APPENDIX C

Biological Resources Technical Report

Ironwood Consulting

370 Alabama Street, Suite A
Redlands, CA 92373
(909) 798-0330
www.ironwoodbio.com

Biological Resources Technical Report

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Sapphire Solar Project
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Riverside County, California

Prepared for:

Bureau of Land Management
Palm Springs South Coast Field Office
1201 Bird Center Drive
Palm Springs, CA 92262

Riverside County
Planning Department
4080 Lemon Street
Riverside, CA 92501

EDF Renewables
15445 Innovation Drive
San Diego, CA 92128

Table of Contents

1 Introduction 1

1.1 Project Location 1

1.2 Project Features 1

1.3 Purpose 2

2 Methods 5

2.1 Literature Review 5

2.2 Special Status Species Definition 5

2.3 Focused Wildlife Surveys 6

2.4 Focused Plant Surveys 7

2.5 DRECP Assessments 8

3 Environmental Setting 9

3.1 Regional Setting 9

3.2 Rainfall 9

3.3 Hydrology 10

3.4 Soils and Geology 10

3.5 Sand Transport System 13

3.6 Vegetation Alliances 13

3.6.1 Sonoran Desert Scrub 16

3.6.2 Desert Dry Wash Woodland 16

3.6.3 Ephemeral Dry Wash 16

3.6.4 Desert Pavement 16

3.6.5 Fallow Agriculture and Semi-Developed/Aquaculture 17

3.6.6 Artificial Wetland/Artificial Open Water/Non-Native Riparian 17

3.7 Noxious, Nonnative, and Invasive Weeds 17

3.7.1 Sahara Mustard 17

3.7.2 London Rocket 17

3.7.3 Saltcedar 18

3.7.4 Russian Thistle 18

3.7.5 Sow Thistle 18

4 Special Status Wildlife 19

4.1 Reptiles 19

4.1.1 Agassiz's Desert Tortoise 19

4.1.2 Mojave Fringe-Toed Lizard 31

4.2 Amphibians 33

4.2.1 Couch's Spadefoot Toad 33

4.3 Birds 33

4.3.1 Golden Eagle 33

4.3.2 Western Burrowing Owl 35

4.3.3 Elf Owl 36

4.3.4 Gila Woodpecker 38

4.3.5 California Horned Lark 38

4.3.6 Le Conte's Thrasher 38

4.3.7 Mountain Plover 39

4.3.8 Loggerhead Shrike 39

4.3.9 Swainson's Hawk 39

4.3.10 Gilded Flicker 40

4.3.11 Lucy's Warbler 40

4.3.12 Yellow-Billed Cuckoo 40

4.3.13 Willow Flycatcher 40

4.3.14 Ridgway's Rail 41

4.3.15 Bell's Vireo 41

4.3.16 Costa's Hummingbird 42
4.3.17 Black-tailed Gnatcatcher 42
4.3.18 Bendire's Thrasher 42
4.3.19 Crissal Thrasher 42
4.4 Mammals 43
4.4.1 Desert Kit Fox 43
4.4.2 American Badger 43
4.4.3 Burro Deer 45
4.4.4 Desert Bighorn Sheep 45
4.4.5 Special Status Bats 46
4.5 Wildlife Connectivity 47
4.5.1 Multi-Species Linkages 48
4.5.2 Desert Connectivity Project 48
4.5.3 Pinto Wash Linkage 48
5 Special Status Plant Species 53
5.1 Jackass Clover 53
5.2 Desert Unicorn Plant 53
5.3 California Ditaxis 53
5.4 Harwood's milk-vetch 58
5.5 Emory's Crucifixion-Thorn 58
5.6 Slender-Spined All Thorn 58
5.7 Alverson's Foxtail Cactus 58
5.8 Harwood's Eriastrum 58
5.9 Cacti, Yucca, and Native Trees 59
6 DRECP CMA Compliance for Linear Facility Route Design 60
6.1 LUPA-BIO-1 60

6.2 LUPA-BIO-13 60

6.3 LUPA-BIO-RIPWET-1 & LUPA-BIO-SVF-6 (Microphyll Woodland) 61

6.4 LUPA-BIO-PLANT-2 & 3 (Special Status Plants) 61

6.5 LUPA-SW-9 (Desert Pavement) 62

6.6 LUPA-BIO-DUNE-1, DUNE-2, and DUNE-3 (Sand Dunes) 62

6.7 DFA-VPL-BIO-IFS-1, LUPA-BIO-IFS-1, and LUPA-BIO-IFS-2 (Pinto Wash Linkage) 63

7 Certification 64

8 References 65

Appendix A : Representative Site Photos A-1

List of Tables

Table 2-1. Focused Survey Dates, Personnel and Weather Conditions 6

Table 3-1. Annual Winter (October-March) Rainfall Summary (2011 to 2022) 9

Table 3-2. Annual Summer (April-September) Rainfall Summary (2011 to 2022) 10

Table 3-3. Vegetation Alliances and Other Cover Types 13

Table 4-1. Special Status Wildlife Species 20

Table 4-2. Regional Golden Eagle Surveys 34

Table 5-1. Special Status Plant Species 54

List of Figures

Figure 1-1. Regional Setting 3

Figure 1-2. Project Area 4

Figure 3-1. Hydrology 12

Figure 3-2. Soils 13

Figure 3-3. DRECP Sand and Dune Systems 14

Figure 3-4. Vegetation Alliances 15

Figure 4-1. CNDDB Occurrences 28

Figure 4-2. Desert Tortoise Predicted Occupancy and Survey Results 29

Figure 4-3. DRECP Desert Tortoise Survey Areas 32

Figure 4-4. Western Burrowing Owl 37

Figure 4-5. Desert Kit Fox 44

Figure 4-6. Wildlife Connectivity 49

Figure 4-7. Pinto Wash Linkage with BLM Land Designations 50

Figure 4-8. Pinto Wash Linkage with Habitat Quality 52

Figure 5-1. Special Status Plants 57

Acronyms

ac	acre
amsl	above mean sea level
BCC	Bird of Conservation Concern
BESS	battery energy storage system
BLM	U.S. Bureau of Land Management
BLMS	BLM Sensitive
BRTR	Biological Resources Technical Report
Cal-IPC	California Invasive Plant Council
CBI	Conservation Biology Institute
CCH	Consortium of California Herbaria
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDV	Canine Distemper Virus
CESA	California Endangered Species Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFP	California Fully Protected Species
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CPF	California Protected Furbearing Mammal
CPGS	California Protected Game Species
CMA	Conservation Management Actions
DOI	Department of the Interior
DFA	Development Focused Area
DRECP	Desert Renewable Energy Conservation Plan
FE	Federally listed Endangered
FESA	Federal Endangered Species Act
ft	feet

GIS	Geographic Information System
ha	hectare
HR	Hydrologic Region
km	kilometer
LFR	Linear Facility Routes
LUPA	Land Use Plan Amendment
m	meter
MW	megawatt
NVCS	National Vegetation Classification System
NRCS	Natural Resources Conservation Service
O&M	operations and maintenance
Project	Sapphire Solar Project
ROD	Record of Decision
SE	State-listed Endangered
SCE	Southern California Edison
SSC	California Species of Special Concern
ST	State-listed Threatened
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
WL	Watch List
WAFWA	Western Association of Fish and Wildlife Agencies
WRCC	Western Regional Climate Center

1 Introduction

EDF Renewables Development, Inc on behalf of Sapphire Solar, LLC, is proposing the Sapphire Solar Project (Project) in Riverside County, California (Figure 1-1). The Project would consist of a solar facility on approximately 1,082 acres (ac) (438 hectares [ha]) of private lands and linear facility routes (LFRs) on up to 110 ac (45 ha) of Bureau of Lands Management (BLM) administered public lands (Figure 1-2) for a total project size of approximately 1,192 ac. Private lands within the Project area formerly supported mixed-use agricultural practices, including jojoba farming and aquaculture.

1.1 Project Location

The Project is situated within the Chuckwalla Valley, east of Kaiser Road, approximately 3 miles (4.8 kilometers [km]) north of Desert Center and less than 1 mile (1.6 km) south of the existing Desert Harvest Solar Project (Figure 1-1). The east side of the Project solar facility is adjacent to California State Route 177/Rice Road. The proposed Easley Solar Project will surround the Sapphire Solar Project on almost all sides. The existing Desert Sunlight and Desert Harvest solar projects are located north of the Project site; the Athos Solar Project is located south of the Project site; and the recently approved Oberon Solar Project is located further south of the Project site and Lake Tamarisk. The site is located within the Chuckwalla Valley ecoregion subarea of the DRECP plan area and can be found on two 7.5-Minute U.S. Geological Survey topographic quadrangles: Victory Pass and East of Victory Pass (Sections 1, 2, and 6 of Township 5S, and Range 15E and Sections 34, 35, and 36 of Township 4s and Range 15E, San Bernardino Base and Meridian). Joshua Tree National Park is located approximately 3 miles (4.8 km) from the Project's northeastern and western boundaries.

1.2 Project Features

The Project would consist of the following components on private lands:

- Photovoltaic panels mounted on single axis trackers
- Inverters, converters, and transformers
- Electrical collection and communication lines
- Onsite electrical substation
- Battery storage system (BESS)
- Security fencing
- Operations and maintenance facility
- 12-kilovolt (kV) distribution line
- Up to three groundwater wells
- Meteorological station and albedometer weather station
- Microwave/communications tower
- Supervisory control and data acquisition (SCADA) system

In addition, the following components are collectively referred to as “linear facility routes” and occur on federal public lands administered by BLM:

- 230-kV gen-tie line
- Access roads
- Collector line routes
- 12-kilovolt (kV) distribution line

While the LFRs are within the land use jurisdiction of the BLM Palm Springs South Coast Field Office, the Project solar facility is within the land use jurisdiction of Riverside County. The entirety of the three LFRs are located within a Development Focus Area (DFA) for solar, wind, and geothermal projects as designated by the DRECP. The DRECP Final Environmental Impact Statement was approved by a Record of Decision (ROD) signed on September 14, 2016.

The Project would interconnect via a line tap on the existing Desert Harvest gen-tie line (likely at pole #11 or pole #13). Ultimately, power would be provided on existing lines to Southern California Edison (SCE) 230 kV Red Bluff Substation. No additional ground disturbance would result south of the line tap. Access to the Project Area would be from one of two linear facility route alternatives via Kaiser Road. An additional access road mainly for emergency services would be constructed within a linear facility route alternative from either Kaiser Road or California State Route 177/Rice Road.

1.3 Purpose

The purpose of this Biological Resources Technical Report (BRTR) is to provide an assessment of biological resources potentially affected by the Project. This report provides biological information that will be used as the foundation for impact assessments pursuant to the National Environmental Policy Act and California Environmental Quality Act (CEQA). The BRTR evaluates consistency with the Desert Renewable Energy Conservation Plan (DRECP) regarding the LFRs. The discussion included herein may also be used to support coordination between BLM and the U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA), and any potential incidental take authorization from the California Department of Fish and Wildlife (CDFW) with respect to the California Endangered Species Act (CESA).

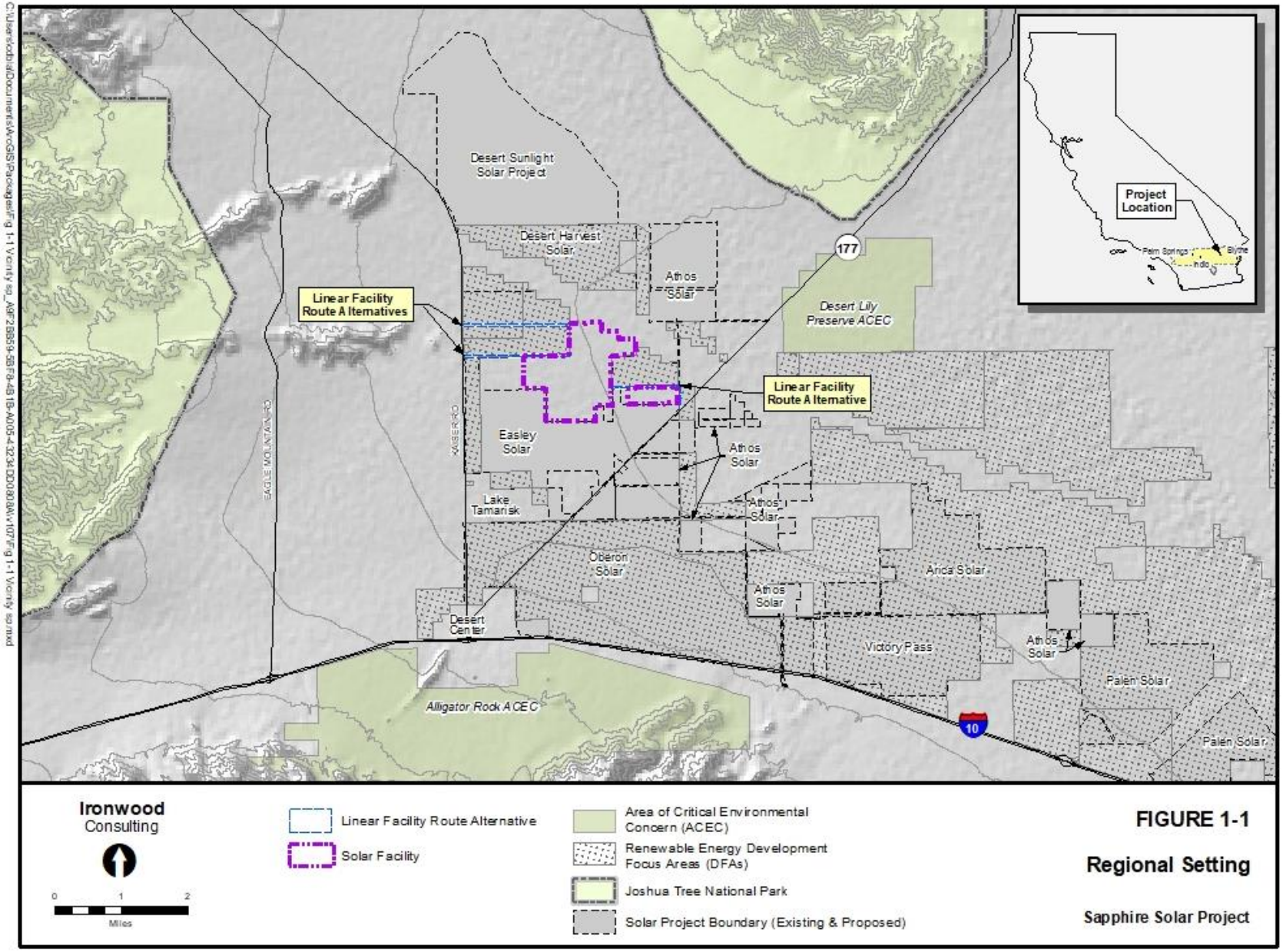


Figure 1-1. Regional Setting

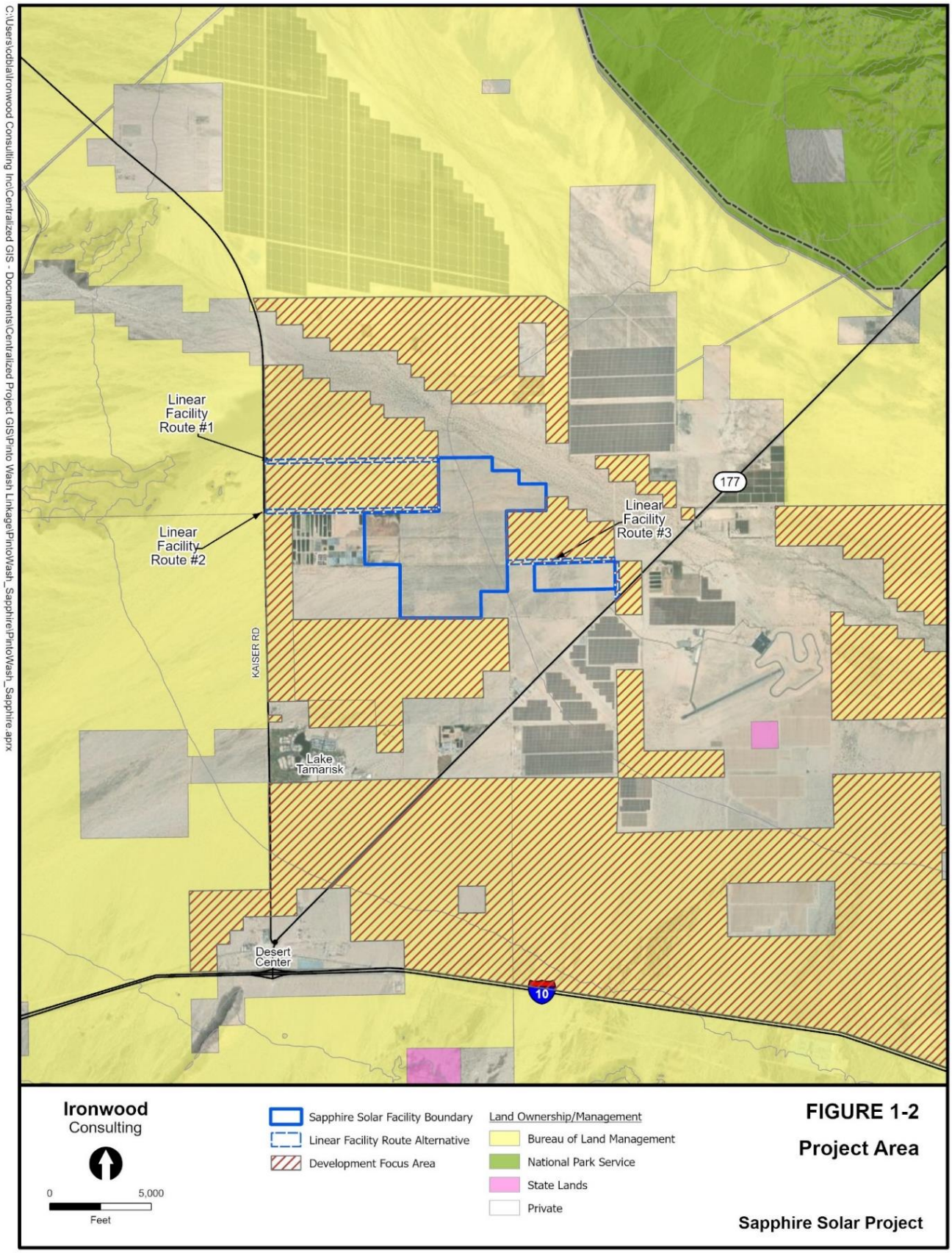


Figure 1-2. Project Area

2 Methods

The following section describes the data sources and methods used to determine site characteristics and evaluate the potential for special status species and habitats to occur.

2.1 Literature Review

Prior to conducting field surveys, relevant literature was reviewed, and an analysis was performed using Geographic Information Systems (GIS) with the following digital datasets, which include the most current information, data sources, and tools:

- 7.5' U.S. Geological Survey topographic quadrangles
- National Agriculture Imagery Program aerial imagery
- National Wetlands Inventory Wetlands Mapper (USFWS 2022)
- Final Environmental Impact Statement and Record of Decision for the DRECP; BLM 2015; BLM 2016)
- DRECP Data Basin Gateway (CBI 2022)
- California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants (CNPS 2022a)
- The Consortium of California Herbaria (CCH) Jepson Interchange (CCH 2022)
- CalFlora (2022)
- Manual of California Vegetation and DRECP mapping (Sawyer, Keeler-Wolf, and Evens 2009)
- Natural Resource Conservation Service Web Soil Survey (USDA and NRCS 2022)
- Western Regional Climate Center (WRCC 2023)
- BLM sensitive species lists (BLM and USFWS 2014)
- Information for Planning and Consultation (USFWS 2023)
- Publicly available biological resources and delineation reports from nearby projects (e.g., Desert Harvest, Easley, Palen, Oberon, Arica & Victory Pass Solar Projects)

2.2 Special Status Species Definition

Special status species are those that have been afforded special recognition by federal, state, or local resource agencies or organizations, are often of relatively limited distribution, and typically have unique habitat conditions, which also may be in decline. Special status criteria include:

- Officially listed or candidates for listing by California or the federal government as endangered, threatened, of special concern, or rare under the CESA or the FESA
- Plants or animals which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the CEQA Guidelines
- DRECP Focus and Planning Species
- BLM Special Status Species designated by the BLM California State Director
- USFWS Sensitive Species
- Plants listed in the CNPS Inventory of Rare and Endangered Plants of California (CNPS 2021)
- Wildlife species identified by CDFW as Species of Special Concern (CDFW 2023)

- Plants or animals included in the CDFW lists of Special Plants or Special Animals (CDFW 2022)
- Protected under other statutes or regulations (e.g., Bald and Golden Eagle Protection Act, etc.)

The probability of occurrence for special status species is defined as follows:

- **Present**: species was observed at the time of the survey
- High: both a historical record and habitat requirements of the species exist within the Project or its immediate vicinity (approximately 5 miles [8 km]).
- Moderate: either a historical record or habitat requirements of the species exists within the immediate vicinity of the Project (approximately 5 miles [8 km]).
- Low: No records exist of the species occurring within the Project or its immediate vicinity and/or habitats needed to support the species are of poor quality.

2.3 Focused Wildlife Surveys

Digital datasets listed in Section 2.1 were reviewed prior to field surveys. Based upon review of the literature, a list of special status wildlife species with potential to occur in or near the Project was compiled (see Section 4). Experienced desert biologists familiar with wildlife resources in the Colorado Desert completed focused desert tortoise (Gopherus agassizii) surveys within the proposed solar facility from April 3 to 7, 2022 and along the LFRS from November 1 to 15, 2022 (Table 2-1), using belt transects at approximately 32 feet (ft; 10 meters [m]) apart to provide 100 percent (full) coverage for the approximately 1,200-ac Project survey area consistent with protocol survey methods (USFWS 2018). During the survey periods, sustained windspeed was consistently less than 21 mph, and daytime high temperatures ranged from 27.7°C to 48.3°C.

Table 2-1. Focused Survey Dates, Personnel and Weather Conditions

Date	Survey Type	Surveyors	Temperature (C)	Cloud Cover (%)	Wind Speed (mph)	Precipitation
4/3/2022-4/7/2022	10-m surveys for desert tortoise, rare plants, burrowing owl (#1), and avian counts	D. Kesonie, L. Rouse, R. Crawford, E. Cooley, F. Cockburn, D. Summers, M. Lavender, C. Primuth, T. Ridlinghafer, W. McBride, L. Neff, B. Sivinski, M. Adams, G. Chio, J. Leary, H. Oswald	16.1 to 42.4	0 to 50	0 to 10	None
4/30/2022-5/2/2022	Burrowing owl survey #2	G. Chio	15.5 – 38.3	0 to 50	0 to 16	None
5/24/2022-6/13/2022	Burrowing owl survey #3	B. Payne, J. Chikezie	21.6 - 43.3	0 to 50	0 - 18	None
7/13/2022 – 7/24/2022	Burrowing owl survey #4	D. Summers, J. Chikezie	28.3 - 48.3	0 to 50	0 - 21	None
8/20/2022	Couch's spadefoot toad survey	J. St. Pierre	27.2 - 44.4	0 to 50	0 - 18	None
11/1/2022 - 11/15/2022	10-m surveys for desert tortoise wildlife, rare plants along LFRs	N. Banfield, B. Reiley, J. St. Pierre, M. Toelkes, R. Woodard	9 – 27.7	0 - 50	0 - 15	None

Surveys were conducted by walking linear transects and visually searching for live individuals or sign of any sensitive species. Biologists documented other fossorial wildlife species (e.g., western burrowing owl [*Athene cunicularia hypugaea*], desert kit fox [*Vulpes macrotis arsipus*], and American badger [*Taxidea taxus*]). All burrows detected that may be inhabited by sensitive species were carefully inspected for potential occupancy, or sign of recent use as burrows or burrow complexes. Burrows were carefully examined and assigned to the wildlife species that may have inhabited them based on indicator signs within the burrow or near the mouth of the burrow. Special emphasis was placed on searching around the bases of shrubs and along the banks of shallow washes.

A dedicated avian biologist conducted avian counts in the morning through 10 a.m. on each day of survey. The avian biologist maintained an avian inventory for each day of survey. Biologists assessed microphyll woodlands for their potential to support Gila woodpecker (*Melanerpes uropygialis*), elf owl (*Micrathene whitneyi*), and bat roosts. All wildlife species were recorded, regardless of conservation status. Common species were tallied and recorded by each crew. All locational information for special status species observations and sign detected were recorded on digital Zerion iForms. The data were then uploaded to ESRI Field Maps. Photographs were taken of notable observations using Solocator or Theodolite applications that include photo metadata (Universal Transverse Mercator [UTM], date, direction) on each image for easy identification.

Focused surveys consistent with the CDFW Staff Report on Burrowing Owl Mitigation (CDFW 2012) were performed based on a dataset derived from full coverage surveys. Burrows exhibiting the potential for burrowing owl identified during the initial 10-m wildlife surveys in April 2022 were checked an additional three times, spaced at approximately 3-week intervals (Table 2-1). Weather conditions during the burrowing owl surveys are in Table 2-1.

Over 2 inches of rain occurred in parts of Chuckwalla Valley in August 2022. Areas with evidence of historical ponding were recorded during focused wildlife surveys and resurveyed for sign of Couch's spadefoot (*Scaphiopus couchii*) on August 20, 2022.

2.4 Focused Plant Surveys

Digital datasets listed in Section 2.1 were reviewed prior to field surveys. Based upon review of the literature, a list of special status plant species with potential to occur in or near the Project was compiled (see Section 4). Experienced botanists familiar with plants in the Colorado Desert completed focused surveys from March 28 to April 7, 2022, within the approximately 1,200-ac Project survey area. Survey methodology was consistent with the following guiding documents:

- Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000)
- Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2000)
- CNPS Botanical Survey Guidelines (CNPS 2001)
- Survey Protocols for Survey and Manage Strategy 2: Vascular Plants (Whiteaker et al. 1998).

During plant surveys, botanists recorded all plant species, regardless of conservation status. All locational information for special status species observations were recorded on digital Zerion iForms. The data were then uploaded to ESRI Field Maps. Photographs were taken of notable observations using Solocator or Theodolite applications that include photo metadata (UTM, date, direction) on each image for easy identification.

2.5 DRECP Assessments

The Project's potential to support biological resources that are protected by DRECP Conservation Management Actions (CMAs) was evaluated specifically with regard to the LFRs, as they occur on BLM land. The proposed solar facility is located entirely on private land and therefore not subject to the DRECP. General site conditions and vegetation communities were recorded. DRECP vegetation alliances were used as an initial reference point and refined based on direct observations in the field. Habitat mapping focused on areas of unique habitat (e.g., sand transport resources, microphyll woodland, creosote rings, and ponded water), if present, and further investigated for the potential for special status species.

3 Environmental Setting

3.1 Regional Setting

The Project is located in the western extent of Chuckwalla Valley in the Colorado Desert, north of Desert Center, east of Palm Springs and west of Blythe. The elevation of Chuckwalla Valley ranges from less than 350 ft above mean sea level (amsl) at Ford Dry Lake to approximately 1,800 ft amsl west of Desert Center and along the upper portions of the alluvial fans that surround the valley perimeter. The surrounding mountains rise to over 3,000 ft amsl.

The topography of the Project generally slopes downward toward the northeast at a gradient of less than 1 percent. Ground surface elevations range from approximately 550 ft amsl in the eastern extent of the solar facility to 660 ft amsl near the western extent of the solar facility. Anthropogenic impacts and land use near the Project include aquaculture, transportation (Kaiser Road, Rice Road/SR 177), agricultural, renewable energy (both existing and proposed), energy transmission, historical military operations, and recreational development.

3.2 Rainfall

Measurements of precipitation during winter (October through March) and summer (April through September) periods are important in determining the efficacy of both wildlife and special status plant surveys. Data were obtained from the Western Regional Climate Center (WRCC 2023) for the most proximate stations to the Project: Blythe Airport and Eagle Mountain weather stations (approximately 40 miles (64 km) and 10 miles (16 km) from the Project, respectively). Available annual rainfall data from 2011 to 2022 were totaled and averaged (Table 3-1, Table 3-2). Over the period of analysis, the highest winter rainfall occurred between October 2019 and March 2020 and highest summer rainfall occurred between April and September 2012. For comparison, average historical winter precipitation recorded since the 1940's was about 2.1 inches, and average summer historical summer precipitation was about 1.4 inches.

Table 3-1. Annual Winter (October-March) Rainfall Summary (2011 to 2022)

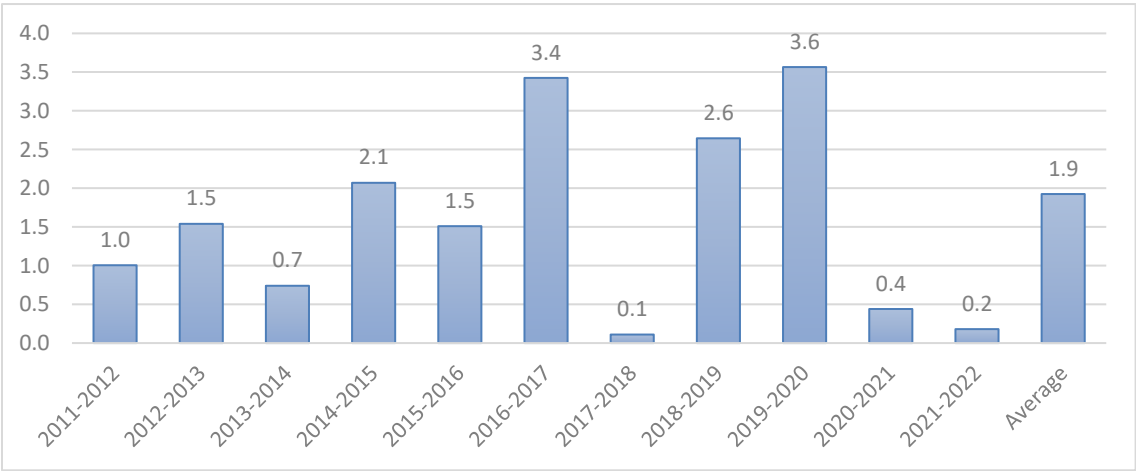
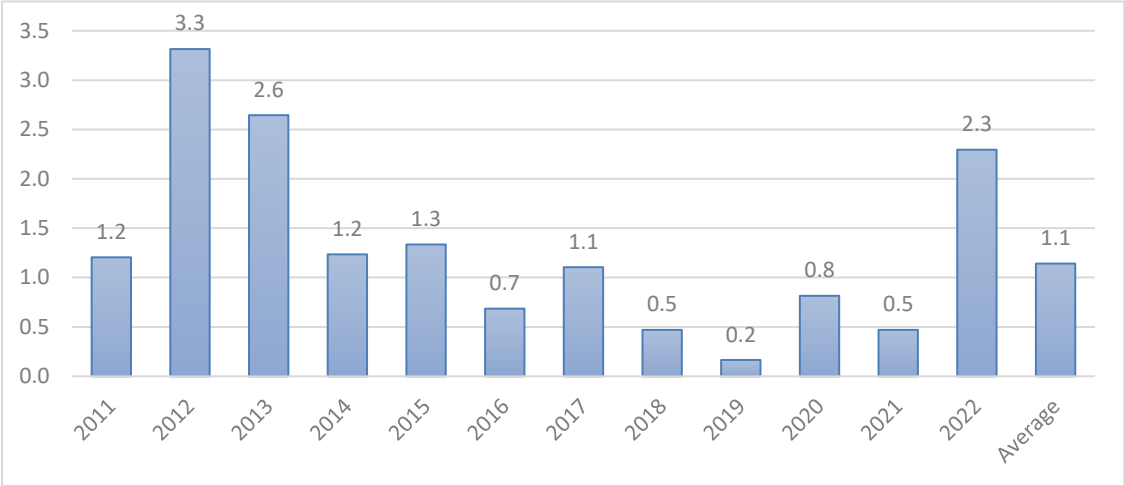


Table 3-2. Annual Summer (April-September) Rainfall Summary (2011 to 2022)



3.3 Hydrology

The Project resides within the Colorado River Hydrologic Region (HR). The Colorado River HR covers approximately 13 million ac (20,000 square miles; 5.2 million ha) in southeastern California and is the most arid hydrologic region in California with annual precipitation averaging less than 4 inches (WERC 2023). The Project is in the Hayfield Lake-Lake Tamarisk and Big Wash HUC 10 Hydrologic Areas (Figure 3-1). These hydrological areas flow to closed basins that are not connected with the Colorado River or other traditional navigable waters. Palen Dry Lake and Ford Dry Lake represent the lowest elevations within the basin.

Desert washes within this region are almost always dry but contract and expand dramatically in size due to extreme variations in flows, which can range from high-discharge floods to extended periods when surface flow is absent. The Project lies between the upper Chuckwalla Valley and Palen Dry Lake. The site is situated in the lower extent (distal end) of the alluvial fan, which is characterized by less stabilized soils consisting of finer sand and silt, compared to the upper alluvial fan that supports more stabilized, rocky soils with well-defined channels. Alluvial processes across the Project generally flow from southwest to northeast. Former agricultural practices within the proposed solar facility have greatly modified natural hydrology.

3.4 Soils and Geology

Soils mapped on the Project consist of primarily one soil type per the United States General Soils Map: the Vaiva-Quilotosa-Hyder-Cipriano-Cherioni map unit (Figure 3-2), which are generally sandy and/or alluvial materials derived from granite, gneiss, metamorphic, rhyolite, and/or volcanic parent material (USDA NRCS 2022). These soils are generally well-drained to somewhat excessively drained and experience medium to rapid runoff and moderate permeability. The California Geological Survey published the Geologic Atlas of California between 1958 and 1969. The Salton Sea sheet (Geologic Atlas Map 13, 1967) provides a geological map for eastern Riverside County that is consistent with geologic units across the entire state. Geologic unit “Qal”, which is characterized as recent alluvium consisting of recently deposited sand, silt, clay, and gravel, occurred across the entire Project. Within the Project area, these map units occur within the lower alluvial fans emanating from the Chuckwalla Mountains and Eagle Mountains and are located upslope of aeolian sand transport zones at lower elevations.

