
Wind	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Level II Surveyor(s)	*Tamara Bryant*
Level I Surveyor(s)	*Andrea Dransfield, Jakob Dewhurst, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*15*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*red-tailed hawk (Buteo jamaicensis), B-RTHA*
Observation ID (Copy and paste into Collector)	*09301025TB-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*09301026TB-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09301026TB-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09301027TB-04-04*
Record Lat/Long	

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 18777	
Date	*2021-09-29*
Biologist	*Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*Transect*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:42 AM–12:48 PM*
Conditions	*Air Temp: 76.3–83.6°F; Ground Temp: 78.4–86.2°F; 0% cloud cover; 0–2.2 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*All camera's were removed from the survey areas.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:42:00*
TEMPERATURE	*°F*
Air Temp	*76.3*
Air Temp	*76.3*
Soil Temp	*78.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.2*

Survey Conditions	
Status	*End*
Time	*12:48:00*
TEMPERATURE	*°F*
Air Temp	*83.6*
Air Temp	*83.6*
Soil Temp	*86.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.7*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Level II Surveyor(s)	*Tamara Bryant*
Level I Surveyor(s)	*Andrea Dransfield, Jakob Dewhurst, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*44*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*turkey vulture (Cathartes aura), B-TUVU*
Observation ID (Copy and paste into Collector)	*09301257TB-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*09301259TB-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*house finch (Haemorhous mexicanus), B-HOFI*
Observation ID (Copy and paste into Collector)	*09301300TB-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

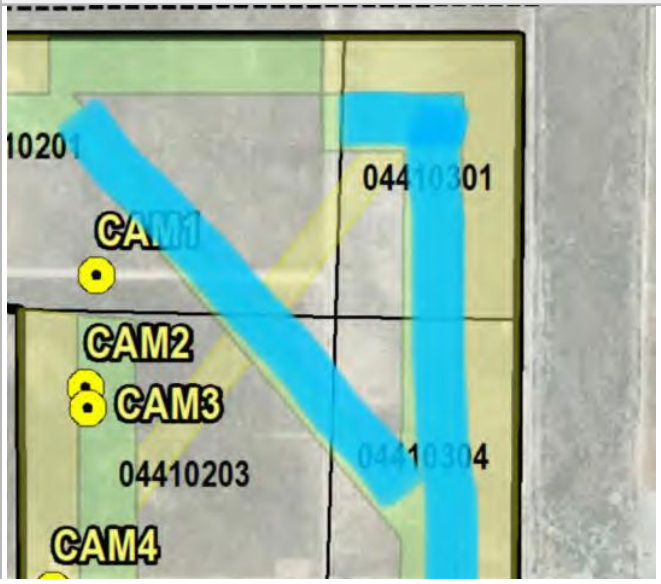
Wildlife List	
Species Name	*northern mockingbird (Mimus polyglottos), B-NOMO*
Observation ID (Copy and paste into Collector)	*09301300TB-04-04*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09301300TB-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*American crow (Corvus brachyrhynchos), B-AMCR*
Observation ID (Copy and paste into Collector)	*09301301TB-06-06*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*white-crowned sparrow (Zonotrichia leucophrys), B-WCSP*
Observation ID (Copy and paste into Collector)	*09301302TB-07-07*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	

FORMS DUDEK FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*The BNLL survey area is in green*

Attachment F

Wildlife Observations



Camera 5 – San Joaquin kit fox





One of two burrowing owl observations in APNs 04410203 and 04410205 during adult season surveys (please see Figure 3A)





Camera 7 – San Joaquin Kit Fox. Camera indicates incorrect date due to camera malfunction. Photo was taken between 9/19/2021 and 9/29/2021.





A desiccated kangaroo rat carcass (*Dipodomys sp.*) discovered during hatchling season surveys in APN 04415017. Species-level identification could not be completed due to the condition of the carcass.



Attachment D

BNLL Reference Check Photographs



1. Adult BNLL observed at the Pixley National Wildlife Refuge on July 19, 2023.





3. Adult BNLL observed at the Pixley National Wildlife Refuge on July 24, 2023.



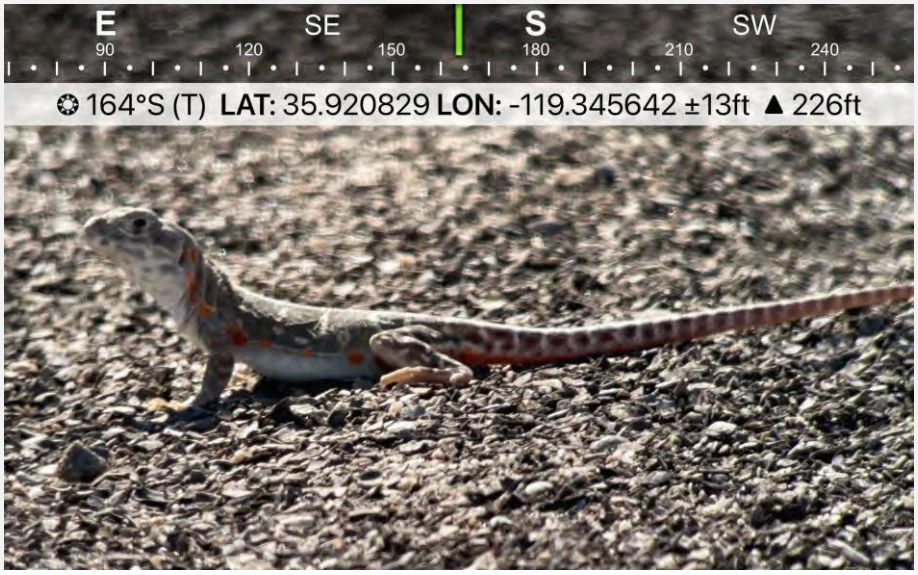


5. Adult BNLL observed at the Pixley National Wildlife Refuge on July 24, 2023.





7. Adult BNLL observed at the Pixley National Wildlife Refuge on July 29, 2023.





9. Adult BNLL observed at the Pixley National Wildlife Refuge on July 29, 2023.

Attachment E

2021 BNLL Sample Survey Letter Report

Sapphos environmental inc.

August 18,2022
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M08

TO: U.S. Fish and Wildlife Service
(Mr. Justin Sloan)

California Department of Fish and Wildlife
(Ms. Carrie Swanberg)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Kern County
(Mr. Matthew Hall and Mr. Terrance Smalls)

Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, Mr. Thaer Flieh, and Mr. Karl Brutsaert)

Dudek
(Mr. Keith Carwana)

Bell Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Submittal of the Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard 2021 Sample Survey Results

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) has been prepared to provide the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW) with the report, prepared by Dudek, documenting the results of the Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results for the Pelicans Jaw Hybrid Solar Project (Project). The surveys were completed as presented in the Pelicans Jaw Hybrid Solar Project-Biological Survey Work Plan, dated April 15, 2022, which was further reviewed via teleconference on April 28, 2021. The BNLL adult and hatchling season sample surveys were completed for the approximately 3,273-acre Project and proposed access routes. No BNLL adults were observed during the adult season sample survey effort; nor were BNLL hatchlings observed during the hatchling sample survey effort.

Protocol-level BNLL adult and hatchlings season surveys are planned for the Project in the Fall of 2023.

INTRODUCTION

This MFR has been prepared to provide the USFWS and the CDFW with the report documenting the results of BNLL adult and hatchling season sample surveys conducted by Dudek for the Project. The BNLL sample surveys were completed in accordance with the Biological Survey Work Plan submitted to the USFWS and CDFW on April 15, 2021, which was further reviewed via teleconference on April 28, 2021. Dudek completed the adult BNLL surveys on July 8, 2021. The adult BNLL survey was led by principal investigator Ms. Emme Nix. The BNLL hatchling surveys were completed on September 29, 2021. The hatchling survey was led by principal investigator Ms. Nicole Gaudenti. This MFR transmits the results of the BNLL sample adult and hatchling surveys (Attachment 1, *Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results*). In addition, this MFR is being provided to Kern County to support their role as Lead Agency pursuant to the California Environmental Quality Act, in preparation of an environmental impact report for the Project.

SURVEY RESULTS

Blunt Nosed Leopard lizard. No BNLL adults were observed during the adult season sample survey effort. No BNLL hatchlings were observed during the hatchling sample survey effort. Additional BNLL surveys are proposed to be conducted concurrent with the preparation and consideration of the EIR. The additional surveys will be consistent with CDFW and USFWS survey protocols.

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760 942 5147 F 760 632 0164

MEMORANDUM

To:	Justin Sloan – U.S. Fish and Wildlife Service (USFWS) Carrie Swanberg – California Department of Fish and Wildlife (CDFW)
From:	Brock Ortega and Keith Carwana– Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Blunt-nosed Leopard Lizard (BNLL) 2021 Sample Survey Results
Date:	August 18, 2022
cc:	Alphonso Jung, Tandy McMannes, Hun Kim, JungWoo Kim, and Karl Brutsaert – Pelicans Jaw Solar, LLC Andrew Bell – Bell-Kearns, Ltd. Marie Campbell and Sarah Sperling – Sapphos Environmental, Inc.
Attachment(s):	Figure 1 – Project Location Figure 2 – Blunt-nosed Leopard Lizard Survey Overview Figure 3A - Blunt-nosed Leopard Lizard – Survey Results Figure 3B - Blunt-nosed Leopard Lizard – Survey Results Attachment A – Project Schedule Attachment B – Biological Survey Work Plan Attachment C – Resumes of Principal Investigators Attachment D – Reference Sightings for the Blunt-Nosed Leopard Lizard 2021 Sample Survey Results Attachment E – Monitoring Logs Attachment F – Wildlife Observations

Executive Summary

This memorandum provides results of adult and hatchling season sample surveys for blunt-nosed leopard lizard (BNLL; *Gambelia silus*) undertaken in support of the Pelicans Jaw Hybrid Solar Project (Project), located in the unincorporated territory of Kern County, California. The sample surveys conformed to the Biological Survey Work Plan submitted to the United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) on April 15, 2021, and reviewed via teleconference on April 28, 2021. Emme Nix served as the Principal Investigator for the adult surveys. Nicole Gaudenti served as the Principal Investigator for the hatchling

the Kern County Board of Supervisors in Fall 2023. The anticipated schedule would allow the surveys to be completed within one year of construction in accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW 2019).

Introduction

The purpose of this memorandum is to provide results of adult and hatchling season sample surveys for blunt-nosed leopard lizard ([BNLL] *Gambelia silus*), undertaken in support of the Project. The goal in undertaking the investigation is to assess the potential presence or absence of BNLL at the Project, for which the Applicant is seeking a CUP and GPA for the development of a photovoltaic solar facility. BNLL is listed as "endangered" pursuant to the federal Endangered Species Act (ESA) and is afforded "fully protected" status pursuant to the California Fish and Game Code. A sampling survey was performed during the BNLL adult and hatchling season of 2021 to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and to provide additional critical site-specific data.

The sample surveys are intended to inform the CEQA lead agency of the presence, potential presence, or absence of BNLL. This survey will be used to inform the Biological Resources Technical Report (BRTR) that will be submitted by the Applicant to Kern County to provide information characterizing the baseline conditions at the Project site, in relation to BNLL. The sample surveys will also support an assessment of the need for an incidental take permit under Section 10(a)(1) of the federal ESA. There are no "take" provisions for fully protected species, pursuant to the California Fish and Game Code, so if determined present, the Project would need to evaluate avoidance and minimization measures. This memorandum will also be used by the Applicant and the County to determine if there is a nexus for requiring compensatory mitigation, and where compensatory mitigation is determined to be warranted, quantifying the aerial extent of impact and the appropriate mitigation ratio.

Project Description

The Project will include up to 500-megawatt (MW) of photovoltaic solar generation and a battery energy storage system (BESS) with a capacity of up to 2,000 megawatt-hours (MWhr). The Project will primarily consist of photovoltaic (PV) solar panels, a single-axis tracker system, inverters and transformers, electrical cabling and communication lines, on-site switchgear, a collector substation, generation interconnection (gen-tie) line, access roads, security fence, an operations and maintenance (O&M) facility, and a supervisory control and data acquisition (SCADA) system. The Project will also include a Pacific Gas and Electric (PG&E) switching station that would interconnect with the existing PG&E 230-kilovolt (kV) overhead transmission lines that traverse the Project site. The PG&E switching station will be located on-site.

Two points of access are being proposed from Twisselman Road to provide ingress/egress to the Project site including:

- An approximately one-mile-long access road extending north from Twisselman Road to the southwest corner of APN 044-150-170.
- An access road extending from the intersection of Twisselman Road and the southeast corner of APN 044-130-160.

Each access road would include a 24-foot-wide unpaved driveway with up to 5-foot shoulders on either side, for a total width of 34-feet.

Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A).

Location

The Project site is located in northwestern Kern County, adjacent to the southern border of Kings County with direct access from Interstate 5, located approximately 2 miles to the west. The Project site and surrounding properties are currently vacant and have historically been used for livestock grazing.

Project location details were recorded from USGS topographic quadrangle and the County Assessor's Parcel Maps:

- **County**: Kern
- **U.S. Geological Survey (USGS) 7.5-Minute Quadrangle (Quad)**: West Camp and Lone Tree Well
- **Latitude, Longitude**: 38.473731, -121.184568 (centroid, decimal degrees).
- **Assessor Parcel Numbers (APNs)**: 044-101-020, 044-101-030, 044-101-050, 044-101-060, 044-102-010, 044-102-030, 044-102-050, 044-130-390, 044-102-220, 044-103-010, 044-103-040, 044-103-060 (portion of), 044-103-080, 044-150-050, 044-150-170, 044-103-090 (portion of), 044-110-030, 044-110-250, 044-130-160, 044-130-180, 044-130-210, 044-102-210, and 044-110-010.

It is important to note that since the adult and hatchling season sample surveys for BNLL were completed, approximately 13 acres have been added to the Project to accommodate an alternate point of interconnection and an above or below ground 34.5-kV collector line to connect the central portion of the Project site to the northwest

BNLL in the area. Additionally, the USFWS and CDFW BNLL range mappers place the Project within the current range of the species (CDFW 2021; USFWS 2022).

Methods

To meet the proposed commercial operation date of the fourth quarter 2024, Dudek has prepared a Biological Survey Work Plan (Attachment B) that was submitted to USFWS and CDFW on April 15, 2021, and discussed and accepted by USFWS and CDFW during a subsequent conference call on April 28, 2021.

The sample surveys included a perimeter sample area, and five internal band transects equating to approximately 964 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 2). The perimeter sample area consisted of an approximate 500-foot-wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional diagonal band transects were surveyed across the site as shown in Figure 2. These transects were intended to supplement the perimeter area and were 300-feet wide. The sample areas were chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation mapping was completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas were designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Sampling surveys were performed using a five-visit survey protocol for the adult season and two-visit survey protocol for the hatchling season. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within five days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys were performed sequentially across the site; beginning with the perimeter and progressing from transects 1 through 5. Each subsequent survey pass used the same sequence.

For the adult season sample surveys, three initial passes were completed within the original transect layout from May 23, 2021 through June 16, 2021. After these initial passes, some areas were classified as low-quality habitat for BNLL due to a lack of rodent burrows or vegetation canopy to provide refugia. After consultation with CDFW on June 23, 2021, modifications were made to the sample areas and additional transects were added, focusing on areas with a higher likelihood of BNLL occurrence and to provide additional coverage of the Project site (Figure 2). Passes four and five were completed using these new survey areas rather than the original areas, per consultation with CDFW. Passes four and five were completed from June 28, 2021, through July 8, 2021.

The sample surveys conformed to the Biological Survey Work Plan submitted to USFWS and CDFW. Emme Nix served as the Principal Investigator for the adult surveys (please see Appendix C for resume). Ms. Nix has coauthored two peer reviewed articles on the species and has previously performed protocol surveys for BNLL with the Bureau of Land Management, including studying the thermal ecology of the species. Ms. Nix has performed approximately 1,000 hours of BNLL protocol level surveys and has handled over 120 individual BNLLs (Attachment C, Principal Investigator Resumes).

Nicole Gaudenti served as the Principal Investigator for the hatchling surveys . Ms. Gaudenti has authored and coauthored several peer reviewed articles on BNLL and has performed protocol level surveys including over 900 hours of BNLL surveys and handled over 80 individual BNLLs (Attachment C, Principal Investigator Resumes).