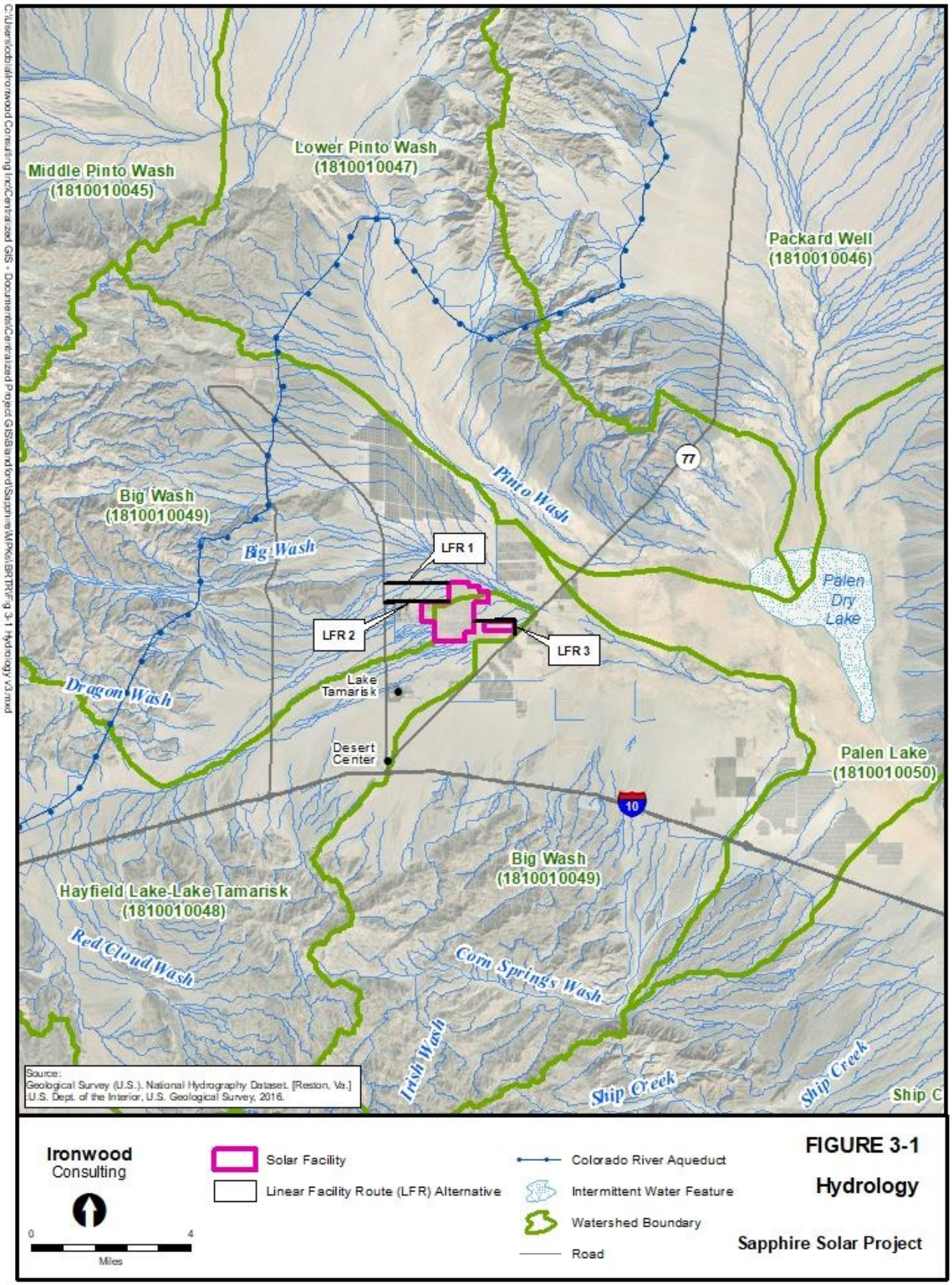

Middle Pinto Wash
(1810010045)
Lower Pinto Wash
(1810010047)
Packard Well
(1810010046)
Big Wash
(1810010049)
Big Wash
Pinto Wash
77
LFR 1
LFR 2
LFR 3
Palen Dry Lake
Dragon Wash
Lake Tamarisk
Desert Center
Palen Lake
(1810010050)
10
Big Wash
(1810010049)
Hayfield Lake-Lake Tamarisk
(1810010048)
Red Cloud Wash
Corn Springs Wash
Irish Wash
Ship Creek
Ship Creek
Ship C
Source:
Geological Survey (U.S.). National Hydrography Dataset. [Reston, Va.] :U.S. Dept. of the Interior, U.S. Geological Survey, 2016.
Ironwood
Consulting
0
4
Miles
Solar Facility
Linear Facility Route (LFR) Alternative
Colorado River Aqueduct
Intermittent Water Feature
Watershed Boundary
Road
FIGURE 3-1
Hydrology
Sapphire Solar Project

Figure 3-1. Hydrology .

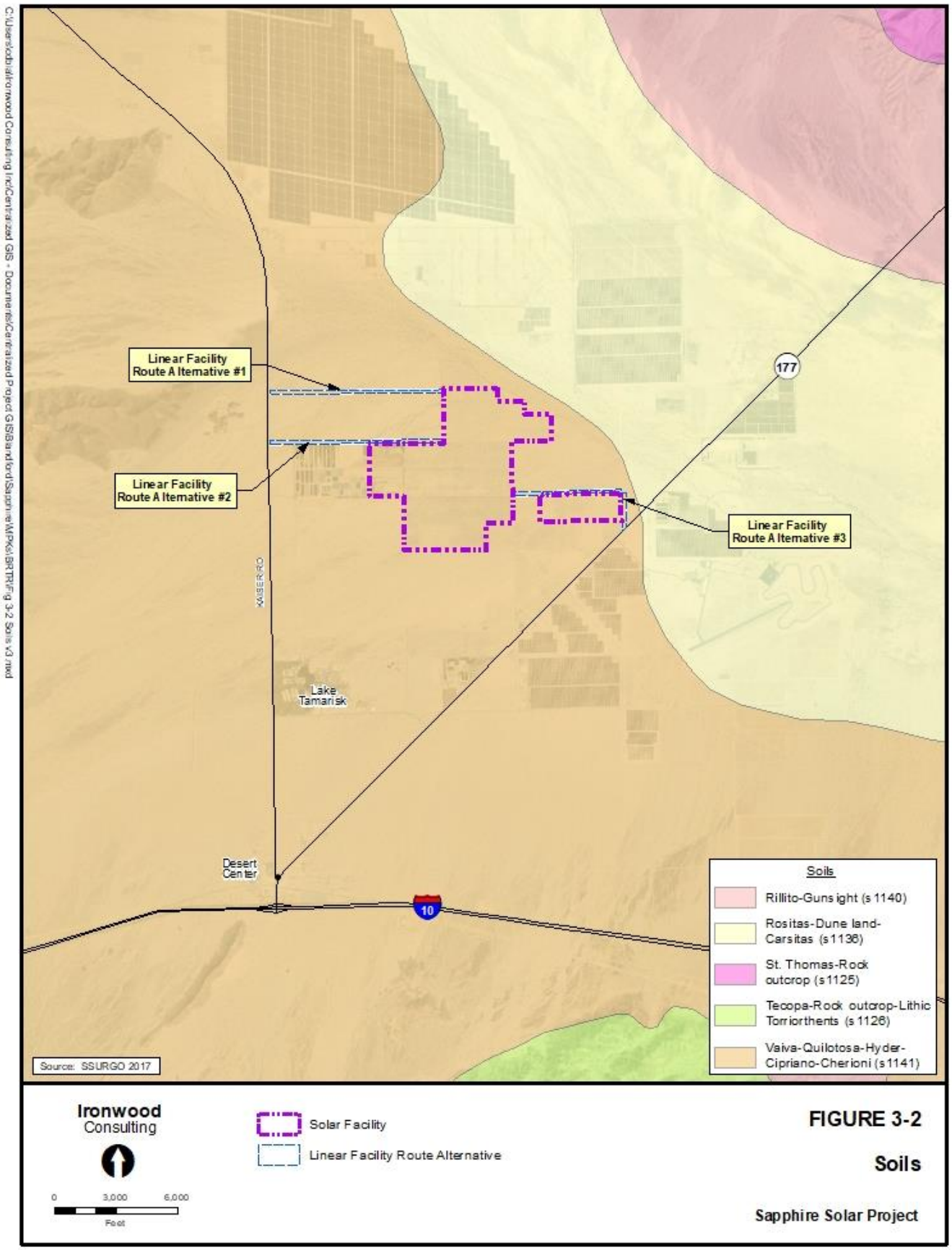


Figure 3-2. Soils

3.5 Sand Transport System

Sand transport involves an interaction between hydrological (alluvial and fluvial) and aeolian (wind-blown) processes. Alluvial fans that emanate from the neighboring mountain ranges entrain sediments during periods of surface flow and deposit sediments downstream. Larger sediments fall out higher in the alluvial fan, while finer sand is deposited further down the alluvial fan. At the lowest reaches of the alluvial wash system along the edges of the valley basins, finer sand accumulates and is subject to wind erosion, becoming a source of sand within a larger aeolian sand transport corridor (PWA 2010). Aeolian processes play a major role in the creation and establishment of sand dune formations and sand fields, which are important habitats for certain plants and animals, including Mojave fringe-toed lizard and Harwood's eriastrum. The DRECP includes mapping of sand and dune systems as part of implementing CMAs, specifically LUPA-BIO-DUNE-1 (Figure 3-3). The Project is located south and outside of the DRECP's mapped Palen Dry Lake-Ford Dry Lake aeolian sand transport corridor, one of three primary corridors identified within the Chuckwalla Valley, the separation caused largely by intervening vegetated washes (i.e., Pinto Wash and Big Wash). The Project is actually more distant from the presently functioning aeolian sand transport corridor as depicted in Figure 3-3 because, as apparent in the figure itself, the DRECP mapping does not account for historical land uses to the north and east of the Project, including (i) the Desert Sunlight solar project to the north; (ii) the Desert Harvest solar project located between the Project and the Desert Sunlight solar project; (iii) Athos solar project, and (iv) historical agricultural lands northeast and east of the Project. The functional aeolian sand transport corridor is located approximately 2 miles northwest of the Project.

3.6 Vegetation Alliances

Vegetation alliances in the study area were mapped by botanists consistent with the National Vegetation Classification System (NVCS) used in the DRECP. Holland (1986) and the Manual of California Vegetation, 2nd edition (Sawyer, Keeler-Wolf, and Evens 2009) were reviewed for synonymous vegetation types. Mapping was refined in the field by digitally accessing the NVCS alliance-level dataset and verifying or updating polygons. These data were analyzed in GIS to calculate the surface area occupied by each vegetation alliance (Table 3-3). Vegetation alliances and other cover types within the Project, including a 500-foot buffer around Project components for additional context regarding adjacent lands, are shown in Figure 3-4 and described in further detail below.

Table 3-3. Vegetation Alliances and Other Cover Types

Type	Solar Facility (ac)	Linear Facility Route #1 (ac)	Linear Facility Route #2 (ac)	Linear Facility Route #3 (ac)	Total
Sonoran Desert Scrub	0.3	27.0	34.3	24.6	86.2
Ephemeral Dry Wash	29.7	4.3	2.4	5.6	42.0
Desert Dry Wash Woodland	6.7	3.3	1.4	0	11.4
Desert Pavement	0	3.1	0	0	3.1
Semi-Developed/Aquaculture	95.7	0	0.1	0	95.8
Fallow Agriculture	943.9	0.1	0.2	2.6	946.8
Non-Native Riparian	2.7	0	0.6	0	3.3
Open Water (Artificial)	1.9	0	0.2	0	2.1
Wetland (Artificial)	0.7	0	0.1	0	0.8
Total	**1,081.6**	**37.8**	**39.3**	**32.8**	**1,191.5**

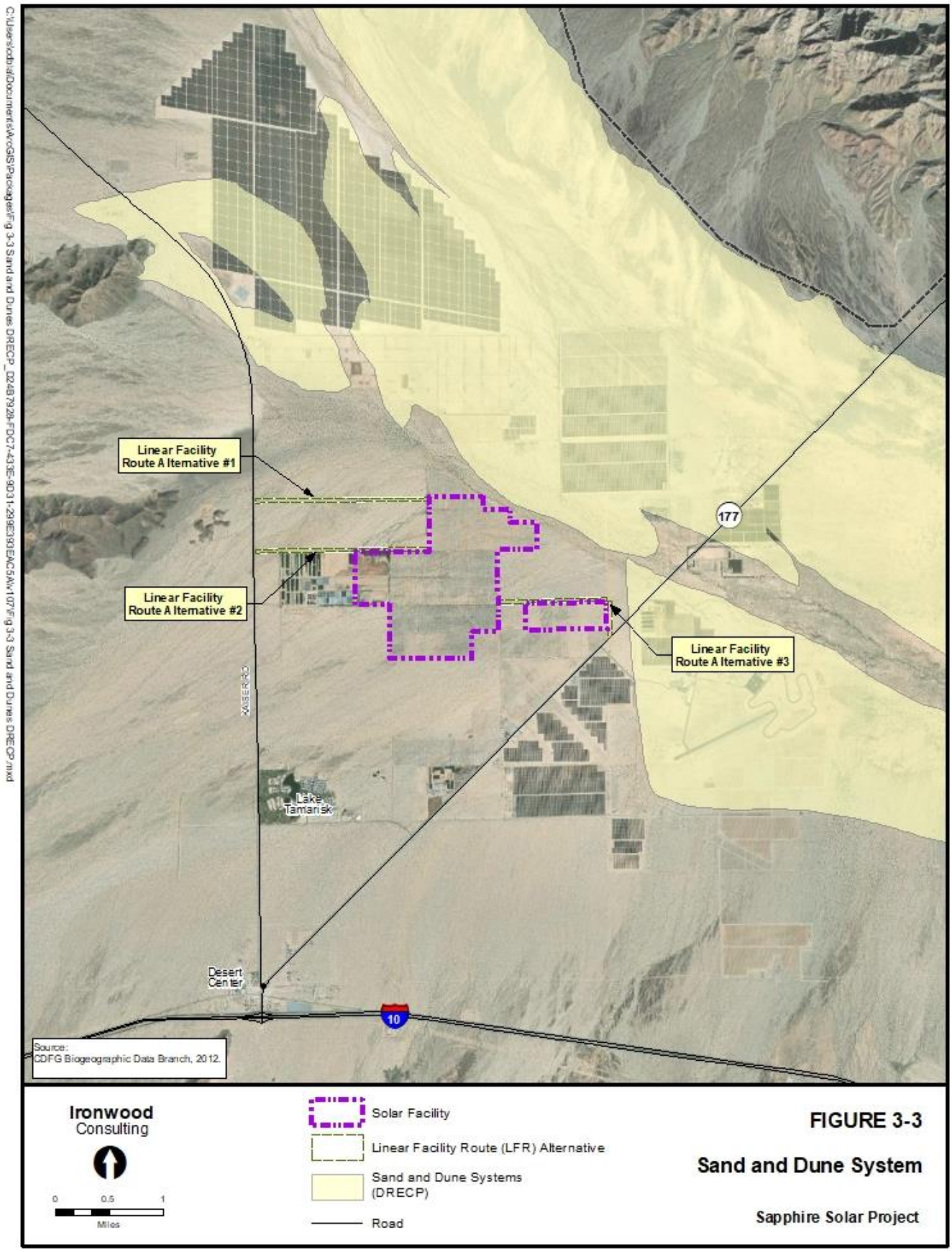


Figure 3-3. DRECP Sand and Dune Systems

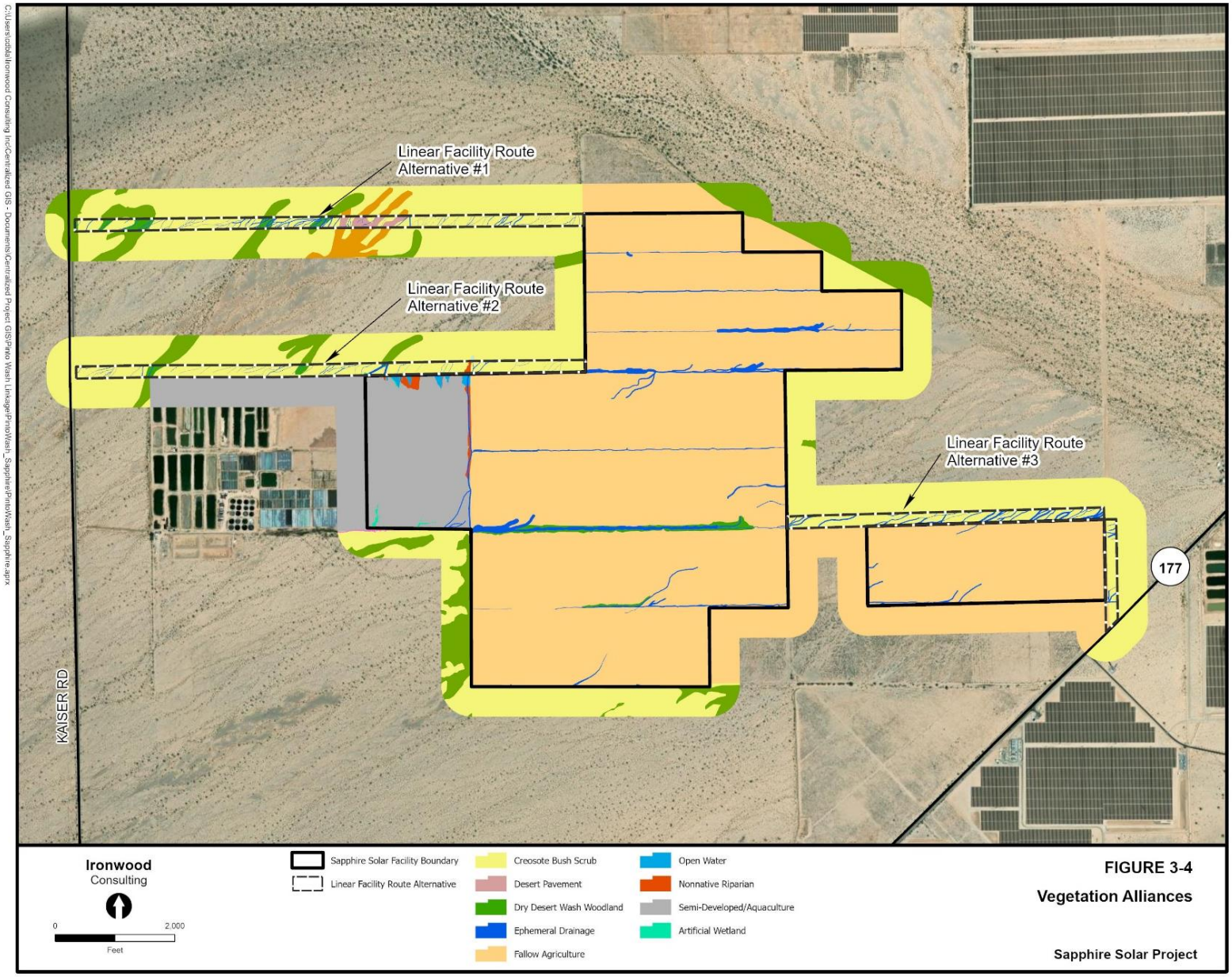


Figure 3-4. **Vegetation Alliances**

3.6.1 Sonoran Desert Scrub

Sonoran creosote bush scrub has a State Rarity rank of S5 (CDFW 2020), being demonstrably secure, and is not designated as a sensitive plant community by BLM. It is synonymous with *Larrea tridentata – Ambrosia dumosa* alliance (Sawyer, Keeler-Wolf, and Evens 2009) and Lower Bajada and Fan Mojavean – Sonoran Desert Scrub (NVCS). Sonoran creosote bush scrub occurs on well-drained, secondary soils of slopes, fans, and valleys and is the basic creosote bush scrub habitat of the Colorado Desert (Holland 1986). Dominant plants within this community are creosote bush and white bursage. Other occasional components include indigo bush (*Psorothamnus emoryi*), sweetbush (*Bebbia juncea*), and button brittlebush (*Encelia frutescens*). The LFRs consisted primarily of Sonoran creosote bush scrub.

3.6.2 Desert Dry Wash Woodland

Desert dry wash woodland is a sensitive vegetation community recognized with a rarity rank of S4 (CDFW 2018d). Desert dry wash woodland is characteristic of desert washes and is considered a desert riparian vegetation type, which is typically state jurisdictional. This community is synonymous with blue palo verde (*Parkinsonia florida*) – ironwood (*Olneya tesota*) (microphyll) woodland alliance and Sonoran – Coloradan Semi Desert Wash Woodland / Scrub (NVCS). Holland (1986) describes this community as an open to relatively densely covered, drought-deciduous, microphyll (small compound leaves) riparian scrub woodland, often supported by braided wash channels that change following every surface flow event.

Within the Project, this vegetation community is dominated by an open tree layer of ironwood, blue palo verde, and smoke tree (*Psorothamnus spinosus*) of at least 2-3% cover. This community was restricted to braided wash channels along the LFRs; LFR#1 – 4.2 ac (1.7 ha) and LFR #2 – 1.6 ac (0.7 ha).

3.6.3 Ephemeral Dry Wash

Ephemeral dry wash features were delineated throughout the Project. This habitat type courses through Sonoran Desert Scrub (*Larrea tridentata – Ambrosia dumosa*), blue palo verde (*Parkinsonia florida*) – ironwood (*Olneya tesota*) (microphyll) woodland, and desert pavement within the LFRs. Disturbed ephemeral dry wash features were mapped within the proposed solar facility/prior jojoba farm and are primarily associated with land alterations including existing two-track roads and existing irrigation features.

3.6.4 Desert Pavement

Desert pavement is descriptive of a geomorphic condition that results in tightly interlocking gravel and pebbles, which develop over time on fluvially inactive upland areas within stabilized alluvial fans (Brady and Vyverberg 2013). It develops as gravel and rock deposits weather in place, causing rounding of pebbles, and wind removes finer sediment. Older, well-established desert pavement typically exhibits varnish, an oxidized surface that occurs with age and fluvial inactivity. These areas are usually sparse with vegetation, especially perennial shrubs, yet may be associated with the rigid spineflower – hairy desert sunflower (*Chorizanthe rigida – Geraea canescens*) sparsely vegetated alliance (Sawyer, Keeler-Wolf, and Evens 2009). Other occasional plants in the herb layer include annual buckwheat (*Eriogonum* sp.) and brittle spineflower (*Chorizanthe brevicornu*). Desert pavement is a protected resource under the DRECP (CMA LUPA-SW-9). Within the Project, desert pavement

occurred within the 200-foot-wide corridor of LFR #1, occupying approximately 3.1 ac (1.3 ha; Figure 3-4). Desert pavement was not identified within LFR #2, LFR #3, or the Project solar facility.

3.6.5 Fallow Agriculture and Semi-Developed/Aquaculture

The proposed solar facility is entirely within private land previously used for cultivating jojoba and aquaculture farming. Areas mapped as fallow agricultural support remnant jojoba shrubs and ruderal vegetation including several nonnative plant species. This vegetation community was mapped as 'Deciduous Orchard, Vineyard, and Cropland, Barren' in the DRECP Land Cover/Natural Vegetation Communities. There is no associated Holland or Sawyer and Keeler-Wolf classification for this anthropogenic land cover type. Evidence of past farming disturbances (e.g., irrigation lines) were found throughout the proposed solar facility. The westernmost private parcel is associated with an active aquaculture facility to the west, exhibiting recent disturbance related to active agricultural practices.

3.6.6 Artificial Wetland/Artificial Open Water/Non-Native Riparian

Portions of the prior aquaculture farm support relic aquatic features including open water basins, wetlands, and non-native riparian areas which were created as an artifact of agricultural practices. These features were artificially supported by agricultural water and would be expected to revert to an upland community in the absence of this water source. Nonnative riparian areas were dominated by salt cedar (*Tamarix chensis*/*T. ramosissima* hybrid).

3.7 Noxious, Nonnative, and Invasive Weeds

Noxious, nonnative, and invasive weeds are species of non-native (exotic) plants included on the weed lists of the California Department of Food and Agriculture (CDFA) and the California Invasive Plant Council (Cal-IPC). They are of concern in wild lands because of their potential to degrade habitat and disrupt an area's ecological functions (Cal-IPC 2022). Species listed as noxious by the CDFA and Cal-IPC are discussed further below. In addition to these species, two other non-native species were recorded during the botanical surveys in spring 2022: prickly lettuce (*Lactuca serriola*) and soft thistle (*Sonchus oleraceus*).

3.7.1 Sahara Mustard

Sahara mustard (*Brassica tournefortii*) is native to the deserts of North Africa, the Middle East, and the Mediterranean regions of southern Europe (Bossard, Randall, and Hoshovsky 2000). Initial establishment of this species in California occurred by importing date palms from the Middle East to the Coachella Valley during the early 1900s (Bossard, Randall, and Hoshovsky 2000). Cal-IPC considers Sahara mustard to have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure, as well as having reproductive biology and other attributes that are conducive to moderate to high rates of dispersal and establishment (Cal-IPC 2022). Sahara mustard is not listed on the CDFA Noxious Weed List (CDFA 2021). During surveys Sahara mustard was widespread especially within the disturbed agricultural lands.

3.7.2 London Rocket

London rocket (*Sisymbrium irio*) is a winter annual forb/herb (family Brassicaceae), which can be found in abandoned fields, waste places, roadsides, and orchards. It matures early in the year allowing it to out-compete

many native species (Cal-IPC 2022). Cal-IPC gives this species a limited invasive potential rating. London rocket is not listed on CDFA's Noxious Weed List (CDFA 2021). A few London rocket individuals were encountered during Project surveys, mainly within areas associated with historical aquaculture practices.

3.7.3 Saltcedar

Saltcedar (*Tamarix chiensis* and *T. ramosissima*) is a shrub or a tree (family Tamaricaceae) which can be found along streams and lake shores, throughout California. Saltcedar is associated with dramatic changes in geomorphology, groundwater availability, soil chemistry, fire frequency, plant community composition, and native wildlife diversity (Cal-IPC 2022). Cal-IPC gives this species a high invasive potential rating. Saltcedar is listed on CDFA's Noxious Weed List (CDFA 2021).2021 During surveys, saltcedar was observed in dense stands throughout the areas associated with historical aquaculture practices and within downstream washes.

3.7.4 Russian Thistle

Russian thistle (*Salsola* sp.) is a large, bushy summer annual (family Chenopodiaceae). It can be found throughout California, including in agricultural areas, desert, roadsides, and other disturbed areas. Russian thistle can impede traffic, create fire hazards, and is a host of the beet leaf-hopper, an agricultural insect pest (Cal-IPC 2022). Cal-IPC gives this species a limited invasive potential rating. Russian thistle is listed on the CDFA noxious weed list with a CDFA pest rating of C, and it is also listed as a California Code of Regulations (CCR) 4500 Noxious Weed (CDFA 2021). A handful of Russian thistle individuals were encountered during Project surveys, primarily within areas associated with historical aquaculture practices.

3.7.5 Sow Thistle

Sow thistle (*Sonchus oleraceus*) is a perennial herb/forb in the Asteraceae family native to Eurasia and invasive in California. It occurs across the United States and Canada in mostly man-made or disturbed habitats including wet and saturated soils (CDFA 2021). Sow thistle is not listed on CDFA's Noxious Weed List, however it is listed as a CCR 4500 Noxious Weed (CDFA 2021). Sow thistle is not given an invasive potential rating by Cal-IPC. A few sow thistle individuals were encountered during Project surveys, all within areas associated with historical aquaculture practices.

4 Special Status Wildlife

Special status wildlife species have protection and rarity designations as described in Section 2.2 above. The probability of occurrence was based on the definitions stated in Section 2.3 above. Table 4-1 includes a comprehensive list of special status wildlife species reviewed for their potential to occur within the Project vicinity. Due to the absence of specific habitat requirements (e.g., elevation, specific vegetation communities, topographic features, proximity to water), several special status wildlife species were determined to have a low potential to occur on the Project. The results of the California Natural Diversity Database (CNDDB) search within 2 miles (3.2 km) of the Project are shown on Figure 4-1. The special status wildlife species discussed further in this section (1) were documented on the Project during the 2022 surveys, (2) have a moderate or high potential to occur, or (3) are managed under the DRECP.

4.1 Reptiles

4.1.1 Agassiz's Desert Tortoise

Agassiz's (Mojave) desert tortoises (*Gopherus agassizii*) occur north and west of the Colorado River in the Mojave Desert of California, southern Nevada, northwestern Arizona, and southwestern Utah, and in the Sonoran (Colorado) Desert in southern California (DOI and USFWS 1990). Desert tortoises inhabit a variety of habitats from flats and slopes dominated by creosote bush – white bursage communities, where a diversity of perennial plants is relatively high, to a variety of habitats in higher elevations. Tortoises are found most often on gentle slopes with sandy-gravel soils. Soil must be appropriately soft for digging burrows, but firm enough so that burrows do not collapse. Tortoises typically prefer habitats with abundant annual forbs, grasses, and cactus, which constitute its primary food sources. The Project is located within the Colorado Desert Recovery Unit (USFWS 2011). The western LFRs (#1 and #2) terminate within the County right-of-way (at Kaiser Road), approximately 3,500 feet (ft; 1,067 m) from the eastern boundary of USFWS-designated critical habitat (Figure 4-2). Critical habitat does not occur within the Project.

Nussear et al. (2009) includes a model for the statistical probability of desert tortoise occurrence, and since publication it has continued to be a reliable tool in determining the likelihood for tortoise occupancy across the historical range of the species. The model provides a geographic representation of predicted occupancy ranging from extremely low (0.0) to extremely high (1.0). Various analyses of desert tortoise have used a model value of ≥ 0.5 as denoting the threshold for suitable habitat for desert tortoise. Conversely, lands that score < 0.5 have a low to moderate probability of desert tortoise occupancy. Within the Project, the predicted occupancy value ranges from 0.1 within the western LFRs, to 0.4 in the middle of the Project, to 0.3 at the eastern edge of the project and the eastern LFR (Figure 4-2).

The predicted occupancy model does not account for habitat degradation resulting from existing anthropogenic features (Nussear et al. 2009), which would further reduce the occurrence probability, especially in areas subjected to regular human disturbance such as the fallow agricultural fields where the solar facility is proposed.

Table 4-1. Special Status Wildlife Species

Species	Status			General Habitat	Potential to Occur on Project[2]	Live Individuals or Recent Sign
	State	Federal	WBWG			
Reptiles						
Agassiz's desert tortoise *Gopherus agassizii*	SCE	FT	-	Most common in desert scrub, desert wash, and Joshua tree habitats, but occurs in almost every desert habitat; from 300 – 1,525m habitat.	Low	Not detected
Mojave fringe-toed lizard *Uma scoparia*	SSC	BLMS	-	Fine, loose, wind-blown deposits in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub and desert shrub habitats; from sea level to 1,000 m.	Low	Not detected
Amphibians						
Couch's spadefoot toad *Scaphiopus couchii*	SSC	BLMS	-	Arid and semi-arid habitats of the southwest, occurring along desert washes, in desert riparian, palm oasis, desert succulent shrub, and desert scrub habitats.	Low	Not detected
Invertebrates						
Monarch butterfly *Danaus plexippus*	-	C	-	Monarch butterflies are found throughout North America to southern Canada (up to about 50° N latitude). In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites. Three species of milkweed, an obligate host plant for monarchs, have the potential to occur within the vicinity of the Project: whitestem milkweed (*Asclepias albicans*), desert milkweed (*A. erosa*), rush milkweed (*A. subulate*). The nearest known monarch roosting sites occur along the Colorado River and in urban areas of Rancho Mirage, California, over 50 miles from the Project (WAFWA 2019).	Low	Not detected

Species	Status			General Habitat	Potential to Occur on Project[2]	Live Individuals or Recent Sign
	State	Federal	WBWG			
Crotch's Bumble Bee (*Bombus crotchii*)	C	-	-	Inhabits grasslands and shrublands throughout southwestern California. They are generalist foragers and have been associated with plants in the *Fabaceae, Apocynaceae, Lamiaceae, Hydophyllaceae, Asclepiadoideae*, and *Asteraceae* families. The Project site is located east of the current range of Crotch's bumblebee (CDFW 2023b). The CNDDB indicates the two closest records are 15 km, and 100+ km away, in Corn Springs (1993) and Palm Springs (1954) respectively (CNDDB 2023a2). More recent observations occur in the western side of Riverside County between 100 – 200 km from the Project (CNDDB 2023a). Suitable habitat is present on the Project, as suitable plant families and genera associated with Crotch's Bumble Bee occur. However, the active agriculture and developments adjacent to the Project site could lower the habitat suitability with their potential use of pesticides. No Crotch's bumble bees were observed during wildlife or plant surveys.	Low	Not detected
Mammals						
Burro deer *Odocoileus hemionus eremicus*	CPGS	DRECP Planning Species	-	Occur in early to intermediate successional stages of most forest, woodland, and brush habitats. Prefer a mosaic of various-aged vegetation that provides woody cover, meadow and shrubby openings, and free water.	High	**Present**
Desert bighorn sheep *Ovis canadensis nelsoni*	CFP	BLMS	-	Alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, desert scrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian.	Low	Not detected
Yuma mountain lion *Puma concolor browni*	SSC	-	-	In the DRECP planning area, mountain lions primarily inhabit the low mountains and extensive wash systems in and around Chuckwalla Bench, Chuckwalla Mountains, Chocolate Mountains, Picacho Mountains, Milpitas Wash, and other washes in that area	Low	Not detected
American badger *Taxidea taxus*	SSC	-	-	Various natural habitats with dry, friable soils.	High	**Present**

Species	Status			General Habitat	Potential to Occur on Project[2]	Live Individuals or Recent Sign
	State	Federal	WBWG			
Desert kit fox *Vulpes macrotis arsipus*	CPF	DRECP Planning Species	-	Annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Cover provided by dens they dig in open, level areas with loose-textured, sandy, and loamy soils.	High	**Present**
Bats						
Pallid bat *Antrozous pallidus*	SSC	BLMS	Green	Inhabit low elevation, rocky, arid deserts and canyonlands, shrub/steppe grasslands. Day and night roosts include crevices in rocky outcrops and cliffs, caves, mines, trees with exfoliating bark, and various human structures.	Foraging - Moderate Roosting – Low	Not detected
Townsend's big-eared bat *Corynorhinus townsendii*	SSC	BLMS	Red	Coniferous forests, deserts, native prairies, riparian communities, active agricultural areas, and coastal habitat types. Foraging associations include edge habitats along streams, adjacent to and within a variety of wooded habitats.	Foraging - Moderate Roosting – Low	Not detected
Spotted bat *Euderma maculatum*	SSC	BLMS	Yellow	Arid, low desert habitats to high elevation conifer forests and prominent rock features appear to be a necessary feature for roosting.	Low	Not detected
Western mastiff bat *Eumops perotis*	SSC	BLMS	Yellow	Variety of habitats, from desert scrub to chaparral to oak woodland and into the ponderosa pine belt and high elevation meadows of mixed conifer forests.	Low	Not detected
Western yellow bat *Lasiurus xanthinus*	SSC	-	Yellow	Valley foothill riparian, desert riparian, desert wash, and palm oasis habitats.	Moderate	Not detected
California leaf-nosed bat *Macrotus californicus*	SSC	BLMS	Red	Deserts of California, southern Nevada, Arizona and south to northwestern Mexico. This species depends on either caves or mines for roosting habitat.	Low	Not detected
Arizona myotis *Myotis occultus*	SSC	-	Yellow	Conifer forests, although maternity roosts are known from lower elevations including areas along the Colorado River in California.	Low	Not detected
Cave myotis *Myotis velifer*	SSC	BLMS	Yellow	Lower elevations of the arid southwest in areas dominated by creosote bush, palo verde, and cactus.	Low	Not detected
Yuma myotis *Myotis yumanensis*	-	BLMS	Green	Riparian, arid scrublands and deserts, and forests.	Low	Not detected
Pocketed free-tailed bat *Nyctinomops femorosaccus*	SSC	-	Yellow	Creosote bush and chaparral habitats in proximity to granite boulders, cliffs, or rocky canyons.	Low	Not detected