In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team consisted of one Level II biologist for every three Level I biologists, all walking each transect in parallel and visually surveying for BNLL. Although the original survey design called for surveyors to be spaced at 17 meters apart when walking the transects, many of the survey areas had been recently grazed by cattle and had very little vegetation cover. In these instances, surveyors increased transect widths to 20 meters.

Surveys were not conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeded 10 mph. Surveys were limited to periods during the optimal temperature range for detecting BNLL, which is approximately 77 F to 95 F (25 C – 35 C). Minor exceptions to the temperature constraints were made for the sample surveys. For example, start temperatures of 75 F and end temperatures of 97 F occurred in some instances. In these cases, the Level II biologist used their extensive field experience with BNLL to make their best professional judgment regarding whether to continue surveying. Surveyors also looked for aboveground presence of the common, smaller-bodied side-blotched lizard (*Uta stansburiana*) to assess whether the larger-bodied BNLL would be aboveground as well.

Surveyors recorded the following observations daily:

- Time of day, cloud cover, wind speed, soil temperature, and air temperature; and
- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect.

In addition to surveying for BNLL, all surveyors opportunistically surveyed for other sensitive species.

BNLL Reference Sightings

119.401520) and one sub-adult directly adjacent within the annual grassland habitat (35.777785, - 119.401645). Both sightings were adjacent to each other, approximately 16.5 miles east of the Project.

BNLL Adult Season Sample Surveys Results

No blunt-nosed leopard lizards were detected within the sample survey areas during the adult season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects per survey pass were evaluated within the Project boundaries during the first three passes with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects per survey pass were evaluated during the final two passes within the revised transect areas. Other reptile species observed during surveys included: side-blotched lizards, California whiptails (*Aspidoscelis tigris*), gopher snakes (*Pituophis catenifer*), and western rattlesnakes (*Crotalus oreganus*).

Copies of the monitoring logs have been included as Attachment E and are summarized in Table 1, below. Please note that adult season survey pass #1 required five days of surveys whereas all subsequent surveys required four days of survey to cover all areas within the sample survey area. The additional day of surveys was primarily related to the surveyors becoming oriented with the Project site and how to access each of the survey areas.

Table 1. Summary of BNLL Adult Season Sample Surveys

Survey Date	Time		Air Temperature (°F)		Surveyors (**Bold = Level II**; Plain text = Level I)	BNLL Observations
	Start	End	Start	End		
Adult Season (Sample Survey Pass #1)						
5/23/2021	7:45 am	1:56 pm	75.5	92.2	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, Josh McLaughlin, and Sophia Weber (site orientation)	0
5/24/2021	8:05 am	2:00 pm	77	93	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0

5/27/2021	8:59 am	12:05 pm	75	93.5	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
Adult Season (Sample Survey Pass #2)						
5/30/2021	7:20 am	1:21 pm	72.5	95.2	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
5/31/2021	7:19 am	11:32 am	81.8	97.4	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
6/1/2021	6:54 am	10:29 am	78.4	97	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Sophia Weber	0
6/2/2021	7:00 am	10:23 am	75.4	97.4	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Jakob Dewhurst	0
Adult Season (Sample Survey Pass #3)						
6/13/2021	7:25 am	1:33 pm	75	97	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
6/14/2021	7:54 am	12:59 pm	75.7	96	**Emme Nix**, Grace Sanclemente, Teodora Gureanu, and Josh McLaughlin	0
					Emme Nix, Grace Sanclemente,	

Adult Season (Sample Survey Pass #4, Revised Survey Area)						
6/28/2021	7:15 am	11:30 am	78	93	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
6/29/2021	8:00 am	10:01 am	75.2	89.6	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
6/30/2021	7:42 am	11:07 am	77.1	92.3	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
7/1/2021	7:47 am	9:37 am	75.9	91	**Josh Parker**, Grace Sanclemente, Josh McLaughlin, and Sophia Weber	0
Adult Season (Sample Survey Pass #5, Revised Survey Area)						
7/6/2021	7:22 am	11:32 am	75.5	88.6	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0
7/7/2021	8:03 am	12:08 pm	75.9	97.9	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0
7/8/2021	7:48 am	11:09 pm	76.7	97.9	**Emme Nix**, Grace Sanclemente, Sophia Weber, and Josh McLaughlin	0

BNLL Hatchling Season Sample Surveys Results

No blunt-nosed leopard lizards were detected within the sample survey areas during the hatchling season. A total of approximately 964 acres were surveyed or approximately 153 linear miles of transects were evaluated within the Project boundaries during the first pass with the original transect design. An additional 945 acres were surveyed or approximately 149 linear miles of transects were evaluated during the second pass within the revised transect areas. Other reptile species observed during surveys included: side-blotched lizards and western rattlesnakes

Table 2. Summary of BNLL Hatchling Season Sample Surveys

Survey Date	Time		Air Temperature (°F)		Surveyors (**Bold = Level II**; Plain text = Level I)	BNLL Observations
	Start	End	Start	End		
Hatchling Season (Sample Survey Pass #1)						
9/19/2021	8:30 am	12:30 pm	75	89	**Nicole Gaudenti, Tamara Bryant**, Teodora Ungureanu, Garry Turner	0
9/20/2021	9:00 am	1:30 pm	76	89	**Nicole Gaudenti**, Teodora Ungureanu, Sarah Mendez, Garry Turner	0
9/21/2021	9:00 am	1:00 pm	78	91	**Nicole Gaudenti,** Teodora Ungureanu, Sarah Mendez, Garry Turner	0
9/22/2021	8:30 am	1:00 pm	76	93	**Nicole Gaudenti,** Teodora Ungureanu, Garry Turner, Sarah Mendez	0
Hatchling Season (Sample Survey Pass #2)						
9/26/2021	8:30 am	12:30 pm	75	90	**Nicole Gaudenti, Tamara Bryant**, Sophia Weber, Teodora Ungureanu	0
9/27/2021	8:30 am	12:00 pm	70	87	**Nicole Gaudenti, Tamara Bryant**, Sophia Weber, Jakob Dewhurst	0
9/28/2021	9:51 am	1:00 pm	70.6	75.8	**Tamara Bryant**, Andrea Dransfield,	0

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek collected burrow resource data during the BNLL adult and hatchling season sample surveys in 2021, noting all suitable burrow resources that met the criteria and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figures 2, 3A, and 3B; Attachment F). While walking the BNLL transects, surveyors recorded all burrows larger than 4-inch in diameter that appeared active. A burrow was considered active if it was observed to continue into the ground as far as the observer could see and if there were no spider webs in the entrance.

Surveyors were conservative when considering a burrow active and unless there was fresh dirt piled outside, fresh scat, or paw prints, most burrows were marked as "unknown" when collecting data. Surveyors were also conservative when determining the species that created the burrow. Kit fox burrows were definitively mapped only when kit fox scat piles were found within the immediate nearby area. Burrowing owl burrows were mapped only when the distinct "white cast" or owl pellets were found in the immediate nearby area or burrow mouth. Badger burrows were marked when claw marks were seen on each of the rounded lateral sides of a burrow entrance.

Five wildlife cameras during the adult season surveys and three wildlife cameras during the hatchling season surveys were deployed to areas with high concentrations of potentially active burrows in different locations to document the species that occupied each of these areas. The cameras were left in place to passively see what was using the burrow. The locations of the wildlife cameras are shown in Figure 2 and photos of wildlife captured are shown in Attachment F. Photos were captured of an active American badger burrow during adult season surveys and photos of San Joaquin kit fox were captured during both adult and hatchling season surveys.

A desiccated kangaroo rat (*Dipodomys sp.*) carcass was discovered during hatchling season surveys on September 27, 2021, in APN 04415017. The carcass could not be identified to species level due to the deteriorated condition of the carcass.

No nesting birds were observed on-site. A single Swainson's hawk (*Buteo swainsoni*) was observed flying overhead (Attachment F) during the surveys on June 14, 2021, but no active nests were identified within the Project site and no other observations were made during subsequent surveys. Protocol level Swainson's hawk surveys were conducted March 2022 through June 2022 and have been reported separately.

A single Golden Eagle (*Aquila chrysaetos*) was observed flying overhead during surveys on September 22, 2021. No active nests were identified within the Project site and no subsequent observations were made. Surveys for golden eagle were completed in January 2022 and have been reported separately.

investigation was completed at the Burrow Points such as setting up and monitoring the burrows with wildlife cameras (apart from the eight wildlife cameras discussed above), using tracking medium such as diatomaceous earth, or other methods.

Additional BNLL burrow resource data will also be collected during surveys anticipated to be conducted in 2022, including surveys for SJKF. The data collected in 2022 will cover additional Project areas beyond those included in the BNLL sample survey areas. Dudek is conducting SJKF survey including transect surveys and camera monitoring in accordance with the Biological Survey Work Plan Addendum submitted to USFWS and CDFW on June 7, 2022.

Next Steps

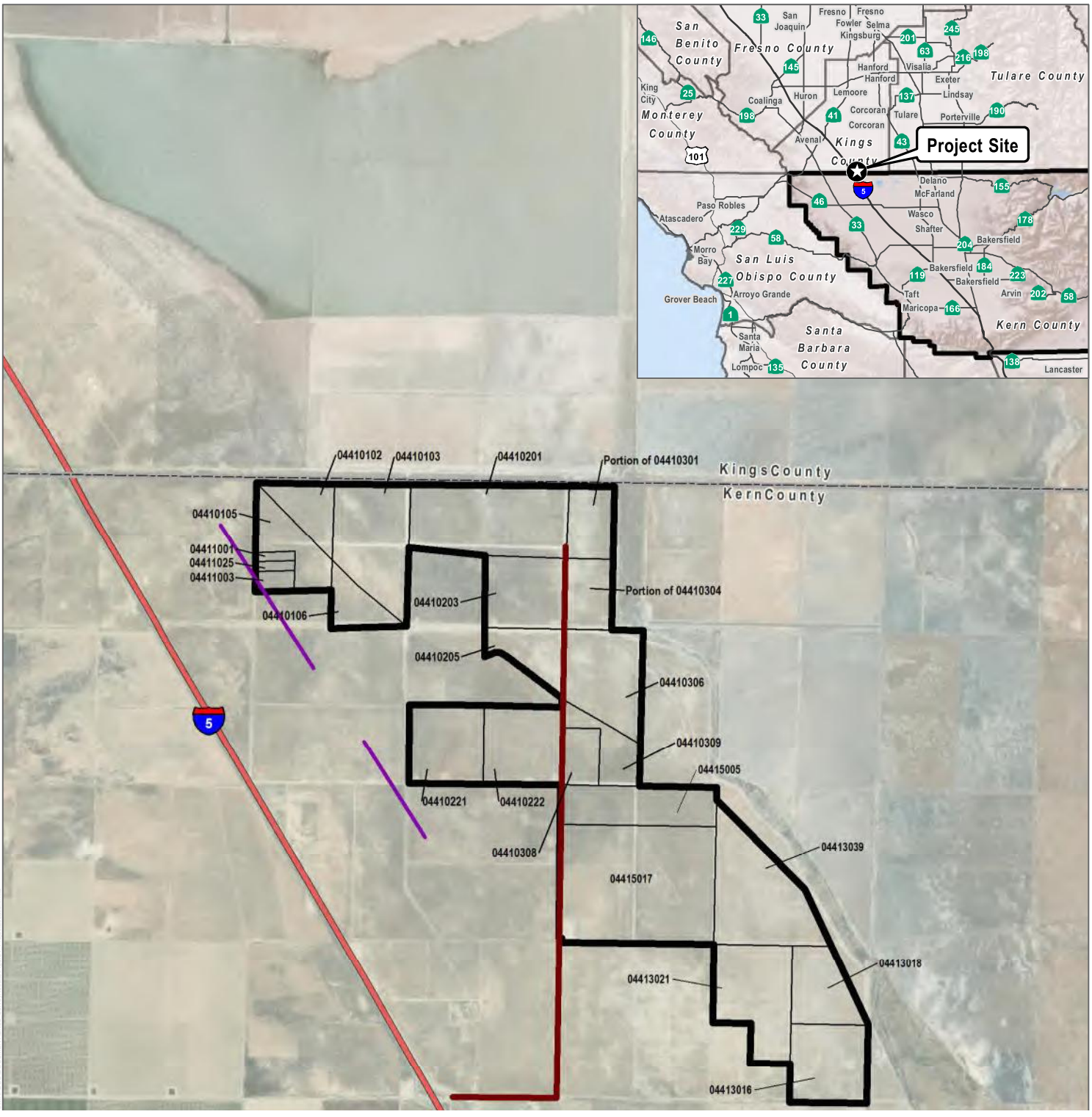
Pelicans Jaw Solar, LLC is anticipated to conduct full protocol-level surveys for BNLL during both the adult and hatchling seasons during preparation of the environmental impact report being prepared in support to of the consideration of approval of the CUP and GPA, by the Kern County Board of Supervisors, in Fall 2023. The anticipated schedule would allow the surveys to be completed within one year of construction in accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019).

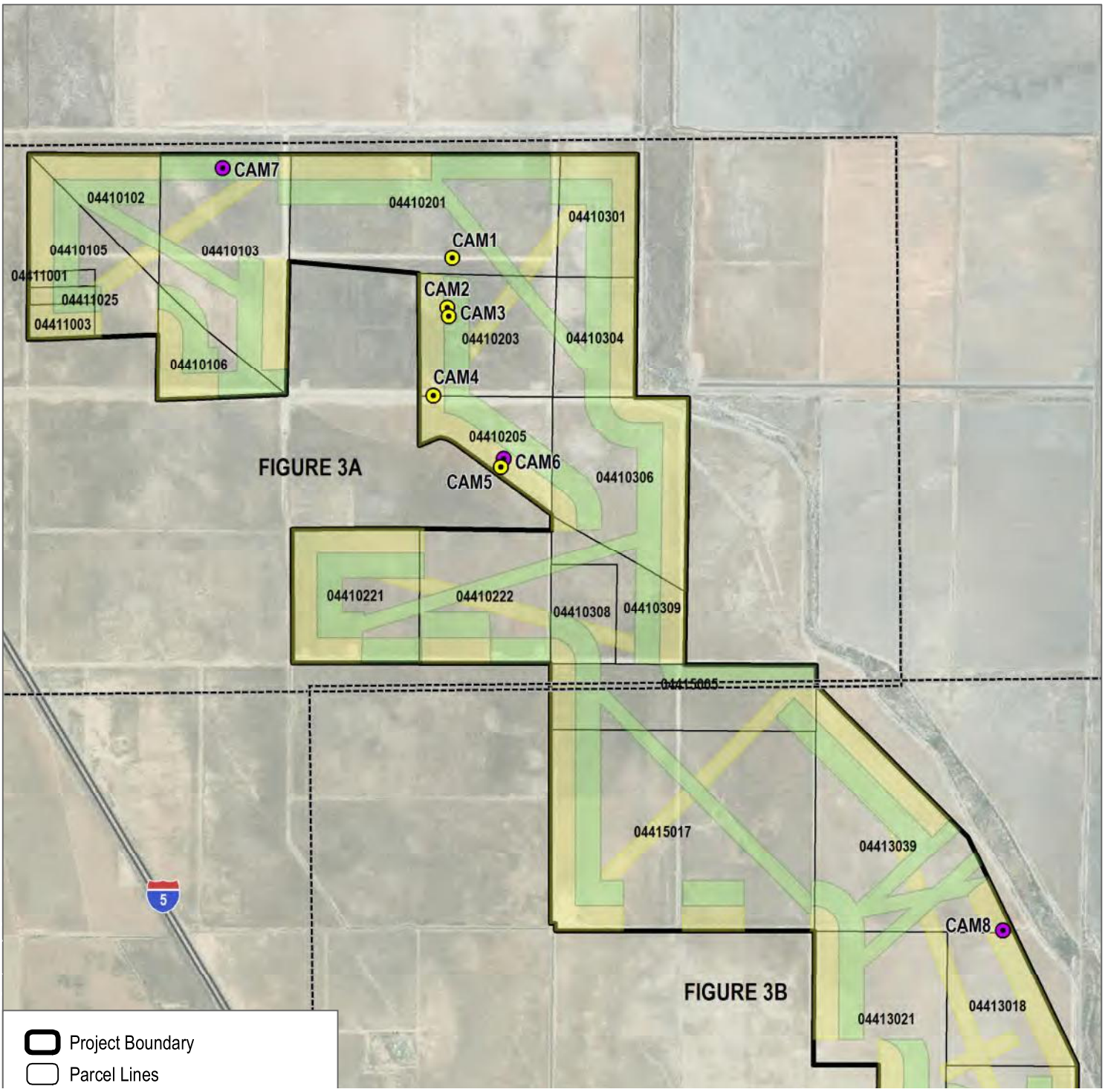
References

CDFW (California Department of Fish and Wildlife). 2019. Approved Survey Methodology for the Blunt-Nosed Leopard Lizard). October 2019.