Species	Status			General Habitat	Potential to Occur on Project[2]	Live Individuals or Recent Sign
	State	Federal	WBWG			
Big free-tailed bat *Nyctinomops macrotis*	SSC	-	Green	Desert scrub, woodlands, and coniferous forests; roosts mostly in the crevices of rocks although it may roost in buildings, caves, and tree cavities.	Foraging - Moderate Roosting - Low	Not detected
Birds						
Clark's Grebe *Aechmophorus clarkii*	-	BCC	-	Inhabits western North American from Canada south to Mexico. It requires large lakes with sufficient open water and fish, but also with large beds of emergent vegetation where they can build floating nests protected from waves.	Low	Not detected
Western Grebe *Aechmophorus occidentalis*	-	BCC	-	Breed on freshwater lakes and marshes with extensive open water bordered by emergent vegetation. During winter they move to saltwater or brackish bays, estuaries, or sheltered seacoasts and are less frequently found on freshwater lakes or rivers.	Low	Not detected
Golden eagle (Nesting and wintering) *Aquila chrysaetos*	CFP, WL	BCC, BLMS, DRECP Focus Species	-	Nests on cliffs and in large trees in open areas. Rugged, open habitats with canyons and escarpments used most frequently for nesting.	Low	Not detected
Short-eared owl (Nesting) *Asio flammeus*	SSC	BCC	-	Require open country that supports small mammal populations and adequate vegetation to provide cover for nests including salt- and freshwater marshes, irrigated alfalfa or grain fields, and non-grazed grasslands and old pastures.	Low	Not detected
Western burrowing owl *Athene cunicularia hypugaea*	SSC	BCC, BLMS, DRECP Focus Species	-	Open, dry grassland and desert habitats. Uses rodent or other burrows for roosting and nesting cover. In the Colorado Desert, western burrowing owls generally occur at low densities in scattered populations.	High	**Present**
Ferruginous hawk (Wintering) *Buteo regalis*	WL		-	Most common in grassland and agricultural areas in the southwest. Ferruginous hawks are found in open terrain from grasslands to deserts and are usually associated with concentrations of small mammals.	Low	Not detected
Swainson's hawk (Nesting) *Buteo swainsoni*		BLMS, DRECP Focus Species	-	Require large areas of open landscape for foraging, including grasslands and agricultural lands that provide low-growing vegetation for hunting and high rodent prey populations. The nearest nesting location is within Antelope Valley.	Low	Not detected

Species	Status			General Habitat	Potential to Occur on Project[2]	Live Individuals or Recent Sign
	State	Federal	WBWG			
Costa's hummingbird (Nesting) *Calypte costae*	-	BCC	-	Primary habitats are desert wash, edges of desert riparian and valley foothill riparian, coastal scrub, desert scrub, desert succulent shrub, lower-elevation chaparral, and palm oasis.	High	**Present**
Mountain plover (Wintering) *Charadrius montanus*	SSC	BCC, BLMS, DRECP Focus Species	-	Short-grass prairie or their equivalents, and in Southern California deserts are associated primarily with agricultural areas.	Low	Not detected
Northern harrier (Nesting) *Circus cyaneus*	SSC	BCC	-	Does not commonly breed in desert regions of California, where suitable habitat is limited, but winters broadly throughout California in areas with suitable habitat. Northern harriers forage in open habitats including deserts, pasturelands, grasslands, and old fields.	Low	Not detected
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	SE	FT, BCC, BLMS, DRECP Focus Species	-	Breeds along the major river valleys in southern and western New Mexico, and central and southern Arizona. In California, breeding distribution is restricted to isolated sites in the Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys.	Low	Not detected
Gilded flicker *Colaptes chrysoides*	SE	BCC, BLMS	-	Stands of giant cactus, Joshua tree, and riparian groves of cottonwoods and tree willows in warm desert lowlands and foothills.	Low	Not detected
Willow flycatcher (Nesting) *Empidonax traillii* Southwestern willow flycatcher *E. t. extimus*	SE SE	- FE	- -	All subspecies are state-listed and one subspecies (*E. t. extimus)* is federally listed. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows. Common spring (mid-May to early June) and fall (mid-August to early September) migrant at lower elevations, primarily in riparian habitats throughout the state exclusive of the North Coast.	Low Low	Not detected Not detected
California horned lark *Eremophila alpestris actia*	WL	-	-	A common to abundant resident in a variety of open habitats, usually where trees and large shrubs are absent. Found from grasslands along the coast and deserts near sea level to alpine dwarf-shrub habitat above tree line. In winter, flocks in desert lowlands and other areas augmented by winter visitants, many migrating from outside California.	High	**Present**

Species	Status			General Habitat	Potential to Occur on Project[2]	Live Individuals or Recent Sign
	State	Federal	WBWG			
Prairie falcon (Nesting) *Falco mexicanus*	WL		-	Occurs in annual grasslands to alpine meadows, associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Typically nests cliffs and bluffs.	Low	Not detected
American peregrine falcon (Nesting) *Falco peregrinus anatum*	CFP		-	Rare in the arid southeast, but they occur and are suspected to breed in the lower Colorado River Valley. Peregrine falcons require open habitat for foraging and prefer breeding sites near water. Nesting habitat includes cliffs, steep banks, dunes, mounds, and some human-made structures.	Low	Not detected
Loggerhead shrike (Nesting) *Lanius ludovicianus*	SSC		-	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats.	High	**Present**
Gila woodpecker *Melanerpes uropygialis*	SE	BCC, BLMS	-	In California, this species is found primarily along the Colorado River and in small numbers in Imperial County. In southeastern California, Gila woodpeckers formerly were associated with desert washes extending up to 1 mile from the Colorado River; however, records occur near Corn Springs.	Low	Not detected
Elf owl *Micrathene whitneyi*	SE	BCC, BLMS	-	West of the Colorado River, there are records at the oases of Cottonwood Springs and Corn Springs. Nests in desert riparian habitat with cottonwood, sycamore, willow, or mesquite; absent from desert riparian habitat dominated by saltcedar.	Low	Not detected
Lucy's warbler (Nesting) *Oreothlypis luciae*	SSC	BLMS	-	Desert wash and desert riparian habitats, especially those dominated by mesquite; also ranges into saltcedar and other thickets. May use abandoned verdin nests.	Low	Not detected
Black-tailed gnatcatcher *Polioptila melanura*	WL	-	-	A year-round resident found in the southeast desert wash habitat from Palm Springs and Joshua Tree National Park south, and along the Colorado River; nests primarily in wooded desert wash habitat, but also occurs in creosote scrub habitat during the non-breeding season.	High	Not detected
Vesper sparrow *Pooecetes gramineus*	SSC	-	-	Fairly common locally in southern deserts in winter and during migration. Occupies grasslands, croplands, and open brushlands in winter.	Low	Not detected

Species	Status			General Habitat	Potential to Occur on Project[2]	Live Individuals or Recent Sign
	State	Federal	WBWG			
Vermilion flycatcher (Nesting) *Pyrocephalus rubinus*	SSC	-	-	Found near water in arid scrub, farmlands, parks, golf courses, desert, savanna, cultivated lands, and riparian woodlands; nesting substrate includes cottonwood, willow, and mesquite.	Low	Not detected
Ridgway's clapper rail *Rallus obsoletus yumanensis*	ST, CFP	FE	-	Partially migratory, wintering in brackish marshes along the Gulf of California. Some remain on their breeding grounds throughout the year, including the Salton Sea. Nesting and foraging habitat occurs along the Lower Colorado River (from Topock Marsh southward) and around the Salton Sea.	Low	Not detected
Sonora Yellow warbler (Nesting) *Setophaga petechia sonorana*	SSC		-	Commonly uses wet, deciduous thickets for breeding, and seeks a variety of wooded, scrubby habitats in winter.	Low	Not detected
Lawrence's goldfinch (Nesting) *Spinus lawrencei*	-	BCC	-	Highly erratic occurrences but rather common along the western edge of southern deserts. Breeds in open oak or other arid woodland and chaparral, near water. Typical habitats in southern California include desert riparian, palm oasis, pinyon-juniper, and lower montane habitats.	Low	Not detected
Bendire's thrasher *Toxostoma bendirei*	SSC	BCC, BLMS	-	Favors open grassland, shrubland, or woodland with scattered shrubs, primarily in areas that contain large cholla, Joshua tree, Spanish bayonet, Mojave yucca, palo verde, mesquite, catclaw, desert-thorn, or agave.	Low	Not detected
Crissal thrasher *Toxostoma crissale*	SSC	BLMS	-	Dense, low scrubby vegetation, which, at lower elevations, includes desert and foothill scrub and riparian brush.	Low	Not detected
Le Conte's thrasher *Toxostoma lecontei*	SSC	BLMS, BCC	-	Primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs.	High	Not detected

Species	Status			General Habitat	Potential to Occur on Project[2]	Live Individuals or Recent Sign
	State	Federal	WBWG			
Least Bell's vireo *Vireo bellii pusillus*	SE	FE		Bell's vireo is a rare, local, summer resident below about 600 m (2000 ft) in willows and other low, dense valley foothill riparian habitat and lower portions of canyons mostly in San Benito and Monterey cos.; in coastal southern California from Santa Barbara Co. south; and along the western edge of the deserts in desert riparian habitat.	Low	Not detected
Arizona Bell's vireo *Vireo bellii arizonae*	SE	BLMS BCC	-	Subspecies *V. b. pusillus* (endemic to California and northern Baja California and state-listed and federal-listed) and subspecies *V. b. arizonae* are state-listed.	Low	Not detected

[1] **Status:**

Federal

FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
FT = Federally listed, threatened: species likely to become endangered within the foreseeable future
FCT = Proposed for federal listing as a threatened species
BCC = Fish and Wildlife Service: Birds of Conservation Concern
C = Candidate for listing

State

SSC = State Species of Special Concern
CFP = California Fully Protected
SE = State listed as endangered
SCE = Proposed to be State listed as endangered
ST = State listed as threatened
WL = State watch list
CPF = California Protected Furbearing Mammal
CPGS = California Protected Game Species

Bureau of Land Management

BLMS = BLM Sensitive

Western Bat Working Group (WBWG)

Red = Red or 'high' designation represents the highest priority for funding, planning, and conservation actions.
Yellow = Yellow or 'medium' designation indicates a level of concern that would warrant closer evaluation, more research, and conservation actions of both the species and possible threats.
Green = Green or 'low' designation indicates that most of the existing data support stable populations of the species, and that the potential for major changes in status in the near future is considered unlikely.
Blue = Blue or 'periphery' designation indicates a species on the edge of its range. This designation reflects neither high, medium, nor low concern.

[2] Species not detected during previous surveys may have the potential to occur on the Project in the future.

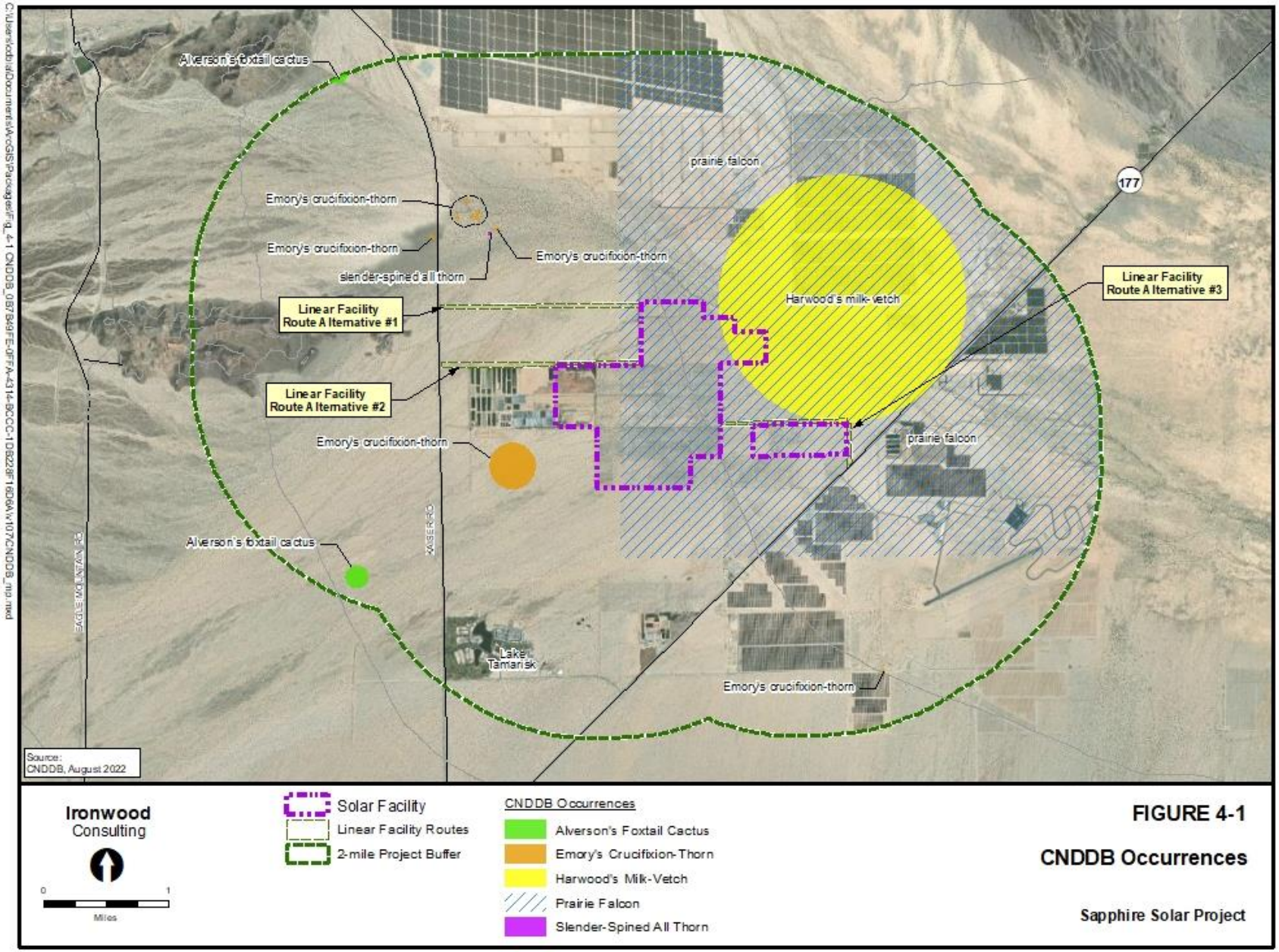


Figure 4-1. CNDDB Occurrences

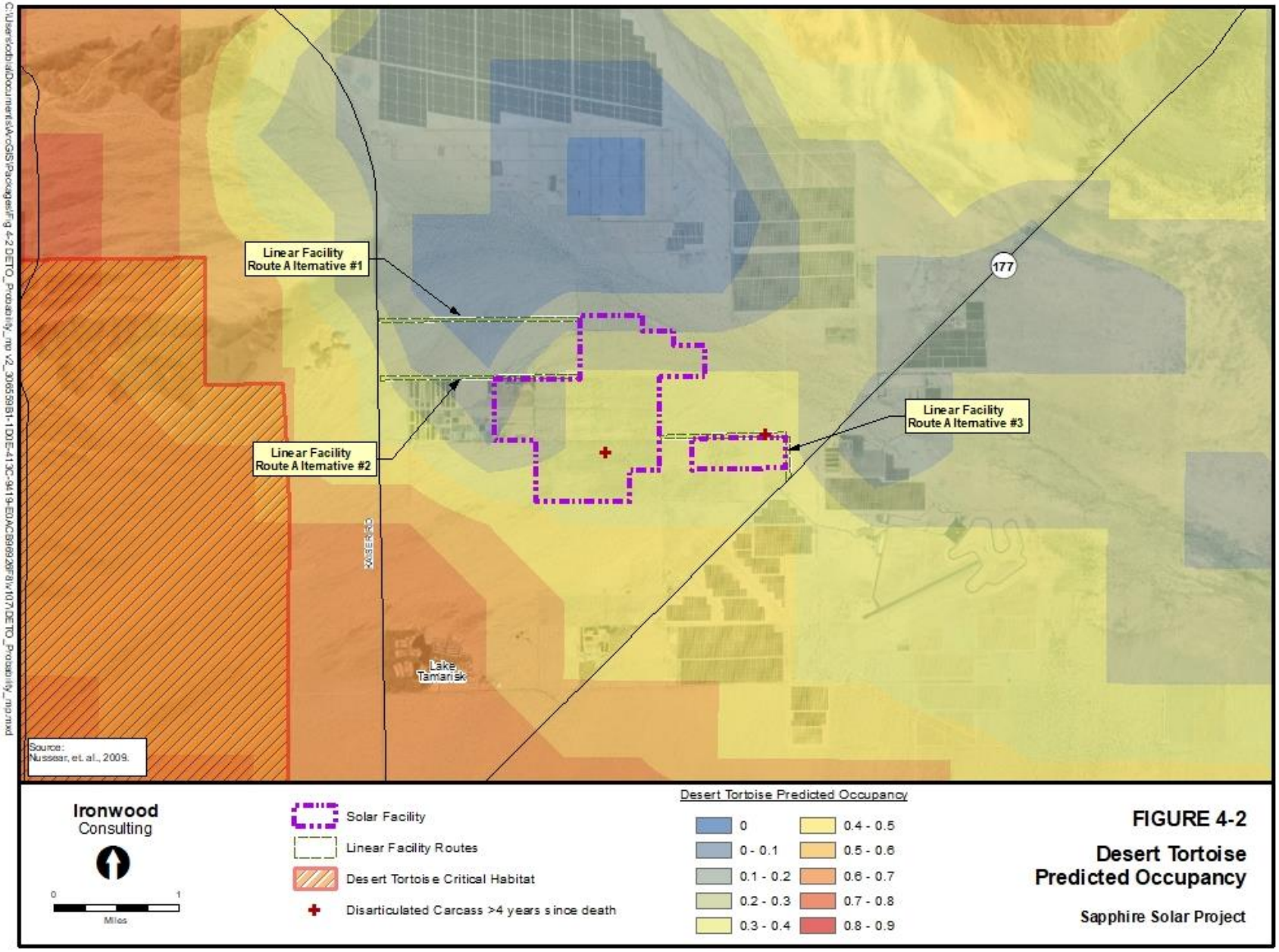


Figure 4-2. Desert Tortoise Predicted Occupancy and Survey Results

Additionally, the DRECP developed a desert tortoise survey geographic layer, based on the predicted occupancy model described above, that generated three areas of survey requirements for the DFA:

- **Protocol Survey** – standard pre-project survey to obtain abundance estimates, plus clearance surveys prior to ground disturbance.
- **Clearance Survey Only** – no pre-project survey required due to known low densities, clearance surveys prior to ground disturbance.
- **No Survey** – no pre-project or clearance surveys required due to known low densities.

The proposed solar facility is categorized as *No Survey* (Figure 4-3). This classification, in conjunction with substantial agricultural disturbance in the form of fallow agricultural fields and almost no evidence of tortoise sign, suggests the solar facility portion of the Project is not likely to support desert tortoises. The two western LFRs (#1 and #2) are categorized as *Protocol Survey Area,* and the eastern LFR route (#3) is mapped as *Clearance Survey Only*.

Irrespective of the DRECP survey categories, the entire project site was surveyed for desert tortoise using current protocols. No live or recent sign of desert tortoises was detected during 2022 protocol surveys. Disarticulated bone fragments, estimated to be more than 4 years since death, were detected at two distinct locations: within the agricultural lands (Photo 4-1) and along LFR #3 (Photo 4-2; Figure 4-2).

Photo 4-1. Disarticulated desert tortoise bone fragments from a juvenile tortoise found within the proposed solar facility.

Photo 4-2. Desert tortoise bone fragment from a juvenile tortoise (greater than 4 years since death) found along Linear Facility Route #3.

4.1.2 Mojave Fringe-Toed Lizard

The Mojave fringe-toed lizard (*Uma scoparia*) occupies arid, sandy, sparsely vegetated habitats and is associated with creosote scrub throughout much of its range (Jennings and Hayes 1994). Nearly all records for this species are associated with present-day and historical drainages and sand dune complexes associated with three major river systems with blow sand: Amargosa River, Mojave River, and Colorado River (BLM 2015). Mojave fringe-toed lizards normally hibernate from November to February, emerging from hibernation sites from March to April. The breeding season is April to July (Mayhew 1965b). From May to September, they are active in the mornings and late afternoon but seek cover during the hottest parts of the day. They burrow in the sand for both cover from predators and protection from undesirable temperatures (Stebbins and McGinnis 2018), though they also will seek shelter in rodent burrows. This Project is located outside the DRECP sand dune system (Figure 3-3). Aeolian sands do not occur within the Project. Areas subjected to historical agricultural disturbances occur between the Project and potential habitat for Mojave fringe-toed lizard to the northeast.

No Mojave fringe-toed lizards were detected during surveys. This species is not expected to occur within the Project due to the absence of suitable sand habitats.

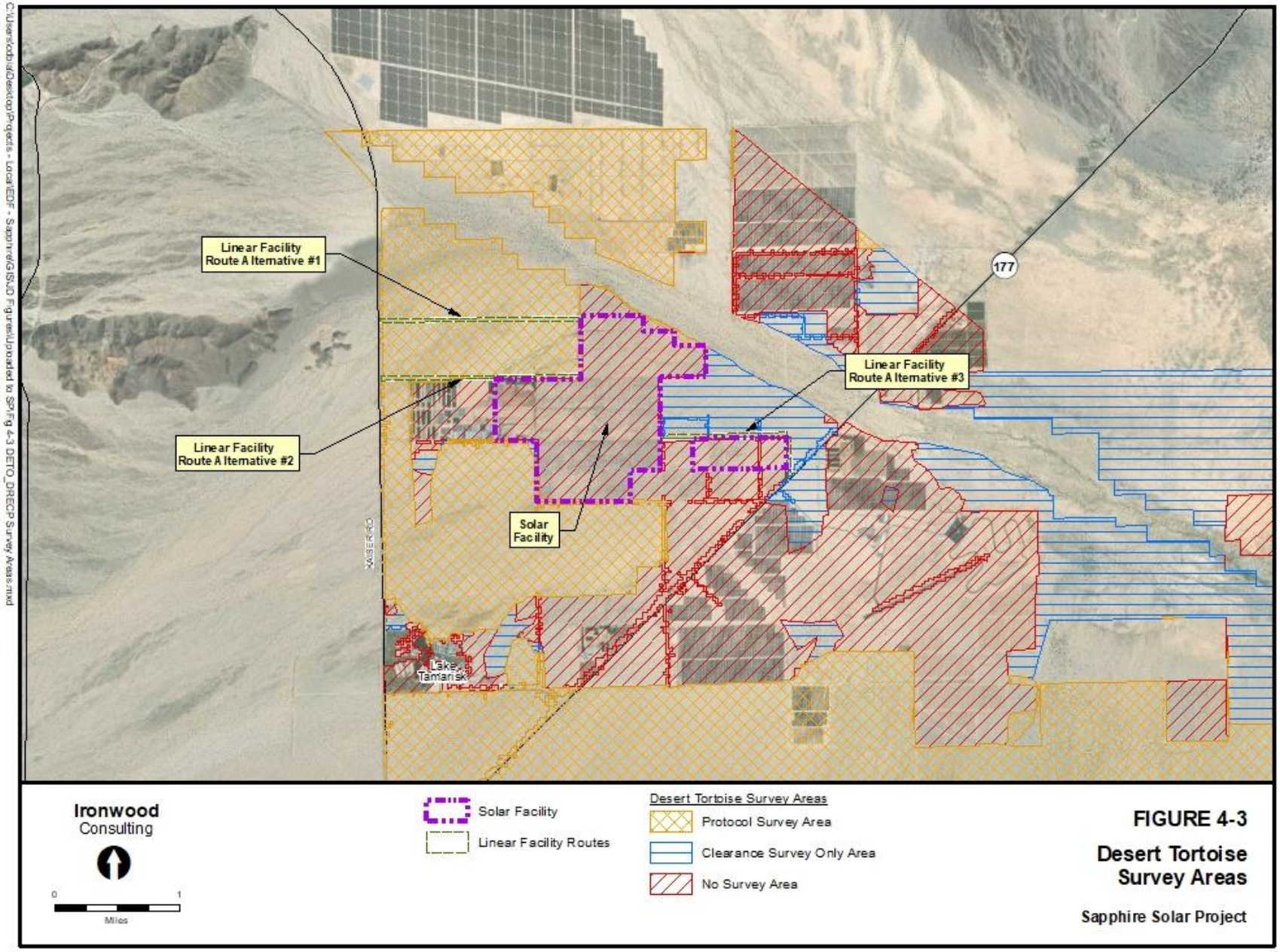


Figure 4-3. DRECP Desert Tortoise Survey Areas

4.2 Amphibians

4.2.1 Couch's Spadefoot Toad

Couch's spadefoot toad (*Scaphiopus couchii*) is often found in shortgrass plains, mesquite savannah, creosote bush desert, thorn forest, and tropical deciduous forest (Mexico) and other areas of low rainfall (Stebbins and McGinnis 2018). This species is more common east of the Colorado River than in California. It is considered opportunistic because it only appears when summer rainfall forms temporary pools and potholes with water lasting longer than ten to twelve days, which are required for breeding, hatching, and metamorphosis. Runoff basins at the base of sand dunes are also sites of reproduction (Mayhew 1965a). In California, it is known to occur in the low desert region, especially the Colorado River corridor. It burrows underground or occupies rodent burrows when inactive, making this species very elusive to surveying.

The DRECP distribution model for Couch's spadefoot toad indicates potential habitat for this species across the Project; however, the nearest record of this species is over 20 miles (32.2 km) to the east (CDFW 2023). Soil conditions that indicated potential seasonal ponding (e.g., cracked soils) were investigated during the habitat assessment field surveys. This habitat was checked on August 20, 2022, following substantial regional rainfall, and within the same period that breeding pools were documented in eastern Chuckwalla Valley.

No Couch's spadefoot toads were detected during surveys. No suitable pools or tadpoles were observed within the Project. Based on the results of field surveys, Couch's spadefoot toad is not expected to occur within the Project.

4.3 Birds

4.3.1 Golden Eagle

Golden eagles (*Aquila chrysaetos*) are a California Fully Protected Species, BLM Sensitive Species, and DRECP Focus Species. These raptors are typically year-round residents throughout most of their western United States range. They breed from late January through August with peak activity occurring from March through July (Kochert et al. 2002). Habitat for golden eagles typically includes rolling foothills, mountain areas, and deserts. Golden eagles need open terrain for hunting and prefer grasslands, deserts, savanna, and early successional stages of forest and shrub habitats. Golden eagles primarily prey on rabbits and rodents but will also take other mammals, birds, reptiles, and some carrion (Kochert et al. 2002). They generally nest in rugged, open habitats with canyons and escarpments, often with overhanging ledges and cliffs or large trees used as cover.

Recent data analysis and population modeling suggest the status of the golden eagle population in the western United States is gradually declining towards an equilibrium of about 26,000 individuals, down from an estimated 34,000 in 2009 and 2014 (USFWS 2016). The future population estimate relies on the continuation of current ecological and biological conditions. It was estimated that 3,400 golden eagles die annually from anthropogenic causes in the United States and suggest a level of sustainable take is

approximately 2,000 individuals annually (USFWS 2016). Additional unmitigated mortality will steepen the rate of decline that the golden eagle population is presently undergoing (USFWS 2016).

Golden eagle surveys and raptor surveys have been conducted on a multitude of projects within 10 miles (16 km) of the Project vicinity since 2010. The most recent survey was conducted in spring 2020 (Corvus Ecological, personal communication, August 2020). Type of survey and results are summarized in Table 4-2 below.

Table 4-2. Regional Golden Eagle Surveys

Year	Type of Survey	Associated Project (s)	Surveying Firm	Golden Eagle Observations
2020	Ground survey	BLM raptor-raven nest survey	Corvus Ecological	3 nests in Joshua Tree National Park (general locational information pending)
2020	Variable radius point count	Chuckwalla CHU	Corvus Ecological	General locational information pending
2015	Ground survey	BLM raptor-raven nest survey	Corvus Ecological	No observations in area surveyed
2014	Air and ground survey	BLM raptor-raven nest survey	Boarman	No observations in area surveyed
2013	Tracking eagles	Other research survey	West and Duerr et al	No observations in area surveyed
2013	Ground survey	BLM raptor-raven nest survey	Corvus Ecological	No observations in area surveyed
2013	Ground survey	Desert Sunlight Solar Project	Corvus Ecological	No active nests, 4 golden eagle sightings
2013	Air and ground survey, camera traps	Palen Solar Project	Bloom Biological	1 subadult at bait station during all 5 weeks; 3rd year flying along cliffs
2012	Aerial (not nesting) and transect survey, tracking eagles	Other research survey	West and Duerr et al	No observations in area surveyed
2012	Ground survey	Desert Sunlight Solar Project	Ironwood Consulting	No active nests - 7 golden eagle sightings (6 in Eagle Mountains, 1 in Coxcomb Mountains
2011	Aerial eagle (not nesting) and transect survey	Other research survey	West	No observations in area surveyed
2011	Aerial and ground	Regional Nest Survey	BioResource Consultant	No observations in area surveyed

Year	Type of Survey	Associated Project (s)	Surveying Firm	Golden Eagle Observations
2011	Aerial survey	Joshua Tree National Park	Wildlife Research Institute	4 territories active - Eagle Mountains-West Central, Eagle Mountains - West Northwest, Hexie Mountains - Central, Little San Bernardino - East); the Eagle Mountain territories were productive - had a total of 3 young observed
2011	Ground survey	Desert Harvest Solar Project	Bloom Biological	No active nests, 1 golden eagle sighting
2010	Aerial survey	Desert Sunlight Solar Project, Genesis Solar Project, Palen Solar Project	Wildlife Research Institute	1 active nest in Coxcomb Mountains, 1 active territory in Eagle Mountains

The Project does not support suitable nesting habitat for golden eagles. The nearest potential nesting habitat is located greater than 5 miles (8 km) to the west in the Eagle Mountains and 7 miles (11 km) to the northeast in the Coxcomb Mountains. Regional data suggests that golden eagles occur in relatively low numbers in the California desert regions, partially because of low prey availability (WEST 2016).

No golden eagles were incidentally observed in flight during 2022 surveys. Golden eagles may occasionally be found in flight over the portion of Chuckwalla Valley where the Project is located; however, the potential for occurrence is low due to limited foraging habitat and distance from nesting habitat.

4.3.2 Western Burrowing Owl

The western burrowing owl (*Athene cunicularia hypugaea*) are a California Species of Special Concern, BLM Sensitive Species, and DRECP Focus Species. These small owls inhabit arid lands throughout much of the western United States and southern interior of western Canada (Haug, Millsap, and Martell 1993). Suitable habitat for western burrowing owl includes open habitat with available burrowing opportunities, including agricultural fields (active and fallow), creosote scrub, desert saltbush, ephemeral washes, and ruderal areas. Burrowing owls are unique among the North American owls in that they nest and roost in abandoned burrows, especially those created by ground squirrels, kit fox, desert tortoise, and other wildlife. Burrowing owls have a strong affinity for previously occupied nesting and wintering sites and will often return to previously used burrows, particularly if they had successful reproduction in previous years (Gervais, Rosenberg, and Comrack 2008). They generally depend on other species to dig suitable burrows for use but may also use anthropogenic surrogate burrows such as rubble piles or drainage pipes. If formerly occupied burrows are badly damaged or collapsed, burrowing owls cannot repair them and must seek alternate sites. The southern California breeding season (defined as the time from pair bonding of adults to fledging of the offspring) generally occurs from February to August, with peak breeding activity from April through July (Haug, Millsap, and Martell 1993).

In the Colorado Desert of California, burrowing owls generally occur at low densities in scattered locations, but they can be found in much higher densities near agricultural lands where rodent and insect prey tend to be more abundant (Gervais, Rosenberg, and Comrack 2008). Burrowing owls tend to be opportunistic feeders, and a large portion of their diet consists of beetles, grasshoppers, and other larger arthropods. The consumption of insects increases during the breeding season (Haug, Millsap, and Martell 1993). Small mammals, especially mice and voles (*Microtus* and *Peromyscus* spp.) are important food items, and other prey animals include herpetofauna, young cottontail rabbits, bats, and birds such as sparrows and horned larks. The prey base has likely decreased since agricultural practices with artificial irrigation ended.

The DRECP distribution model for burrowing owl suggests that the Project is suitable habitat for this species. Active sign of this species was present within the Project; however, no live individuals or evidence of nesting were found during the 2022 focused surveys. There were six burrows suitable for burrowing owl use (Figure 4-4) that possessed whitewash and pellets. The results of the focused protocol surveys indicated no nesting pairs, suggesting that burrowing owls likely use burrows within the Project as temporary shelter but not for nesting.

4.3.3 Elf Owl

Elf owl (*Micrathene whitneyi*) is listed under CESA (Endangered) and is a BLM Sensitive Species. This bird is found in lowland habitats that provide cover and good nesting cavities. It is most common farther east and north, in deserts with many tall saguaro cactus or large mesquites, and in canyons in the foothills, especially around sycamores or large oaks. The elf owl is a secondary cavity nester (it nests in cavities of trees and cacti, generally in disused woodpecker nests). Its nesting habitat is closely correlated with nesting habitat of woodpeckers, including Gila woodpecker (Hardy, Morrison, and Barry 1999; Johnsgard 2002). The Project is near the western extent of its geographic range (Garrett and Dunn 1981). Elf owls are more common and widely distributed outside of California and probably have never been common in California due to limited geographic range and generally marginal habitat. The elf owl is migratory, spending winters in Mexico and southward. It arrives in California by March, and its breeding period extends from April to mid-July (Gould 1987).

No elf owls were identified during surveys. The closest documented nesting occurrence to the Project is at the Corn Springs campground and Cottonwood Springs vicinities, which are approximately 10 miles (16 km) south of the Project (CDFW 2023). The DRECP distribution model is consistent with the CNDDB nesting observations 10 miles (16 km) away. Trees within desert dry wash woodland habitat within the LFRs provide marginal habitat for nesting, indicating a low potential for occurrence.