CDFW (California Department of Fish and Wildlife). 2021. Blunt Nosed Leopard Lizard Range CWHR R019. Updated May 2021. Accessed July 2022. https://gis.data.cnra.ca.gov/datasets/CDFW::blunt-nosed-leopard-lizard-range-cwhr-r019-ds1726/explore?location=35.839654%2C-119.639523%2C11.92

USFWS (United States Fish and Wildlife Service). 2022. *Gambelia silus*. Accessed July 2022. https://www.fws.gov/species/blunt-nosed-leopard-lizard-gambelia-silus/map


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Santa Barbara County
Kern County
Fresno
Hanford
Visalia
Tulare
Lemoore
Coalinga
Huron
Avenal
Corcoran
Delano
McFarland
Wasco
Shafter
Bakersfield
Taft
Maricopa
Arvin
Lancaster
Paso Robles
Atascadero
Morro Bay
Grover Beach
Arroyo Grande
Santa Maria
Lompoc
Porterville
Exeter
Lindsay
Kingsburg
Selma
Fowler
San Joaquin
King City
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04410103
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Kings County
Kern County
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04411001
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04411003
04410106
04410203
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CAM6
FIGURE 3A
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CAM8
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Project Boundary
Parcel Lines

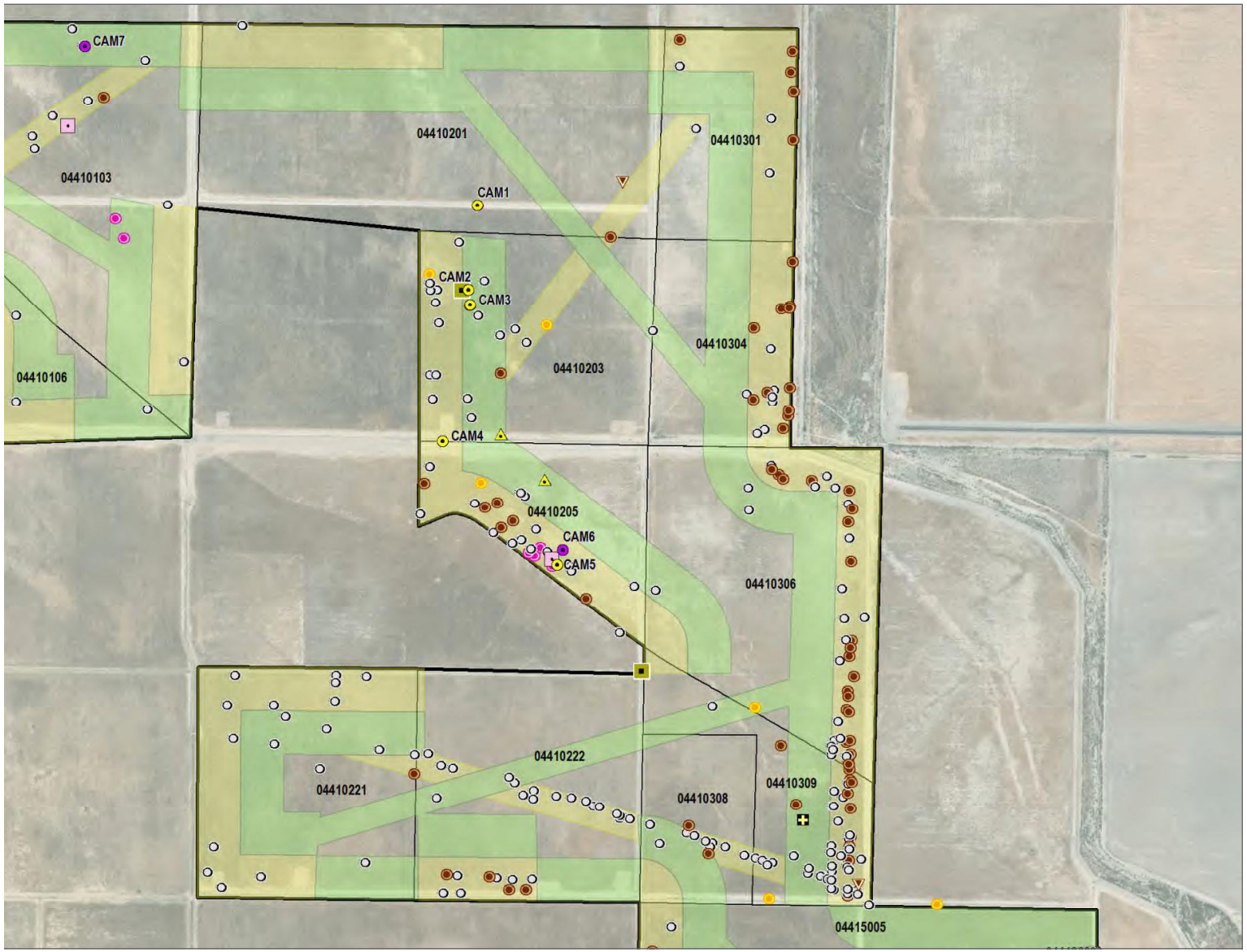


FIGURE 3A

Burrow Survey Results

Pelicans Jaw Hybrid Solar Project

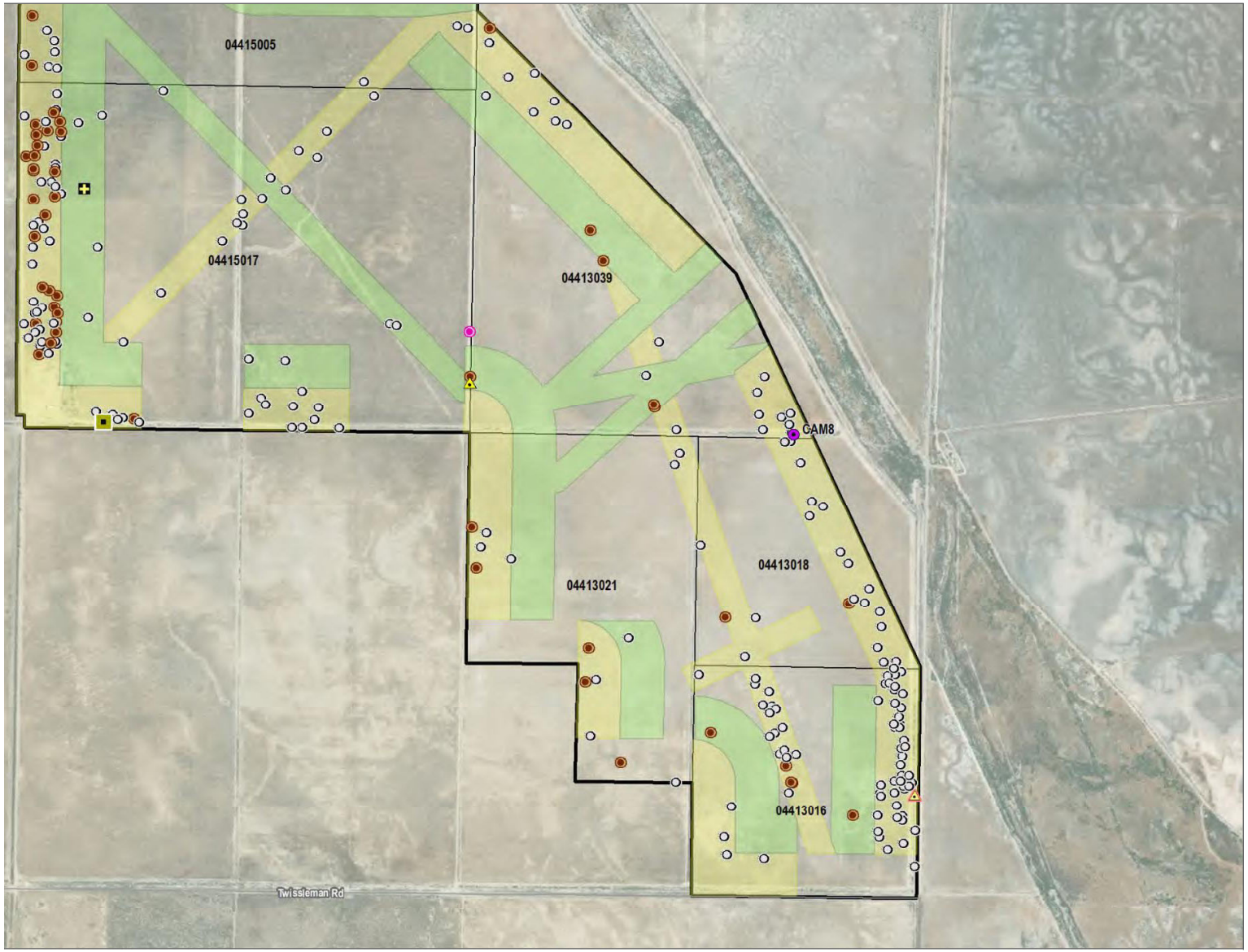


FIGURE 3B

Burrow Survey Results

Pelicans Jaw Hybrid Solar Project

Attachment A

Project Schedule

Attachment B

Biological Survey Work Plan

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MEMORANDUM

To:	Justin Sloan – USFWS
	Craig Bailey and Annee Ferranti – CDFW
From:	Brock Ortega, Keith Carwana, and Anna Bischoff – Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Biological Survey Work Plan
Date:	April 15, 2021
cc:	Alphonso Jung and Tandy McMannes – Pelicans Jaw Solar, LLC
	Clark Morrison – Cox, Castle & Nicholson
Attachment(s):	Figure 1 – Project Location
	Figure 2 – Vegetation Communities, Land Covers, and Potential Burrows
	Figure 3 – Blunt-nosed Leopard Lizard Sampling Area
	Attachment A – Project Schedule
	Attachment B – Vernal Pool Fairy Shrimp Sample Survey Request

Pelicans Jaw Solar, LLC is seeking a conditional use permit (CUP) for the development of a photovoltaic solar facility herein referred to as the Pelicans Jaw Hybrid Solar Project (PJHSP), or Project. Since initial discussions with United States Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW), the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres within unincorporated Kern County (Figure 1). An approximately 6-mile access road is also proposed between the Project site and Twisselman Road. Interconnection of the PJHSP to the electrical grid is anticipated to occur on site and no off-site generation tie line is anticipated at this time.

Dudek completed a Biological Habitat Assessment in July 2020 and presented the results of the reconnaissance-level field investigations, vegetation mapping, and preliminary investigation of special-status biological resources to the USFWS and CDFW. Figure 2 shows the preliminary mapping of vegetation communities and land covers within the revised Project boundary along with burrow resource data that was collected during field surveys for vegetation mapping performed in December 2020.

The Project's anticipated Commercial Operation Date (COD) is in the second quarter of 2025. Pelicans Jaw Solar, LLC is seeking completion of the CEQA review by the third quarter of 2023 and completion of the environmental permitting process by December 2023 (Attachment A). To meet the required COD, Dudek has prepared the following biological survey work plan for USFWS and CDFW's review. The work plan proposes general survey methods, timing, and location

geographic information systems (GIS) data and reconnaissance level field surveys. No plant species listed or proposed for listing as rare, threatened, or endangered by the USFWS or CDFW were detected within the Project site during the reconnaissance surveys conducted in June 2020 or additional reconnaissance vegetation mapping and jurisdictional aquatic resources delineation conducted in December 2020.

Table 1: Potentially Occurring Special-Status Plant Species

Scientific Name	Common Name	Status (Federal/State/CRPR)
Astragalus hornii var. hornii	Horn's milk vetch	None/None/1B.1
Atriplex coronate var. vallicola	Lost Hills crownscale	None/None/1B.2
Atriplex minuscula	Lesser saltscale	None/None/1B.1
Caulanthus californicus	California jewelflower	FE/CE/1B.1
Cirsium crassicaule	Slough thistle	None/None/1B.1
Delphinuim recurvatum	Recurved larkspur	None/None/1B.2
Eremalche parryi ssp. kernensis	Kern mallow	FE/None/1B.2
Lasthenia glabrata ssp. coulteri	Coulter's goldfields	None/None/1B.1
Layia munzii	Munz's tidytips	None/None/1B.2
Monolopia congdonii	San Joaquin woollythreads	FE/None/1B.2
Puccinellia simplex	California alkali grass	None/None/1B.2
Tropidocarpum californicum	Kings gold	None/None/1B.1

Status:
Federal
FE- Federally endangered
State
CE – State endangered
CRPR (California Rare Plant Rank)
1B – Plants rare, threatened, or endangered in California and elsewhere
2B – Plants rare, threatened, or endangered in California but more common elsewhere
(.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

Potentially Occurring Sensitive Wildlife Species

Dudek identified a list of special-status wildlife species that have potential to occur within the Project site and surrounding area. The list was revised based on initial conversation with USFWS and CDFW on September 29, 2020 to identify the species that are anticipated to require some level of survey to inform CEQA analysis and environmental permitting (Table 2).

Table 2: Survey Wildlife Species

Scientific Name	Common Name	Status (Federal/State)
Amphibians		
Spea hammondii	Western spadefoot toad	None/SSC
Reptiles		
Gambelia sila	Blunt-nosed leopard lizard	FE/SE/FP
Birds		
Agelaius tricolor	Tricolored blackbird	BCC/ST/SSC
Aquila chrysaetos	Golden eagle	BCC/FP/WL
Athene cunicularia	Western burrowing owl	None/SSC
Buteo swainsoni	Swainson's hawk	None/ST
Mammals		
Ammospermophilus nelsoni	Nelson's antelope squirrel	None/ST
Dipodomys ingens	Giant kangaroo rat	FE/SE
Dipodomys nitratoides brevinasus	Short-nosed kangaroo rat	None/SSC
Dipodomys nitratoides nitratoides	Tipton kangaroo rat	FE/SE
Sorex ornatus relictus	Buena Vista Lake ornate shrew	FE/SSC
Taxidea taxus	American badger	None/SSC
Vulpes macrotis mutica	San Joaquin kit fox	FE/ST
Invertebrates		
Branchinecta lynchi	Vernal pool fairy shrimp	FT/None

Status:
Federal
BCC – Bird of Conservation Concern (USFWS)
FE- Federally endangered
FT – Federally threatened
State
FP – Fully protected
SE – State endangered
ST – State threatened
SSC – Species of Special Concern

Survey Work Plan

Surveys to Begin in 2021

Because the foregoing studies are not adequate to assure that BNLL do not occur on the confined project site, Pelicans Jaw Solar, LLC is committed to performing a full protocol-level survey in 2023 within one year of project construction. In order to inform the CEQA analysis to be prepared in advance of the required protocol-level surveys and provide additional critical site-specific data, a sampling survey will be performed during the adult season of 2021 as more fully described below. The sample surveys are intended to inform the CEQA lead agency of the presence or potential presence of BNLL to help develop and implement avoidance and minimization for this fully-protected species and, to the extent suitable habitat is identified, recommend appropriate compensatory mitigation. The sample surveys, further described below, are not intended to replace the full protocol-level surveys for BNLL during both the juvenile and adult seasons within one year of construction. At this time, protocol-level surveys are tentatively planned for the 2023 survey season.

The sample surveys are anticipated to include a perimeter sample area and up to 5 internal band transects equating to approximately 955 acres or approximately 30 percent of the approximately 3,260-acre Project site (Figure 3). The perimeter sample area consists of an approximate 500-foot wide band within the project perimeter with certain, somewhat repetitive portions of the perimeter area removed. Five additional crossing band transects will be surveyed across the site as shown in Figure 3. These transects are intended to supplement the perimeter area and will be 300-feet wide. The sample areas have been chosen based on field reconnaissance conducted as part of the Habitat Assessment conducted in June 2020 and vegetation and jurisdictional water mapping completed in December 2020. The sample areas include areas of open habitat where small mammal burrows have been previously identified and BNLL are more likely to occur and also areas that do not have these resources for comparison. In addition, sample areas have been designed to cross the edges of areas where more dense vegetation occurs and along the periphery of the Project site.

Dudek will conduct five survey passes within the sample areas. The survey passes will include walking transects spaced at 17 meters due to the variable heights of the grasses and shrubs. In accordance with the Approved Survey Methodology for the Blunt-Nosed Leopard Lizard (CDFW, October 2019), the survey field team will consist of one level II biologist for every three Level I biologists. Surveys will be conducted when temperatures reach 77F, which differs from the current 8:00 am protocol period, and 2:00 pm, and will be limited to periods during the optimal temperature range for detecting BNLL 77 F to 95 F (25 C – 35 C). Surveys will not be conducted on overcast days (cloud cover > 90%) or when sustained wind velocity exceeds 10 mph. Sampling surveys will be performed using a five-visit survey protocol. The support comes from Germano (2009)[1] where the average time to detect the first lizard was 3.6 days and 90% of the first sightings were made within 5 days. Notably, Germano (2009) indicates that no level of survey effort can provide 100% assurance of absence, and the current protocol strives to ascertain 100% surety, but "when the detection level is not as stringent, the ability to reduce the number of samples…would allow for greater effort for additional censuses or assessments" (p. 107). Surveys will be performed sequentially across the site; that is the perimeter will be surveyed, then transects 1 through 5 for one pass, then the second pass will

- The presence of habitat features important for BNLL (i.e., washes, playas, relative abundance of small mammal burrows) along each transect;

- If BNLL is observed, the time of day, weather conditions, and habitat features will be recorded. The physical location will be recorded using handheld Global Positioning System (GPS) units and mapped on an aerial photograph with Global Information System (GIS).

The results of the BNLL sample surveys will be included as part of the Biological Resources Technical Report that will be used to support the CEQA environmental review. Full protocol level surveys will be conducted within a year of ground disturbing activities and to support Project permitting.

Large Branchipods

Pelicans Jaw Solar, LLC, Dudek, and USFWS previously discussed conducting sample surveys for vernal pool fairy shrimp to determine the potential for sensitive invertebrates to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process under CEQA (please see memorandum dated October 14, 2020, Attachment B).

As the Project site has been reduced from approximately 5,500 acres to approximately 3,260 acres and the parcels with access issues have been excluded, Pelicans Jaw Solar, LLC and Dudek are proposing to proceed with ground surveys rather than aerial surveys to identify suitable vernal pools during the Fall or Winter of 2021. Following the ground surveys to identify suitable vernal pools, Dudek's biologists will perform wet seasons sampling surveys for vernal pool fairy shrimp as outlined in the October 14, 2020 memorandum. The sampling surveys are anticipated to include surveying at least 10% of the pools, and up to 10 pools, identified during the ground surveys every 10 days for the first month and then every 20 days for up to four additional surveys.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents refenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

Pelicans Jaw Solar, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Western Spadefoot Toad

spadefoot toad (e.g., adults [rarely observed], egg masses, larvae), and estimations of the total number of each life stage will be recorded on standardized datasheets created by Dudek. If pools cannot be completely and confidently surveyed by visual inspection alone, dip nets will be used to sample for larval spadefoots. A minimum of 10 sweeps with the dip net will be made to adequately sample each potentially suitable microhabitat.

Pools will be surveyed a minimum of two times during the field season. In addition to the pools identified by a pre-survey assessment, newly found or formed pools will also be surveyed when detected.

Western Burrowing Owl, San Joaquin Kit Fox, and American Badger

Dudek will collect burrow resource data during the BNLL sample surveys in 2021 noting any suitable burrow resources and sign of use by western burrowing owl (*Athene cunicularia*; BUOW), San Joaquin kit fox (*Vulpes macrotis mutica*; SJKF), and American badger (*Taxidea taxus*; AMBA) within the sample survey areas (Figure 3). BUOW were observed on the Project site during initial data collection for the Habitat Assessment and Dudek anticipates that SJKF and AMBA presence can be assumed based on the habitat and location of the Project. Burrow resource surveys in the areas surveyed for BNLL should be sufficient to provide adequate data for initial CEQA analysis and environmental permit processing.

Burrow resource data will also be collected during additional survey efforts throughout 2022, including surveys for San Joaquin Antelope Squirrel. The data collected in 2022 will cover more of the Project area than the BNLL sample survey areas. The data collected in 2021 and 2022 will be sufficient for the completion of CEQA analysis and environmental permit processing.

Surveys to Begin in 2022

Golden Eagle

Dudek will survey any suitable habitat and any known eagle nest locations, if applicable, for golden eagle (*Aquila chrysaetos*) in January 2022. Based on fieldwork completed to date, there is little if any suitable habitat expected on the Project site and within one mile.

San Joaquin (Nelson's) Antelope Squirrel

Dudek will conduct San Joaquin antelope squirrel (*Ammospermophilus nelsoni*; SJAS) surveys in accordance with CDFG Region 4 Approved Methodologies for Sensitive Species; San Joaquin Antelope Squirrel within the sample survey areas identified for BNLL and SJAS (Figure 3). Per the protocol, Dudek biologists will walk in parallel transects

Kangaroo Rat Species

Dudek will conduct small mammal trapping on sample size plots in all vegetation categories identified in the Habitat Assessment other than agricultural areas that consist of apparent dry-farmed grain crops that are farmed on an annual basis. Trapping for presence of kangaroo rat species will be conducted using USFWS Survey Protocol for Determining Presence of San Joaquin Kangaroo Rats with slight modifications. Modifications to protocol methodology and trapping grid location and density will be detailed in a trapping plan submitted to the agencies for review. Trapping efforts will be conducted during optimum activity periods for kangaroo rat species between April 1 and October 31, 2021.

All trapping efforts will be conducted by biologists approved by USFWS/CDFW. As required by protocol, the trapping period will consist of five consecutive trap nights. Sherman™ live traps of 13 inches or greater lengths will be used (e.g., Model 5515AHD: 5 x 5 x 15 inches; or a trap of similar dimensions such as Trap-XLKR: 3 x 3.5 x 13 inches) to reduce the risk of injury to any kangaroo rats or non-target captures (e.g., SJAS). The greater trap length will reduce the risk of tail lacerations or excisions.

Dudek will base the locations of trapping grids on burrow density and suitability of habitat to ensure maximum trap cover. Traps will be pre-baited with white proso millet, a mixture of oats and peanut butter, bird seed, or similar product. Traps will be checked once or twice a night at the discretion of the Designated Biologist. The last check will occur just before or at sunrise but no more than one hour past sunrise. Trapping efforts, within the trapping area, will end upon the first capture of the target species. Traps will be set at dusk and checked and closed at dawn. Traps may be checked more often if weather conditions (i.e., a predicted 40 percent or greater chance of rain; traps will not be opened when temperatures are 99°F or above, etc.) warrant, as determined by the Designated Biologist. If predicted nighttime temperatures are expected to drop below 50°F (10°C), then all traps will be checked at a minimum interval of every 3 hours and synthetic batting or other insulating material, as well as additional food, will be placed in the open trap to reduce the effects of colder weather on trapped animals. Trapping will cease if captured animals are found to be lethargic or otherwise exhibiting signs of a decrease in body temperature. Trap locations will be recorded using GPS.

All captured animals will be documented and identified to species. The biologist will record weight, sex, age, and reproductive conditions of each animal, and will also record date, time, observers, handler, weather conditions, and GPS coordinates of location where trapped. Animals will be “marked” using a non-toxic felt tipped marker to recognize if an individual has been previously captured. All animals trapped will be immediately released in the location they were trapped following data collection. No animals will be removed without prior authorization from the resource agencies.

Special-Status Plants

polygon and assess population numbers using a mobile device mapping application. Data collected will include, at a minimum, the species name, the number or range of individuals, and the botanist collecting the data. The data collected will be included in the Biological Resources Technical Report and will be used to help inform any rare plant specific mitigation measures included in the EIR. The exact survey timing and locations will be determined based on whether or not the specific species will be easily identifiable if present on the Project site.

Swainson's Hawk

Dudek will conduct focused surveys for Swainson's hawk (*Buteo swainsoni*) following the methodology used in the Central Valley recommended by the Swainson's Hawk Technical Advisory Committee (SHTAC). Pursuant to this protocol, Dudek will survey all suitable nesting habitat within the Project area, and outside the Project area within 0.5 miles, to the extent that those areas are accessible and visible. Although Dudek biologists will not have access to private properties outside the Project area, they will survey with the aid of binoculars and spotting scopes suitable nesting habitat that is visible from the Project area or public roads within 0.5 miles of study area. During each survey, Dudek biologists will inspect individual trees, tree clusters, and riparian areas for suitable nest structures; searches will also be conducted for individual Swainson's hawks and information will be recorded regarding Swainson's hawk observed activities, including behaviors indicative of pairing and nesting.

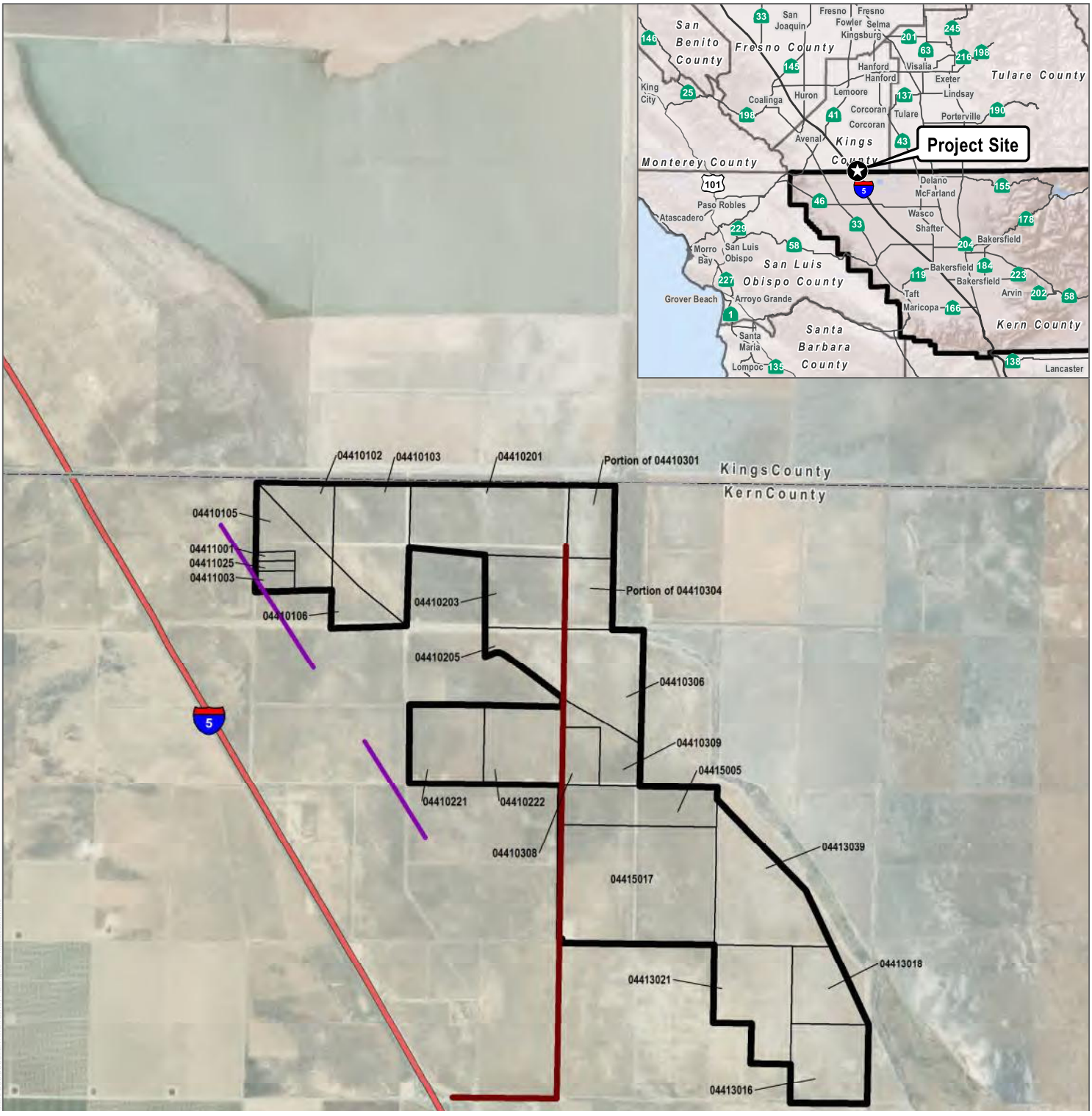
Dudek will conduct nine surveys in 2022, three in the March 20 to April 5 period, three in the April 5 to April 20 period, and three in the June 10 to July 30 period. Each survey day will include approximately four hours of surveys in the morning and four hours in the evening, following the timing of surveys recommended by SHTAC. Surveys during the April 5 to April 20 period will focus on nest building, breeding behavior, and locating nest structures. Surveys during the June 10 to July 30 period, surveys will focus on searching for previously undetected nests by searching for nestlings, fledglings, and adults displaying behaviors (agitation, calling frequently while flying overhead) indicative of individuals that are actively nesting.

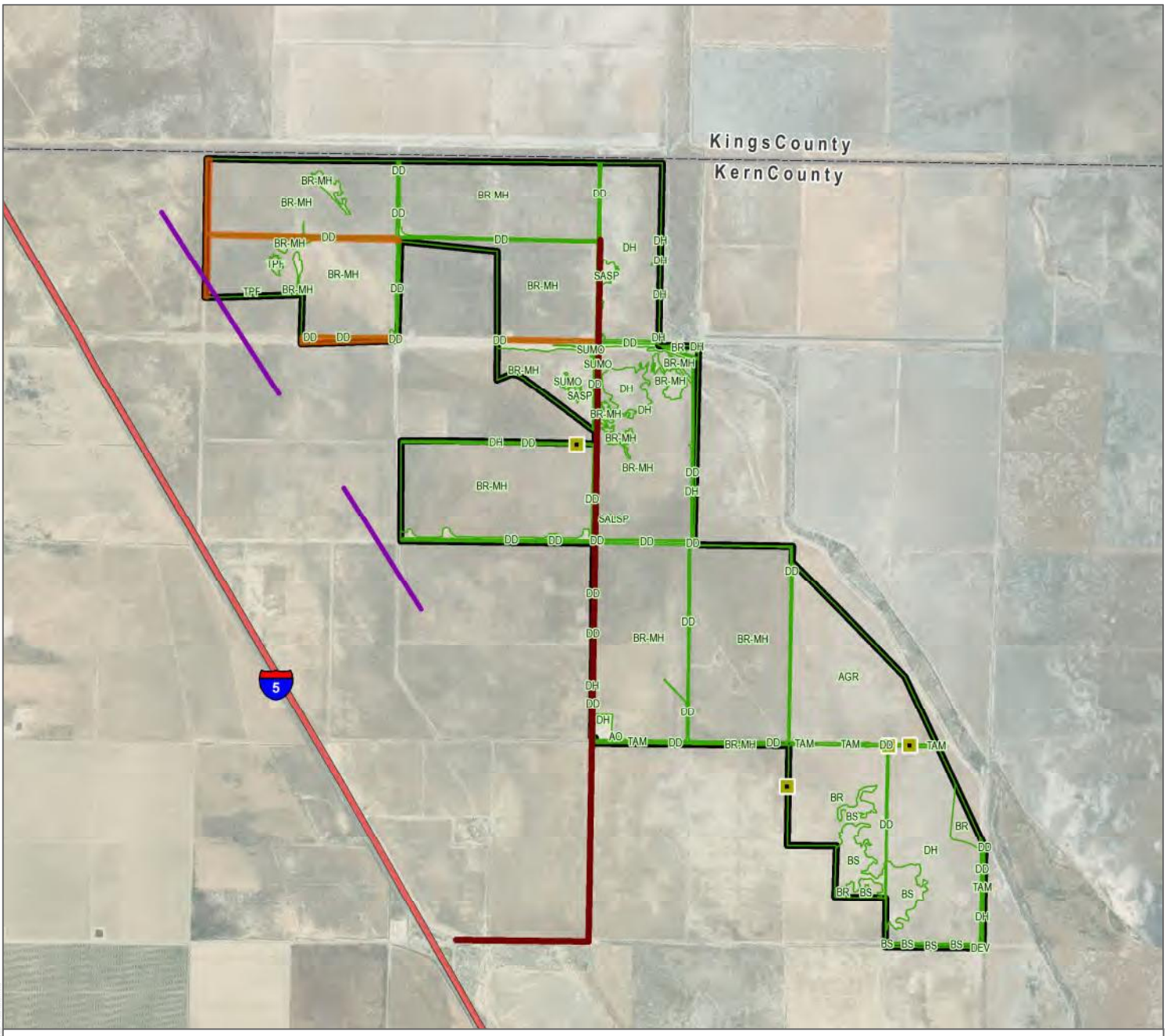
Tricolored Blackbird

Dudek will search within 300 feet of, and including, suitable habitat for nesting tricolored blackbird (*Agelaius tricolor*) concurrently during three of the six surveys for Swainson's hawk in 2022. Dudek biologists will evaluate the potential for breeding colonies to occur. Inferences regarding potential foraging habitat may also be drawn based on application of appropriate buffers around breeding areas. The survey will follow the general direction of the March 19, 2015 CDFW Staff guidance regarding avoidance of impacts to tricolored blackbird breeding colonies.