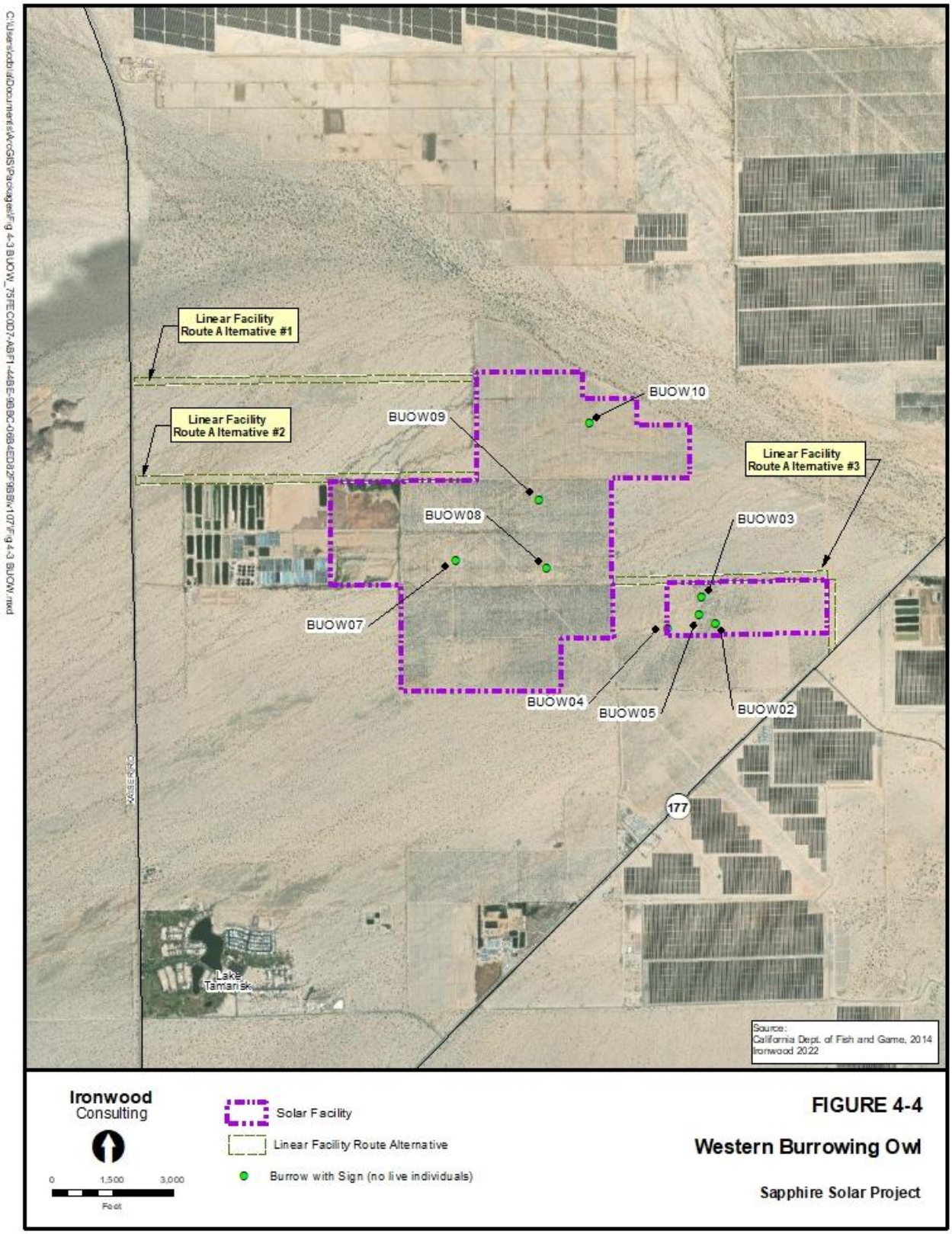


Figure 4-4. Western Burrowing Owl

4.3.4 Gila Woodpecker

Gila woodpecker (*Melanerpes uropygialis*) is listed under CESA (Endangered) and is a BLM Sensitive Species. This bird is predominantly a permanent resident across its range in areas of southeast California, southern Nevada, central Arizona, extreme southwest New Mexico, and parts of Mexico. The Gila woodpecker is an uncommon to fairly common resident in Southern California along the Colorado River, and locally near Brawley, Imperial County (Garrett and Dunn 1981). Suitable habitats include riparian woodlands, uplands with concentrations of large columnar cacti, old- growth xeric-riparian wash woodlands, and urban or suburban residential areas (Rosenberg, Terill, and Rosenberg 1987; Edwards and Schnell 2000).

In California, their primary habitat is cottonwood-willow riparian woodland. Gila woodpeckers prefer large patches of woody riparian vegetation for nesting (greater than 49 ac; 19.8 ha), but they have also been documented in various habitat types, such as desert washes (McCreedy 2008) and residential areas (Mills, Dunning, and Bates 1988). Availability of suitable nesting trees is a limiting factor in breeding habitat suitability (Grinnell and Miller 1944). Where Gila woodpeckers occur in dry desert wash woodlands, they excavate cavity nests in large blue palo verdes (McCreedy 2008). A pair of Gila woodpeckers was incidentally observed feeding young near the Corn Springs Campground, approximately 10 miles (16 km) southwest of the Project (Ironwood 2019).

No Gila woodpeckers were identified during surveys. The Project contains marginal nesting habitat (e.g., trees within the LFRs); however, Gila woodpecker is not expected to occur within the Project.

4.3.5 California Horned Lark

The California horned lark (subspecies *Eremophila alpestris actia*) is a California watch list species. It is found throughout California except the north coast. This species prefers open areas that are barren or with short vegetation including deserts, brushy flats, and agricultural areas, and includes creosote scrub. There are 19 CNDDB records for this species in western Riverside County.

The California horned lark was observed in the Project vicinity, and the Project contains suitable habitat for this species. There is a high potential for occurrence within the Project.

4.3.6 Le Conte's Thrasher

Le Conte's thrasher (*Toxostoma lecontei*) is a California Species of Special Concern. In California, this bird is a resident in the San Joaquin Valley and the Mojave and Colorado Deserts (Weigand and Fitton 2008). This pale gray bird occurs in desert flats, washes, and alluvial fans with sandy and/or alkaline soil and scattered shrubs. Preferred nest substrate includes thorny shrubs and small desert trees and nesting rarely occurs in monotypic creosote scrub habitat or Sonoran Desert woodlands (Prescott 2005). Breeding activity occurs from January to early June, with a peak from mid-March to mid-April. Le Conte's thrashers forage for food by digging and probing in the soil. They eat arthropods, small lizards and snakes, and seeds and fruit; the bulk of their diet consists of beetles, caterpillars, scorpions, and spiders.

This species was not found during surveys. The DRECP distribution model for Le Conte's thrasher indicates suitable habitat approximately 2 miles (3.2 km) west of the Project. Suitable foraging and nesting habitat occur within the proposed LFRs; therefore, this species has a moderate potential to occur within the Project.

4.3.7 Mountain Plover

Mountain plover (*Charadrius montanus*) is a BLM Sensitive Species and DRECP Focus Species. This bird is found in semi-arid plains, grasslands, and plateaus. It uses open grasslands, plowed fields with little vegetation, and open sagebrush areas. Winter habitats include desert flats, and plowed fields. Mountain plovers are insectivores, feeding primarily on large ground-dwelling insects, including grasshoppers, beetles, and crickets (Shuford and Gardali 2008).

Mountain plover was not detected during surveys. The Project is outside this species' breeding range. The DRECP distribution model for mountain plover indicates suitable wintering habitat may occur within private agricultural lands within the Project; however, artificial irrigation has ceased operations, resulting in a decrease in prey base. Therefore, this species is not expected to occur within the Project.

4.3.8 Loggerhead Shrike

Loggerhead shrikes (*Lanius ludovicianus*) are a California Species of Special Concern. These small predatory birds are common year-round residents throughout most of the southern portion of their range, including Southern California. In Southern California, they are generally much more common in interior desert regions than along the coast (Humple 2008). They can be found within lowland, open habitat types, including creosote scrub and other desert habitats, sage scrub, non-native grasslands, chaparral, riparian, croplands, and areas characterized by open scattered trees and shrubs. Loss of habitat to agriculture, development, and invasive species is a major threat; this species has shown a significant decline in the Sonoran Desert (Humple 2008). Loggerhead shrikes initiate their breeding season in February and may raise a second brood as late as July; they often re-nest if their first nest fails or to raise a second brood (Yosef 1996). In general, loggerhead shrikes prey upon large insects, small birds, amphibians, reptiles, and small rodents over open ground within areas of short vegetation, usually impaling prey on thorns, wire barbs, or sharp twigs to cache for later feeding (Yosef 1996).

Loggerhead shrikes were detected during surveys. Suitable habitat is found within the Project and one individual was observed within the southwestern extent of the proposed solar facility during the 2022 surveys. This species has a high potential to forage and possibly nest within the Project.

4.3.9 Swainson's Hawk

Swainson's hawk (*Buteo swainsoni*) is listed under CESA (Threatened) and is a BLM Sensitive Species and DRECP Focus Species. This raptor breeds in open habitats throughout much of the western United States and Canada, and in northern Mexico. In California, breeding populations of Swainson's hawks occur in desert, shrub and grasslands, and agricultural habitats with tree rows; however, most of the state's breeding sites are in the Great Basin and Central Valley (Woodbridge 1998). The only desert breeding occurrences are in the Antelope Valley, over 200 miles (322 km) northwest of the Project. These birds favor open habitats for foraging, and are near- exclusive insectivores as adults, but may also forage on small mammals and reptiles.

No Swainson's hawks were observed during surveys, although this species is often observed flying over Chuckwalla Valley during migration. The Project is outside the breeding range of Swainson's hawks; therefore, this species is not expected to occur on the Project site.

4.3.10 Gilded Flicker

Gilded flicker (*Colaptes chrysoides*) is listed under CESA as Endangered and is a BLM Sensitive Species. This bird typically occurs in stands of cactus and riparian groves in warm desert lowlands and foothills, predominantly in Arizona. This species nests primarily in cactus, but also will use cottonwoods and willows of riparian woodlands. Gilded flicker may be nearly extinct in California. The closest records for this species are along the Colorado River.

No gilded flickers were detected during surveys. Suitable habitat for this species is absent from the Project, and the nearest records are approximately 25 miles (40 km) away; therefore, the gilded flicker is not expected to occur within the Project.

4.3.11 Lucy's Warbler

Lucy's warbler (*Oreothlypis luciae*) is a BLM Sensitive Species. This passerine prefers riparian and wetland communities and is summer resident and breeder along the Colorado River, common to other desert areas, and rare near the Salton Sea. It occurs in desert wash and desert riparian habitats, especially those dominated by mesquite; also ranges into saltcedar (tamarisk) and other thickets. This species may use abandoned verdin nests, which are common within Chuckwalla Valley.

This species was not detected during surveys. Typical nesting habitat (e.g., mesquite thickets) is absent from the Project; therefore, this species is not expected to occur.

4.3.12 Yellow-Billed Cuckoo

Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) is listed under CESA (Endangered) and FESA (Threatened) and is a BLM Sensitive Species and DRECP Focus Species. This bird breeds in expansive riparian areas in portions of California, Nevada, Arizona, and New Mexico. The closest known breeding habitat is located approximately 25 miles (40 km) away along the Colorado River (CDFW 2023). During migration, western yellow-billed cuckoos migrate across the desert and use shrubland habitats, but there have been no documented sightings of western yellow-billed cuckoo within the DFAs identified in the DRECP LUPA (USFWS 2016b).

No yellow-billed cuckoos were found during surveys. Suitable nesting habitat does not occur within the Project or its immediate vicinity; however, this species may infrequently occur in the region during migration season. The western yellow-billed cuckoo is not expected to occur within the Project.

4.3.13 Willow Flycatcher

All subspecies of willow flycatcher (*Empidonax traillii*) are listed under CESA (Endangered), and one subspecies (*E. t. extimus*) is listed under FESA (Endangered). Willow flycatcher breeds in dense riparian habitats in the southwestern United States, and winters in southern Mexico, Central America, and northern South America (USFWS 2016b). The southwestern willow flycatcher is the only subspecies that nests in the region and the closest breeding habitat to the Project is approximately 25 miles (40 km) away along the Colorado River and adjacent to the Salton Sea (CDFW 2023). Southwestern willow flycatchers may migrate

over the area of the desert where the Project is located (USFWS 2016b); however, other willow flycatcher subspecies (not listed as threatened or endangered) may pass through the area during migration.

No willow flycatchers were located during surveys. There is no suitable breeding habitat on the Project, or its immediate vicinity, and the Project is outside the southwestern willow flycatcher's primary migratory routes. The willow flycatcher is not expected to occur within the Project.

4.3.14 Ridgway's Rail

Ridgeway's [Yuma Ridgway's] rail (*Rallus obsoletus yumanensis*), formerly known as Yuma clapper rail (*Rallus longirostris yumanensis*), is listed under CESA (Threatened) and FESA (Endangered) and is a California Fully Protected Species. This bird nests in freshwater marshes and is found along the lower Colorado River southward to its terminus at the Sea of Cortez, along the Gila River drainage in Arizona, at Lake Mead (and the Overton Arm) and its local tributaries, along the Virgin River in Nevada and Utah, and at the Salton Sea/Imperial Valley areas of California (CEC et. al 2014; USFWS 2014; 2019) captured 444 rails from 2016-2019 and attached transmitters to 103 rails to document annual migration and dispersal behaviors. As of December 16, 2019, they documented 24 migratory or dispersal movements (Harrity and Conway 2019). Yuma Ridgway's rail were thought to be mostly sedentary (Eddleman 1989), but recent rail mortalities at solar energy facilities and preliminary results of Harrity and Conway's (2019) telemetry study suggest that these rails fly over desert regions during dispersal and migration (Kagan et al. 2014, Harrity and Conway 2018). Most rails do not appear to follow the Colorado River corridor during migration, rather they cross vast expanses of desert upland and even open water to reach wintering grounds (Harrity and Conway 2019). These results help explain how Yuma Ridgway's rails may have been found at solar facilities far removed from any major sources of water or rail habitat (Kagan et al. 2014). Outlier observations have been documented at Harper Dry Lake, East Cronese Dry Lake, and Desert Center, all at a great distance from known breeding areas (CDFW 2023).

Ridgway's rail was not detected during the survey. There is no suitable breeding habitat on the Project, or its immediate vicinity. Ridgway's rail is not expected to occur within the Project.

4.3.15 Bell's Vireo

Two subspecies of Bell's vireo (*Vireo bellii*) occur within Southern California: least Bell's vireo (*V. b. pusillis*) and Arizona bell's vireo (*V. b. arizonae*). Both subspecies are listed under CESA (Endangered). Least Bell's vireo is also listed under FESA (Endangered), and Arizona bell's vireo is a BLM Sensitive Species. Least Bell's vireo breeds in riparian habitats in southern California and portions of northern Baja California, Mexico and winters in southern Baja California, Mexico (USFWS 1998). Its numbers and distribution have probably increased since its listing, although it remains absent from large parts of its former range (USFWS 2016). The closest known breeding habitat to the site is to the northwest in the Big Morongo Canyon (USFWS 2020). Least Bell's vireos are also uncommon breeders at the Anza-Borrego Desert State Park, located approximately 70 miles (112 km) southwest of the Project (USFWS 2016). Arizona Bell's vireo (*V. b. arizonae*) occurs along the lower Colorado River, approximately 25 miles (40 km) east of the Project. Although there is little information on Bell's vireo migration behavior (USFWS 2016), they likely migrate through the Colorado Desert. It is presumed that Bell's vireo may use riparian habitat and possibly upland scrub habitat during migration (USFWS 2016).

No Bell's vireo was detected during surveys. Suitable nesting habitat is not present on the Project, although Bell's vireo could occur in the vicinity of the site infrequently during migration season. Bell's vireo is not expected to occur within the Project.

4.3.16 Costa's Hummingbird

Costa's hummingbird (*Calypte costae*) is a bird of conservation concern. In the Sonoran Desert they occur in desert washes with palo verde, jojoba, desert lavender, or chuparosa, on steep rock slopes, and in lowlands with saguaro, creosote bush, and cholla cacti typically below 3,000 ft elevation. In the Mojave Desert they frequent scrub and woodlands near springs and streams with cottonwoods, brittlebrush, four-winged saltbush, and other species from near sea level to 4,000 ft elevation. Costa's Hummingbirds typically build a nest in palo verde, ironwood, cholla, acacia, graythorn, and other shrubs.

Costa's hummingbird was detected in the survey area and has a high potential for occurrence.

4.3.17 Black-tailed Gnatcatcher

Black-tailed gnatcatchers are a California watch-list species. They are a year-round resident found in the southeast desert wash habitat from Palm Springs and Joshua Tree National Park south, and along the Colorado River. It nests primarily in wooded desert wash habitat, but also occurs in creosote scrub habitat during the non-breeding season.

This species was readily detected during surveys and has a high potential for occurrence.

4.3.18 Bendire's Thrasher

Bendire's thrasher (*Toxostoma bendirei*) is a BLM Sensitive Species. It favors open grassland, shrubland, or woodland with scattered shrubs, primarily in areas that contain large cholla, Joshua tree, Spanish bayonet, Mojave yucca, palo verde, mesquite, catclaw, desert-thorn, or agave. There are 17 CNDDB occurrences in Riverside County, with the nearest observations in the Desert Center, and Corn Springs area.

This species was not detected during surveys and suitable habitat is not present within the Project. Bendire's thrasher is not expected to occur within the Project.

4.3.19 Crissal Thrasher

The Crissal thrasher (*Taxostoma crissale*) is a BLM Sensitive Species. It is found primarily in dense vegetation in foothills and riparian scrub. There are 36 occurrences in Riverside County, with nearby observations more than 40 miles (64 km) near the Mule mountains and in the Indio and Palm Springs areas.

This species was not observed during surveys and suitable habitat is not present within the Project vicinity. Crissal thrasher is not expected to occur within the Project.

4.4 Mammals

4.4.1 Desert Kit Fox

Desert kit fox (*Vulpes macrotis arsipus*) is protected by the CCR and the Fish and Game Code § 4000 as a fur-bearing mammal. Title 14 of the CCR, § 460, stipulates that desert kit fox may not be taken at any time. Desert kit fox is a fossorial mammal that occurs in arid open areas, shrub grassland, and desert ecosystems within the Mojave and Sonoran Deserts. Desert kit fox typically occurs in association with its prey base, which includes small rodents, primarily kangaroo rats, rabbits, lizards, insects, and in some cases, immature desert tortoises (Zeiner et al. 1990). Burrow complexes that have multiple entrances provide shelter, escape, cover, and reproduction, but desert kit fox may utilize single burrows for temporary shelter. Litters of one to seven young are typically born in February through April (McGrew 1979).

In 2011, an outbreak of Canine Distemper Virus (CDV) was documented in desert kit fox populations at the Genesis Solar Energy Project, approximately 4 miles (6 km) from the Project. CDV can affect multiple carnivore hosts and is transmitted via direct or indirect contact with infected body fluids. Due to concerns that the spread of CDV within the kit fox population may have been exacerbated by project-related displacement of infected animals, the CDFW Wildlife Investigations Lab radio-collared kit foxes in the region for monitoring and resampling purposes until 2014. Desert kit fox disease monitoring and surveillance activities were terminated by CDFW when evidence showed that the active CDV outbreak was no longer a risk to desert kit fox populations in the region. In early 2021, a more recent outbreak of CDV was detected in the canid populations in the region of Joshua Tree National Park. This outbreak was initially detected in a gray fox population and likely spread to desert kit fox within Chuckwalla Valley; however, there have been no known CDV occurrences in 2022.

Two burrows contained evidence of recent activity with the presence of scat, tracks, and dig marks (Figure 4-5). Twenty-eight suitable kit fox burrows in varying condition were detected within the Project during the 2022 surveys. The DRECP distribution model indicates that suitable habitat for desert kit fox surrounds the Project, and the presence and distribution of desert kit fox within the Project will change over time since distribution is dynamic under natural conditions due to prey availability and presence of predators. This species has a high potential for occurrence.

4.4.2 American Badger

The American badger (*Taxidea taxus*) is California Species of Special Concern. This mammal is associated with dry open forest, shrub, and grassland communities with an adequate burrowing rodent population and friable soils. Badgers generally are associated with treeless regions, prairies, parklands, and cold desert areas (Zeiner et al. 1990). Badgers inhabit burrows and often prey on small mammals that inhabit burrows, as evidenced by claw marks along the edges of burrows.

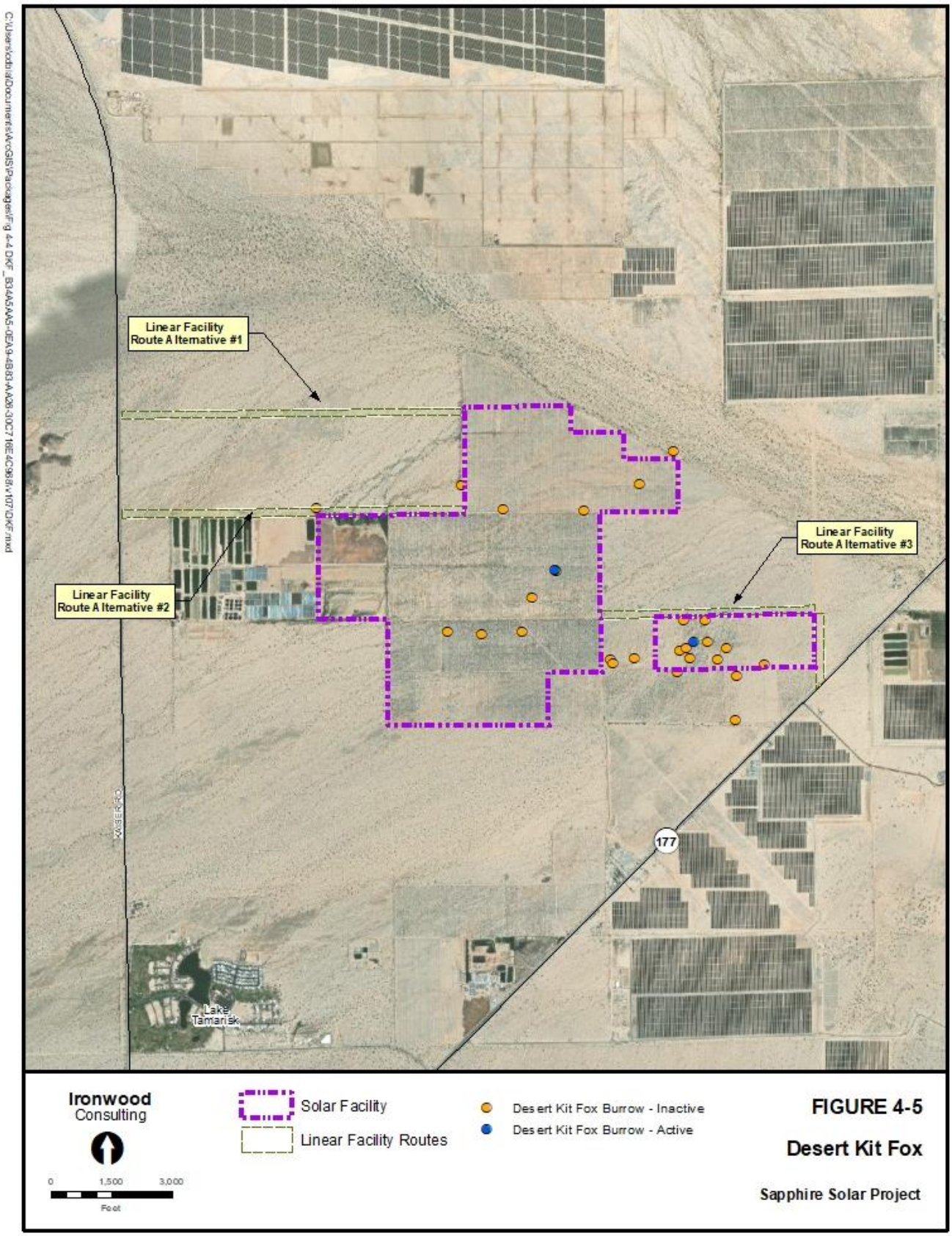


Figure 4-5. Desert Kit Fox

Suitable habitat exists for American badgers on the Project. A skull of an American badger was found along the southeastern boundary of the adjacent aquaculture facility and a historical, inactive burrow was recorded along the northeastern boundary of the aquaculture facility. Another potential burrow was detected just outside the eastern boundary of the fallow agricultural field. This species may be attracted to the area due to the presence of food subsidies associated with the aquaculture facility.

No live individuals were detected during surveys. It has a high potential to occur based on these observations and occurrences within the Chuckwalla Valley.

4.4.3 Burro Deer

Burro deer (*Odocoileus hemionus eremicus*) is a subspecies of mule deer (*Odocoileus hemionus*) that inhabits desert dry wash woodland communities in the Colorado region of the Sonoran Desert near the Colorado River. Burro deer is a California Protected Game Species and DRECP Focus Species. Some burro deer are year-round residents along the Colorado River, while others are transient and move between mesic and arid desert areas in response to seasonal water and forage availability. During hot summers burro deer concentrate along the Colorado River or the Coachella Canal where water developments have been installed and where microphyll woodland is dense and provides good forage and cover. With late summer thundershowers and cooler temperatures, burro deer move away from the Colorado River and Coachella Canal into larger washes or wash complexes in the foothills and nearby mountains (BLM CDD 2002). The proposed solar facility is not mapped as suitable habitat by the DRECP distribution model. Suitable habitat is mapped north and south of the proposed solar facility. The habitat intactness scores low to moderately low, even within the dry wash woodland associated with Big Wash north of the site.

Burro deer scat and tracks were dispersed throughout the Project, and no live individuals were detected. This species has a high potential to occur within the Project.

4.4.4 Desert Bighorn Sheep

The desert bighorn sheep (*Ovis canadensis nelson*; also called Nelson's bighorn sheep) is a California Protected Game Species and BLM Sensitive Species. This species is found in the Transverse Ranges through most of the desert mountain ranges of California, Nevada, and northern Arizona to Utah. The Project is well outside the range of the listed threatened Peninsular bighorn sheep, which was formerly recognized as a subspecies and now considered a distinct vertebrate population segment of the desert bighorn sheep. Essential habitat for desert bighorn sheep includes steep, rocky slopes of desert mountains, and areas where surface water is available during dry seasons. In the spring, when annual plants are available, bighorn sheep tend to disperse downhill to bajadas and alluvial fans to forage. Bighorn sheep populations have been fragmented by highways, roads, railroads, and aqueducts. The I-10 represents a major obstacle to bighorn sheep movements. Desert bighorn sheep have been documented in the Chuckwalla Mountains south of the Project and the Eagle Mountains to the west, which is consistent with the DRECP distribution model.

No evidence of bighorn sheep was found during the focused surveys; this species is not expected to occur within the Project.

4.4.5 Special Status Bats

Bat roosts are known to occur in the vicinity of the Project, primarily associated with the surrounding mountains and mines. Roosts may also occur under bridges, including those of I-10; however, bridges in the Project vicinity tend to be smooth cement, which provide limited roosting potential. Roosting opportunities for several bat species (e.g., canyon bat and California myotis) may occur in tree cavities, soil crevices and rock outcroppings primarily within dry desert wash woodland habitats (CEC 2010). Several common and special status bat species may occur within the Project vicinity (CEC 2010; WEST 2016; Brown and Rainey 2013). Data collected for the Palen Solar Project, located approximately 8 miles (12.8 km) east of the Project, found that canyon bats were the most detected species, followed closely by California myotis, and pallid and Mexican free-tailed bats were detected less frequently and not detected at all stations (WEST 2016).

Six special status bat species may forage on or near the Project and are discussed further below. Suitable, albeit limited, roosting habitat may occur for several of these species within the dry wash woodland habitat on the Project. It is not expected that any special status bat species would have a substantial roost on the Project because habitat features most associated with these species (e.g., rock ledges, cliffs, large tree hollows, mine shafts) do not occur on site. The possibility exists for incidental observations for these species. Other special status bat species known from the region typically inhabit rocky sites and would not be expected to use the Project for roosting.

4.4.5.1 Townsend's Big-Eared Bat

Townsend's big-eared bat (*Corynorhinus townsendii*) is a California Species of Special Concern, BLM Sensitive Species, and was a recent candidate for state listing prior to CDFW recommending that listing was not warranted in a status review it prepared for the Fish and Game Commission in June 2016 (CDFW 2016b). This species roosts in caves, mines, abandoned dwellings, and large basal hollows of large trees (e.g., redwoods). Townsend's big-eared bat has been recorded occurring from sea level to approximately 9,000 ft elevation within a range of various habitats. This species typically forages along streams and within woodlands habitats.

Townsend's big-eared bats have a moderate potential to forage within the Project but have a low potential to roost due to absence of suitable structures (e.g., abandoned buildings) and natural features (e.g., caves and large hollowed trees).

4.4.5.2 California Leaf-Nosed Bat

The California leaf-nosed bat (*Macrotus californicus*) is a California Species of Special Concern and BLM Sensitive Species. This species occurs in the deserts of California, southern Nevada, Arizona and south to northwestern Mexico. In California, they are currently known to exist in eastern San Bernardino, Riverside, and San Diego counties and all of Imperial County (CEC 2012). California leaf-nosed bat relies on caves and mines for roosting habitat. Foraging habitat typically consists of riparian and desert wash habitats.

This species has a low potential for occurrence. It may forage within the Project, but it is not expected to roost due to absence of suitable caves and mines.

4.4.5.3 Pallid Bat

The pallid bat (*Antrozous pallidus*) is a California Species of Special Concern and BLM Sensitive Species. It is a locally common species throughout California, and a year-round resident in most of the range. This species occupies a wide variety of habitats at elevations less than 6,000 ft including grasslands, shrublands, woodlands, and forests, and is most common in open, dry habitats with rocky areas for roosting. Pallid bat roosts in cliffs, caves, crevices, mines, hollow trees, and various human-made structures (Zeiner 1990). This species has a moderate potential to forage and a low potential to roost in the limited dry wash woodland habitat associated with the LFRs.

4.4.5.4 Western Mastiff Bat

The western mastiff bat (*Eumops perotis californicus*) is a California Species of Special Concern and BLM Sensitive Species. This species is widespread through the southwest U.S. and into Mexico. Its distribution in California is widespread, with year-round occurrence data primarily in central and southern California (Zeiner 1990). The western mastiff bat is found in a range of habitats, including coastal, forests, woodland, and desert scrub areas that are associated with roosting sites (Pierson and Rainey 1998). Roosting habitat typically consists of rocky crevices in canyons and cliffs with vertical or nearly vertical walls and roost sites are typically at least two meters above the ground (e.g., on cliff faces) and lacking obstructions. This species has a low potential for occurrence; foraging habitat is limited, and roosting habitat is absent.

4.4.5.5 Western Yellow Bat

The western yellow bat (*Lasiurus xanthinus*) is a California Species of Special Concern. It is found in Arizona, New Mexico, Mexico, and year-round in California. It is found in arid regions, in riparian, desert riparian, desert wash and palm oasis habitat. The western yellow bat is insectivorous, and roosts and feeds in palm oases and riparian habitats (Zeiner 1990). The potential for occurrence is moderate. The Project lacks typical foraging and roosting habitat for western yellow bat; however, this species may be found foraging on the Project due to the proximity of the existing agricultural lands. The potential for occurrence is likely lower since active agricultural practices with artificial irrigation have ceased operations.

4.4.5.6 Big Free-Tailed Bat

The big free-tailed bat (*Nyctinomops macrotis*) is a California Species of Special Concern. Its distribution is throughout the southwest U.S. and northern South America, generally from sea level to 8,000 ft in elevation. It is rare in California, prefers rocky terrain, and roosts in tree cavities and man-made structures. It is known to wander in autumn, out of its normal range (Zeiner 1990). This species has a moderate potential for occurrence during foraging, and a low potential for occurrence for roosting; these activities may occur in the limited dry wash woodland habitat associated with the LFRs.

4.5 Wildlife Connectivity

Wildlife movement between occupied habitat blocks is important for long-term population sustainability. Accessibility between habitat blocks (i.e., “connectivity”) is important to long-term genetic diversity and demography of wildlife populations. In relatively undeveloped areas, including the Chuckwalla Valley, wildlife habitat is available in extensive open space areas throughout much of the region (e.g., conservation

lands and wilderness areas), but natural and anthropogenic barriers (e.g., paved roadways and developed areas) may impede or prevent wildlife movement. Movement opportunity varies for each species, depending on motility and behavioral constraints, as well as landscape impediments. For many terrestrial wildlife species, movement across the Chuckwalla Valley, including movement to and from the Project, or across the site, is limited by anthropogenic barriers or land uses. Kaiser Road, Highway 177, and the I-10 freeway all act as significant obstructions to movement by terrestrial wildlife. Existing and future solar projects within the DFA around Desert Center and around the Project, in particular (e.g., the operating Desert Sunlight and Desert Harvest projects to the north and an approved Intersect Power project to the east), also have the potential to influence wildlife movement.

4.5.1 Multi-Species Linkages

Several wildlife connectivity models/layers have been developed within the DRECP area. The DRECP (LUPA-BIO-13) identifies four linkage areas within the plan area. The Project is located over 4 miles (6.4 km) away from the closest multi-species linkage, which consists of a 1.5-mile-wide linkage across I-10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center (Figure 4-6). The Project would not impact any DRECP multi-species linkages.

4.5.2 Desert Connectivity Project

The California Desert Connectivity Project provides a comprehensive habitat connectivity analysis for the California deserts (Penrod et al. 2012). Using least-cost models for four species (American badger, desert kit fox, bighorn sheep, and Agassiz's desert tortoise), the Connectivity Project identified a Desert Linkage Network to maintain habitat for movement between landscape blocks (i.e., Wilderness Areas). The landscape blocks identified in the Project vicinity are the Eagle Mountains to the west, the Coxcomb Mountains to the north, and the Palen–McCoy Mountains to the east (Figure 4-6). Broad habitat linkages were identified in the Desert Linkage Network, and the most prominent linkage in the Project vicinity extends from the southern base of the Coxcomb Mountains south along the foothills of the Eagle Mountains and across the I-10 into the Chuckwalla and Orocopia Mountains. This linkage measures approximately 16 miles (25.7 km) wide at its interface with I-10, with narrower extensions to the north around the base of the Eagle Mountains and to the west through the Orocopia Mountains.