Buena Vista Lake Ornate Shrew

obligations for CEQA analysis and environmental permitting within the Project timeline that has been presented in this memorandum. The request for availability has been made in the email to which this memorandum was attached. We look forward to continued collaboration with the wildlife agencies regarding the biological survey efforts on the Pelicans Jaw Hybrid Solar Project.


Project Site
San Benito County
Fresno County
Tulare County
Monterey County
Kings County
San Luis Obispo County
Kern County
Santa Barbara County
Kings County
Kern County
04410102
04410103
04410201
Portion of 04410301
04410105
04411001
04411025
04411003
04410106
04410203
Portion of 04410304
04410205
04410306
04410309
04415005
04410221
04410222
04410308
04415017
04413039
04413018
04413021
04413016
5



Project Boundary

Access Road

Interconnection Option

Potential Burrows

Vegetation Communites and Land Covers

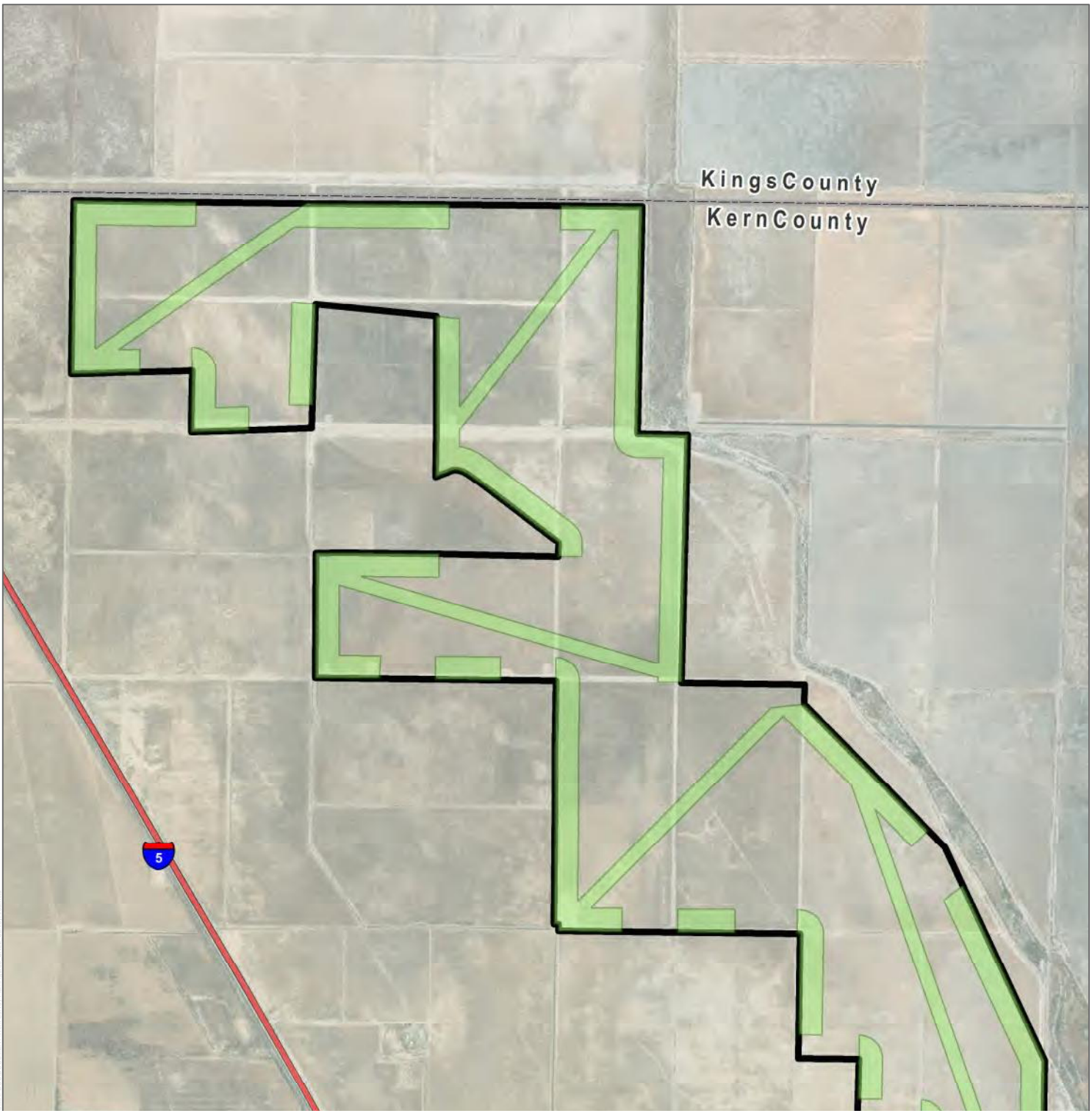
AGR, General Agriculture

AO, Allenrolfea occidentalis association (FACW)

DH, Disturbed Habitat

OW, Open water

SALSP, Salsola spp. Semi-natural Association

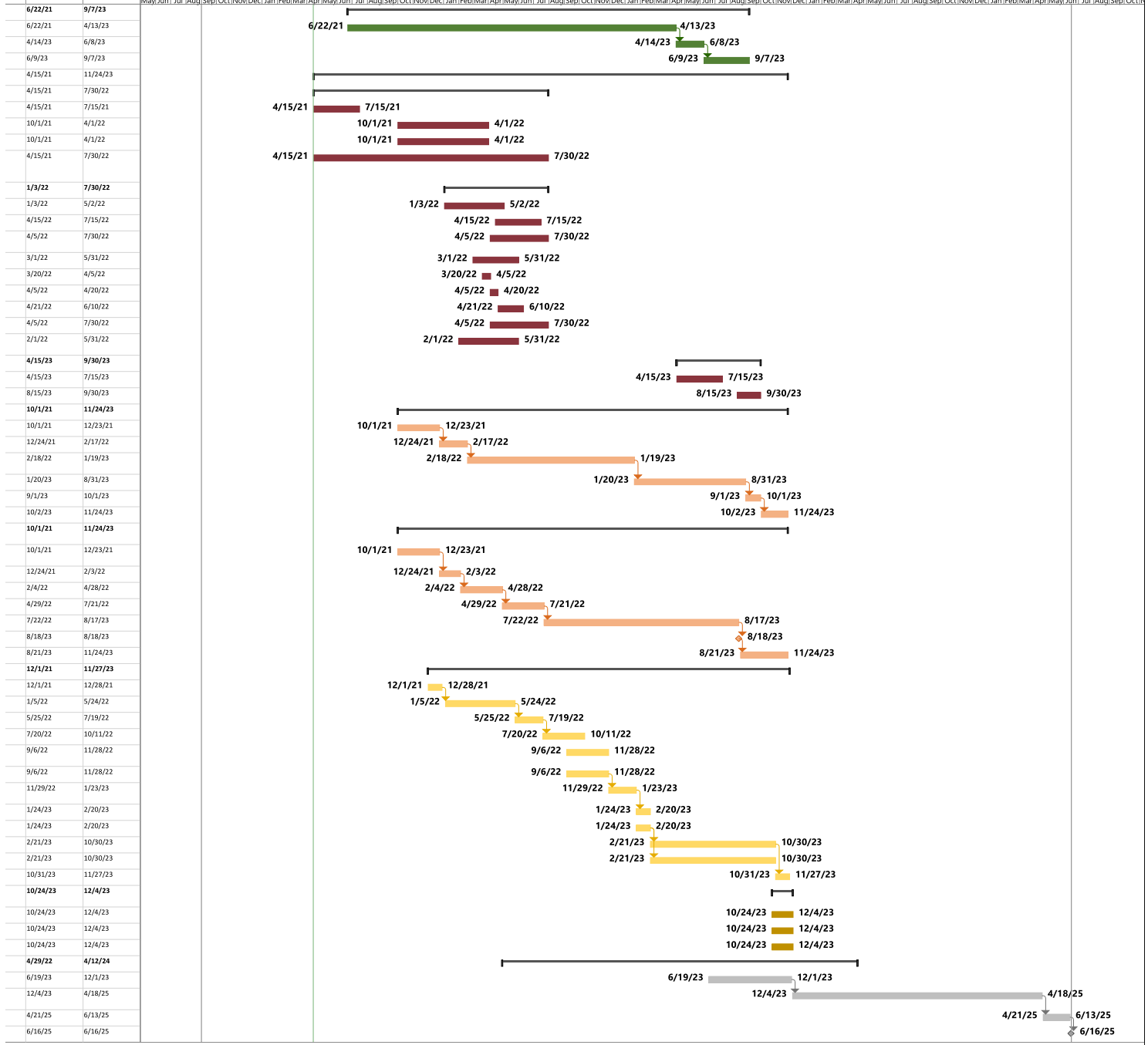

Kings County
Kern County
5

Attachment A

Project Schedule

Pelicans Jaw Hybrid Solar Project - Permitting Schedule

Start	Finish
6/22/21	**9/7/23**
6/22/21	4/13/23
4/14/23	6/8/23
6/9/23	9/7/23
4/15/21	11/24/23
4/15/21	7/30/22
4/15/21	7/15/21
10/1/21	4/1/22
10/1/21	4/1/22
4/15/21	7/30/22
1/3/22	**7/30/22**
1/3/22	5/2/22
4/15/22	7/15/22
4/5/22	7/30/22
3/1/22	5/31/22
3/20/22	4/5/22
4/5/22	4/20/22
4/21/22	6/10/22
4/5/22	7/30/22
2/1/22	5/31/22
4/15/23	**9/30/23**
4/15/23	7/15/23
8/15/23	9/30/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/17/22
2/18/22	1/19/23
1/20/23	8/31/23
9/1/23	10/1/23
10/2/23	11/24/23
10/1/21	**11/24/23**
10/1/21	12/23/21
12/24/21	2/3/22
2/4/22	4/28/22
4/29/22	7/21/22
7/22/22	8/17/23
8/18/23	8/18/23
8/21/23	11/24/23
12/1/21	**11/27/23**
12/1/21	12/28/21
1/5/22	5/24/22
5/25/22	7/19/22
7/20/22	10/11/22
9/6/22	11/28/22
9/6/22	11/28/22
11/29/22	1/23/23
1/24/23	2/20/23
1/24/23	2/20/23
2/21/23	10/30/23
2/21/23	10/30/23
10/31/23	11/27/23
10/24/23	**12/4/23**
10/24/23	12/4/23
10/24/23	12/4/23
10/24/23	12/4/23
4/29/22	**4/12/24**
6/19/23	12/1/23
12/4/23	4/18/25
4/21/25	6/13/25
6/16/25	6/16/25



Attachment B

Vernal Pool Fairy Shrimp Sample Survey Request

Keith Carwana

Subject: FW: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

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From: Sloan, Justin <Justin_Sloan@fws.gov>
Sent: Friday, October 16, 2020 3:36 PM
To: Brock Ortega <bortega@dudek.com>
Cc: adam.furman@samsung.com; alfonso.jung@samsung.com; t.mcmannes@samsung.com; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: Re: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

Hi Brock,

I think your proposed survey effort looks good.

Thanks,
Justin

Justin Sloan
Senior Wildlife Biologist
San Joaquin Valley Division
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
1130 E. Shaw Ave, Ste 206
Fresno, CA 93710

559-221-1828
justin_sloan@fws.gov

From: Brock Ortega <bortega@dudek.com>
Sent: Wednesday, October 14, 2020 4:16 PM
To: Sloan, Justin <Justin_Sloan@fws.gov>
Cc: adam.furman@samsung.com <adam.furman@samsung.com>; alfonso.jung@samsung.com <alfonso.jung@samsung.com>; t.mcmannes@samsung.com <t.mcmannes@samsung.com>; Anna Bischoff <abischoff@dudek.com>; David Hochart <dhochart@dudek.com>; Keith Carwana <kcarwana@dudek.com>
Subject: [EXTERNAL] Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys

determine the potential for vernal pool fairy shrimp to be present within the project area. With USFWS concurrence, Dudek will implement the sample surveys outlined in the attached memorandum.

Please do not hesitate to reach out to me with any questions.

Thank you,

Brock

Brock A. Ortega
Principal/Sr. Wildlife Biologist
605 Third Street, Encinitas, CA 92024
o: 760.479.4254 / m: 619.884.0467
bortega@dudek.com
www.dudek.com

605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760 942 5147 F 760 632 0164

MEMORANDUM

To:	Justin Sloan, USFWS
From:	Brock Ortega, Keith Carwana, and Anna Bischoff, Dudek
Subject:	Pelicans Jaw Hybrid Solar Project – Vernal Pool Fairy Shrimp Sample Surveys
Date:	October 14, 2020
cc:	Adam Furman, Alphonso Jung, and Tandy McMannes, Samsung Solar Energy 2, LLC

During conversations with United State Fish and Wildlife Service (USFWS) on September 29, 2020, Samsung Solar Energy 2, LLC and Dudek discussed the potential to conduct sample surveys for large branchipods (vernal pool fairy shrimp, *Branchinecta lynchi*) rather than protocol level surveys in accordance with Survey Guidelines for the Listed Large Branchiopods (USFWS 2015) at the approximately 5,400 acre Pelicans Jaw Hybrid Solar Project (PJHSP). A Habitat Assessment was prepared for the PJHSP and concluded that there is low potential for large branchipods to occur within seasonally inundated areas of the PJHSP. In addition, no known occurrences of vernal pool fairy shrimp have been documented within 10 miles of the PJHSP in accordance with the California Natural Diversity Database (CNDDB). USFWS confirmed that no vernal pool fairy shrimp have been documented and confirmed within the PJHSP project area or in the vicinity of the PJHSP project area and concurred with the results of the Habitat Assessment.

Sample surveys for vernal pool fairy shrimp are anticipated to be conducted at the PJHSP to determine the potential for vernal pool fairy shrimp to be present within the project area and to ensure that there is documentation to support the environmental review and permitting process for the PJHSP under the California Environmental Quality Act (CEQA). With USFWS concurrence, Samsung Solar Energy 2, LLC and Dudek propose to implement the following sample surveys:

1 USFWS Notification Letter

Prior to beginning sample vernal pool invertebrate surveys, the Dudek permitted biologist will submit a notification letter to the USFWS Recovery Permit Coordinator. The notification letter will need to be submitted at least 15 days in advance of beginning surveys.

are received on-site. Samsung Solar Energy 2, LLC and Dudek assumes that no additional suitable vernal pools will be discovered after two aerial surveys.

The use of a helicopter will allow qualified biologists to more efficiently survey the approximately 5,400 acre PJHSP and identify suitable vernal pools. At the completion of aerial surveys, Dudek will prepare a map showing the location of all suitable vernal pools.