4.5.3 Pinto Wash Linkage

The primary purpose of desert tortoise linkages is to maintain a network of occupied habitat that interconnects Tortoise Conservation Areas (TCAs). The Pinto Wash Linkage (PWL) is identified in the DRECP as an important linkage for desert tortoise connectivity and its boundaries have varied since it was first described by USFWS in a project-specific Biological Opinions (BO) prior to the development of the DRECP. The current PWL boundary, as depicted in the DRECP Data Basin GIS dataset, is publicly available on the DRECP Gateway (Desert Tortoise TCA Linkage Master Layer; DRECP 2023). The PWL appears to be a digital interpretation of the *Tortoise Habitat Connectivity* boundary introduced in the Desert Sunlight BO but with more precise boundaries based on land ownership. The PWL occupies a vast area, occupying over 32,500 acres in total. Portions of the PWL overlap three general BLM land designations: ACEC, DFA, and other BLM managed lands that are not designated as ACEC or DFA (Figure 4-7). The PWL polygon is comprised of

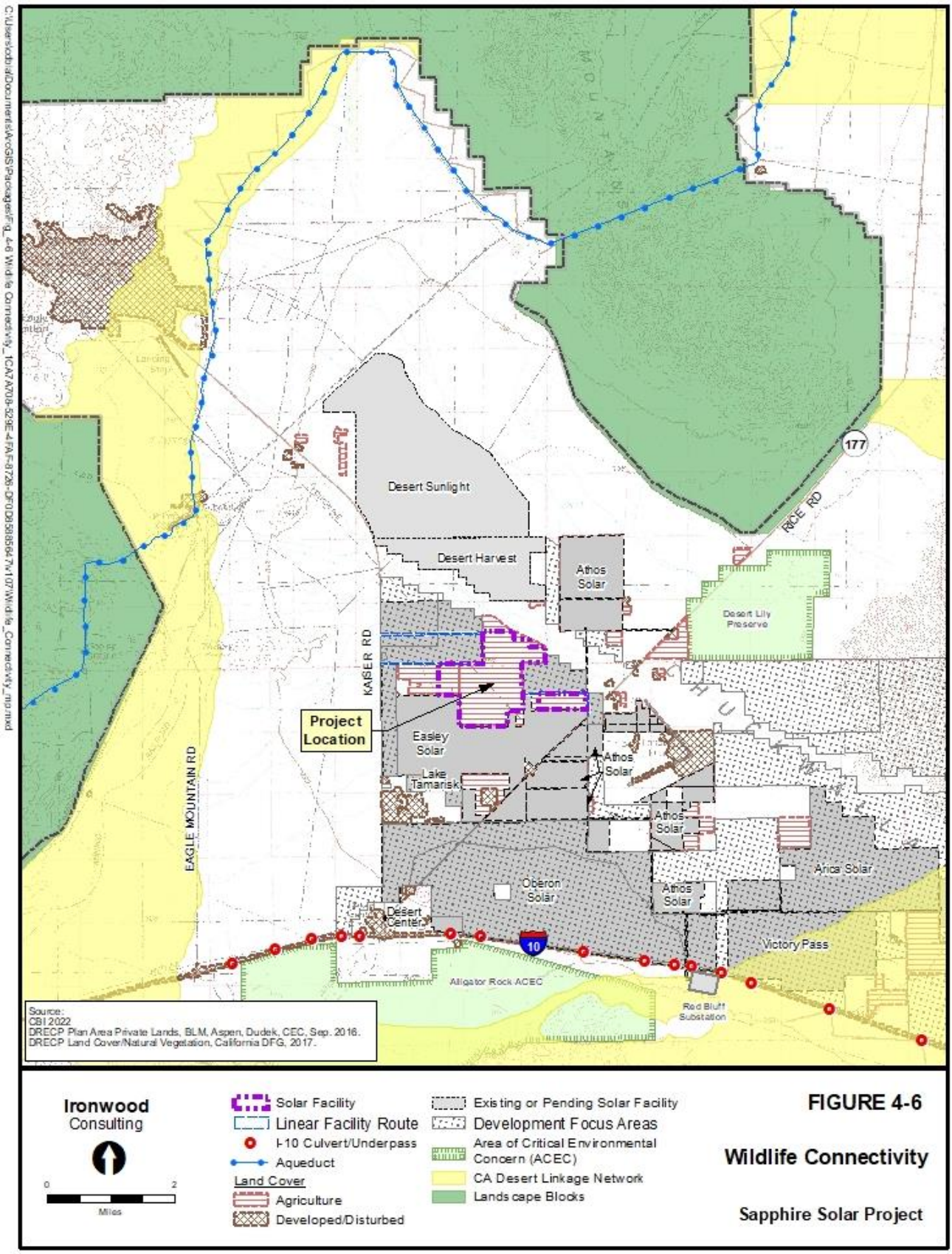


Figure 4-6. Wildlife Connectivity

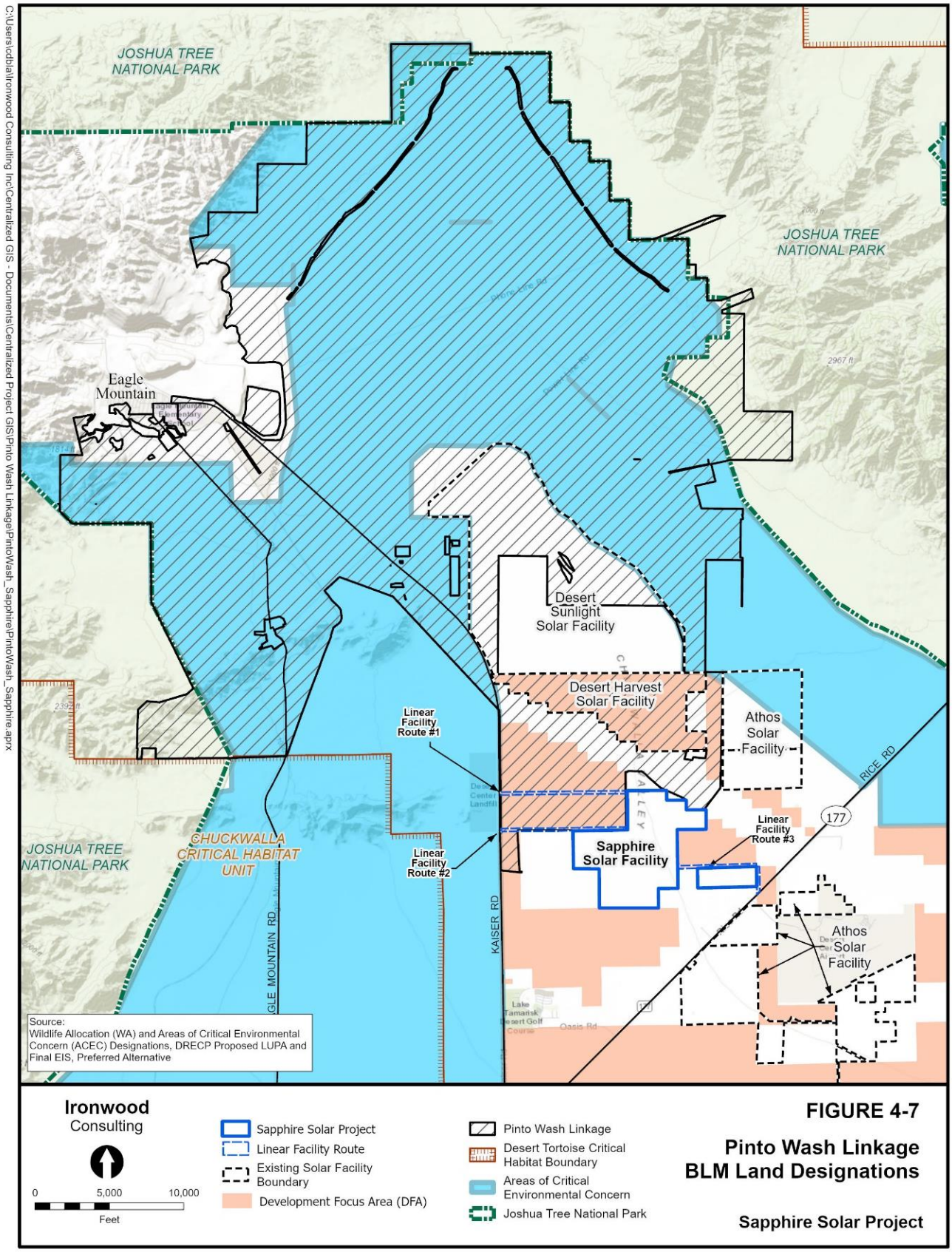


Figure 4-7. Pinto Wash Linkage with BLM Land Designations

smaller polygons with attributes that denote habitat quality: high, low, and non-habitat (Figure 4-8). The low and non-habitat areas within the PWL largely overlap the DFA, while high value habitat overlap the ACEC.

The DRECP Land Use Planning Amendment (LUPA) includes goals and objectives for maintaining functional desert tortoise linkages (Section II.4 – Goal #4), which states that the goal is to:

> *Maintain functional linkages between Tortoise Conservation Areas to provide for long-term genetic exchange, demographic stability, and population viability within Tortoise Conservation Areas. Emphasize inclusion of high value contiguous habitats pursuant to Nussear et al. (2009) and minimization and avoidance of disturbance in habitat with high desert tortoise habitat potential.*

The predicted occupancy model (Nussear et al. 2009) identifies where tortoises are likely to occur. Contiguous, high value predicted occupancy represents areas that are important to tortoise connectivity. Within the PWL, high value contiguous habitats are located approximately 2.5 miles northwest of the Project. The location of high habitat quality is consistent with the DRECP designation of this area as ACEC.

The Project's proposed development within the PWL is limited to the western LFRs (#1 and 2), which are sited within the DFA and do not occur within the high-quality habitat of the PWL nor within the areas that have been modelled as a functional linkage area. The Project is located within the southern portion of the PWL that has low predicted occupancy (Figure 4-2) and low potential for tortoise connectivity. The Desert Sunlight, Desert Harvest, and Athos solar facilities are also located in lower-value habitat and their presence on the landscape further reduces potential for tortoise connectivity through the southern extent of the PWL.

Furthermore, the western LFRs would not result in permanent barriers to tortoise movement. The total potential right-of-way associated with LFR #1 and #2 would be a maximum of 76 acres; however, actual disturbance resulting from final design would be substantially less than 76 acres because (1) only one of the two linear facility route alternatives would include the gen-tie line, (2) the entire 200' right-of-way would not be disturbed, and (3) actual disturbance would be limited to the footprint of gen-tie structures, access road, spur roads, temporary pulling and tensioning sites, and other associated infrastructure.

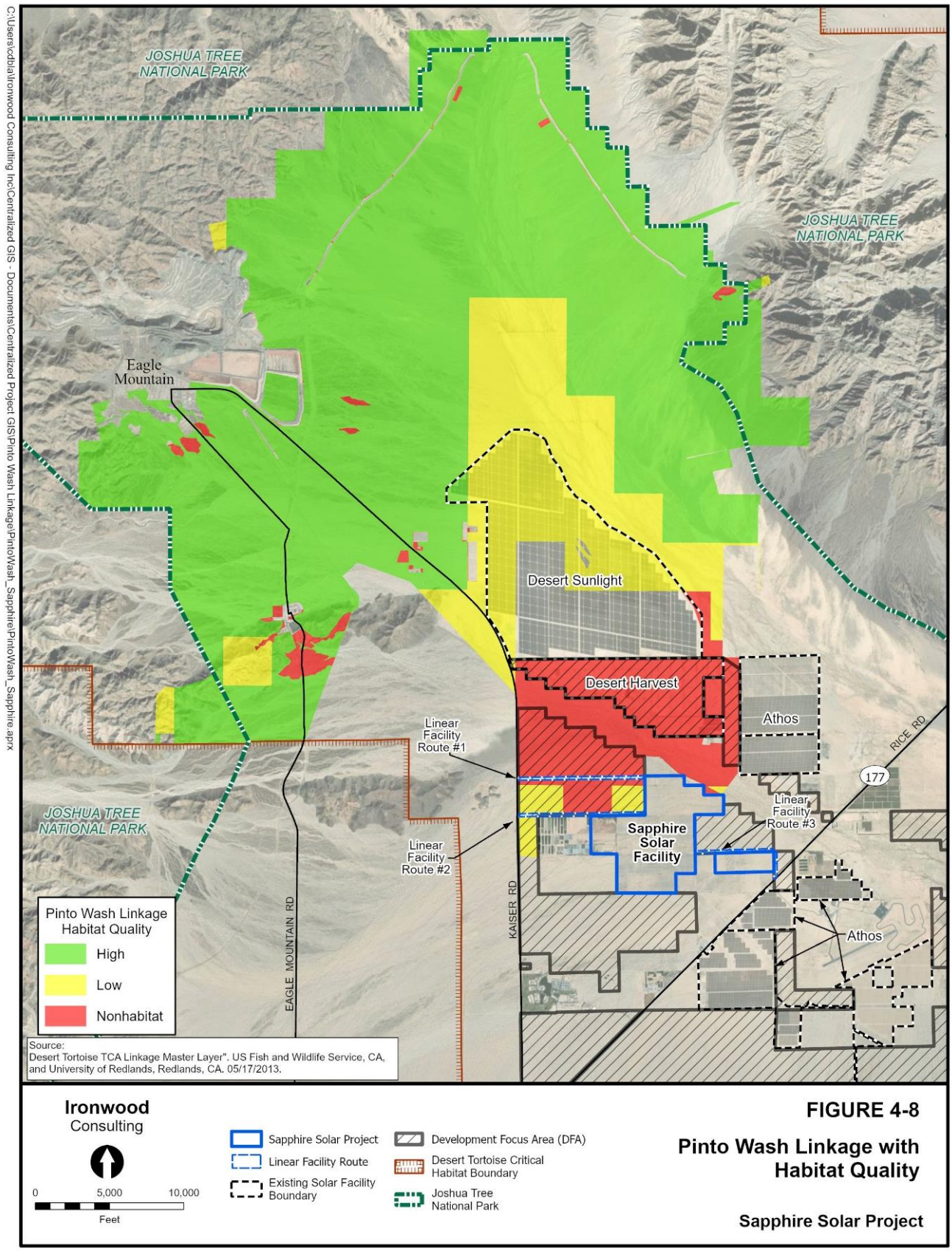


Figure 4-8. Pinto Wash Linkage with Habitat Quality

5 Special Status Plant Species

Special status plant species have protection and rarity designations as described in Section 2.2 above. The potential for occurrence was based on the definitions stated in Section 2.3 above. Table 5-1 includes a comprehensive list of special status plant species reviewed for their potential to occur within the Project. Due to the absence of specific habitat requirements (e.g., elevation, specific vegetation communities, topographic features, proximity to water), several special status species were determined to be absent or have a low potential to occur on the Project. The results of the CNDDB database search within two miles (3.2 km) of the Project are shown on Figure 4-1 and the results of the 2022 focused surveys are shown on Figure 5-1. No threatened, endangered, or BLM sensitive plant species (other than succulents) were found during the focused surveys. The special status plant species discussed further in this section (1) were documented on the Project during the 2022 surveys, (2) have a moderate or high potential to occur, or (3) are managed under the DRECP.

5.1 Jackass Clover

Jackass clover (*Wislizenia refracta ssp. refracta*) is an annual herb native to California, found in dunes and playas of creosote bush scrub. It has a California Rare Plant Rank (CRPR) of 2B.2. The CCH includes 28 records, with one historic record in Riverside County. Jackass clover was observed at one locality onsite in the southeast corner of the large parcel (Figure 5-1).

5.2 Desert Unicorn Plant

Desert unicorn plant (*Proboscidea althaeifolia*) has a CRPR of 4.3, where the ranking is defined as having limited distribution which is not very threatened (e.g., less than 20% of occurrences are threatened). It is a low-growing, perennial species that occurs in sandy washes within Sonoran desert scrub vegetation in San Bernardino, Imperial, Riverside, and San Diego counties of California. It is a late-season bloomer (May to August) but has large and distinctive seed pods that can be detected during the spring season and fleshy root structure that can remain dormant in dry years (BLM 2011). There are 95 records from the CCH database, including 32 records in Riverside County (CCH 2022). This species was observed and recorded during the focused surveys (Figure 5-1) along LFR #3, and several occurrences were observed within the private lands of the Project. This plant was detected during surveys and is present within the Project.

5.3 California Ditaxis

California Ditaxis (*Ditaxis serrata var. californica*) is a perennial herb endemic to California and found in the creosote bush scrub vegetation community. It has a CRPR of 3.2. The CCH includes 41 records where 35 are in Riverside County. This species was found during the 2022 focused surveys and is present within the private parcels of the Project (Figure 5-1).

Table 5-1. Special Status Plant Species

Common Name	Scientific Name	Status State/Fed/CRPR/BLM	Blooming Period	Habitat Present	Potential To Occur on the Project	Species Detected
Desert sand verbena	*Abronia villosa* var. *aurita*	__/__/1B.1/BLM Sensitive	Jan-Sep	No	Low	No. Likely Absent.
Angel trumpets	*Acleisanthes longiflora*	__/__/2B.3/__	May	No	Low	No. Likely Absent.
Small-flowered androstephium	*Androstephium breviflorum*	__/__/2B.2/__	Mar-Apr	Yes	Low	No. Likely Absent.
Harwood's milkvetch	*Astragalus insularis* var. *harwoodii*	__/__/2B.2/__	Jan-May	Yes	Moderate. CNDDB records in adjacent lands.	No. Likely Absent.
Coachella Valley milkvetch	*Astragalus lentiginosus* var. *coachellae*	__/FE/1B.2/BLM Sensitive	Feb-May	No	Low	No. Likely Absent.
California ayenia	*Ayenia compacta*	__/__/2B.3/__	Mar-Apr	No	Low	No. Likely Absent.
Pink fairy duster	*Calliandra eriophylla*	__/__/2B.3/__	Jan-Mar	Yes	Low	No. Likely Absent.
Sand evening-primrose	*Camissonia arenaria*	__/__/2B.2/__	Nov-May	No	Low	No. Likely Absent.
Crucifixion thorn	*Castela emoryi*	__/__/2B.2/__	Apr-Oct	Yes	Moderate. Recorded adjacent to the LFRs.	No. Likely Absent.
Abram's spurge	*Chamaesyce abramsiana*	__/__/2B.2/__	Aug-Nov	Yes	Low	No. Likely Absent.
Flat-seeded spurge	*Euphorbia platysperma*	__/__/1B.2/ BLM Sensitive	Feb-Sep	No	Low	No. Likely Absent.
Las Animas colubrina	*Colubrina californica*	__/__/2B.3/__	Apr-Jun	No	Low	No. Likely Absent.
Alverson's foxtail cactus	*Coryphantha vivipara* var. *alversonii*	__/__/4.3/__	Apr-Jun	Yes	Moderate. Recorded adjacent to the LFRs.	No. Likely Absent.
Wiggins' cholla	*Opuntia wigginsii*	__/__/3.3/__	Mar	No	Low	No. Likely Absent.

Common Name	Scientific Name	Status State/Fed/CRPR/BLM	Blooming Period	Habitat Present	Potential To Occur on the Project	Species Detected
Utah milkvine	*Funastrum utahense*	__/__/4.2/__	Mar-Oct	Yes	Low	No. Likely Absent.
Glandular ditaxis	*Ditaxis claryana*	__/__/2B.2/__	Oct-Mar	Yes	Moderate	No. Likely Absent.
California ditaxis	*Ditaxis serrata* var. *californica*	__/__/3.2/__	Mar-Dec	Yes	High	**Yes. Present.**
Harwood's eriastrum	*Eriastrum harwoodii*	__/__/1B.2/BLM Sensitive	Mar-Jun	No	Low	No. Likely Absent.
Slender-spined all thorn	*Koeberlinia spinosa var. tenuispina*	__/__/2B.2/__	May-July	Yes	Moderate. Recorded adjacent to the LFRs.	No. Likely Absent.
Spearleaf	*Matelea parvifolia*	__/__/2B.3/__	Mar-May	No	Low	No. Likely Absent.
Argus blazing star	*Mentzelia puberula*	__/__/2B.2/__	Mar-May	No	Low	No. Likely Absent.
Slender cotton-heads	*Nemacaulis denudata* var. *gracilis*	__/__/2B.2/__	Mar-May	No	Low	No. Likely Absent.
Desert unicorn plant	*Proboscidea althaeifolia*	__/__/4.3/__	May-Oct	Yes	High	**Yes. Present.**
Orocopia sage	*Salvia greatae*	__/__/1B.3/BLM Sensitive	Mar-Apr	No	Low	No. Likely Absent.
Desert spikemoss	*Selaginella eremophila*	__/__/2B.2/__	May-Jul	No	Low	No. Likely Absent.
Cove's cassia	*Senna covesii*	__/__/2B.2/__	Mar-Aug	No	Low	No. Likely Absent.
Mesquite nest straw	*Stylocline sonorensis*	__/__/2A/__	Apr	No	Low	No. Likely Absent.
Dwarf germander	*Teucrium cubense ssp. depressum*	__/__/2B.2/__	Mar-Nov	No	Low	No. Likely Absent.
Jackass clover	*Wislizenia refracta ssp. refracta*	__/__/2B.2/__	Apr-Nov	Yes	High	**Yes. Present.**
Palmer's jackass clover	*Wislizenia refracta ssp. palmeri*	__/__/2B.2/__	Jan-Dec	No	Low	No. Likely Absent.

Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range

California Rare Plant Rank (CRPR):

CRPR 1A = Presumed extinct

CRPR 1B = Rare, threatened, or endangered in California and elsewhere

CRPR 2 = Rare, threatened, or endangered in California but more common elsewhere

CRPR 3 = Plants which need more information

CRPR 4 = Limited distribution – a watch list

.1 = Seriously endangered in California (high degree/immediacy of threat; over 80% of occurrences threatened)

.2 = Fairly endangered in California (moderate degree/immediacy of threat; 20%-80% of occurrences threatened)

.3 = Not very endangered in California (low degree/immediacy of threats or no current threats known; <20% of occurrences threatened, or no current threats known)

Bureau of Land Management:

BLM Sensitive = BLM Manual §6840 defines sensitive species as those species that are (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats (BLM 2001).

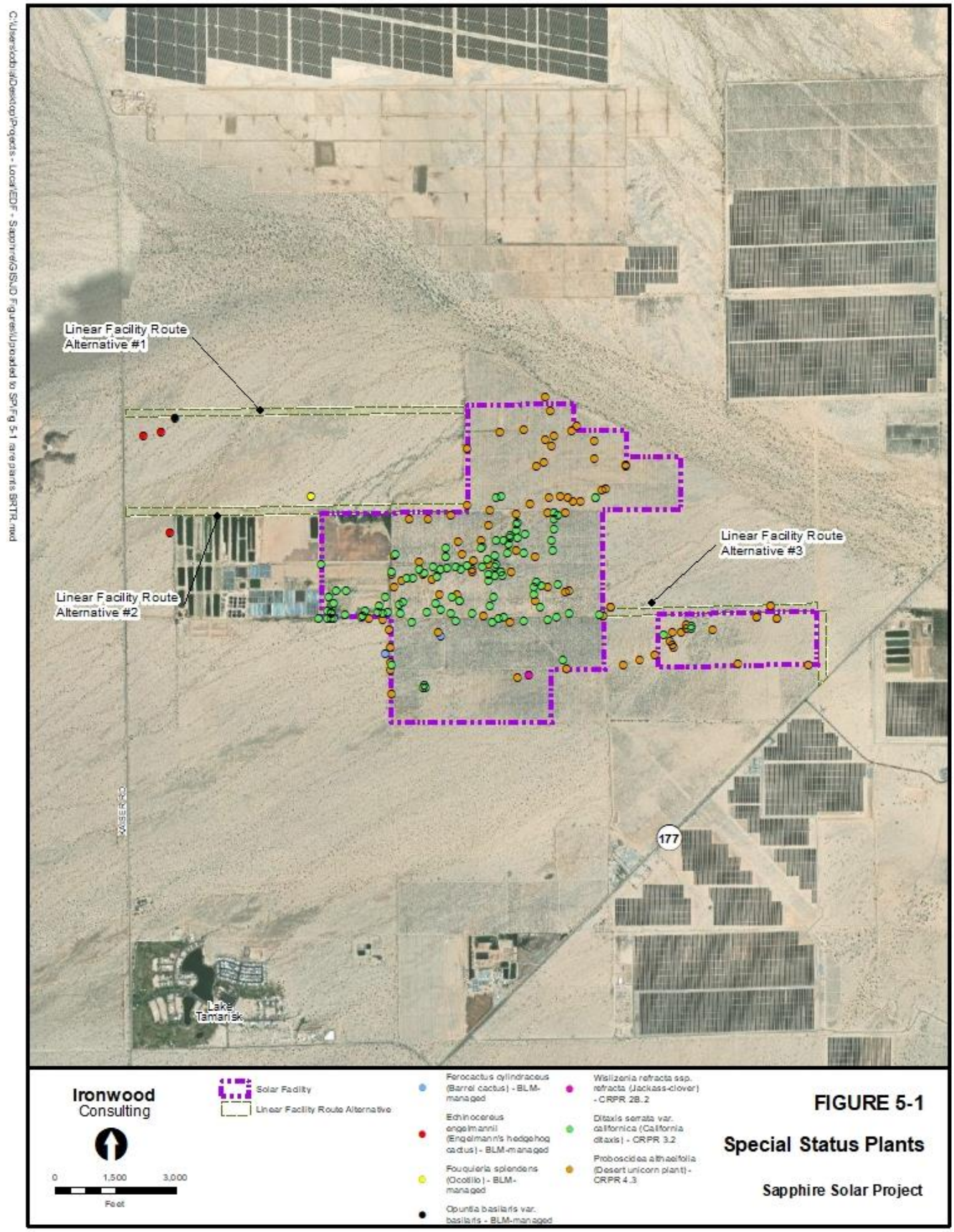


Figure 5-1. Special Status Plants

5.4 Harwood‘s milk-vetch

Harwood‘s milk-vetch (*Astragalus insularis* var. *harwoodii*) has a CRPR of 2B.2. This species is rare in California, but more common elsewhere. It is an annual herb that mainly occurs in Sonoran Desert scrub habitat throughout the Colorado Desert (BLM CDD 2002). This subspecies is found in desert dunes, sandy or gravelly areas, and ruderal swales throughout the Mojavean and Sonoran deserts covering portions of Imperial, Riverside, and San Diego counties (CNPS 2016). Historic records occur in Chuckwalla Valley in Riverside County. There are several CNDDB records for this species within the Project vicinity, specifically south of I-10 near the base of Chuckwalla Mountains and within the Palen Dry Lake (CNDDB 2022). The nearest suitable habitat is in the sand and dunes system primarily located north of the Project within the Pinto Wash system. This species was not observed during focused surveys and is not expected to occur within the Project.

5.5 Emory's Crucifixion-Thorn

Emory's Crucifixion-Thorn (C*astela emoryi*) has a CRPR of 2B.2, and is a shrub native to California, and is also found in Arizona, and Sonora, Mexico. It is found in dry, rocky desert washes, slopes, and plains from 500 to 2,000 ft amsl. There are 169 records in CCH, and 40 in Riverside County. Suitable habitat is present along the western LFRs (#1 and #2), and nearby records occur within 2 miles (3.2 km) of the Project (CDFW 2023); however, this species was not observed during focused surveys and therefore is not expected to occur within the Project.

5.6 Slender-Spined All Thorn

Slender-spined all thorn (*Koeberlinia spinosa* var. *tenuispina*) is a perennial deciduous shrub found in washes, rocky slopes, and canyons of the Sonoran Desert. It has a CRPR of 2B.2 with 48 records in CCH, 2 in Riverside County. The CNDDB shows occurrence of this species within the Victory Pass 7.5-minute quadrangle, within 2 miles (3.2 km) of the Project. Suitable habitat is present along the western LFRs (#1 and #2); however, this species was not observed during focused surveys and therefore is not expected to occur within the Project.

5.7 Alverson's Foxtail Cactus

Alverson’s foxtail cactus (C*oryphantha vivipara* var. *alversonii*) is a perennial herb (stem succulent) that is native to California and is also found in Arizona. It is found in sandy or gravelly locations in desert areas up to 4,000 ft amsl. The CCH includes 42 records, where 26 are in Riverside County (CCH 2022). This species was not detected during surveys, there is suitable habitat present, and the CNDDB includes 55 records, with two locations occurring within 2 miles (3.2 km) of the Project. Suitable habitat occurs along the western LFRs (#1 and #2); however, this species was not observed during focused surveys and therefore is not expected to occur within the Project.

5.8 Harwood’s Eriastrum

Harwood‘s eriastrum (*Eriastrum harwoodii*), also commonly known as Harwood‘s woollystar, has a CRPR of 1B.2, a NatureServe rank of G2/S2, and is a BLM sensitive species. It is a spring annual, typically found in active, stabilized, and partially stabilized sand dunes in creosote bush scrub habitat. Harwood’s eriastrum is found exclusively in sandy substrate, and most frequently on semi-stabilized dunes (De Groot 2016). Habitat

descriptions associated with CNDDB occurrence records in Riverside County includes loose sandy swales, sand ramps, and sand flats (CDFW 2023). Harwood's eriastrum records are also associated with the margins around dry lakes such as Palen and Ford dry lakes (CNPS 2022b). There are 120 records from the CCH database, 51 of which are in Riverside County, and 80 records in the CNDDB. The closest record is in stabilized sand dunes approximately 3 miles (5 km) northeast of the Project. The nearest suitable habitat is in the sand and dunes system north of the Project. Suitable aeolian sand habitat for Harwood's eriastrum does not occur within the Project; therefore, this species is not expected to occur within the Project.

5.9 Cacti, Yucca, and Native Trees

Native cacti, succulents, and native trees are not special status plant species, but the harvesting of these native plants is regulated under the California Native Plant Protection Act (Fish and Game Code §§ 1900-1913) and the California Desert Native Plant Act of 1981 (Food and Agricultural Code § 80001 et. seq.; Fish & Game Code §§ 1925-1926). Four species of succulents were observed during surveys within the Project area:

- *Opuntia basilaris* var. *basilaris* (beavertail cactus)
- *Echinocereus engelmannii* (Engelmann's hedgehog cactus)
- Fouquieria splendens (ocotillo)
- *Ferocactus cylindraceus* (barrel cactus)

These species were sparsely distributed and mostly occurring outside the agricultural lands near the western LFRs. Additionally, three species of native trees were found within the limited desert dry wash woodland associated with the LFRs: desert ironwood, blue palo verde, and smoke tree. Trees were not widespread but mainly concentrated in washes crossing the western LFRs.

6 DRECP CMA Compliance for Linear Facility Route Design

The following section evaluates the Project's compliance with the DRECP CMAs that influence siting and design, focused on potential impacts of the LFRs that occur on BLM land.

6.1 LUPA-BIO-1

LUPA-BIO-1 requires a habitat assessment of Focus and BLM Special Status Species' suitable habitat for all activities and *identify and/or delineate the DRECP vegetation types, rare alliances, and special features (e.g., Aeolian sand transport resources, Joshua tree, microphyll woodlands, carbon sequestration characteristics, seeps, climate refugia) present using the most current information, data sources, and tools (e.g., DRECP land cover mapping, aerial photos, DRECP species models, and reconnaissance site visits) to identify suitable habitat for Focus and BLM Special Status Species.*

LUPA-BIO-1 states *if required by the relevant species-specific CMAs, conduct any subsequent protocol or adequate presence/absence surveys to identify species occupancy status and a more detailed mapping of suitable habitat to inform siting and design considerations. If required by relevant species-specific CMAs, conduct analysis of percentage of impacts to suitable habitat and modeled suitable habitat.*

This BRTR presents an assessment of biological resources following completion of focused surveys and provides a discussion of resources potentially affected by the Project with a focus on consistency with the DRECP. Protocol surveys were conducted in spring 2022 and fall-blooming plant surveys were completed in fall 2022.

6.2 LUPA-BIO-13

LUPA-BIO-13 requires *to the maximum extent practicable site and design projects to avoid impacts to vegetation types, unique plant assemblages, climate refugia as well as occupied habitat and suitable habitat for Focus and BLM Special Status Species.*

The Project has been sited in the DFA and, to the extent feasible, away from unique plant assemblages, occupied habitat, and suitable habitat for Focus and BLM Special Status Species.

The Project is *not* expected to contain suitable habitat for the following resources/species:

- Riparian and Wetland Bird Focus Species
- Wetland Vegetation Types
- Focus Plant Species
- Desert Tortoise Critical Habitat
- Sand dunes
- Mojave fringe-toed lizard
- Couch's spadefoot
- Harwood's eriastrum

Focus, Planning, and Special Status Species with potential to occur include:

- Burrowing owl (sign present during surveys)
- Burro deer (sign present during survey)
- Desert kit fox (sign present during survey)
- Le Conte's thrasher (not detected, but high potential to occur)

Specific resources where avoidance will be achieved by site design to the maximum extent practicable, except for minor incursions along the LFRs, include:

- Microphyll woodland (Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub)

LUPA-BIO-13 requires that projects along the edges of the biological linkages identified in Appendix H (Figures H-1 and H-2) *will be configured (1) to maximize the retention of microphyll woodlands and their constituent vegetation type and inclusion of other physical and biological features conducive to Focus and BLM Special Status Species' dispersal, and (2) informed by existing available information on modeled Focus and BLM Special Status Species habitat and element occurrence data, mapped delineations of vegetation types, and based on available empirical data, including radio telemetry, wildlife tracking sign, and road-kill information.*

The Project is located over 4 miles (6.4 km) away from the closest multi-species linkage or Desert Linkage Network; therefore, the Project would not impact any DRECP multi-species linkages.

6.3 LUPA-BIO-RIPWET-1 & LUPA-BIO-SVF-6 (Microphyll Woodland)

LUPA-BIO-RIPWET-1 requires that *the riparian and wetland DRECP vegetation types and other features listed in Table II.3-22will be avoided to the maximum extent practicable (see "minor incursion" in the Glossary of Terms) with the specified setbacks* [Table II.3-22 provides a setback of 200 ft for Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub]. LUPA-BIO-SVF-6 states that "impacts to microphyll woodland (see Glossary of Terms) will be avoided, except for minor incursions."

Microphyll woodland (Sonoran-Coloradan Semi-Desert Wash Woodland/Scrub) occurs within the LFR alternatives. No other riparian and wetland DRECP vegetation types occur. Due to the linear nature of the LFRs, project design and construction would be able to minimize impacts to woodlands by avoiding the removal of trees to the maximum extent practicable. Minor incursions may result and compensation for unavoidable impacts would be implemented.

6.4 LUPA-BIO-PLANT-2 & 3 (Special Status Plants)

LUPA-BIO-PLANT-2 requires the applicant to *implement an avoidance setback of 0.25 mile for all plant Focus and BLM Special Status Species occurrences. Setbacks will be placed strategically adjacent to occurrences to protect ecological processes necessary to support the plant species.*

LUPA-BIO-PLANT-3 states that *impacts to suitable habitat for plant Focus and BLM Special Status plant species should be avoided to the extent feasible and are limited [capped] to a maximum of 1% of their suitable habitat in the LUPA Decision Area.*

No Focus or BLM Special Status Plant Species were detected during focused surveys, nor do they have a moderate or high potential to occur within the Project; therefore, no setbacks would be required. No impacts to Focus and BLM Special Status plant species or their modelled habitat would occur; therefore, impacts would be less than the 1% cap.

6.5 LUPA-SW-9 (Desert Pavement)

LUPA-SW-9 states that *the extent of desert pavement within the proposed boundary of an activity shall be mapped if it is anticipated that the activity may create erosional or ecologic impacts. Mapping will use the best available data and standards. Disturbance of desert pavement within the boundary of an activity shall be limited to the extent possible. If disturbance from an activity is likely to exceed 10% of the desert pavement mapped within the activity boundary, the BLM will determine whether the erosional and ecologic impacts of exceeding the 10% cap by the proposed amount would be insignificant and/or whether the activity should be redesigned to minimize desert pavement disturbance.*

Approximately 3.1 ac (1.3 ha) of desert pavement was mapped within the 200-foot-wide gen-tie corridor of LFR #1 (Figure 3-4). Desert pavement was not identified within LFR #2 or #3 or the Project solar facility. The LFR #1 right-of-way measures approximately 37.9 ac (15.3 ha) in size. If LFR #1 is selected, the disturbance associated with the gen-tie line, access road, and collector lines would be small in comparison to the mapped habitat, likely measuring less than 10% of the mapped habitat 0.33 ac (0.1 ha), and not expected to result in significant erosional or ecological impacts. Actual disturbance would be limited to the footprint of gen-tie structures, access road, spur roads, temporary pulling and tensioning sites, and other associated infrastructure.

6.6 LUPA-BIO-DUNE-1, DUNE-2, and DUNE-3 (Sand Dunes)

LUPA-BIO-DUNE-1 states *for activities that potentially occur within or bordering sand dune vegetation types and Aeolian sand transport corridors, complete studies to verify the accuracy of the DRECP dunes and sand transport corridor resources mapping, as shown in Appendix H, and to determine:*

- Whether the proposed activity(s) occur within a sand dune or an Aeolian sand transport corridor
- If the activity(s) is subject to dune/Aeolian sand transport corridor CMAs
- If the activity(s) needs to be reconfigured to satisfy applicable avoidance requirements

LUPA-BIO-DUNE-2 *requires activities that potentially affect the amount of sand entering or transported within Aeolian sand transport corridors will be designed and operated to:*

- *Maintain the quality and function of Aeolian transport corridors and sand deposition zones, unless related to maintenance of existing [at the time of the DRECP LUPA ROD] facilities/operations/activities.*
- *Avoid a reduction in sand-bearing sediments within the Aeolian system.*
- *Minimize mortality to DUNE associated Focus and BLM Special Status Species.*

LUPA-BIO-DUNE-3 states that *any facilities or activities that alter site hydrology (e.g., sediment barrier) will be designed to maintain continued sediment transport and deposition in the Aeolian corridor in a way that maintains the Aeolian sorting and transport to downwind deposition zones. Site designs for maintaining this transport function must be approved by BLM in coordination with USFWS and CDFW as appropriate.*

The Project is located outside of the sand transport corridor and therefore not expected to adversely affect fluvial or aeolian sand transport. Dune-associated Focus and BLM Special Status Species are not expected to occur due to absence of suitable habitat.

6.7 DFA-VPL-BIO-IFS-1, LUPA-BIO-IFS-1, and LUPA-BIO-IFS-2 (Pinto Wash Linkage)

DFA-VPL-BIO-IFS-1 states *to the maximum extent practicable (see Glossary of Terms), activities will be sited in previously disturbed areas, areas of low quality habitat, and areas with low habitat intactness in desert tortoise linkages and the Ord-Rodman TCA, identified in Appendix D.*

LUPA-BIO-IFS-1 states that *activities within desert tortoise linkages, identified in Appendix D, that may have a negative impact on the linkage will require an evaluation, in the environmental document(s), of the effects on the maintenance of long- term viable desert tortoise populations within the affected linkage. The analysis will consider the amount of suitable habitat, including climate refugia, required to ensure long-term viability within each linkage given the linkage's population density, long-term demographic and genetic needs, degree of existing habitat disturbance/impacts, mortality sources, and most up-to-date population viability modeling. Activities that would compromise the long-term viability of a linkage population or the function of the linkage, as determined by the BLM in coordination with USFWS and CDFW, are prohibited and will require reconfiguration or re-siting.*

LUPA-BIO-IFS-2 states that *construction of new roads and/or routes will be avoided to the maximum extent practicable (see Glossary of Terms) within desert tortoise habitat in tortoise conservation areas (TCAs) or tortoise linkages identified in Appendix D, unless the new road and/or route is beneficial to minimize net impacts to natural or ecological resources of concern for desert tortoise. TCAs and identified linkages should have the goal of "no net gain" of road density.*

Any new road considered within a TCA or identified linkage will not be paved and will be designed and sited to minimize the effect to the function of identified linkages or local desert tortoise populations and shall have a maximum speed limit of 25 miles per hour.

Roads requiring the installation of long-term desert tortoise exclusion fencing for construction or operation will incorporate wildlife underpasses (e.g., culverts) to reduce population fragmentation.

The Project's proposed development within the PWL is limited to the western LFRs (#1 and 2), which are sited within the DFA and do not occur within the high-quality habitat of the PWL nor within the areas that have been modelled as a functional linkage area. The Project is located within the southern portion of the PWL that has low predicted occupancy (Figure 4-2) and low potential for tortoise connectivity. The Desert Sunlight, Desert Harvest, and Athos solar facilities are also located in lower-value habitat and their presence on the landscape further reduces potential for tortoise connectivity through the southern extent of the PWL. Furthermore, the western LFRs would not result in permanent barriers to tortoise movement. The total potential right-of-way associated with LFR #1 and #2 would be a maximum of 76 acres; however, actual disturbance resulting from final design would be substantially less than 76 acres because (1) only one of the two linear facility route alternatives would include the gen-tie line, (2) the entire 200' right-of-way would not be disturbed, and (3) actual disturbance would be limited to the footprint of gen-tie structures, access road, spur roads, temporary pulling and tensioning sites, and other associated infrastructure. Roads within the western LFRs will not be paved and will be designed and sited to minimize the effects to the function of the PWL.

7 Certification

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

Date: August 17, 2023

Signature: _____

Name/Title: Chris Blandford, Principal Biologist

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Appendix A: Representative Site Photos

Photo A 1. LFR#1. Desert pavement in foreground, narrow bands of desert dry wash woodland in background.

Photo A 2. LFR#2. Creosote bush scrub.

Photo A 3. LFR#3. Disturbed agricultural lands with ephemeral wash along existing dirt road.

Photo A 4. LFR#3. Existing dirt access road from SR-177.

Photo A 5. Solar facility. Disturbed agricultural lands.

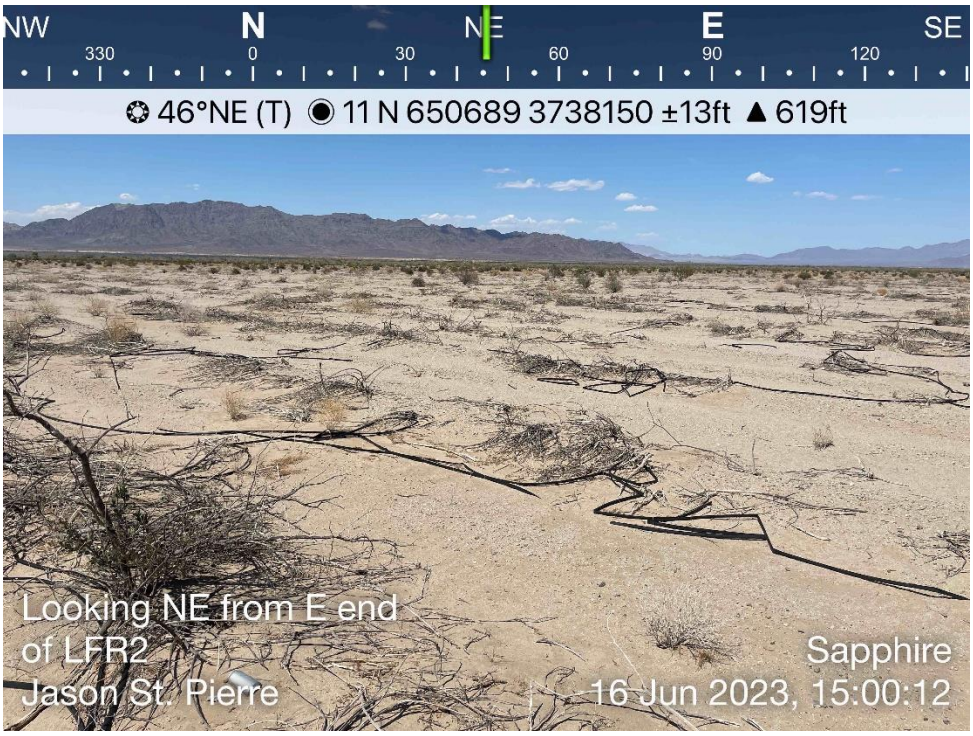

Photo A 6. Solar facility. Disturbed agricultural lands.

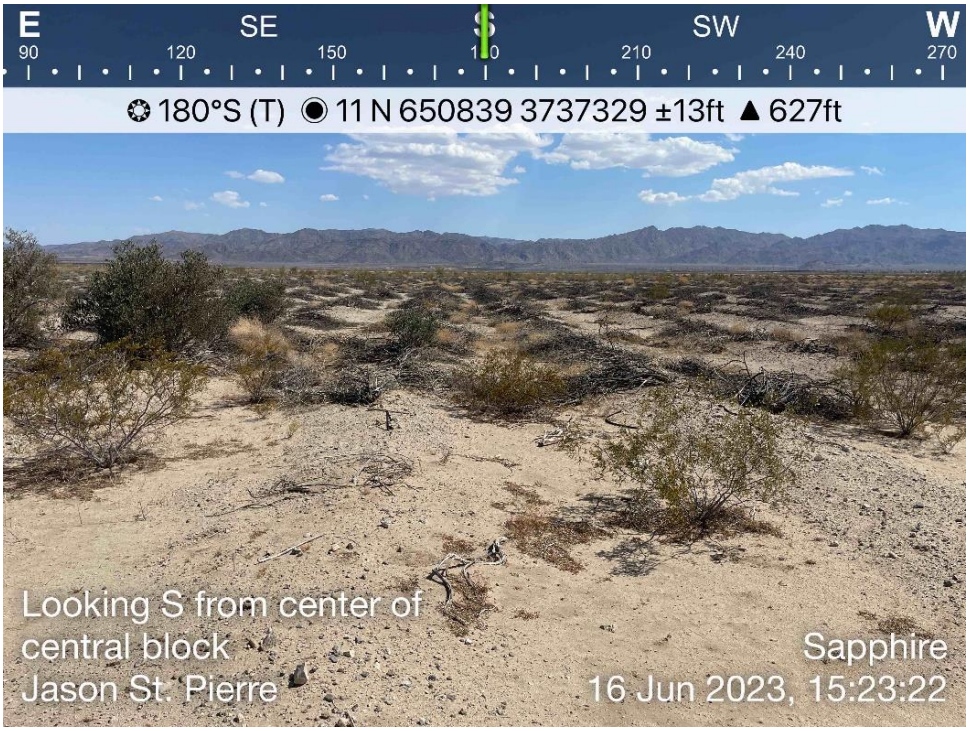

Photo A 7. Solar facility. Disturbed agricultural lands.

Photo A 8. Solar facility. Disturbed agricultural lands with ephemeral wash and desert dry wash woodland along existing dirt road.

Ironwood Consulting

370 Alabama Street, Suite A
Redlands, CA 92373
(909) 798-0330
www.ironwoodbio.com

Biological and Aquatic Resources – Impact and Mitigation Supplement

April 2024

Sapphire Solar Project
Riverside County, California

Prepared for:

County of Riverside
Planning Department
4080 Lemon Street
Riverside, CA 92501

Sapphire Solar, LLC / EDF Renewables Development, Inc.
15445 Innovation Drive
San Diego, CA 92128

Table of Contents

1 Introduction 1

1.1 Purpose 1

1.2 Project Location 1

1.3 Project Description 1

1.3.1 Solar Site (Private Lands) 4

1.3.2 Linear Facility Routes (BLM Lands) 4

1.4 Description of Project Activities 4

1.4.1 Pre-Construction Activities 4

1.4.2 Construction 5

1.4.3 Operation and Maintenance 8

1.4.4 Decommissioning and Repowering 10

2 Regulatory Setting 11

3 Impact Analysis 15

3.1 Definitions 15

3.2 Vegetation Communities and Other Land Cover Types 17

3.2.1 Summary of Findings 17

3.2.2 Direct and Indirect Impacts 18

3.3 Aquatic Resources 19

3.3.1 Summary of Findings 19

3.3.2 Direct and Indirect Impacts 20

3.4 Special Status Plants 21

3.4.1 Summary of Findings 21

3.4.2 Direct and Indirect Impacts 21

3.5 Special Status Wildlife 23

3.5.1 Summary of Findings 23

3.5.2 Direct and Indirect Impacts 24

4 Mitigation Measures and DRECP Conservation Management Actions 31

4.1 Proposed Mitigation Measures 31

4.2 DRECP Conservation Management Actions 42

5 References 44

List of Tables

Table 2--1. Applicable Laws and Regulations. 11

Table 3-1. Impacts to Vegetation Communities and Other Land Cover Types 17

Table 3-2. Impacts to Potential Aquatic Resources by Agency Jurisdiction 19

Table 4--1. Applicable Conservation Management Actions. 42

List of Figures

Figure 1--1. Regional Setting 2

Figure 1--2. Project Area 3

Acronyms

ac	acre
amsl	above mean sea level
BCC	Bird of Conservation Concern
BESS	battery energy storage system
BLM	U.S. Bureau of Land Management
BLMS	BLM Sensitive
BRTR	Biological Resources Technical Report
Cal-IPC	California Invasive Plant Council
CBI	Conservation Biology Institute
CCH	Consortium of California Herbaria
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDV	Canine Distemper Virus
CESA	California Endangered Species Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFP	California Fully Protected Species

CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRPR	California Rare Plant Rank
CPF	California Protected Furbearing Mammal
CPGS	California Protected Game Species
CMA	Conservation Management Actions
DOI	Department of the Interior
DFA	Development Focused Area
DRECP	Desert Renewable Energy Conservation Plan
FE	Federally listed Endangered
FESA	Federal Endangered Species Act
ft	feet
GIS	Geographic Information System
ha	hectare
HR	Hydrologic Region
km	kilometer
LFR	Linear Facility Routes
LUPA	Land Use Plan Amendment
m	meter
MW	megawatt
NVCS	National Vegetation Classification System
NRCS	Natural Resources Conservation Service
O&M	operations and maintenance
Project	Sapphire Solar Project
ROD	Record of Decision
SE	State-listed Endangered
SCE	Southern California Edison
SSC	California Species of Special Concern
ST	State-listed Threatened
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
WL	Watch List
WAFWA	Western Association of Fish and Wildlife Agencies
WRCC	Western Regional Climate Center

Certification

I hereby certify that the facts, statements, and information presented in this report are true and correct to the best of my knowledge and belief.

Date: April 3, 2024

Signature: _____

Name/Title: Chris Blandford, Principal Biologist

1 Introduction

EDF Renewables Development, Inc. (EDFR) on behalf of Sapphire Solar, LLC (Applicant), is proposing the Sapphire Solar Project (Project) in Riverside County, California (Figure 1). The Project would consist of a solar site on approximately 1,082 acres (ac) (438 hectares [ha]) of private lands and linear facility routes (LFRs) on up to 41 ac (16 ha) of Bureau of Lands Management (BLM) administered public lands for a total Project size of approximately 1,123 ac (Figure 2). The Applicant is pursuing a Conditional Use Permit and Public Use Permit from the County of Riverside (County) for the Solar Site and a Right-of-Way Grant from the BLM for the LFRs. As such, the County will serve as the California Environmental Quality Act (CEQA) lead agency and the BLM as the National Environmental Policy Act (NEPA) lead agency.

1.1 Purpose

This document was prepared for the County as a supplement to the Biological Resources Technical Report (BRTR; Ironwood 2023a) and Jurisdictional Aquatics Resources Report (Ironwood 2023b). The BRTR provided the methods and results of biological resources studies performed for the Project. This supplement provides additional information regarding potential impacts to biological resources caused by Project implementation and proposes mitigation measures to minimize impacts pursuant to CEQA.

1.2 Project Location

The Project is situated within the Chuckwalla Valley, east of Kaiser Road, approximately 3 miles (4.8 kilometers [km]) north of Desert Center and less than 1 mile (1.6 km) south of the existing Desert Harvest Solar Project (Figure 1). The east side of the Solar Site is adjacent to California State Route 177/Rice Road. The proposed Easley Solar Project would surround the Sapphire Solar Project on almost all sides. The existing Desert Sunlight and Desert Harvest solar projects are located north of the Project; the Athos Solar Project is located south of the Project; and the recently approved Oberon Solar Project is located further south of the Project and Lake Tamarisk. The Project is located within the Chuckwalla Valley ecoregion subarea of the DRECP plan area and can be found on two 7.5-Minute U.S. Geological Survey topographic quadrangles: Victory Pass and East of Victory Pass (Sections 1, 2, and 6 of Township 5S, and Range 15E and Sections 34, 35, and 36 of Township 4s and Range 15E, San Bernardino Base and Meridian). Joshua Tree National Park is located approximately 3 miles (4.8 km) from the Project's northeastern and western boundaries.

1.3 Project Description

The following Project terminology is used to differentiate between Project components:

- **Project**: The whole of the Project, occupying up to 1,123 acres of public and private land, and identified as the Sapphire Solar Project.
- **Linear Facility Routes (LFRs):** The linear Project components on BLM administered lands, occupying up to 41 acres.
- **Solar Site**: The portions of the Project on private lands consisting primarily of PV solar generation and battery storage, occupying up to 1,082 acres.

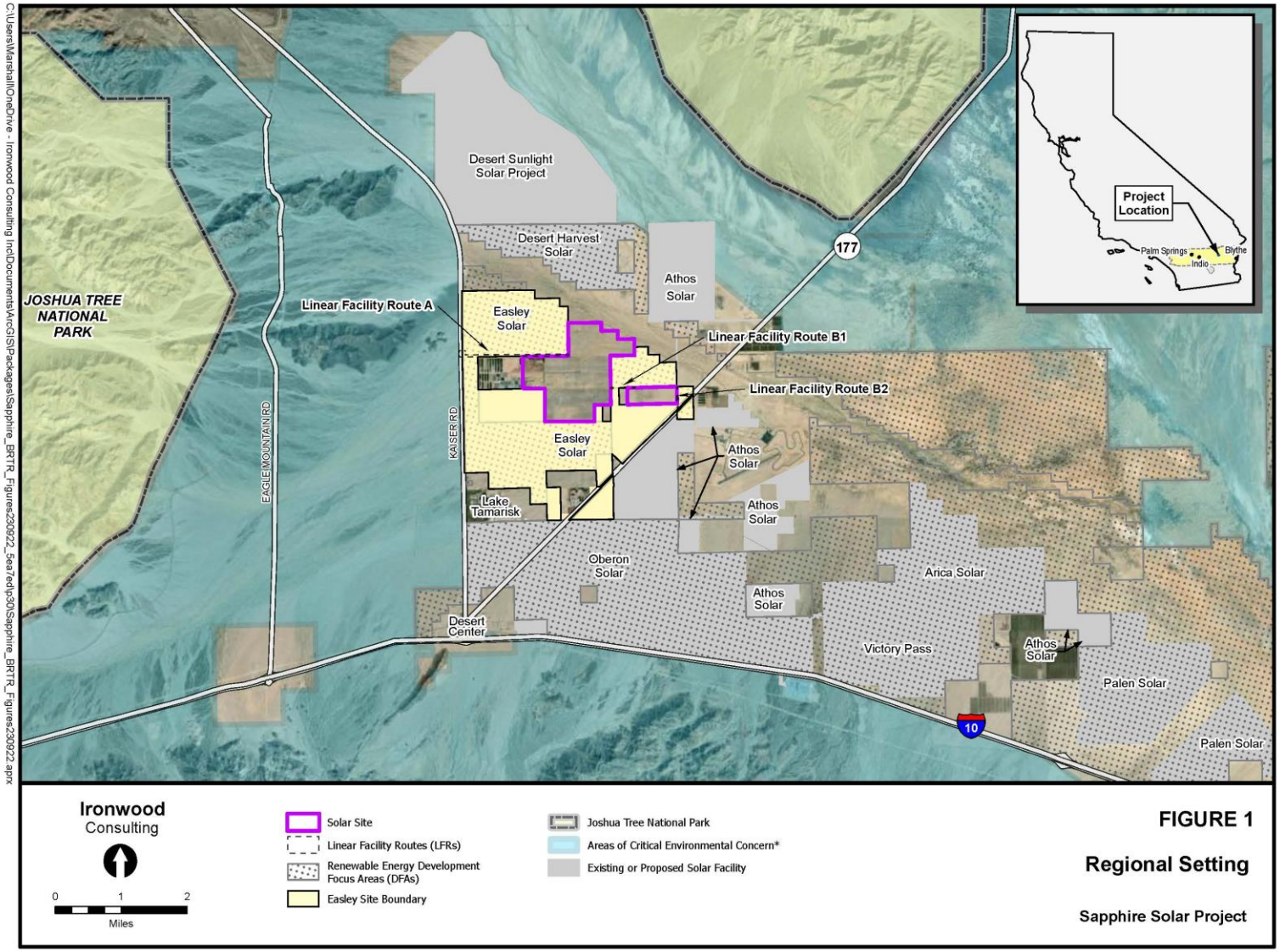

Figure 1. Regional Setting

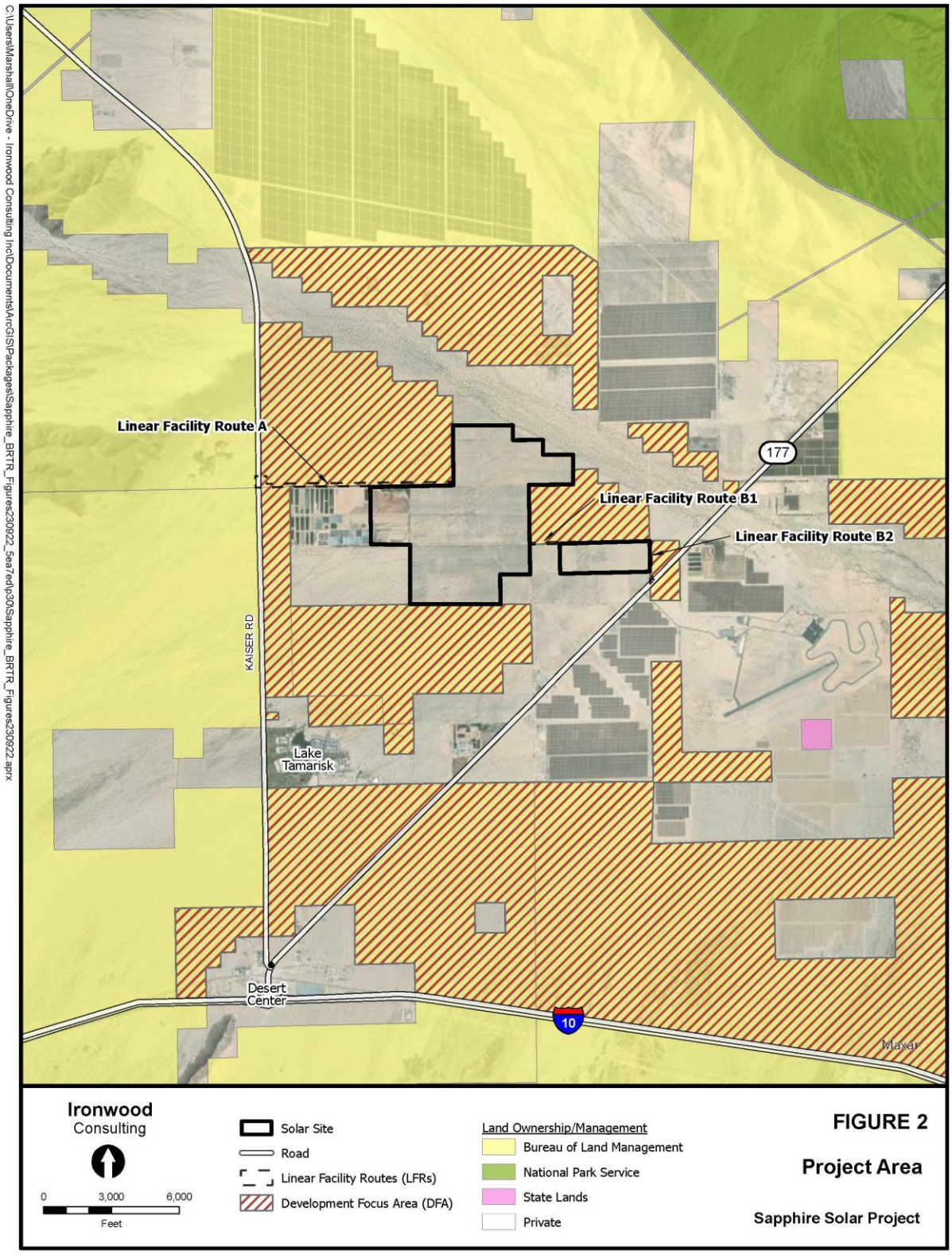

Figure 1. Project Area

1.3.1 Solar Site (Private Lands)

The Solar Site would include up to 117-megawatts (MW) of photovoltaic (PV) solar generation and up to 117 MW of battery storage, power inverters, transformers, on-site substation, operations and maintenance (O&M) building, 34.5 kilovolt (kV) collection system, up to three on-site groundwater wells, microwave/communication towers, meteorological station, supervisory control and data acquisition (SCADA) system, and a roadway system of internal and perimeter roadways. Linear Facility Routes would include: 1.74 miles of new 230kV gen-tie, collocated access road, secondary access road for emergency services, buried 34.5kV collection lines and potentially a 12kV distribution line for backup power. The Project would interconnect with the Southern California Edison (SCE) 230-kV Red Bluff Substation via an electrical line tap on the existing Desert Harvest Solar Project (DHSP) generation tie (gen-tie) line.

1.3.2 Linear Facility Routes (BLM Lands)

Initially, up to three LFRs (1 through 3) were proposed to be located on lands administered by the BLM for the construction, operations and maintenance of one 230-kV gen-tie line, a primary and secondary access road, and one collector line route. As a result of design refinements, continued environmental surveys and analyses, and consultation with adjacent developers, LFR 1 was removed and now only two LFRs are proposed. The naming convention of the LFRs has been updated: LFR 2 has been renamed LFR A and LFR 3 has been renamed LFR B and is comprised of two segments “B1” and “B2” that are separated by private lands.

LFR A would include one 230-kV gen-tie line and a main site access route; LFR B would include a secondary access road to comply with County emergency services requirements and underground collection lines, all of which are located on lands administered by the BLM. The Project would interconnect via a line tap on the existing Desert Harvest gen-tie line. Ultimately, power would be provided on existing lines to Southern California Edison (SCE) 230 kV Red Bluff Substation. No additional ground disturbance or new infrastructure would result south of the line tap. Access to the Solar Site would be from LFR A via Kaiser Road. An additional access road for emergency services would be constructed within LFR B from California State Route 177/Rice Road.

The currently proposed two LFRs total approximately 2.46 linear miles (3.9 km) with a disturbance area of up to 41 acres. The entirety of the 41-acre area associated with the two LFRs on BLM-administered lands is located within a Development Focus Area (DFA) for solar, wind, and geothermal projects as designated by the DRECP. The DRECP Final Environmental Impact Statement was approved by a Record of Decision signed on September 14, 2016.

1.4 Description of Project Activities

The following summarizes construction methods, schedule, and O&M activities, based on information provided by EDFR for inclusion in the Plan of Development, Environmental Impact Report, and Environmental Assessment. The descriptions below include Project activities that may have an impact on biological and aquatic resources and are not a complete account of all activities associated with the Project.

1.4.1 Pre-Construction Activities

Pre-construction activities would include, but not limited to, pre-construction surveys, geotechnical studies, land surveying, staking and flagging, and fence installation.

1.4.2 Construction

1.4.2.1 Construction Schedule and Workforce

EDFR has proposed a schedule for completing construction and commencing operation of the Project by the fourth quarter of 2025. It is anticipated that the LFRs and Solar Site would be constructed in two distinct phases. Phase 1 would include both LFRs (gen-tie line, fiber optic, buried 34.5kV collection lines, and access roads), as well as the fences, gates, and onsite substation for the Solar Site on private lands. Phase 2 includes the installation and operation of approximately 117 MW of PV solar and installation of a BESS.

The onsite workforce would consist of laborers, craftsmen, supervisory personnel, supply personnel, and construction management personnel. The onsite workforce inclusive of both the LFRs and the adjacent Solar Site is expected to reach a peak of approximately 250 individuals with an average construction-related onsite workforce of 150. The typical physical construction work schedule is expected to be from Monday through Friday from 6:00 a.m. to 6:00 p.m. However, to meet schedule demands or to reduce impacts, it may be necessary to work early mornings, evenings, or nights and on weekends during certain construction phases.

1.4.2.2 Construction Access and Traffic

During construction, an average of 150 workers per day would commute to the Project, with a maximum of 250 workers during peak construction. With the addition of vendor and haul truck trips, the peak number of construction-related automobile trips would be up to 538 one-way trips per day. It is estimated that one-way trips would be approximately 48 to 60 mi (77 – 96 km), depending on where workers reside (assumed to be either Blythe or Palm Desert).

All materials for the Project's construction would be delivered by truck. Most truck traffic would occur on designated truck routes and major streets. Construction traffic would include periodic truck deliveries of materials and supplies, recyclables, trash, and other truck shipments, and construction worker commuting vehicles. Most construction equipment and vehicles would be brought to the sites at the beginning of the construction process during construction mobilization and remain on site throughout the duration of the construction activities for which they are needed.

1.4.2.3 Solar Site Fencing, Security, and Lighting

The boundary of the Solar Site would be secured by a permanent security fence. The fence would be an 8-foot-high chain link fence and would have top rail, bottom tension wire, and three strands of barbed wire mounted on 45-degree extension arms. With the strands of barbed wire, it would have an overall height of no more than 12 feet from the bottom of the fabric to the top barbed wire. The security fence may include wildlife exclusion fencing at the bottom and or breakaway fencing depending on agency requirements. The posts would be set in concrete. The security fence would be installed near the start of construction but may be preceded by mowing and or vegetation clearance as required. The ingress/egress would be accessed via a locked entrance gate. Security may be enhanced with motion detectors, facility lighting, and cameras in key locations.

Nighttime lighting would be limited to areas required for operation, safety, or security, such as the on-site substation and O&M building. Nighttime lighting would be directed or shielded from major roadways or possible outside observers. Motion sensitive, directional security lights would be installed to provide adequate

illumination around the perimeter of the Solar Site. Exterior lights would be hooded, and lighting would be shielded and directed downward to minimize glare. No project component would be 200 feet tall or greater; thus, there would be no safety lighting required per Federal Aviation Administration regulations.

The Project would use portable lighting for any emergency work that must occur at night. The level and intensity of lighting during operations would be the minimum needed. Portable lighting may be used occasionally and temporarily for maintenance activities during operations.

1.4.2.4 Vegetation Removal, Clearing, and Grading

Within the LFRs the Applicant will minimize vegetation impacts to the extent possible and implement drive and crush during line stringing along the gen-tie. Equipment and vehicles would drive over and crush native plants to minimize impacts to the roots of desert shrubs. Drive and crush is expected to reduce the recovery time of desert shrubs within the temporary construction areas. Mowing and/or trimming would be implemented when possible. Micro-siting of facilities within LFR A would be implemented to the extent practicable to minimize removal of trees within mapped microphyll woodland. Grading would occur to construct the main and secondary site access roads, spur roads, and to facilitate the installation of the gen-tie line structures. Development of the LFR(s) on BLM lands would be implemented using techniques to maintain sheet flow, with water exiting the LFRs in existing natural contours and flows. In addition, impervious surfaces would be limited to the transmission pole cement foundations and compacted surfaces would be limited to the access roads and transmission pole permanent impact areas. Natural sheet flow and infiltration would be maintained throughout the remaining development footprint of the LFRs to the extent practicable.

Within the Solar Site, in the event there are areas where drive and crush is not feasible, the Applicant proposes to use site preparation techniques that would minimize surface grading and compaction, including a “disc and roll” technique that uses equipment to till the soil over much of the Solar Site and then roll it level, as well as “micro-grading” or “isolated cut and fill and roll” of other areas of the site to trim off high spots and use the material to fill in low spots. At a minimum, grading within the Solar Site would be required for the inverter pads, foundations, internal roadways, O&M building, storage building, parking area, water storage facility, septic field, laydown area, and substation and BESS yard; however, there is potential that large areas of the Solar Site may need to be graded if conditions require.

Native vegetation would be allowed to re-grow within the Solar Site to the extent that it does not interfere with the panels themselves, to avoid growing into electrical connections and creating a fire hazard or disrupting the panel’s performance. Vegetation height would be limited as required to comply with Riverside County Fire Department requirements. The access roads would be kept clear of vegetation by use of targeted herbicide spraying, occasional scarifying, or manual removal to reduce fire hazard and allow access to the panel arrays.

1.4.2.5 Water

Water would be needed primarily for dust control and soil compaction, with small amounts used for sanitary and other purposes during the 12 to 18 months of construction. Most of the construction water use is anticipated to occur during site grading.

Water for construction-related dust control and operations may be obtained from several potential sources, including an on-site groundwater well(s), trucked from an off-site water purveyor, or a combination of both.

During construction, restroom facilities would be provided by portable units to be serviced by licensed providers. On-site wells constructed for the purposes of providing construction water may be used for construction and operations. Temporary construction wells, if any, would be decommissioned upon the completion of construction unless required for an on-site O&M building and capped per applicable regulations.

1.4.2.6 Solar Construction

PV cells would be located on panels that would be mounted on a single-axis tracking device that follows the sun. The PV panel modules would be mounted on steel support posts that are pile-driven into the ground. The arrays would typically be placed on an aluminum rail such that with a maximum tilt of 60 degrees the top of the array would be a maximum of 15 feet above grade at the tallest point and approximately 2 feet above the grade at the lowest point. Solar panels on multiple rows would be controlled by a single motor to create one system called a solar tracker.

Underground cables to connect panel strings would be installed using ordinary trenching techniques, which typically include a rubber-tired backhoe excavator or trencher. Wire depths would be in accordance with local, state, and federal requirements, and would likely be buried approximately 3 feet (1 meter [m]) below grade by excavating a trench approximately 3 to 6.5 feet (1 – 2 m) wide to accommodate the conduits or direct buried cables. After excavation, cable rated for direct burial or cables installed inside a polyvinyl chloride conduit would be installed in the trench, and the excavated soil would likely be used to fill the trench and lightly compressed.

All electrical inverters and the transformer would be placed on concrete foundation structures or steel skids. Commissioning of equipment would include testing, calibrating equipment, and troubleshooting. The substation equipment, inverters, collector system, and PV array systems would be tested prior to commencement of commercial operations. Upon completion of successful testing, the equipment would be energized.

Certified electricians in the construction workforce would perform appropriate electrical construction activities starting with combiner box connections. Utility journeymen may be required to perform or supervise the higher-voltage electrical construction activities for the on-site substation and gen-tie line.

1.4.2.7 230-kV Gen-Tie Line Construction

Pre-construction activities for the gen-tie line would consist of surveying and marking the ROW and structure locations and mobilizing equipment and materials.

The main access road would be utilized to access and maintain the gen-tie line facilities. Existing paved and unpaved roads would be used to the extent practical, to transport material and equipment. The main access road would also contain the gen-tie line and is proposed to be up to a 24-foot-wide compacted soil road with 5-foot shoulders on either side. The 12-kV distribution line may also be located within LFRs.

Vegetation clearing and ground disturbance would be required at each pole structure site to excavate tower holes and pour concrete foundations. Vegetation would be cleared as required to install the structure and structural foundations. An estimated 40-foot radius of temporary disturbance would be required per pole structure which would be located within LFR A which would be up to 150 wide.

The pole foundations for the gen-tie line structures would require ground disturbance to a depth of 20 to 30 feet. Foundation excavations would be made using mechanized equipment, with the poles requiring one to four

holes, 6 to 12 feet in diameter. Structure foundations would be excavated with a vehicle-mounted power auger or backhoe. In rocky areas, the foundation holes would be excavated by drilling.

Foundations would be installed by placing reinforced steel and gen-tie structure steel components into each foundation hole, positioning the steel components, and encasing them in concrete. Excess spoil material would be used for fill where suitable. The foundation excavation and installation activities would require access to the site by a power auger or drill, a crane, material trucks, and ready-mix concrete trucks.

Water would be used for soil compaction and dust abatement at each pole structure site and along access roads. Water for footer compaction and dust abatement would be obtained from on-site wells or off-site water sources and trucked to each construction location.

After the structures are erected, insulators, hardware, and stringing sheaves would be delivered to each structure site. The structures would be rigged with insulator strings and stringing sheaves at each ground wire and conductor position.

Tensioners, line trucks, wire trailers, and tractors needed for stringing and anchoring the ground wire or conductor would be necessary at each tensioning site. The tensioner, in concert with the puller, would maintain tension on the shield wires or conductors while they are pulled through the structures. The pulling site would require approximately half the area of the tension site. A puller, line trucks, and tractors needed for pulling and temporarily anchoring the shield wires, optical ground wire, and conductor would be necessary at each pulling site. There would be no blading at pull sites if the terrain is sufficiently level.