3 Wet Season Vernal Pool Invertebrate Surveys

Dudek's biologist will perform wet season sampling surveys for vernal pool fairy shrimp. Normally a survey includes initiating surveys in the wet season when ponds hold greater than 3 cm of water 24 hours after a rain event, and continuing surveys every 10 days until the pool dries or a minimum of 90 days of inundation have occurred. In order to sample, Samsung Solar Energy 2, LLC and Dudek propose surveying between 10 and 15 pools identified during the aerial surveys. The selected pools will be chosen to provide a representation across the 5,400 acre PJHSP. Surveys will occur every 10 days for the first month and then every 20 days for up to 4 additional surveys. If pools dry down during the wet season and then inundate again, surveys will be re-initiated for those pools.

The results of the wet-season sample survey will be documented within a letter report. The report will include a discussion of the survey methodology and adequacy including a description of any resource documents referenced and field survey methods used during the survey work. The report will include appropriate tables and graphics to meet the reporting requirements of the USFWS. According to USFWS permit requirements, the report will be submitted within 90 days of completing the sample surveys.

4 Dry Season Vernal Pool Invertebrate Surveys

Samsung Solar Energy 2, LLC and Dudek are not proposing to conduct dry season vernal pool invertebrate surveys. In the event that vernal pool fairy shrimp are identified during the wet season invertebrate surveys, USFWS will be consulted.

Attachment C

Resumes of Principal Investigators

Emmeleia Nix

BIOLOGIST

Emmeleia Nix is a Biologist with 5 years of professional field experience in biological surveying and monitoring, including ecological surveying, habitatand watershed assessments, soil auguring, bird banding, and rangeland and stream surveying. Nix is comfortable capturing and handling a variety of animals, including venomous reptiles and large mammals, with experience in tissue and blood sample collection/analysis, several injection techniques and necropsy. Research and academic experience includes historical data entry; geographical information system-based data analysis; permit report preparation; grant proposal reviews; co-authoring manuscripts; and presentation preparation. Recently, Nix has completed surveys for blunt-nosed leopard lizard (*Gambelia sila*) hatchlings and adults in accordance with CDFW Survey Protocol Guidelines. Ms. Nix has completed over 1,000 hours of blunt-nosed leopard lizard protocol surveys and has handled approximately 120 individuals. Additional project field work has includedrattlesnake telemetry and surveying/monitoring for California red-legged frogs(*Rana draytonii*), foothill yellow-legged frogs (*Rana sierrae*), and salamanders.

Education

University of California, Davis (PhD program)

Miami University and San Diego Zoo's Institute for Conservation Research MA, Biology (General), 2021

California Polytechnic State University, San Luis Obispo

BS, Animal Science, 2018

York School, 2014

Certifications

Firefighter II

Dudek Project Experience

Pelicans Jaw Hybrid Solar Project, Kern County, California. Conducted blunt-nosed leopard lizard adult surveys to provide biologicalfindings/constraints in previously disturbed habitat for the proposedconstruction of a solar field. Surveys were conducted in accordance with CDFW Survey Protocol Guidelines.

Relevant Previous Experience

Biological Science Technician, BLM, Marina, California. Employed as a seasonal biological technician for the BLM Marina office's wildlife biologist. Assisted with threatened and endangered species recovery efforts in a variety of ways. Conducted field work, such as a telemetry project involving blunt-nosed leopard lizards and the projects mentioned below. Performed geographic information system–based data analysis, presentation preparation, co-authored manuscripts, reviewed grant proposals, prepared permit reports, and assisted with stream surveys and watershed assessments. (2019-2021)

Specialized Training

- Completed qualifications to become a Firefighter II and begin training as a Resource Advisor (READ) for biological resources on wildfires.

Publications and Presentations

Gaudenti, N., **Nix, E.,** Maier, P., Westphal, M.F., Taylor, E.N. (2021). Habitat heterogeneity affects the thermal ecology of an endangered lizard. *Ecology and Evolution, 11*(21):14843-14856. doi: 10.1002/ece3.8170.

Lortie, C.J., Filazzola, A., Brown, C., Lucero, J., Zuliani, M., Ghazian, N., Haas, S., Owen, M., Butterfield, H.S., **Nix, E.** and Westphal, M. (2021). Facilitation promotes plant invasions and indirect negative interactions. *Oikos*, in press.https://doi.org/10.1111/oik.08443

Claunch, N., **Nix, E.**, Royal, A.E., Burgos, L., Corn, M., DuBois, P.M., Ivey, K., King, E., Rucker, K., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E.N. (2020). Body size impacts critical thermal maximum measurements in lizards. *Journal of Experimental Zoology Part A, 335*, 96-107.

Westphal, M. & **Nix, E.** (2020). *Resurveys for Foothill Yellow-legged Frog, Rana boylii, in the Southern Diablo Range.* PRESENTATION at the Declining Amphibian Populations Task Force Annual Meeting, 2020.

Ivey, K.N., Cornwall, M., Crowell, H., Ghazian, N., **Nix, E.**, Owen, M., Zuliani, M., Lortie, C.J., Westphal, M., Taylor, E. (2020). Thermal Ecology of the Federally Endangered Blunt-nosed Leopard Lizard (*Gambelia sila*). *Conservation Physiology, 8*(1).

Lortie, C.J, Braun, J., Westphal, M.F., Noble, T., Zuliani, M., **Nix, E.**, Ghazian, N., Owen, M., Butterfield, H.S. (2020). Shrub and vegetation cover predict resource selection use by an endangered species of desert lizard. *Nature Scientific Reports, 10*:4884

Westphal, M.F., Kiemnex-Tyburczy, K.M., **Nix, E.**, Westphal, M.F., Gruber, E. (2019). *Timing of Larval Development in a Sympatric Population of Taricha torosa and T. granulosa.* POSTER PRESENTATION at the Joint

Royal, A.E., Claunch, N.M., DuBois, P.M., Ivey, K.N., King, E., **Nix**, **E.**, Rucker, K.A., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E. (2017). *Body Size Effect on Thermal Tolerance in Certain Species of Sceloporus.* POSTER PRESENTATION at the Joint Meeting of Ichthyologists and Herpetologists, 2017.

Rucker, K.A., Claunch, N.M., DuBois, P.M., Ivey, K.N., King, E., **Nix**, **E.**, Royal, A.E., Shea, T., Stepanek, J., Vansdadia, S., Taylor, E. (2017). *Testing the effect of blood oxygen carrying capacity on thermal tolerance in lizards.* POSTER PRESENTATION at the Joint Meeting of Ichthyologists and Herpetologists, 2017.

DUDEK

Nicole Gaudenti

BIOLOGIST

Nicole Gaudenti is a Biologist with 6 years' professional experience working with a variety of species of wildlife in California, including blunt-nosed leopard lizards, Belding's ground squirrel, giant kangaroo rats, antelope squirrels. Ms. Gaudenti has significant experience surveying working with blunt-nosed leopard lizards, including surveying for, handling, telemetry, morphometrics, blood draw, tail tipping, and behavioral observations.

Education

California Polytechnic State University, San Luis Obispo, CA

MS, Biological Sciences, 2021

University of San Francisco

BS, Biology, emphasis in Ecology, 2015

Certifications

North American Banding Council Bander Certification, Passerines & Near Passerines

Relevant Experience

Oceano Dunes State Vehicular Recreation Area, Oceano Dunes, California. Senior Park Aide. Scoping for and monitoring nests of snowy plovers and California least terns. Experience with finding plover and tern nests, walking out to nests, assisting chick banding from a distance, monitoring blood survival, and searching for avian and mammalian predators.

California Polytechnic State University, San Luis Obispo, California. Graduate Assistant. Conducted 900+ hours surveying for blunt-nosed leopard lizards and handled over 80 individuals. Quantified the importance of shrubs in the thermoregulation of BNLL in the Carrizo Plain, CA. Coordinated a two-year summer field season; trained and supervised two students in telemetry; conducted daily relocations (2,000+ relocations) and weekly recovery of deployed temperature models and stationary temperature data (10,000+ temperature measurements). Conducted statistical analysis.

Point Blue Conservation Science, Palomarin Field Station, California. Research Assistant. Banded passerine birds, hummingbirds, and small raptors: 350+ individuals banded and 600+ handled. Skilled in extracting birds out of mist-nests, aging and sexing, collecting morphometric data, and banding. Performed daily area-search surveys. Spent one season nest-searching for wrentits, song sparrows, and Wilson's warblers; monitored 30+ nests, banded nestlings; territory-mapped all songbirds on 36-hectare study plot; target-netted certain individuals for color banding.

University of San Francisco, San Francisco, California. Research Assistant for Principal Investigator Scott Nunes, Ph.D. Investigated male breeding dispersal in Belding's ground squirrel using microsatellite DNA analysis by mark-

Ivey, K. Cornwall, M., Ghazian, N., Nix, E., Owen, M., Zuliani, M., Gaudenti, N., Maier, P., Westphal, M., Lortie, C., Taylor, E. “Temperature-based activity estimation accurately predicts surface activity but not microhabitat use in an endangered heliothermic lizard”. Amphibian & Reptile Conservation. (Accepted)

Gaudenti, N., Nix, E., Maier, P., Westphal, M., Taylor, E., “Habitat heterogeneity affects the thermal ecology of the federally endangered blunt-nosed leopard lizard”. Ecology & Evolution. (Submitted)

Gaudenti, N. “Habitat heterogeneity affects the thermal ecology of the federally endangered blunt-nosed leopard lizard”. 2021. Unpubl. Master’s thesis, California Polytechnic State University, San Luis Obispo, 33 pp.

Presentations

Gaudenti, N. Maier, P. Westphal, M., Taylor. E. 2020. “Habitat heterogeneity impacts the thermal ecology of blunt-nosed leopard lizards”, Presentation at The Wildlife Society- Western Section, Redding, CA.

Attachment D

Reference Sightings for the Blunt-Nosed Leopard Lizard
2021 Sample Survey Results

Sapphos environmental inc.

August 18, 2022
Job Number: 2635-001
Pelicans Jaw Hybrid Solar Project

MEMORANDUM FOR THE RECORD
2635-001.M09

TO: Dudek
(Mr. Keith Carwana)

FROM: Sapphos Environmental, Inc.
(Ms. Marie Campbell and Ms. Sarah Sperling)

CC: Pelicans Jaw Solar, LLC
(Mr. Tandy McMannes, Mr. Hun Kim, Mr. Alphonso Chang-Su Jung, Mr. Gary Izing, Mr. Jung Woo Kim, Mr. Nayeong Kim, Mr. Peter Hong, Mr. Brian Choung, Ms. Jeanie Lopez, Mr. Thaer Flieh, and Mr. Karl Brutsaert)

Bell-Kearns, Ltd.
(Mr. Andrew Bell)

SUBJECT: Reference Sightings for the Blunt-Nosed Leopard Lizard 2021 Sample Survey Results

EXECUTIVE SUMMARY

This Memorandum for the Record (MFR) documents reference sightings used to

INTRODUCTION

This MFR documents reference sightings used to inform the blunt-nosed leopard lizard 2021 sample surveys. Inclusion of reference sightings in the BNLL 2021 Sample Survey Results report demonstrates that the sample surveys were undertaken when BNLL were observed at comparable nearby locations. The use of reference sightings increases the reliability of using results of the of the BNLL 2021 Sample Survey Results report as the basis for the characterization of existing condition, and related impact analysis in the environmental impact report under preparation by Kern County, to support the evaluation and decision-making related to the proposed project, as required pursuant to the California Environmental Quality Act. The incidental sightings provided below occurred in Kern County, at the similar elevation to the Project.

REFERENCE SIGHTINGS

The California Department of Fish and Wildlife (CDFW) and the United States Fish and Wildlife Service (USFWS) are both in receipt of documentation of 2021 BNLL survey efforts that produced positive observations of BNLL and were used as reference sightings BNLL 2021 Sample Survey.

One BNLL adult was observed on May 10, 2021, on a dirt road within annual grassland habitat (35.776681, -119.401126) approximately 16.5 miles east of the Project. The sighting was observed by Mr. Christopher Russ (Level II BNLL Surveyor) and confirmed by Mr. Colton Parrish (Level II BNLL Surveyor).[1]

Two BNLL individuals were observed on June 8, 2021, one adult male in a cleared dirt construction area within annual grassland habitat (35.777809, -119.401520) and one sub-adult directly adjacent within the annual grassland habitat (35.777785, -119.401645). Both sightings were adjacent to each other, approximately 16.5 miles east of the Project. The sightings were observed by Ms. Rachel Sechan (Level II BNLL Surveyor) and were confirmed by Mr. Alex Brown (Level II BNLL Surveyor).[2]

Should there be any further questions regarding the information contained in this MFR, please contact Marie Campbell at (626) 683-3547 ext. 103 or mcampbell@sapphosenvironmental.com.

Attachment E

Monitoring Logs

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17478	
Date	*2021-05-23*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:45 AM–1:56 PM*
Conditions	*Air Temp: 75.5–92.2°F; Ground Temp: 79.3–115°F; 0% cloud cover; 0–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:45:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*79.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.9*

Survey Conditions	
Status	*End*
Time	*13:56:00*
TEMPERATURE	*°F*
Air Temp	*92.2*
Air Temp	*92.2*
Soil Temp	*115*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.5*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber, and Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	
Number of Tiger Whiptails Observed	*0*
NOTES	*Found scat by the far south edge of the project site by the canal but after further investigation it is assumed to be whiptail scat*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15453	
Date	*2021-05-24*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:05 AM–2:00 PM*
Conditions	*Air Temp: 77–93°F; Clear*
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:05:00*
TEMPERATURE	*°F*
Air Temp	*77*
Air Temp	*77*
Soil Temp	*75*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Sky	*Clear*

Survey Conditions	
Status	*End*
Time	*14:00:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*97*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Sky	*Clear*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Lower right quadrant is mix of sparse grassland with medium burrow density at bottom and then turns into field of discarded pistachio shells with no burrows, grass, or vegetation. Left lower quadrant is heavily grazed rangeland with high burrow activity but no shrubs. Field 3 up from bottom right had higher biomass but the soil was densely packed and no rodent burrows.*
Overall habitat quality	*Habitat quality in pistachio shell field is very poor. The bottom left quadrant is okay habitat quality but lacks a complex vegetation community to provide habitat heterogeneity and elevate the area to high quality habitat. The 3rd field up from the bottom right side was very poor habitat quality. The soil was too hard for BNLL to burrow and there were no rodent burrows on the landscape.*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*10–25%*
% Bare Ground	*50–75%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3.35*
NOTES	

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*05241439EN-01-01*
Record Lat/Long	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15495	
Date	*2021-05-25*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*San Diego*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:33 AM–2:00 PM*
Conditions	*Air Temp: 77–97°F; Ground Temp: 89–99°F; 10–30% cloud cover; 1–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:33:00*
TEMPERATURE	*°F*
Air Temp	*77*
Air Temp	*77*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*14:00:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*99*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*30*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*4.3*

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 15552	
Date	*2021-05-26*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:32 AM–1:10 PM*
Conditions	*77.5–94°F; 0–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:32:00*
TEMPERATURE	*°F*
Air Temp	*77.5*
Air Temp	*77.5*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Notes	*Ground temp 80.5F*

Survey Conditions	
Status	*End*
Time	*13:10:00*
TEMPERATURE	*°F*
Air Temp	*94*
Air Temp	*94*
Soil Temp	*0*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*50–75%*
% Bare Ground	*50–75%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15615	
Date	*2021-05-27*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:59 AM–12:05 PM*
Conditions	*Air Temp: 75–93.5°F; Ground Temp: 81.5–97.6°F; 0–10% cloud cover; 1–9 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:59:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*81.5*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*12:05:00*
TEMPERATURE	*°F*
Air Temp	*93.5*
Air Temp	*93.5*
Soil Temp	*97.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Survey Pass	*Adult Season Survey Pass 1*
Survey Pass	*Adult Season Survey Pass 1*
General description of vegetation community	*Grazed grassland. No shrubs.*
% Shrub	*0–10%*
% Forb	*0–10%*
% Grass	*50–75%*
% Bare Ground	*25–50%*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*2.85*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15759	
Date	*2021-05-30*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:20 AM–1:21 PM*
Conditions	*Air Temp: 75.5–95.2°F; Ground Temp: 75.8–128.1°F; 0% cloud cover; 1–8.6 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:20:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*75.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*13:21:00*
TEMPERATURE	*°F*
Air Temp	*95.2*
Air Temp	*95.2*
Soil Temp	*128.1*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*2*