1.4.3 Operation and Maintenance

Routine maintenance of the Project during operations would include fence maintenance, road maintenance, vegetation management, scheduled maintenance of inverters, transformers, and other electrical equipment, and occasional replacement of faulty modules or other site electrical equipment. Other maintenance that would be performed in conjunction with the routine maintenance includes but is not limited to:

- Torque electrical fittings.
- Calibrate protective relays.
- Fuse swapping, testing ground fault detection and power quality.

The access roads would be inspected regularly, and any degradation due to weather or regular usage would be repaired. The Project may apply a dust palliative on dirt access roads if indicated. Washing of solar panels is expected to occur up to once annually. Water for on-site maintenance purposes would likely be sourced from up to three on-site wells, but if found to be of insufficient volume, water may be trucked from off site.

The Applicant would operate and maintain the Project in accordance with approved procedures to comply with the issued Environmental Permits and applicable laws. The Applicant would operate the Project to ensure that the emission limitations for air and wastewater discharge contained in the permits are met. In addition, the Applicant would ensure that any hazardous waste would be stored and disposed of properly. All environmental issues and associated permits would be the subject of continuing training and management emphasis. Willful violations of environmental laws could result in employee termination for such a serious offense. At least annually, an internal assessment of environmental protection compliance would be made. The Maintenance

Program would be conducted in accordance with the maintenance manual, vendor technical manuals, and good engineering practices. Subject to scheduled overhauls, the nominal design life for the major components of the LFR is 39 years.

Some vegetation treatment would be required to manage weeds on the LFRs and Solar Site. At a minimum, the access roads in the LFRs would be maintained free from significant vegetation using targeted spraying, occasional scarifying, or weeding to reduce fire hazard. Roads would be maintained to minimize fugitive dust and prevent erosion from rain events. Additional gravel or surface treatments on the dirt access roads may be required.

1.4.3.1 Weed Management

Invasive, nonnative, and/or noxious weeds would be controlled per the terms of the Project's Integrated Weed Management Plan. Weed management within the LFRs would comply with existing BLM plans and permits, including Vegetation Treatments Using Herbicides (BLM 2007) and Vegetation Treatment Using Aminopyralid, Fluroxypyr, and Rimsulfuron (BLM 2016).

Continued weed management in cleared areas would be maintained through regular monitoring and targeted application of the herbicides approved by the County or BLM as applicable and applied by a licensed applicator. Weed control activities would include non-mechanical, mechanical, and herbicide control methods. Manual non-mechanical means of vegetation management would be limited to the use of hand-operated power tools and hand tools to cut, clear, or prune species. Hand-operated tools such as hoes, shovels, and hand saws could be used under the program, as well as hand-pulling of plants. Mechanical control activities, such as chaining, disking, grubbing, and mowing using tractors or other heavy equipment, may also be used. The access roads would be kept clear of vegetation with targeted herbicide spraying, occasional scarifying, or weeding to reduce fire hazard and allow access to the panel arrays.

1.4.3.2 Water Use During O&M

During the operations phase, water would be required for panel washing and maintenance and for the restroom facilities at the O&M building. During operations, wastewater would be generated from bathroom facilities located within the O&M building (if on site). Domestic wastewater would be treated and disposed of at the site using a septic disposal system consisting of septic tanks and leach field and permitted through the Riverside County Department of Environmental Health.

Water would be used for cleaning of the solar PV panels. It is anticipated that the solar PV panels would be washed annually to ensure optimum solar absorption by removing dust particles and other buildup. No wastewater requiring treatment would be generated during panel washing as water would be absorbed into the surrounding soil or evaporate.

Water required for O&M may be provided by on-site wells, purchased, and trucked in from off site and stored in storage tanks, or a combination of these sources. Water storage tanks would be installed if required by the Riverside County Fire Department. Potable water would be brought to the site in water bottles or as a potable water service delivery.

1.4.3.3 Hazardous Materials and Waste

Minimal amounts of hazardous materials would be stored or used on the site during operations; these materials may include diesel fuel, gasoline and motor oil for vehicles, mineral oil to be sealed within the transformers, and lead acid-based and/or lithium-ion batteries for emergency backup. Appropriate spill containment and cleanup kits would be maintained during Project operations.

Additionally, the Project would produce a small amount of hazardous waste associated with maintenance activities, which could include broken and rusted metal, defective or malfunctioning modules, electrical materials, unused paint, solvents, cleaners, waste oil, oily rags, and batteries. Workers would be trained to properly identify and handle all hazardous waste. As noted above, hazardous waste would be either recycled or disposed of at a permitted and licensed treatment and/or disposal facility. All hazardous waste shipped off site for recycling or disposal would be transported by a licensed and permitted hazardous waste hauler and disposed of at an approved location.

1.4.3.4 Fire Safety

The Applicant would coordinate with BLM, Riverside County Fire Department, and other applicable jurisdictions as appropriate to define measures to control the risk of fire. During operations, one or more aboveground water storage tank(s) would be installed adjacent to the O&M building if required by Riverside County Fire Department. The tank(s) would be sized to meet the County requirements to supply sufficient fire suppression water during operations. Additional fire protection measures within the O&M building may include sprinklers and fire suppression systems. The systems would be compatible with the building's electrical system. Furthermore, there would be portable carbon dioxide fire extinguishers mounted at the power conversion system units.

Project facilities would be designed, constructed, and operated in accordance with applicable fire protection and other environmental, health, and safety requirements. Effective maintenance and monitoring programs are vital to productivity as well as to fire protection, environmental protection, and worker protection.

The Project would have a Fire Prevention and Safety Plan in place which would be updated prior to construction and again prior to operation. The plan would comply with applicable BLM and Riverside County regulations and would be coordinated with the Riverside County Fire Department.

1.4.4 Decommissioning and Repowering

The operational life of the Project is anticipated to be 39 years or greater. Future conditions that could affect decommissioning are largely unknown at this time; however, the best available technologies and management practices would be deployed to ensure successful decommissioning and site restoration.

At the end of the Project's operational life, the solar arrays and gen-tie line would be decommissioned and dismantled per an agency approved Closure, Decommissioning and Reclamation Plan. Individual components to be decommissioned would be recycled to the maximum extent possible. Following removal of the above-ground and buried project components the site would be restored as required in the Closure, Decommissioning and Reclamation Plan.

2 Regulatory Setting

The key federal, state, and local laws, regulations, and authorizations related to biological resources are presented in Table 2-1.

Table 2-1. Applicable Laws and Regulations.

Law / Regulation / Authorization	Responsible Agency Authority	Statutory Reference	Summary
Federal			
Desert Renewable Energy Conservation Plan (DRECP)	BLM	California Energy Commission, California Department of Fish and Wildlife, U.S. Bureau of Land Management, & U.S. Fish and Wildlife Service. Phase 1 Record of Decision. September 14, 2016	The DRECP is focused on 10.8 million acres of public lands in the desert regions of seven California counties – Imperial, Inyo, Kern, Los Angeles, Riverside, San Bernardino, and San Diego (BLM 2016). This landscape-level plan streamlines renewable energy development while conserving unique and valuable desert ecosystems and providing outdoor recreation opportunities. Table III.7-33 of the DRECP Proposed LUPA and Final EIS, Chapter III.7 Biological Resources, lists thirty-seven taxa considered Focus Species and two Planning Species. The DRECP includes Conservation Management Actions (CMAs) for the protection of resources within the plan area.
National Environmental Policy Act (NEPA) Compliance to Grant Right-of-Way	BLM	NEPA (Public Law [PL] 91-190, 42 United States Code [USC] Sections [§§] 4321–4347, January 1, 1970, as amended by PL 94-52, July 3, 1975, PL94-83, August 9, 1975, and PL 97-258, §4[b], September 13, 1982)	Requires federal agencies to analyze environmental impacts of proposed actions with a federal nexus and to disclose impacts to the public.
Endangered Species Act (ESA) Compliance	US Fish and Wildlife Service (USFWS)	Endangered Species Act (PL 93-205, as amended by PL 100-478 [16 USC §§ 1531, et seq.]); 50 Code of Federal Regulations (CFR) 402	Certain species at risk of extinction, including many birds and bats, are protected under the federal ESA of 1973, as amended. The ESA defines and lists species as “endangered” and “threatened” and provides regulatory protection for the listed species. Section 7(a)(2) directs all federal agencies to ensure that any action they authorize, fund, or carry-out does not jeopardize the continued existence of an endangered or threatened species or designated or proposed critical habitat for those species (collectively, referred to as protected resources).

Migratory Bird Treaty Act (MBTA)	USFWS	16 USC §§ 703-711; 50 CFR 21 Subchapter B	The MBTA passed by the US Congress and signed into law in 1918, makes it unlawful to "pursue, hunt, take, capture or kill; attempt to take capture or kill; possess; offer to or sell, barter, purchase, or deliver; or cause to be shipped, exported, imported, transported, or received any native migratory bird, part, nest, egg, or product." The MBTA, enforced by the USFWS' Office of Migratory Birds, protects all MBTA-listed migratory birds within the US.
Bald and Golden Eagle Protection Act (BGEPA)	USFWS	16 USC §§ 668-668(d)	The BGEPA prohibits the take, defined as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb," of any bald eagle (*Haliaeetus leucocephalus*) or golden eagle (*Aquila chrysaetos*). Through recent regulation (50 Code of Federal Regulations [CFR] § 22.26; USFWS 2009), the USFWS can authorize take of bald and golden eagles when the take is associated with, but not the purpose of, an otherwise lawful activity and cannot practicably be avoided.
Clean Water Act (CWA), 33 USC Section 1251 et seq.	USACE	Clean Water Act Sections 401, 402, and 404.	Restore and maintain the chemical, physical, and biological integrity of the nation's waters and regulate the discharge of pollutants and dredged or fill material to the navigable waters of the United States.
State			
California Endangered Species Act (CESA) of 1984	CDFW	Fish and Game Code (FG Code) §§ 2050-2098	The California Endangered Species Act (CESA; FG Code §§ 2050-2098 protects and preserves species designated by the California Fish and Game Commission as either threatened or endangered in the state of California. These protected resources include those native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats that are threatened with extinction, as well as those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation.

California Fish and Game Code	CDFW	FG Code §§ 1602, 3503, 3503.5, 3511,3513, 4150, 4700, 5050, 5515	FG Code § 1602 (lake and streambeds) – This section stipulates that notification to the CDFW is required for any proposed activity that may substantially divert or obstruct or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake unless all of the department receives written notification regarding the activity in the manner prescribed by the department. FG Code §§ 3503 and 3503.5 (protection of birds and raptors) – These sections state that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird (§ 3503) and birds of prey (§ 3503.5), except as otherwise provided by the code or any regulation made pursuant thereto. FG Code §§ 3511, 4700, 5050, and 5515 (fully protected species) – These state laws classify and prohibit the take of "fully protected" bird, mammal, amphibian/reptile, and fish species in California. FG Code § 3513 (migratory birds) – This section prohibits any take or possession of birds that are designated by the MBTA as migratory non-game birds except as allowed by federal rules and regulations promulgated pursuant to the MBTA. FG Code § 4150 (mammals) – This section defines all mammals that naturally occur in California as non-game mammals, with exceptions for those defined as game mammals, fully protected mammals, or fur-bearing mammals. Non-game mammals or parts thereof may not be taken or possessed except as otherwise provided by the code or any regulation made pursuant thereto.
California Environmental Quality Act (CEQA)	County of Riverside - Lead	Pub. Resources Code, § 21000 et seq.	CEQA requires identification of significant environmental effects of proposed projects (including impacts on biological resources) and avoidance (where feasible) or mitigation of the significant effects. CEQA applies to "projects" proposed to be undertaken or requiring approval by state and/or local governmental agencies. "Projects" are activities that have the potential to have a physical impact on the environment.

Native Plant Protection Act (NPPA)		CFGC § 1900 et seq.	The NPPA includes measures to preserve, protect, and enhance rare and endangered native plant species. Definitions for "rare and endangered" are different from those contained in CESA, although CESA-listed rare and endangered species are included in the list of species protected under the NPPA.
California Desert Native Plant Protection Act (CDNPA)	County of Riverside	CFGC §§ 1925-1926	Purpose of the CDNPA is to protect certain species of California desert native plants from unlawful harvesting on both public and privately owned lands.
Porter-Cologne Water Quality Control Act (Porter-Cologne)	State Water Quality Control Board	California Water Code § 13000 et seq.	Regulates discharges of waste and fill material to waters of the State, including "isolated" waters and wetlands.
State-Listed Species and Species of Special Concern	County of Riverside and CDFW	Title 14, California Code of Regulations Sections 670.2 and 670.5	These regulations list plant and animal species designated as threatened and endangered in California. California species of special concern (SSC) status is a designation applied by CDFW to those species that are indicators of regional habitat changes or are considered potential future protected species. SSCs do not have any special legal status but are intended by CDFW for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel.
Local			
Riverside General Plan, Land Use, and Multi-Purpose Open Space Elements (2003)	County of Riverside		The County requires actions to ensure that proposed development projects demonstrate a high degree of compatibility with any threatened or endangered species habitat they may affect. The administering agency is the Riverside County Planning Department.

3 Impact Analysis

The below sections summarize the findings presented in the BRTR (Ironwood 2023a) and the Jurisdictional Aquatics Resources Report (Ironwood 2023b) and identifies potential impacts due to implementation of the Project as described in Sections 1.3 and 1.4. The findings in this document are summarized and are limited to resources characterized within the Solar Site and LFRs. Detailed discussion of these resources can be found in the BRTR and Jurisdictional Aquatics Resources Report.

3.1 Definitions

This section addresses Project-related impacts on vegetation communities, jurisdictional waters, special status plant species, special status wildlife species, and habitat connectivity that may occur during construction, operation, maintenance, and decommissioning of the Project. Direct and indirect impacts may be either permanent or temporary. These impact categories are defined below.

- **Direct**: Direct impacts are caused by the Project and occur at the same time and place. Any alteration, disturbance, or destruction of biological resources that would result from Project-related activities is considered a direct impact. Direct impacts would include direct loss of native habitats, potential jurisdictional waters, wetlands, and sensitive species. Direct impacts may include injury, death, and/or harassment of listed and/or specials status species.
- **Indirect**: As a result of Project-related activities, biological resources may also be impacted in a manner that is not direct. Indirect impacts may occur later in time or at a place that is farther removed in distance than direct impacts but are still reasonably certain to occur and attributable to Project-related activities. Examples may include habitat fragmentation, increased human activity, decreased water quality, changes in hydrology, changes in sand transport, and the introduction of invasive wildlife and plants.
- **Permanent**: All impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road. All direct impacts in the Project footprint are considered permanent.
- **Temporary**: Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction or removing vegetation for underground pipeline trenching activities and either allowing the natural vegetation to recolonize or actively revegetating the impact area. Surface disturbance that removes vegetation and disturbs the soil typically would be considered a temporary impact if vegetation is allowed to reestablish overtime.

The following applicable thresholds of significance have been used to determine whether implementing the Project would result in a significant impact under CEQA. The thresholds of significance are based on Appendix G of the State CEQA Guidelines and the Riverside County Environmental Assessment Checklist. A biological resources impact is considered significant if implementation of the Project would do any of the following:

- 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 CDFW or USFWS

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS.
- Have a substantial adverse effect on Federal protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, and coastal areas) or any State-protected jurisdictional areas not subject to regulation under Section 404 of the CWA through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy, or ordinance.
- Conflict with the provisions of an adopted habitat conservation plan; natural community conservation plan; or other approved local, regional, or State habitat conservation plan.

Further, the following was considered:

- Substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

Special status species are those that have been afforded special recognition by federal, state, or local resource agencies or organizations, are often of relatively limited distribution, and typically have unique habitat conditions, which also may be in decline. Special status criteria include:

- Officially listed or candidates for listing by California or the federal government as endangered, threatened, of special concern, or rare under the CESA or the FESA.
- Plants or animals which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the CEQA Guidelines.
- DRECP Focus and Planning Species.
- BLM Special Status Species designated by the BLM California State Director.
- USFWS Sensitive Species.
- Plants listed in the CNPS Inventory of Rare and Endangered Plants of California.
- Wildlife species identified by CDFW as Species of Special Concern.
- Plants or animals included in the CDFW lists of Special Plants or Special Animals.
- Protected under other statutes or regulations (e.g., Bald and Golden Eagle Protection Act, etc.).

The probability of occurrence for special status species and habitat is defined as follows:

- **Present**: species was observed at the time of the survey
- **High**: both a historical record and habitat requirements of the species exist within the Project or its immediate vicinity (approximately 5 miles [8 km]).
- **Moderate**: either a historical record or habitat requirements of the species exists within the immediate vicinity of the Project (approximately 5 miles [8 km]).

- **Low**: No records exist of the species occurring within the Project or its immediate vicinity and/or habitats needed to support the species are of poor quality.

3.2 Vegetation Communities and Other Land Cover Types

3.2.1 Summary of Findings

The Project consists mostly of non-native habitat associated with fallow agriculture. The Project would permanently impact up to 1,049 acres of non-native, previously disturbed, and artificially created habitat and up to 73 acres of natural habitat (Table 3-1).

Table 3-1. Impacts to Vegetation Communities and Other Land Cover Types

	Private Lands	BLM Administered Lands		
Type	**Solar Site (ac)**	**LFR A (ac)**	**LFR B (ac)**	**Total (ac)**
Sonoran Desert Scrub	0.4	29.8	2.7	32.9
Desert Dry Wash Woodland	-	1.1	-	1.1
Disturbed Desert Dry Wash Woodland	6.7	-	-	6.7
Ephemeral Dry Wash	-	2.1	0.5	2.6
Disturbed Ephemeral Dry Wash	31.6	-	-	31.6
Semi-Developed/Aquaculture	96.4	-	-	96.4
Non-Native Riparian	2.7	0.4	-	3.1
Fallow Agriculture	943.8	-	2.2	946.0
Developed/Disturbed	-	0.8	1.3	2.1
Total	**1,081.6**	**34.2**	**6.7**	**1,123**

Temporary and permanent direct and indirect impacts to vegetation communities would occur as a result of construction-related activities through soil disturbance and vegetation removal. Vegetation communities within the direct impact area may support foraging, cover, and breeding habitat for wildlife, including special status wildlife. If feasible to implement during site preparation, mowing and drive-and-crush site preparation methods may reduce the recovery time of desert shrubs compared to conventional grading.

Sonoran desert scrub has a State Rarity rank of S5 (CDFW 2024), being demonstrably secure. It is synonymous with *Larrea tridentata – Ambrosia dumosa* alliance (Sawyer et al. 2009) and Lower Bajada and Fan Mojavean – Sonoran Desert Scrub (National Vegetation Classification Standard). The LFRs consisted primarily of Sonoran creosote bush scrub. Approximately 32.9 acres would be impacted by the Project.

Desert dry wash woodland is a sensitive vegetation community recognized with a rarity rank of S4 (CDFW 2024). Desert dry wash woodland is characteristic of desert washes and is considered a desert riparian vegetation type, which is typically state jurisdictional. This community is synonymous with blue palo verde (*Parkinsonia florida*) – ironwood (*Olneya tesota*) (microphyll) woodland alliance and Sonoran – Coloradan Semi Desert Wash Woodland / Scrub (National Vegetation Classification Standard). This habitat provides greater opportunities for food, nesting, and cover, and its wildlife diversity is generally greater than in the surrounding desert. Desert dry wash woodland within the LFRs is relatively intact and undisturbed; however, woodland habitat within the Solar Site occurs within disturbed agricultural land. Earthen levees that surround the perimeter of the Solar Site have restricted surface hydrology throughout much of the existing agricultural land. Two openings in the levees have

allowed surface water to flow onto the Solar Site where it then follows an unnatural direction along historical dirt roads used during agricultural practices. Desert dry wash woodland tree species have regrown along these two artificial washes within the Solar Site; however, the woodlands occur in narrow and disjunct bands, and trees are diminutive in stature. Subsequently, the wash features and associated woodlands within the fallow agricultural lands provide lower resource value compared to woodlands that occur in the relatively undisturbed lands outside the Solar Site. Approximately 6.7 acres of disturbed desert dry wash woodland within the Solar Site and 1.1 acres of relatively undisturbed desert dry wash woodland within the LFRs would be permanently impacted. Due to the linear nature of the LFRs, Project design and construction would be able to minimize impacts to woodlands by avoiding the removal of trees to the maximum extent practicable.

3.2.2 Direct and Indirect Impacts

Indirect impacts to native vegetation include the potential introduction of nonnative plant species (i.e., weeds) and increase in dust that may affect plant growth in adjacent lands. Site preparation and construction activities have the potential to create airborne dust, sedimentation, and erosion. Dust accumulating on vegetation can impair its health and possibly lead to eventual death if vegetation. The potential spread of weeds into the surrounding vegetation communities may occur. Weed species are often opportunistic, taking root in areas of recent disturbance, and spreading into adjacent vegetation communities. Once introduced, weeds often out-compete natives for resources resulting in a reduction in growth, future dispersal, and recruitment of native species and the eventual degradation of the vegetation community.

The nonnative riparian habitat primarily within the Solar Site is dominated by invasive salt cedar (*Tamarix* spp.), which is rated as “high” by Cal-IPC and identified as a noxious weed by the California Department of Food and Agriculture. Salt cedar/nonnative riparian has the potential to impact native riparian communities associated with adjacent waterbodies through direct competition and alteration of soil and hydrology conditions. Removal of salt cedar during site preparation, and proper management of potential regrowth, would be a beneficial impact of the Project.

Permanent direct and indirect impacts to vegetation communities have the potential to be significant. Such impacts would be reduced to less than significant through implementation of the following Mitigation Measures (MM) and DRECP CMAs described in Section 4:

- MM BIO-1 Biological Monitoring.
- MM BIO-2 Worker Environmental Awareness Program (WEAP).
- MM BIO-3 Minimization of Impacts to Natural Vegetation.
- MM BIO-5 Integrated Weed Management Plan.
- MM BIO-6 Vegetation Resources Management.
- MM BIO 13 Compensation for Impacts to Native Vegetation.
- Relevant DRECP CMAs applied to LFRs on BLM-administered lands.

3.3 Aquatic Resources

3.3.1 Summary of Findings

A summary of aquatic resources by potential agency jurisdiction that may be impacted by the Project is provided in Table 32.

Table 32. Impacts to Potential Aquatic Resources by Agency Jurisdiction

Agency Jurisdiction	Solar Site (ac)	LFR A (ac)	LFR B (ac)	Total (ac)
U.S. Army Corps of Engineers CWA Section 404[2]	-	-	-	0.0
RWQCB Waters of the State				
Ephemeral Wash	-	2.1 15,005 lf	0.5 1,279 lf	2.6 16,284 lf
Disturbed Ephemeral Dry Wash	31.6 52,407 lf1	-	-	31.6 52,407 lf1
Total Waters of the State	**31.6**	**2.1**	**0.5**	**34.2**
CDFW 1602 Resources				
Ephemeral Wash[1]	-	2.1 15,005 lf	0.5 1,279 lf	2.6 16,284 lf
Disturbed Ephemeral Dry Wash	31.6 52,407 lf1	-	-	31.6 52,407 lf1
Desert Dry Wash Woodland (Native Riparian)[1]	-	1.1	-	1.1
Disturbed Desert Dry Wash Woodland (Native Riparian)	6.7	-	-	6.7
Nonnative Riparian	2.7	0.4	-	3.1
Total CDFW 1602 Resources	**41.0**	**3.6**	**0.5**	**45.1**

[1] Ephemeral wash coinciding with native riparian habitat was mapped and calculated separately.

[2] Aquatic resources are not subject to federal jurisdiction pursuant to CWA Section 404 as indicated in the Approved Jurisdictional Determination (AJD) received from the U.S. Army Corps of Engineers (James Mace pers. comm. 12/8/2023).

The natural and disturbed ephemeral washes within the Project may be subject to RWQCB jurisdiction as waters of the state. Review of historic aerial imagery suggests that the locations and extents of previously identified artificial basins and associated wetlands have varied due to agricultural practices and fluctuating irrigation water inputs. In 2022, these features, which were artificially created, potentially met the definition of a wetland by the RWQCB; however, since removal of the artificial water source these artificial resources have converted back to upland habitat and disturbed ephemeral dry wash. Approximately 31.6 ac of waters (disturbed ephemeral dry wash) potentially subject to RWQCB jurisdiction occur within the Solar Site and 2.6 ac of potential RWQCB jurisdictional waters (ephemeral dry wash) occur within LFRs (Table 32). Based these findings, a WDR application should be submitted to the Colorado River Basin RWQCB pursuant to the California Porter-Cologne Water Quality Control Act, which is implemented through issuance of National Pollutant Discharge Elimination System permits for point source discharges and WDRs for non-point source discharges.

Ephemeral washes, including natural and disturbed washes, delineated within the Project appear to meet the Title 14 CCR § 1.72 definition of a stream and are potentially subject to jurisdiction under CDFW Section 1600 *et seq.* (CFGC §§ 1600-1616). Section 1602 FGC also includes natural lakes or man-made reservoirs and may include man-made ponds and basins. Native riparian woodland associated with ephemeral washes and nonnative riparian associated with prior artificial basins have been included in CDFW jurisdictional calculations (Table 32). A total of 31.6 acres of waters (disturbed ephemeral dry wash, artificial basins, and artificial wetlands) and 9.4 acres of riparian habitat (disturbed native and nonnative) potentially subject to CDFW jurisdiction occur within

the Solar Site. Approximately 2.6 acres of potential CDFW jurisdictional waters (ephemeral dry wash) and 1.5 acres of native and nonnative riparian woodland occur within LFRs. Based on these findings, the Applicant should notify CDFW pursuant to California Fish and Game Code § 1602 and include the required supplemental material (including precise impact calculations) and fee.

Aquatic resources within the Project were determined to not be subject to federal CWA jurisdiction in an Approved Jurisdictional Determination issued by the U.S. Army Corps of Engineers on December 8, 2023. This determination is valid for five years from the date of issuance.

3.3.2 Direct and Indirect Impacts

Similar to the impacts described above for vegetation communities, temporary and permanent direct and indirect impacts to jurisdictional waters would occur as a result of construction-related activities through soil disturbance and vegetation removal. If feasible to implement during site preparation, mowing and drive-and-crush site preparation methods may reduce the recovery time of vegetation and washes compared to conventional grading. Furthermore, due to the linear nature of the LFRs, Project design and construction would minimize impacts to woodlands by avoiding the removal of trees to the maximum extent practicable.

The nonnative riparian habitat primarily within the Solar Site is dominated by invasive salt cedar, which is rated as “high” by Cal-IPC and has the potential to impact native riparian communities associated with adjacent waterbodies under existing conditions. Removal of this species through construction activities, and proper management of potential regrowth, would be a beneficial impact of the Project.

Site preparation is expected to preserve macro-topography. Changes would likely occur at a micro-topographic level. The Project has been previously disturbed through agricultural practices, resulting in altered surface flow patterns. The Project may alter existing flow patterns through soil disturbance and additional compaction. Off-site erosion and sedimentation resulting from construction activities have the potential to result in temporary indirect impacts to jurisdictional waters. These impacts have the potential to degrade the quality of adjacent jurisdictional waters.

Permanent direct and indirect impacts to jurisdictional waters may be significant if left unmitigated. Impacts to jurisdictional waters would be addressed through the issuance of CDFW and RWQCB authorization. Potential direct and indirect impacts to jurisdictional waters would be reduced to less than significant through implementation of the following Mitigation Measures (MM) and DRECP Conservation Management Actions described in Section 4:

- MM BIO-1 Biological Monitoring.
- MM BIO-2 Worker Environmental Awareness Program (WEAP).
- MM BIO-3 Minimization of Impacts to Natural Vegetation.
- MM BIO-5 Integrated Weed Management Plan.
- MM BIO-6 Vegetation Resources Management.
- MM BIO-10 Stream Protection and Compensation.
- MM BIO-13 Compensation for Impacts to Native Vegetation.
- Relevant DRECP CMAs applied to LFRs on BLM-administered lands.

3.4 Special Status Plants

3.4.1 Summary of Findings

Due to the absence of specific habitat requirements (e.g., elevation, specific vegetation communities, topographic features, proximity to water), several special status species were determined to be absent or have a low potential to occur in the Project area. No threatened, endangered, or BLM sensitive plant species (other than succulents) have the potential to occur on the Project. Three plant species defined and characterized as rare under the California Rare Plant Ranks (CRPRs), and thus requiring analysis under CEQA, were documented in the Project:

- Desert unicorn plant (*Proboscidea althaeifolia*) - CRPR 4.3
- Jackass clover (*Wislizenia refracta* ssp. *refracta*) - CRPR 2B.2
- California ditaxis (*Ditaxis serrata* var. *californica*) - CRPR 3.2

Native cacti, succulents, and trees of succulents that occur within the Project and are regulated under the California Native Plant Protection Act and the California Desert Native Plant Act include:

- *Opuntia basilaris* var. *basilaris* (beavertail cactus)
- *Echinocereus engelmannii* (Engelmann's hedgehog cactus)
- *Fouquieria splendens* (ocotillo)
- *Ferocactus cylindraceus* (barrel cactus)
- *Olneya tesota* (ironwood)
- *Parkinsonia* spp. (palo verde)

Impacts to special status plants, including native cacti, succulents and trees, occurring within the Project Area are discussed below.

3.4.2 Direct and Indirect Impacts

Potential temporary and permanent direct and indirect impacts to non-listed, special status plant species may occur as a result of construction-related activities and potential maintenance activities, associated with soil disturbance, vegetation removal, and weed management. Direct impacts may include destruction of individual plants, disruption of soil seed banks, and loss or degradation of habitat. Indirect impacts would be similar to those described above for vegetation communities. If feasible during site preparation, mowing and drive-and-crush site preparation methods would be employed to improve the recovery time of habitat compared to conventional grading. Subsequently, impacts to special status species may be temporary rather than permanent, by allowing the seed bank to persist and individual plant regeneration following construction and during the operation and maintenance period.

Runoff, sedimentation, and erosion can adversely impact plant populations by damaging individuals or by degrading habitat conditions on- and off-site. Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration. Potential permanent, indirect impacts to non-listed, special status plant species may also arise from population fragmentation. Due to

limited distributions of rare plant populations, they are susceptible to becoming fragmented by Project development, which can impact pollinator activity and, as a result, gene flow.

Jackass clover (*Wislizenia refracta ssp. refracta*) is an annual herb native to California, found in dunes and playas of creosote bush scrub. It has a California Rare Plant Rank (CRPR) of 2B.2. Jackass clover was observed at one locality onsite in the southern extent of the Solar Site. Impacts to jackass clover may be significant based on its rarity status (2B.2) and if the location of jackass clover is subject to conventional grading during site preparation. Given the restricted and minor extent of this occurrence on the Project Area, impacts on the occurrence are not anticipated to contribute to a substantial reduction in distribution or abundance of the species. However, loss of the occurrence would result in local extinction. If the location of jackass clover can be avoided during pre-construction weed management and construction or if the seed bank persists following site preparation by employing drive and crush methods, then impacts would be less than significant.

Desert unicorn plant (*Proboscidea althaeifolia*) has a CRPR of 4.3, where the ranking is defined as having limited distribution which is not very threatened (e.g., less than 20% of occurrences are threatened). This species was observed at several locations within the Project and is locally abundant. Due to this species being locally abundant and the potential for the seed bank to persist or for seeds to naturally recruit into available habitat, there is likelihood of plant regeneration following construction, and therefore potential direct and indirect impacts would be less than significant. Weed management activities, including use of herbicides has the potential to impact the local seed bank; however, it is anticipated that nearby populations would supply propagule sources to the Project that would promote reestablishment.

California ditaxis (*Ditaxis serrata var. californica*) has a CRPR of 3.2, which refers to being moderately threatened in California and a lack of information regarding its overall distribution and abundance. This species was observed at several locations within the Project. If the locations of California ditaxis and/or its occupied habitats were to be subject to conventional grading and compaction during site preparation, then impacts to this species would be significant due to local extirpation and potentially the contribution to restriction of its natural geographic range. If the seed bank persists following site preparation by employing less destructive drive and crush methods in areas where the species has been documented, then this species is expected to persist following construction and potential impacts would likely be less than significant. Weed management activities pre- and post-construction have the potential to directly and significantly impact this species due to direct spray or application of pre-emergent herbicides within the vicinity of a seed bank.

If conventional grading practices were to be used across the Project, impacts to special status plants, including native cacti, succulents and trees, would be significant if left unmitigated. Use of less destructive site preparation practices could allow for potential avoidance of these plants or would allow for potential onsite reestablishment in certain areas. Potential direct and indirect impacts special status plants, including native cacti, succulents and trees, would be reduced to less than significant through implementation of the following Mitigation Measures (MM) and DRECP Conservation Management Actions described in Section 4:

- MM BIO-1 Biological Monitoring.
- MM BIO-2 Worker Environmental Awareness Program (WEAP).
- MM BIO-3 Minimization of Impacts to Natural Vegetation.
- MM BIO-5 Integrated Weed Management Plan.

- MM BIO-6 Vegetation Resources Management.
- MM BIO-7 Special Status Plant Species Mitigation.
- MM BIO-10 Stream Protection and Compensation.
- MM BIO-13 Compensation for Impacts to Native Vegetation.
- Relevant DRECP CMAs applied to LFRs on BLM-administered lands.

3.5 Special Status Wildlife

3.5.1 Summary of Findings

Forty (40) special status wildlife species were not detected within the Project during field surveys and were determined to have a low likelihood to occur based on the location of historical records and absence of suitable habitat within the Project (Ironwood 2023a). No federally listed or state-listed threatened or endangered wildlife species were identified within the Project during field surveys; however, Agassiz's (Mojave) desert tortoises (*Gopherus agassizii*), a federally listed (threatened) and state-listed (candidate endangered), is known to occur in the Project vicinity, therefore, a discussion of this species is included in this section.