FORMS DUDEK FIELD DATA REPORT

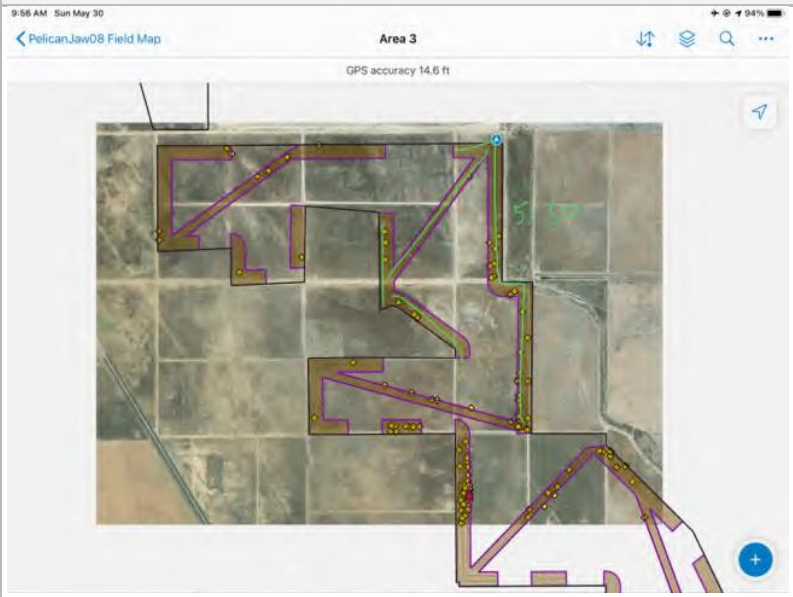
Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*
NOTES	

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*06011519EN-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*BCC/SSC*

Photo(s)	
Type	*Photo*
Photo	
Description	*Burrowing owl observed perched along existing fence. Two BUOW observed in area. Point added to Collector.*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*06011522EN-02-02*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed 5/30*

Photos	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*Burrowing owl sighted in survey area on existing fence.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15750	
Date	*2021-05-31*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:19 AM–11:32 PM*
Conditions	*Air Temp: 81.8–97.4°F; Ground Temp: 84.4–97°F; 0% cloud cover; 1–3 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:19:00*
TEMPERATURE	*°F*
Air Temp	*81.8*
Air Temp	*81.8*
Soil Temp	*84.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*23:32:00*
TEMPERATURE	*°F*
Air Temp	*97.4*
Air Temp	*97.4*
Soil Temp	*97*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*1*
Notes	*Had checked temp around 1030AM and it was 94F. Surveys were stopped approximately one hour later.*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*3.7 mi of transect, 5 miles of total distance*

Photos

Type	*Photo*
Photo	
Description	*Area surveyed today.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 15753	
Date	*2021-06-01*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*6:54 AM–10:29 AM*
Conditions	*Air Temp: 78.4–97°F; Ground Temp: 79.3–114.3°F; 0% cloud cover; 0–7.3 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*06:54:00*
TEMPERATURE	*°F*
Air Temp	*78.4*
Air Temp	*78.4*
Soil Temp	*79.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*

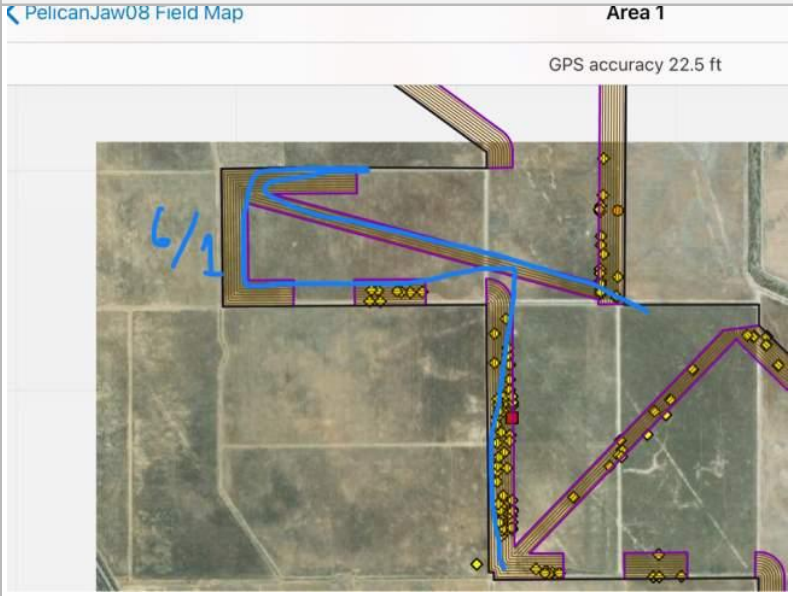
Survey Conditions	
Status	*End*
Time	*10:29:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*114.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*4.4*

Photos

Type	*Photo*
Photo	
Description	*Survey area for 6/1/21.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16119	
Date	*2021-06-02*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:00 AM–10:23 AM*
Conditions	*Air Temp: 75.4–101.4°F; Ground Temp: 80.1–127°F; 0% cloud cover; 1–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:00:00*
TEMPERATURE	*°F*
Air Temp	*75.4*
Air Temp	*75.4*
Soil Temp	*80.1*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

Survey Conditions	
Status	*End*
Time	*10:23:00*
TEMPERATURE	*°F*
Air Temp	*97.4*
Air Temp	*97.4*
Soil Temp	*127*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Notes	*Temperature increased towards the end of the survey. Survey ended at 10:30 am.*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	
Survey Pass	*Adult Season Survey Pass 2*
Survey Pass	*Adult Season Survey Pass 2*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17421	
Date	*2021-06-13*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Select Transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:25 AM–1:33 PM*
Conditions	*Air Temp: 75–97°F; Ground Temp: 80.4–130°F; 0% cloud cover; 0–9 mph wind*
Visit Type	
Notes	*We spent time looking at the canal at the far south boundary of the project site where we had previously encountered potential BNLL scat. We found more identical scat and spotted a large whip tail lizard (Aspidoscelis tigris) down in the canal. This leads me to believe that the scat we originally found is likely from a whip tail.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:25:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*80.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

Survey Conditions	
Status	*End*
Time	*13:33:00*
TEMPERATURE	*°F*
Air Temp	*97*
Air Temp	*97*
Soil Temp	*130*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Tiger Whiptails Observed	*1*

Photos	
Type	*Photo*
Photo	
Description	*Example of the scat observed, likely from a whip tail.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16122	
Date	*2021-06-14*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:54 AM–12:59 PM*
Conditions	*Air Temp: 75.7–96°F; Ground Temp: 78.3–126°F; 0% cloud cover; 0–6 mph wind*
Visit Type	
Notes	*Swainsons hawk observed flying overhead at beginning of survey. No active nest was observed. Burrowing owl seen in same location as from Pass 2. Location noted in Collector.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:54:00*
TEMPERATURE	*°F*
Air Temp	*75.7*
Air Temp	*75.7*
Soil Temp	*78.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*2*

Survey Conditions	
Status	*End*
Time	*12:59:00*
TEMPERATURE	*°F*
Air Temp	*96*
Air Temp	*96*
Soil Temp	*126*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	
Survey Pass	*Adult Season Survey Pass 3*
Survey Pass	*Adult Season Survey Pass 3*
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
APPROX DISTANCE COVERED (BY ALL SURVEYORS; IN TENTHS OF A MILE)	*5*

Wildlife List

Species Name	*Swainson's hawk (Buteo swainsoni), B-SWHA*
Observation ID (Copy and paste into Collector)	*06141523EN-01-01*
Record Lat/Long	
Federal and State Status	*BCC/ST*

Photos

Type	*Photo*
Photo	
Description	*Area surveyed 6/14*

FORMS DUDEK FIELD DATA REPORT

Photo	
Description	*SWHA1 observed flying overhead.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16377	
Date	*2021-06-15*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:32 AM–1:32 PM*
Conditions	*Air Temp: 75.1–83°F; Ground Temp: 76–98°F; 0% cloud cover; 1–13 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:32:00*
TEMPERATURE	*°F*
Air Temp	*77.1*
Air Temp	*77.1*
Soil Temp	*78*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*N/A*
Notes	*Did not take average wind speed during survey.*

Survey Conditions	
Time	*10:40:00*
TEMPERATURE	*°F*
Air Temp	*83*
Air Temp	*83*
Soil Temp	*98*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*3*
Average Wind (mph, to tenths of a mile)	*8*
Notes	

FORMS FIELD DATA REPORT

Survey Conditions

Status	*End*
Time	*13:32:00*
TEMPERATURE	*°F*
Air Temp	*92*
Air Temp	*92*
Soil Temp	*132*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*2*
Average Wind (mph, to tenths of a mile)	*N/A*
Notes	*Did not take average wind speed.*

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*See attachment*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
NOTES	

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16380	
Date	*2021-06-16*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:16 AM–9:58 AM*
Conditions	*Air Temp: 75–89.6°F; Ground Temp: 75.8–98.8°F; 10–40% cloud cover; 0–9 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:16:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*75.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*40*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1*
Notes	*Thin hazy clouds. Slight overcast. Warm out with almost no breeze*

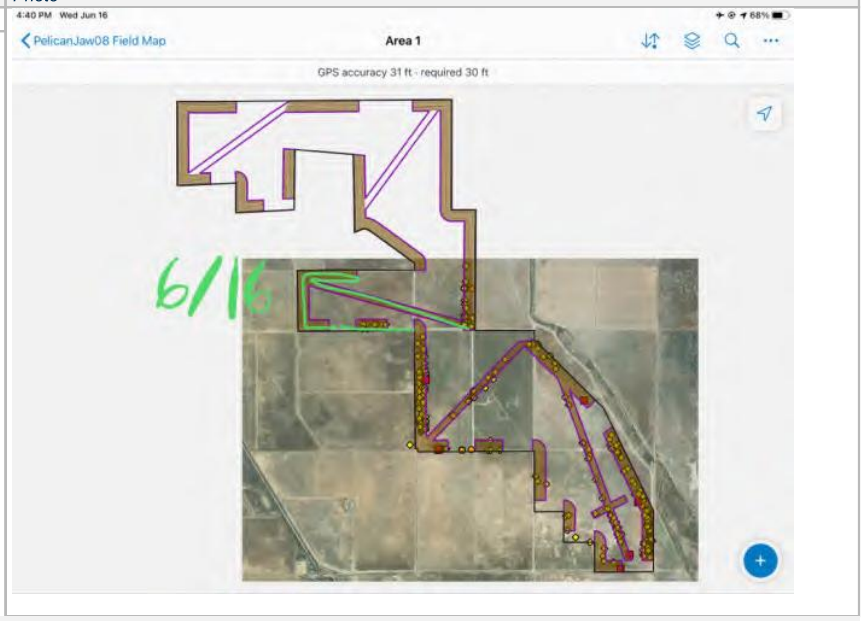
Survey Conditions	
Status	*End*
Time	*09:58:00*
TEMPERATURE	*°F*
Air Temp	*89.6*
Air Temp	*89.6*
Soil Temp	*98.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*2*
Average Wind (mph, to tenths of a mile)	*5.5*
Notes	*A bit hazy out but not truly overcast*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*See attachment*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*114*

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16719	
Date	*2021-06-28*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:15 AM–11:30 AM*
Conditions	*Air Temp: 78–93°F; Ground Temp: 83–108°F; 0% cloud cover; 0–8 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:15:00*
TEMPERATURE	*°F*
Air Temp	*78*
Air Temp	*78*
Soil Temp	*83*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*5*
Average Wind (mph, to tenths of a mile)	*6.5*

Survey Conditions	
Status	*End*
Time	*11:30:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*108*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0.5*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*53*
Number of Tiger Whiptails Observed	*0*

Photos	
Type	*Photo*
Photo	
Description	*View from south end of Project site, showing survey area.*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16746	
Date	*2021-06-29*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:00 AM–10:01 AM*
Conditions	*Air Temp: 75.2–89.6°F; Ground Temp: 75.7–82.7°F; 10% cloud cover; 0–4 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:00:00*
TEMPERATURE	*°F*
Air Temp	*75.2*
Air Temp	*75.2*
Soil Temp	*75.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.6*

Survey Conditions	
Status	*End*
Time	*10:01:00*
TEMPERATURE	*°F*
Air Temp	*89.6*
Air Temp	*89.6*
Soil Temp	*82.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.6*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*34*
Number of Tiger Whiptails Observed	*0*

Photos

Type	*Photo showing general survey area.*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16776	
Date	*2021-06-30*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Entire Site*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:42 AM–11:07 AM*
Conditions	*Air Temp: 77.1–92.3°F; Ground Temp: 82.2–89.9°F; 10% cloud cover; 4–10.7 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:42:00*
TEMPERATURE	*°F*
Air Temp	*77.1*
Air Temp	*77.1*
Soil Temp	*82.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*8.5*
Average Wind (mph, to tenths of a mile)	*9.0*

Survey Conditions	
Status	*End*
Time	*11:07:00*
TEMPERATURE	*°F*
Air Temp	*92.3*
Air Temp	*92.3*
Soil Temp	*89.9*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*4*
Average Wind (mph, to tenths of a mile)	*3.2*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*113*
Number of Tiger Whiptails Observed	*0*

Photos

Type	*Photo showing general survey area*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 16821	
Date	*2021-07-01*
Biologist	*Josh Parker*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	Kern County
Survey Area	*Select Transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:47 AM–9:37 AM*
Conditions	*Air Temp: 75.9–91°F; Ground Temp: 78–86.4°F; 0% cloud cover; 0–5 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:47:00*
TEMPERATURE	*°F*
Air Temp	*75.9*
Air Temp	*75.9*
Soil Temp	*78*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*5*
Average Wind (mph, to tenths of a mile)	*4.2*

Survey Conditions	
Status	*End*
Time	*09:37:00*
TEMPERATURE	*°F*
Air Temp	*91*
Air Temp	*91*
Soil Temp	*86.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*7.1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican's Jaw*
Level II Surveyor(s)	*Josh Parker*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*33*
Number of Tiger Whiptails Observed	*0*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17424	
Date	*2021-07-06*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:22 AM–11:32 AM*
Conditions	*Air Temp: 75.5–88.6°F; Ground Temp: 75.6–94.7°F; 0% cloud cover; 1–7.7 mph wind*
Visit Type	
Notes	*Began 2nd pass of revised transects and then set up 3 wildlife cameras at suspected active burrows*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:22:00*
TEMPERATURE	*°F*
Air Temp	*75.5*
Air Temp	*75.5*
Soil Temp	*75.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*1.5*

Survey Conditions	
Time	*09:18:00*
TEMPERATURE	*°F*
Air Temp	*88.6*
Air Temp	*88.6*
Soil Temp	*94.7*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*5*
Notes	*Taken midway through survey to confirm protocol compliance.*

FORMS FIELD DATA REPORT

Survey Conditions

Status	*End*
Time	*11:32:00*
TEMPERATURE	*°F*
Air Temp	*97.5*
Air Temp	*97.5*
Soil Temp	*97.9*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2.3*

Blunt-Nosed Leopard Lizard

Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
NOTES	

Photos

Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17427	
Date	*2021-07-07*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:03 AM–12:08 PM*
Conditions	*Air Temp: 75.9–97.9°F; Ground Temp: 75–93.6°F; 0% cloud cover; 0–3 mph wind*
Visit Type	
Notes	*2nd pass of revised transects. Burrowing owl observed. Checked wildlife cameras and set up an additional one.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:03:00*
TEMPERATURE	*°F*
Air Temp	*75.9*
Air Temp	*75.9*
Soil Temp	*75*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.8*

Survey Conditions	
Status	*End*
Time	*12:08:00*
TEMPERATURE	*°F*
Air Temp	*97.9*
Air Temp	*97.9*
Soil Temp	*93.6*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*1*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*07120908EN-01-01*
Record Lat/Long	
Federal and State Status	*BCC/SSC*

Wildlife List	
Species Name	*American badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07140945EN-02-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Spotted on CAM2*

Photo(s)	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*American badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07140945EN-03-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen on CAM4*

Photo(s)	
Type	*Photo*
Photo	
Description	*AMBA seen on CAM4*

Wildlife List	
Species Name	*Coyote (), B-COYO*
Observation ID (Copy and paste into Collector)	*07191725EN-04-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen on CAM1. Juvenile.*

Photo(s)	
Type	*Photo*

FORMS FIELD DATA REPORT

Photo	
Description	*COYO seen on CAM1*

Photos	
Type	*Photo*
Photo	
Description	*Area surveyed on 7/7/21*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 17430	
Date	*2021-07-08*
Biologist	*Emmie Nix*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*Kern County*
Survey Area	*Second pass of the revised transects*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*7:48 AM–11:09 AM*
Conditions	*Air Temp: 76.7–97.9°F; Ground Temp: 77.8–97.2°F; 0% cloud cover; 0–7.4 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*Concluded the second pass of revised transects and final pass of survey area.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*07:48:00*
TEMPERATURE	*°F*
Air Temp	*76.7*
Air Temp	*76.7*
Soil Temp	*77.8*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.4*

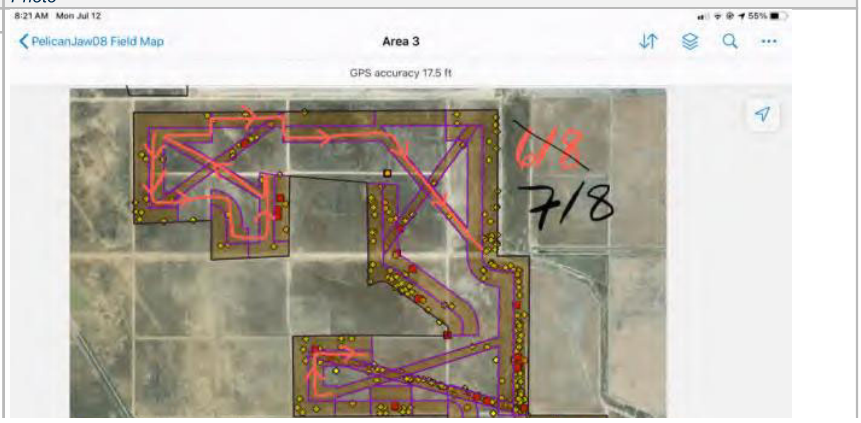
Survey Conditions	
Status	*End*
Time	*11:09:00*
TEMPERATURE	*°F*
Air Temp	*97.9*
Air Temp	*97.9*
Soil Temp	*97.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.1*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelican Jaw Solar Project. See attachment.*
Level II Surveyor(s)	*Emmie Nix*
Level I Surveyor(s)	*Grace Sanclemente, Joshua McLaughlin, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	

Wildlife List	
Species Name	*American Badger (Taxidea taxis), B-AMBA*
Observation ID (Copy and paste into Collector)	*07120827EN-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	
Notes	*Seen in project area near canal while driving to transect. We stopped to take a photo but it had already gone into the canal. By the time we got out of the car, we could not find it and it was likely in one of a few nearby burrows.*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*07120827EN-02-02*
Record Lat/Long	

Photos	
Type	*Photo*
Photo	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18717	
Date	*2021-09-19*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04413018, 04413021, 04413016*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:30 PM*
Conditions	*Air Temp: 75–89°F; 0–10% cloud cover*
Visit Type	
Wildlife Species Count Summary	*common raven, 9*
Notes	*Unknown mouse sp. (small, not a kangaroo rat) seen running into burrow @ 1052. Few grasshoppers, beetles. Dead juvenile coyote carcass. Fresh evidence of kangaroo rat activity throughout*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*10*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*12:30:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Teodora Ungureanu, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*26*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*09290716NG-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09290724NG-02-04*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290724NG-03-04*
Record Lat/Long	
Federal and State Status	

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09290721NG-04-04*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*High count 9*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18720	
Date	*2021-09-20*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410221, 04410222, 0410308*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:00 AM–1:30 PM*
Conditions	*Air Temp: 76–89°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:30:00*
TEMPERATURE	*°F*
Air Temp	*89*
Air Temp	*89*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*3.4*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Sarah Mendez, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*52*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*burrowing owl (Athene cunicularia), B-BUOW*
Observation ID (Copy and paste into Collector)	*09290734NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*BCC/SSC*
Notes	*Flushed from burrow entrance and flew down along ditch. Point taken in collector with updated ID from this record*

Special-Status Wildlife Observation	
Start observation time	*07:34:00*
End observation time	*09:54:00*
Lat/Long	*0.000000,0.000000*
Detection	*Observed*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Unknown*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Behavior	
Nectar Species	*N/A*
Color band information (if any)	
Vegetation Community(ies)	*Unvegetated Channel/Wash*
Habitat Quality	*Fair*
Immediate Land Use	*Agriculture ditch*
Surrounding Land Use	*Agriculture*
Visible Disturbances	
Threats	
Notes	*35.748342, -119.707729, point in collector under this same ID*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18723	
Date	*2021-09-21*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04415017, 04410309, 04410304, 04410203, 04410205*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:00 AM–1:00 PM*
Conditions	*Air Temp: 78–91°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:00:00*
TEMPERATURE	*°F*
Air Temp	*78*
Air Temp	*78*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*91*
Air Temp	*91*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*4*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Sarah Mendez, Garry Turner*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*31*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09290753NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*

Wildlife List	
Species Name	*black-tailed jackrabbit (Lepus californicus), M-BTJR*
Observation ID (Copy and paste into Collector)	*09290755NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*@ 0942*

Wildlife List	
Species Name	*barn owl (Tyto alba), B-BAOW*
Observation ID (Copy and paste into Collector)	*09290756NG-03-03*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*Flushed out of tree near some large pipes @ 1057*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290757NG-04-04*
Record Lat/Long	

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*turkey vulture (Cathartes aura), B-TUVU*
Observation ID (Copy and paste into Collector)	*09290757NG-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09290757NG-06-06*
Record Lat/Long	
Notes	*@ 1122*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18741	
Date	*2021-09-22*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410201, 04410102, 04411003, 04410106*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–1:00 PM*
Conditions	*Air Temp: 76–93°F; Ground Temp: 89°F; 0% cloud cover*
Visit Type	
Notes	*Finished first pass, set up 3 burrow cams. Golden eagle flyover seen, no nests observed.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*76*
Air Temp	*76*
Soil Temp	
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*93*
Air Temp	*93*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*2*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti*
Level I Surveyor(s)	*Teodora Ungureanu, Garry Turner, Sarah Mendez*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*24*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*golden eagle (Aquila chrysaetos), B-GOEA*
Observation ID (Copy and paste into Collector)	*09291139NG-01-01*
Record Lat/Long	
Federal and State Status	*None/FP, WL*

Special-Status Wildlife Observation	
Start observation time	*13:19:00*
Lat/Long	*0.000000,0.000000*
Detection	*Observed*
Roost	*N/A*
Sign Description	*N/A*
Adults	*Unknown*
Number of Adults	*1*
Juveniles	*None*
Number of Juveniles	*0*
Number of Larvae	
Number of Egg Masses	*0*
Total Number of Adults and Juveniles	*1*
Nectar Species	*N/A*
Color band information (if any)	
Habitat Quality	*Fair*
Immediate Land Use	*Agriculture*
Threats	

Wildlife List	
Species Name	*western rattlesnake (Crotalus oreganus), R-WERA*
Observation ID (Copy and paste into Collector)	*09291145NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Sign*
Federal and State Status	*None/None*

FORMS DUDEK FIELD DATA REPORT

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09291146NG-03-03*
Record Lat/Long	

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18744	
Date	*2021-09-26*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04410203, 04410205, 04410221, 04410222, 04410309*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:30 PM*
Conditions	*Air Temp: 75–90°F; Ground Temp: 74–92°F; 0% cloud cover*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*75*
Air Temp	*75*
Soil Temp	*74*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*8*

Survey Conditions	
Status	*End*
Time	*12:30:00*
TEMPERATURE	*°F*
Air Temp	*90*
Air Temp	*90*
Soil Temp	*92*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*0*
Notes	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Sophia Weber, Teodora Ungureanu*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*48*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*coyote (Canis latrans), M-COYO*
Observation ID (Copy and paste into Collector)	*09291221NG-02-02*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*
Notes	*Adult coyote sighted @ 1104 running E to W*

Wildlife List	
Species Name	*horned lark (Eremophila alpestris), B-HOLA*
Observation ID (Copy and paste into Collector)	*09291223NG-03-03*
Record Lat/Long	
Sign/Direct Observation	*Direct Observation*
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Bio Field Data

Record: 18747	
Date	*2021-09-27*
Biologist	*Nicole Gaudenti*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*04413039, 04415017, 04415005*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*8:30 AM–12:00 PM*
Conditions	*Air Temp: 70–87°F; Ground Temp: 67–89°F; 0% cloud cover*
Visit Type	
Notes	*1039 snakeskin found, likely gopher snake - scales not keeled*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*08:30:00*
TEMPERATURE	*°F*
Air Temp	*70*
Air Temp	*70*
Soil Temp	*67*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*4*

Survey Conditions	
Status	*End*
Time	*12:00:00*
TEMPERATURE	*°F*
Air Temp	*87*
Air Temp	*87*
Soil Temp	*89*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*7*

FORMS DUDEK FIELD DATA REPORT

Blunt-Nosed Leopard Lizard

Level II Surveyor(s)	*Nicole Gaudenti, Tamara Bryant*
Level I Surveyor(s)	*Sophia Weber, Jakob Dewhurst*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*22*
Number of Tiger Whiptails Observed	*0*

Wildlife List

Species Name	*kangaroo rat (Dipodomys sp.), M-KARA*
Observation ID (Copy and paste into Collector)	*09291235NG-01-01*
Record Lat/Long	
Sign/Direct Observation	*Sign*
Federal and State Status	*None/None*
Notes	*Carcass found in active burrow mouth*

Photo(s)

Type	*Photo*
Photo	
Description	*4 toes*

FORMS FIELD DATA REPORT

Photo(s)

Type	*Photo*
Photo	

Photos

Type	*Photo*
Photo	

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 18774	
Date	*2021-09-28*
Biologist	*Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*Pelicans Jaw*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:51 AM–1:00 PM*
Conditions	*Air Temp: 70.6–75.8°F; Ground Temp: 72.4–77.3°F; 80–90% cloud cover; 3.2–6 mph wind*
Visit Type	
Notes	
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:51:00*
TEMPERATURE	*°F*
Air Temp	*70.6*
Air Temp	*70.6*
Soil Temp	*72.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*90*
WIND	*mph*
Wind	
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*3.2*
Notes	

Survey Conditions	
Status	*End*
Time	*13:00:00*
TEMPERATURE	*°F*
Air Temp	*75.8*
Air Temp	*75.8*
Soil Temp	*77.3*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*80*
WIND	*mph*
Wind	

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Level II Surveyor(s)	*Tamara Bryant*
Level I Surveyor(s)	*Andrea Dransfield, Jakob Dewhurst, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*15*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*red-tailed hawk (Buteo jamaicensis), B-RTHA*
Observation ID (Copy and paste into Collector)	*09301025TB-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common side-blotched lizard (Uta stansburiana), R-CSBL*
Observation ID (Copy and paste into Collector)	*09301026TB-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09301026TB-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*(), B-*
Observation ID (Copy and paste into Collector)	*09301027TB-04-04*
Record Lat/Long	

FORMS DUDEK FIELD DATA REPORT

Bio Field Data

Record: 18777	
Date	*2021-09-29*
Biologist	*Tamara Bryant*
Project	*Pelicans Jaw Hybrid Solar Project*
Region	*So Cal*
Survey Area	*Transect*
Survey Type	*Blunt-Nosed Leopard Lizard*
Time	*9:42 AM–12:48 PM*
Conditions	*Air Temp: 76.3–83.6°F; Ground Temp: 78.4–86.2°F; 0% cloud cover; 0–2.2 mph wind*
Visit Type	
Wildlife Species Count Summary	
Notes	*All camera's were removed from the survey areas.*
Number of Nests Observed	*0*

Survey Conditions	
Status	*Start*
Time	*09:42:00*
TEMPERATURE	*°F*
Air Temp	*76.3*
Air Temp	*76.3*
Soil Temp	*78.4*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*1*
Average Wind (mph, to tenths of a mile)	*2.2*

Survey Conditions	
Status	*End*
Time	*12:48:00*
TEMPERATURE	*°F*
Air Temp	*83.6*
Air Temp	*83.6*
Soil Temp	*86.2*
Water Temp	*0*
Visibility	
Humidity	
Cloud Cover	*0*
WIND	*mph*
Minimum Wind Speed (mph)	*0*
Average Wind (mph, to tenths of a mile)	*1.7*

FORMS FIELD DATA REPORT

Blunt-Nosed Leopard Lizard	
Survey Area	*Other*
Survey Area	*Pelicans Jaw*
Level II Surveyor(s)	*Tamara Bryant*
Level I Surveyor(s)	*Andrea Dransfield, Jakob Dewhurst, Sophia Weber*
Survey Pass	
Number of BNLL Adults Observed	*0*
Number of BNLL Hatchlings Observed	*0*
Number of Common Side-Blotched Lizards Observed	*44*
Number of Tiger Whiptails Observed	*0*

Wildlife List	
Species Name	*turkey vulture (Cathartes aura), B-TUVU*
Observation ID (Copy and paste into Collector)	*09301257TB-01-01*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*Say's phoebe (Sayornis saya), B-SAPH*
Observation ID (Copy and paste into Collector)	*09301259TB-02-02*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*house finch (Haemorhous mexicanus), B-HOFI*
Observation ID (Copy and paste into Collector)	*09301300TB-03-03*
Record Lat/Long	
Federal and State Status	*None/None*

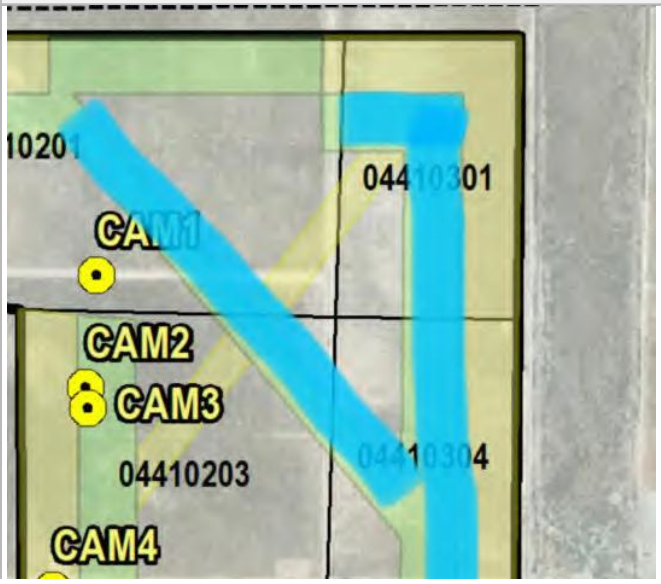
Wildlife List	
Species Name	*northern mockingbird (Mimus polyglottos), B-NOMO*
Observation ID (Copy and paste into Collector)	*09301300TB-04-04*
Record Lat/Long	
Federal and State Status	*None/None*

FORMS FIELD DATA REPORT

Wildlife List	
Species Name	*common raven (Corvus corax), B-CORA*
Observation ID (Copy and paste into Collector)	*09301300TB-05-05*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*American crow (Corvus brachyrhynchos), B-AMCR*
Observation ID (Copy and paste into Collector)	*09301301TB-06-06*
Record Lat/Long	
Federal and State Status	*None/None*

Wildlife List	
Species Name	*white-crowned sparrow (Zonotrichia leucophrys), B-WCSP*
Observation ID (Copy and paste into Collector)	*09301302TB-07-07*
Record Lat/Long	
Federal and State Status	*None/None*

Photos	
Type	*Photo*
Photo	

FORMS DUDEK FIELD DATA REPORT

Photos

Type	*Photo*
Photo	
Description	*The BNLL survey area is in green*

Attachment F

Wildlife Observations



Camera 5 – San Joaquin kit fox





One of two burrowing owl observations in APNs 04410203 and 04410205 during adult season surveys (please see Figure 3A)





Camera 7 – San Joaquin Kit Fox. Camera indicates incorrect date due to camera malfunction. Photo was taken between 9/19/2021 and 9/29/2021.





A desiccated kangaroo rat carcass (*Dipodomys sp.*) discovered during hatchling season surveys in APN 04415017. Species-level identification could not be completed due to the condition of the carcass.