The following special status wildlife species were not detected within the Project during field surveys but were determined to have a moderate or high likelihood to occur within the Project based on the location of historical records and presence of suitable habitat within the Project:

- Bats
  - Pallid bat (*Antrozous pallidus*)
  - Townsend's big-eared bat (*Corynorhinus townsendii*)
  - Western yellow bat (*Lasiurus xanthinus*)
  - Big free-tailed bat (*Nyctinomops macrotis*)
  - California leaf-nosed bat (*Macrotus californicus*)
  - Western mastiff bat (*Eumops perotis californicus*)
- Birds
  - Black-tailed gnatcatcher (*Polioptila melanura*)
  - Le Conte's thrasher (*Toxostoma lecontei*)

The following special status wildlife species were detected within the Project during field surveys and have a high likelihood to occur within the Project:

- Mammals
  - Burro deer (*Odocoileus hemionus eremicus*)
  - American badger (*Taxidea taxus*)
  - Desert kit fox (*Vulpes macrotis arsipus*)
- Birds
  - Western burrowing owl (*Athene cunicularia hypugaea*)
  - Costa's hummingbird (*Calypte costae*)
  - California horned lark (*Eremophila alpestris actia*)
  - Loggerhead shrike (*Lanius ludovicianus*)

3.5.2 Direct and Indirect Impacts

3.5.2.1 General

Direct impacts to wildlife may include mortality, injury, or displacement of individuals; loss or degradation of native habitat; interference with wildlife movement or migration; and disturbance from noise and light. Wildlife may be crushed by equipment resulting in injury or mortality. For fossorial species, potential direct impacts during may include mechanical crushing of wildlife underground in burrows or dens. Land use conversion could displace and exclude special status reptiles, birds, and mammals from portions of their territories. Project infrastructure could present hazards to wildlife, including special status species. Aboveground structures can be collision hazards for birds or bats in flight. Construction materials such as open pipes or tubing (e.g., torque tubes and fence posts) can be used for shelter by birds or terrestrial species, leading to them becoming trapped inside. Indirect impacts may result from noise, light, and human presence during Project construction. Maximum noise levels during construction are estimated to range up to approximately 85 dBA at 50 feet from construction activity and would decrease with distance away from activity. This would be a substantial increase over existing background noise levels, which are expected to be low, with typical daytime noise levels of 35 to 50 dBA. Noise during construction could affect wildlife in adjacent habitats by disrupting foraging, breeding, sheltering, and other activities; or cause animals to avoid otherwise suitable habitat surrounding the site. Construction activities would likely cause resident wildlife to disperse from the Project, which may put them at increased risk of predation and/or being hit by equipment or vehicles. Site fencing could entrap wildlife or present a risk of injury if attempting to scale the fencing. Wildlife could become trapped within holes or trenches. Indirect impacts associated with Project construction are anticipated to be temporary and limited to the period of construction.

3.5.2.2 Special Status Birds

Impacts on birds apply similarly to special status species and native birds protected by MBTA and CFG Code. Direct impacts could occur due to Project construction activities, including loss of habitat caused by removal of suitable nesting substrate and disturbance of foraging habitat, and potentially death, injury, or harassment of nesting birds, their eggs and their young. Adult birds would likely fly away from the construction activities and human presence. Bird nests (including eggs or nestlings if present) would be lost. Additionally, construction-related noise has the potential to cause nest abandonment in areas adjacent to construction in each disturbance area. Burrowing owls, if present during construction, may abandon their burrows due to construction noise and human activity or to shelter inside burrows where they could be vulnerable to crushing. Construction related direct impacts are anticipated to be temporary and limited to the period of construction.

Direct impacts may result from implementation of the Project due to collisions with overhead power lines, fencing, guywires, and large equipment. Indirect impacts may also include electrocution of large birds. Large birds including eagles, hawks, falcons, and turkey vultures are susceptible to electrocution the bird's wings simultaneously contact conductors, or a conductor and a grounded component (e.g., wire or hardware). Electrocution may occur when a bird attempts to perch or take off from a structure with insufficient clearance between these components. The specific design of electrical transmission and distribution line is a major factor in causing or preventing electrocutions. Distribution lines that are between 1 kilovolt (kV) and 69 kV have less space between conductors and grounded components than larger transmission lines. Configurations greater than 69 kV typically do not present an electrocution potential, based on conductor spacing and orientation (APLIC 2006). Potential impacts related to collision and electrocution would continue into Project operations.

However, the magnitude of these potential impacts may be much smaller than once thought. A recent study found that illegal shooting may constitute a substantial (66%) and underrepresented cause of death of birds along power lines on public lands in the western United States (Thomason et al. 2023). Researchers documented cases of birds that appeared to have been killed by electrocution based on external evidence (e.g., singed feathers), but upon further examination were found to have also been killed by gunshot and electrocuted as they fell to the ground (Thomason et al. 2023).

Indirect impacts to birds may also occur due to increased predation risk associated with the addition of predator (e.g., ravens and coyotes) subsidies including food (e.g., waste), water, and shelter in the form of perching sites.

The lake effect hypothesis posits that aquatic habitat birds are attracted to solar facilities, where birds mistake a reflective solar facility for a waterbody. This hypothesis was proposed by Kagan et al. (2014), Walston et al. (2015), and Huso et al. (2016). USFWS (2016) acknowledged the lake effect hypothesis stating that birds may "mistake the numerous solar panels for water and either crash into fences or panels or cannot take flight once they have landed on solid ground". A recent study by Kosciuch et al. (2021) examined the species composition, abundance, and distribution of live and dead aquatic habitat birds at five PV solar facilities and paired reference areas in Southern California. Their conclusion was the idea of "lake effect" where birds perceive a solar facility as a water body and are attracted to it is likely a nuanced process, as a solar facility is unlikely to always provide a signal of a lake to all aquatic habitat birds. The study also concludes it is unknown how landscape contexts outside of their study region and the availability of natural waterbodies will influence aquatic habitat bird behavior at certain locations.

Potential direct and indirect impacts special status and native birds protected by the MBTA and CFG Code would be reduced to less than significant through implementation of the following Mitigation Measures (MM) and DRECP Conservation Management Actions described in Section 4:

- MM BIO-1 Biological Monitoring.
- MM BIO-2 Worker Environmental Awareness Program (WEAP).
- MM BIO-3 Minimization of Impacts to Natural Vegetation.
- MM BIO-4 Minimization of Impacts to Wildlife.
- MM BIO-8 Minimization of Impacts to Birds and Bats.
- MM BIO-12 Raven Management.
- MM BIO-13 Compensation for Impacts to Native Vegetation.
- Relevant DRECP CMAs applied to LFRs on BLM-administered lands.

3.5.2.3 Special Status Bats

Direct impacts to special status bats could occur due to Project construction resulting from loss of foraging and roosting habitat and individual mortality caused by the permanent removal of native and non-native riparian habitat. It is not expected that any special status bat species would have a substantial roost within the Project because habitat features most associated with these species (e.g., rock ledges, cliffs, large tree hollows, mine shafts) do not occur. The nearest known maternity and over-wintering roosts are over 7 mi (11 km) from the Project in the Coxcomb and Eagle Mountains (Brown and Rainey 2013). Non-special status bat species including canyon bats (*Parastrellus hesperus*), California myotis (*Myotis californicus*), and hoary bats (*Lasiurus cinereus*)

may roost temporarily in woodland habitats or within creosote flats at ground-level in burrows or under rocks and woody debris (Brown and Rainey 2013). Site preparation may cause direct injury or mortality of these species if they were to be present at the time of construction.

Four special status bat species including pallid bat, Townsend's big-eared bat (*Corynorhinus townsendii*), western yellow bat (*Lasiurus xanthinusI*), big freetailed bat (*Nyctinomops macrotis*) may forage within microphyll woodlands and non-native riparian habitat within the Project as these habitats typically provide relatively higher insect abundance compared to creosote bush scrub and fallow agricultural lands. Construction-related noise and artificial lighting may cause changes in foraging behavior and contribute to roost abandonment. Construction related direct impacts are anticipated to be temporary and limited to the period of construction. Fallow agriculture, which is associated with the Solar Site, is generally associated with reduced bat activity compared to natural habitats (Olimpi 2018). Overall, the loss of foraging habitat resulting from the Project would be relatively small compared to the availability of bat foraging habitat throughout Chuckwalla Valley, much of which is currently protected as National Conservation Lands.

Aboveground infrastructure presents a potential collision risk to bats; however, bats are thought to be capable of avoiding stationary objects by detecting them via echolocation. Incidents of collision may be influenced by light intensities and by behavioral, hormonal, and physiological changes during swarming and mating (Orbach and Fenton 2010).

Potential direct and indirect impacts special status bats would be reduced to less than significant through implementation of the following Mitigation Measures (MM) and DRECP Conservation Management Actions described in Section 4:

- MM BIO-1 Biological Monitoring.
- MM BIO-2 Worker Environmental Awareness Program (WEAP).
- MM BIO-3 Minimization of Impacts to Natural Vegetation.
- MM BIO-4 Minimization of Impacts to Wildlife.
- MM BIO-8 Minimization of Impacts to Birds and Bats.
- MM BIO-13 Compensation for Impacts to Native Vegetation.
- Relevant DRECP CMAs applied to LFRs on BLM-administered lands.

3.5.2.4 Desert Kit Fox and American Badger

Direct impacts to occupied desert kit fox and American badger habitat would be caused by construction, including the loss of dens used for breeding (natal dens), satellite dens, and loss of foraging habitat. Temporary direct impacts during construction could result from an increased potential for vehicular and equipment strikes of both species, including along public roads (e.g., Kaiser Road). The Project may result in the permanent loss of and exclusion from occupied habitat due to site preparation and perimeter security fencing. Indirect construction related impacts on these species' behavior and movement may result from noise, light, and human disturbance. During construction, these species may be less likely to move through adjacent habitat due to the proximity of construction and activities. However, desert kit foxes have been documented returning to solar facilities during and after construction, and at times building new dens and successfully breeding. Construction activities may also provide new subsidies for desert kit foxes in the form of food (e.g., roadkill), water, and

shelter (e.g., under material piles and torque tubes). The potential for desert kit foxes to not be fully displaced by Project development increases the risk of vehicular and equipment strikes even within the fenced Solar Site. Indirect construction related impacts to these species are anticipated to be temporary and limited to the period of construction.

Potential direct and indirect impacts desert kit fox and American badger would be reduced to less than significant through implementation of the following Mitigation Measures (MM) and DRECP Conservation Management Actions described in Section 4:

- MM BIO-1 Biological Monitoring.
- MM BIO-2 Worker Environmental Awareness Program (WEAP).
- MM BIO-3 Minimization of Impacts to Natural Vegetation.
- MM BIO-4 Minimization of Impacts to Wildlife.
- MM BIO-9 Desert Kit Fox and American Badger Protection.
- MM BIO-13 Compensation for Impacts to Native Vegetation.
- Relevant DRECP CMAs applied to LFRs on BLM-administered lands.

3.5.2.5 Desert Tortoise

The Project is unlikely to impact desert tortoise in the form of injury, mortality, or handling for the purposes of relocation or translocation given the following:

- Focused surveys did not detect any live tortoises or any recent, active tortoise sign (including shell/bone/scutes, scats, burrows/pallets, tracks, eggshell fragments, and courtship rings) on the LFRs or Solar Site.
- No live desert tortoise or recent sign was detected during surveys of approximately 3,700 acres surrounding the Sapphire Project (performed for the Easley Solar Project).
- The modelled predicted occupancy (Nussear et al. 2009) is low within the Project and the degree of local disturbance within the DFA is high, further reducing the potential for occupancy.
- Approximately 95% of the Project disturbance area (i.e., Solar Site on private lands) contains degraded habitat that was historically converted to agriculture; approximately 5% of the Project (LFR A and B) west of the Solar Site supports natural habitat on BLM-administered land, which is modeled as a low (< 0.4) potential for occurrence (Nussear et al. 2009).

While desert tortoise occurrence within the Project is low, the observation of historical sign and regional tortoise occurrence within Chuckwalla Valley suggests it is possible that a live desert tortoise may be detected within the Project in the future and if that were to occur, potential direct impacts to desert tortoises if left unmitigated, with further discussion below, may include:

- The direct loss of habitat through ground disturbance and development, resulting in habitat fragmentation and obstacles to movement.
- Potential harm during site preparation and trenching activities including potential entrapment within open trenches and pipes.

- Potential displacement (e.g., by noise and vibration), injury, or mortality by vehicles or heavy equipment, whether within the Project or from vehicles straying from existing roads or designated areas into adjacent habitat. The potential for the most severe impacts are along paved roads where vehicle frequency and speed are greatest, though tortoises on dirt roads could also be affected.
- Over time, breaches in the desert tortoise exclusionary fencing could occur, thus allowing tortoises to pass through the barrier and access areas affected by Project-related activities.
- Desert tortoise mortality associated with interacting with (e.g., pacing) the fence.
- Materials and equipment left behind following construction and maintenance activities could entrap or entangle tortoises, attract desert tortoise predators such as common ravens and coyotes, or provide shelter for tortoises and when materials and equipment are removed could result in displacement or injury of the tortoise.
- Potential crushing or entombment in their burrows during construction.
- Potential for collection or harassment by Project personnel.
- Potential injury or mortality by visitors' pets.
- Disruption of tortoise behavior.
- Tortoises could take shelter under parked vehicles and be killed, injured, or harassed when the vehicle is moved.
- Desert tortoises may be attracted to the construction area by application of water to control dust and the resulting ponded water, placing them at higher risk of injury or mortality.
- Activities such as capture, handling, fitting transmitters, disease testing, and translocation could cause mortality, harm or harassment to desert tortoise even when proper methods are being implemented.

The Project was not found to be occupied by desert tortoise during protocol surveys performed in 2022. There is a low likelihood of desert tortoise occurrence within the Project, especially within the private, fallow agricultural lands. If the species were to be present within the Project during construction, , immature (i.e., subadult, juvenile, and hatchling) tortoises (<160 mm MCL) may have a higher likelihood of being directly impacted due to their small size and inconspicuousness. Immature desert tortoises and eggs are difficult to detect during clearance surveys and construction monitoring; therefore, the potential exists that surveyors may miss many of them and therefore, any immature tortoises present are likely to remain in the work areas during construction. The absence of live adult tortoises within the Project indicates that immature desert tortoises and/or eggs are also likely absent from the site. If any immature desert tortoises and/or eggs were to be present and missed by surveyors during clearance surveys or construction activity monitoring, they are likely to be killed during construction.

The Pinto Wash Linkage (PWL), identified in the DRECP as a linkage for desert tortoise connectivity, supports high quality, low quality, and non-habitat. Development associated with the Project within the PWL would be limited to the LFR A, which is sited in the DFA and does not occur within the high-quality habitat of the PWL nor within the areas that have been modelled as a functional linkage area. LFR A is located within the southern portion of the PWL that has low predicted occupancy and low potential for tortoise connectivity. Furthermore, LFR A would not result in permanent barriers to tortoise movement. The total potential right-of-way associated with LFR A would be a maximum of 34.2 acres; however, actual disturbance resulting from final design would be substantially less than 34.2 acres because the entire 150-foot right-of-way would not be disturbed. Actual

disturbance would be limited to the footprint of gen-tie structures, access road, spur roads, temporary pulling and tensioning sites, and other associated infrastructure. Due to these reasons, the Project would not impact the functional habitat connectivity within the PWL.

Potential indirect impacts to the desert tortoise, if left unmitigated, may include:

- An increase of weed species, especially non-native grasses, could lead to increased fire frequency in desert habitat leading to habitat degradation and desert tortoise mortality.
- An increase of weed species, especially non-native grasses, in the Project could lead to reduced availability and quality of desert tortoise forage.
- Raven activity could increase due to the creation of raven subsidies with human presence thereby leading to increased desert tortoise predation.
- Increase in canid predation on desert tortoises due to human presence, and the presence of subsidies resulting from the Project.
- Injury, mortality, or increased disease incidence resulting from long-term monitoring efforts.
- Increased noise, lighting, and dust in the Project vicinity.
- Long-term genetic or demographic shifts resulting from increased habitat fragmentation.

Temperatures in and around PV solar facilities may increase from ambient temperature due to replacement of native land cover with solar panels that absorb heat. Based on studies by Fthenakis and Yu (2013), thermal energy was found to dissipate and reach ambient temperature at 16 to 60 feet (5-18 meters) above the ground and at approximately 1,000 feet (300 meters) away from the perimeter of the Solar Site. Increased temperatures could affect the species composition of vegetation and wildlife in the vicinity of the Solar Site.

There is a low likelihood of desert tortoise occurrence within the Project, especially within the private, fallow agricultural lands. The Project is not expected to have an impact on the stability of the overall desert tortoise population in the Colorado Desert Recovery Unit. If a desert tortoise were to be present within the Project during construction, potential direct and indirect impacts desert tortoise would be reduced to less than significant through implementation of the following Mitigation Measures (MM) and DRECP Conservation Management Actions described in Section 4:

- MM BIO-1 Biological Monitoring.
- MM BIO-2 Worker Environmental Awareness Program (WEAP).
- MM BIO-3 Minimization of Impacts to Natural Vegetation.
- MM BIO-4 Minimization of Impacts to Wildlife.
- MM BIO-5 Integrated Weed Management Plan.
- MM BIO-11 Desert Tortoise Protection.
- MM BIO-12 Raven Management.
- MM BIO-13 Compensation for Impacts to Native Vegetation.
- Relevant DRECP CMAs applied to LFRs on BLM-administered lands.

3.5.2.6 Wildlife Movement

The DRECP (LUPA-BIO-13) identifies four linkage areas within the plan area. The Project is located over 4 miles (6.4 km) away from the closest multi-species linkage, which consists of a 1.5-mile-wide linkage across I-10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center. The Desert Linkage Network was developed by the California Desert Connectivity Project to maintain habitat for movement between landscape blocks (i.e., Wilderness Areas). Landscape blocks identified in the Project vicinity are the Eagle Mountains to the west, the Coxcomb Mountains to the north, and the Palen–McCoy Mountains to the east. Potential impact to the Pinto Wash Linkage (PWL), identified for desert tortoise in the DRECP, is described above in Section 3.5.2.5. The Project would not directly impact DRECP multi-species linkages or the Desert Linkage Network. The Project would not impact the functional desert tortoise connectivity within the PWL.

Wildlife may use areas outside of important linkages identified above; however, within the Project vicinity, local wildlife movement has been impaired by existing land uses including linear barriers (i.e., the Interstate 10 freeway, State Route 177, the Colorado River Aqueduct) and various disturbed or developed lands such as solar energy facilities, fallow agriculture, rural residential areas, and the Chuckwalla Valley Raceway.

Direct temporary impacts to wildlife movement during construction would result from an increase in noise, fugitive dust, lighting, and human presence. These activities would disrupt wildlife movement and may cause animals to avoid otherwise suitable habitat surrounding the site.

The Project may result in direct impacts to local wildlife movement. The perimeter security fence and desert tortoise exclusion fence would present a barrier to many species, and a semipermeable barrier for other species. Smaller wildlife species, such as lizards and small mammals, may be able to access the Solar Site through the openings in the fence. Desert kit fox and coyotes may also find narrow passages through the fence or scale the fence to move in and out of the Solar Site. Other wildlife species including American badger and burro deer would likely be excluded from the Solar Site following installation of the security fence. The exclusion of habitat previously available to burro deer may prevent them from accessing existing water sources or cover sites.

Wildlife movement within lands adjacent to the Project may also be altered due to edge effects associated with development. Potential indirect impacts of the Project and associated edge effects include but are not limited to altered behavior due to environmental stressors, changes in daily activity patterns, reductions in population reproductive capacity, and local extinctions. These impacts vary depending on the species, population structure, size of the home range, migrations, and dispersal movements of the species being considered, as well as the species' behavioral response to artificial light, noise, degraded surrounding habitat, and other anthropogenic influences.

Potential direct and indirect impacts wildlife movement would be reduced to less than significant through implementation of the following Mitigation Measures (MM) and DRECP Conservation Management Actions described in Section 4:

- MM BIO-1 Biological Monitoring.
- MM BIO-2 Worker Environmental Awareness Program (WEAP).
- MM BIO-3 Minimization of Impacts to Natural Vegetation.
- MM BIO-4 Minimization of Impacts to Wildlife.

- MM BIO-5 Integrated Weed Management Plan.
- MM BIO-8 Minimization of Impacts to Birds and Bats.
- MM BIO-9 Desert Kit Fox and American Badger Protection.
- MM BIO-13 Compensation for Impacts to Native Vegetation.
- Relevant DRECP CMAs applied to LFRs on BLM-administered lands.

4 Mitigation Measures and DRECP Conservation Management Actions

4.1 Proposed Mitigation Measures

The Applicant shall commit to complying with and implementing the following Mitigation Measures (MM) for the entire Project, both the LFRs and Solar Site, to reduce potential impacts to biological resources during construction, operation, maintenance, and decommissioning unless specified within the measure.

MM BIO-1 **Biological Monitoring.** The Applicant shall assign at least one Designated Biologist as the primary point of contact for the lead agencies (BLM and County of Riverside) and permitting agencies (e.g., California Department of Fish and Wildlife, United States Fish and Wildlife Service, and Regional Water Quality Control Board, as applicable) regarding biological resource compliance. The Designated Biologist shall have demonstrated expertise with the biological resources within the Project area. The Designated Biologist duties will vary during the construction, operation, maintenance, and future decommissioning of the Project. Additional Biological Monitor(s), trained and supervised by the Designated Biologist, may be necessary to fulfill compliance with Mitigation Measures and permit conditions. In general, the duties of the Designated Biologist shall include:

- Communication with representatives of lead and permitting agencies, as appropriate.
- Conduct or oversee Worker Environmental Awareness Program.
- Conduct or oversee pre-construction surveys, inspection, and monitoring duties as defined in all Mitigation Measures.
- Halt any activities in any area if it is determined that the activity, if continued, would cause an unauthorized adverse impact to biological resources.
- Clearly mark sensitive biological resource areas and inspect these areas at appropriate intervals for compliance with regulatory terms and conditions.
- During construction, prepare and submit monthly compliance reports. During operations, prepare and submit annual compliance reports for the first three (3) years of operations.

MM BIO-2 **Worker Environmental Awareness Program (WEAP).** The Applicant shall conduct an education program for all persons employed or otherwise working in the Project area before performing any work on the Project site. The program shall consist of a presentation from the Designated Biologist or Biological Monitor(s) that includes a discussion of the biology and general behavior of special-status species, information about the distribution and habitat, sensitivity of the special-status species to human activities, its legal protection, recovery efforts, penalties for violations. All construction crews and contractors shall be required to participate in WEAP training prior to

starting work on the Project. Applicant shall prepare and distribute a fact sheet handout containing this information for workers. WEAP training materials shall be provided in English and Spanish. Upon completion of the program, employees shall sign a form stating they attended the program and understand all protection measures. At a minimum, the WEAP shall:

- Be developed by or in consultation with the Designated Biologist and consist of an on-site or training center presentation with supporting written material and electronic media, including photographs of protected species, available to all participants.
- Include a review of Mitigation Measure and permit requirements.
- Include a review of the special-status species and other sensitive resources that may occur in the Project area, as well as the locations of the sensitive biological resources, their legal status and protections, and measures to be implemented for avoidance of these sensitive resources.
- Include desert tortoise specific training that includes detailed description of the desert tortoise, distribution and general behavior of the desert tortoise, sensitivity to human activities, regulatory status including prohibitions and penalties incurred for violation, mandatory conservation measures, and procedures if a desert tortoise is observed on-site.
- Provide an explanation of the function of flagging that designates authorized work areas and specify the prohibition of construction activities.
- Discuss general environmental and safety protocols such as vehicle speed limits, hazardous substance spill prevention and containment measures, and fire prevention and protection measures.
- Discuss the federal, state, and local regulatory setting (e.g., Endangered Species Acts, Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act) and the consequences of non-compliance.
- Describe workers' responsibilities for avoiding the introduction of invasive weeds onto the Project site and surrounding areas.
- Provide contact information for the Designated Biologist and instructions for notification of any vehicle-wildlife collisions or dead or injured wildlife species encountered during Project-related activities.
- Include a training acknowledgment form to be signed by each worker indicating that they received training and shall abide by the guidelines. A record of all personnel trained shall be maintained throughout the construction period. Along with their signature, each worker shall receive a sticker for their hard hat indicating they received the training.

MM BIO-3 **Minimization of Impacts to Native Vegetation.** The Applicant shall undertake the following measures during construction and decommissioning to avoid or minimize impacts to natural, or native, vegetation:

- Prior to ground-disturbing activities, work areas (including, but not limited to, staging areas, access roads, and sites for temporary placement of construction materials and spoils) shall be delineated with construction fencing (e.g., the common orange vinyl material) or staking to clearly identify the limits of work. No paint or permanent discoloring agents shall be applied to

rocks or vegetation (to indicate surveyor construction activity limits or for any other purpose). Fencing/staking shall remain in place for the duration of construction.

- All disturbances, access roads, staging areas, vehicles, and equipment shall be confined to the fenced/flagged authorized work areas.
- To the greatest extent practicable, construction activities shall minimize disturbance to soil and native vegetation.
- Use best management practices where applicable for prevention and control of soil erosion and to minimize the introduction and spread of invasive plant species.
- Hazardous materials including motor oil, fuel, antifreeze, hydraulic fluid, and grease shall be contained, and spills or leaks shall be promptly corrected and cleaned up according to applicable regulations.
- Vehicles and equipment shall be properly maintained to prevent spills or leaks and refueling shall not be conducted outside the authorized work areas or within 100 feet of any sensitive resource (e.g., wetland).
- Upon completion of construction activities, all unused materials, equipment, staking and flagging, and refuse shall be removed and properly disposed of, including but not limited to wrapping material, cables, cords, wire, boxes, rope, broken equipment parts, twine, strapping, buckets, and metal or plastic containers.

MM BIO-4 **Minimization of Impacts to Wildlife.** The Applicant shall undertake the following measures during construction and decommissioning to avoid or minimize impacts to wildlife:

- *Wildlife avoidance*. Wherever feasible, Project activities shall avoid interference with wildlife (including ground-dwelling species, birds, and bats) by allowing animals to escape from a work site prior to disturbance.
- *Sensitive biological resources*. Sensitive biological resource areas near all work activities shall be clearly communicated and/or marked (e.g., flagged) in the field. Avoidance buffers shall be established and maintained by the Designated Biologist.
- *Minimize traffic impacts*. The Applicant shall specify and enforce maximum vehicle speed limits to minimize risk of wildlife collisions and fugitive dust. Vehicles shall not exceed a speed limit of 15 mph on unpaved roads in open habitat where wildlife may be affected. Dust suppression shall occur during all construction activities as needed.
- *Minimize lighting impacts*. Night lighting, when in use, shall be designed, installed, and maintained to prevent side casting of light toward surrounding wildlife habitat. New light sources shall be minimized, and lighting shall be designed (e.g., using downcast lights) to limit the lighted area to the minimum necessary.
- *Avoid use of toxic substances*. Use of chemicals, fuels, lubricants, or biocides shall comply with all local, state, and federal regulations to minimize the possibility of contamination of habitat or primary or secondary poisoning of predators utilizing adjacent habitats. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal

legislation. Soil bonding and weighting agents used for dust suppression on unpaved surfaces shall be nontoxic to wildlife and plants.

- *Minimize noise and vibration impacts*. The Applicant shall conform to noise requirements specified in the noise analysis of the Environmental Impact Report to minimize noise to off-site habitat.

- *Water*. Potable and non-potable water sources such as tanks, ponds, and pipes shall be covered or otherwise secured to prevent animals (including birds) from entering. Prevention methods may include storing water within closed tanks. Water sources (e.g., hydrants, tanks, etc.) shall be checked periodically by Biological Monitors to ensure they do not create longstanding ponded areas.

- *Food and Trash*. No deliberate feeding of wildlife shall be allowed. Further, to avoid indeliberate feeding of wildlife, all food-related trash items, including wrappers, cans, bottles, and food scraps shall always be contained and properly disposed of in self-closing, sealable containers, with lids that latch to prevent wind and wildlife (e.g., ravens and coyotes) from opening the containers. All trash receptacles shall be regularly inspected, emptied, and removed from the Project area at a minimum once a week to prevent spillage and maintain sanitary conditions.

- *Firearms and Dogs*. All personnel and any other individuals associated with the Project shall be prohibited from bringing any firearms on the Project site, except those in the possession of authorized security personnel or local, state, or federal law enforcement officials. No pets shall be permitted on the Project site except dogs that may be used to aid in official and approved monitoring procedures/protocols or service dogs under Title II and Title III of the American with Disabilities Act.

- *Wildlife entrapment*. All pipes, culverts, or similar structures with a diameter greater than 3 inches and less than 8 inches aboveground shall be inspected by the Designated Biologist or Biological Monitor(s) before the material is moved, buried, or capped. The Designated Biologist or Biological Monitor(s) shall inspect all open holes and trenches a minimum of once a day and just prior to backfilling. If open holes or trenches remain overnight, an escape ramp shall be created every 100 feet to allow wildlife to exit. The ramp may be constructed of either dirt fill or wood planking or other suitable material that is placed at an angle no greater than 30 degrees. If any worker discovers an animal has become trapped, they shall halt activities and notify the Designated Biologist or Biological Monitor immediately.

- *Dead or injured wildlife.* Dead or injured special status wildlife species shall be reported to the lead agencies and permitting agencies, as applicable, within 48 hours of detection. The Designated Biologist or Biological Monitor shall complete a Wildlife Incident Form and safely move the carcasses out of the road or work area and dispose of the animal. If an animal is entrapped, the Designated Biologist or Biological Monitor shall free the animal if possible, or work with construction crews to free it, in compliance with safety requirements, or work with applicable agencies to resolve the situation. Injured wildlife will be transported to an approved wildlife rehabilitation center.

- *Pest control*. No anticoagulant rodenticides, such as Warfarin and related compounds (indandiones and hydroxycoumarins), may be used within the Project site or in support of any other Project activities. If rodent control must be conducted, the use should be restricted to interiors of buildings and zinc phosphide should be used because of the lower risk of poisoning burrowing mammals.

- *California Natural Diversity Database*. All observations of special status species, alive or dead, shall be recorded and reported to the California Natural Diversity Database.

MM BIO-5 **Integrated Weed Management Plan.** The Applicant shall prepare and implement an Integrated Weed Management Plan (IWMP) to minimize or prevent noxious, nonnative and invasive weeds from infesting the site or spreading into surrounding habitat. For Project components on BLM administered lands (i.e. Linear Facility Routes), the IWMP must comply with BLM guidelines. The IWMP shall identify weed species occurring or potentially occurring in the Project area, means to prevent their introduction or spread (e.g., vehicle cleaning and inspections), monitoring methods to identify infestations, and timely implementation of manual or chemical (as appropriate) suppression and containment measures to control or eradicate invasive weeds. All construction vehicles (e.g., trucks, trailers, machinery) will be washed (either by water or pressurized air) off-site before entering the Project area to limit the spread of weeds. All wattles or bales will be certified weed-free and will be removed at the completion of activities. The IWMP shall identify herbicides that may be used for control or eradication and avoid herbicide use in or around any environmentally sensitive areas. The IWMP shall also include a reporting schedule to be implemented by the Designated Biologist.

MM BIO-6 **Vegetation Resources Management.** The Applicant shall undertake the following measures during construction to minimize impacts to vegetation resources:

- The Applicant shall assign a Vegetation Specialist to oversee and implement salvage and transplantation of plant species protected pursuant to BLM policy (conformance with DRECP Conservation and Management Action LUPA-BIO-7) and the California Desert Native Plants Act, as applicable, and implement revegetation of temporarily disturbed areas. On the private lands under the jurisdiction of the County of Riverside, the Applicant shall obtain a permit from the County of Riverside pursuant to the California Desert Native Plants Act for the purposes of salvage or removal of protected species during construction if required.

- Revegetation of temporarily disturbed areas shall occur within BLM administered lands (i.e., Linear Facility Routes) and will not be implemented on private lands within the Project area (i.e., Solar Site). The nature of revegetation will differ according to each site, its pre-disturbance condition, and the nature of the construction disturbance (e.g., drive and crush versus blading). Revegetation techniques may include soil contouring, replanting of succulents, placing of vertical mulch as crushed, horizontal, or vertical mulch to reduce sun and wind exposure to the soil surface and facilitate plant germination. Areas may also be watered based on the guidance of the Vegetation Specialist.

MM BIO-7 **Special-Status Plant Species Mitigation.** To reduce potentially significant impacts to special status plant species, the Applicant shall implement one or a combination of the following strategies:

- *Pre- and post-construction surveys.* Potential habitat for special status plant species shall be surveyed during the appropriate season prior to site preparation disturbance; any special status plant species populations or occurrences or suitable habitat would be mapped. Areas that supported special status plant populations or occurrences will be resurveyed during the appropriate season (e.g., spring or summer) for up to two years following the completion of construction to determine natural reestablishment.

- *Off-site compensation.* The Applicant shall provide compensation lands consisting of suitable habitat at a 1:1 ratio for occupied habitat affected by the Project. Occupied habitat acreage

shall be calculated on the Project site based on including each special-status plant occurrence and a surrounding 100-foot buffer area. Off-site compensation lands would be considered suitable if in proximity to historical occurrence and suitable habitat is present. Offsite compensation lands shall be located within 5 miles of a historical occurrence and include creosote bush scrub.

- *Seed collection and propagation*. Mitigation shall include seed collection from the affected plant population on the site prior to construction to conserve the germplasm and provide a seed source for restoration efforts. Seed shall be collected under the supervision or guidance of a reputable seed storage facility such as the California Botanical Garden. The costs associated with the long-term storage, seed bulking, and propagation of the seed shall be the responsibility of the Applicant for up to five (5) years. Seed and/or germinated plants can be used for restoration within the Project site, off-site mitigation lands, or other conservation lands as approved by the County of Riverside and applicable permitting agencies.

MM BIO-8 **Minimization of Impacts to Birds and Bats.** The Applicant shall undertake the following measures avoid or minimize impacts to birds and bats.

- *Bird and Bat Conservation Strategy.* The Applicant shall prepare a Bird and Bat Conservation Strategy (BBCS) for review and approval by the applicable lead and permitting agencies. The BBCS shall include baseline data on the distribution of bird and bat species within the Project area, risk assessment, measures to avoid and minimize adverse impacts, description of relevant monitoring and reporting, and framework for adaptive management. The BBCS shall include design requirements consistent with the Avian Power Line Interaction Committee (APLIC) guidelines.

- *Nesting Bird Protection.* If vegetation removal or ground disturbance occurs during the nesting season (February 1 to August 31), pre-construction surveys for active nests shall be conducted by qualified biologists at the direction of the Designated Biologist. Nest surveys shall be completed no more than 7 days prior to initiation of vegetation removal or ground disturbance and shall be repeated every two weeks in areas of ongoing construction activity. If an active nest is found, an exclusion buffer shall be established and marked in the field by the Designated Biologist. The Project shall maintain a buffer adequate to avoid otherwise prohibited take, possession, or destruction of any bird, nest, or egg. Nesting bird management shall be described further in a Nesting Bird Management Plan or incorporated in the BBCS and submitted to the applicable lead and permitting agencies for review and approval.

- *Burrowing Owl Protection*. The Applicant shall prepare and implement a plan to avoid, minimize, and mitigate potential impacts to burrowing owl. The plan shall include pre-construction surveys, protection, and passive relocation consistent with guidelines in the Staff Report on Burrowing Owl Mitigation (CDFG 2012). Burrowing owl protection shall be described further in a Burrowing Owl Avoidance and Relocation Plan or incorporated in the BBCS and submitted to the applicable lead and permitting agencies for review and approval.

MM BIO-9 **Desert Kit Fox and American Badger Protection.** The Applicant shall implement the following measures to protect desert kit fox and American badger:

- Biological monitors shall perform pre-construction surveys for kit fox/badger dens in the Project disturbance area and a 100 ft (30 m) buffer beyond the Project disturbance area, with landowner permission to access, within 30 days of initiation of construction activities.

- All potential desert kit fox/badger dens identified during preconstruction surveys shall be monitored for a minimum of three consecutive nights (between August 1 and January 14) or five consecutive nights (between January 15 and July 31) to determine occupancy status. Occupancy monitoring shall be performed using a tracking medium (such as diatomaceous earth or fire clay) and/or infrared camera stations at the entrance(s). Each den shall be classified as inactive or active following the evaluation period.

- If no tracks are observed in the tracking medium or no photos of the target species are captured after the monitoring period, the den shall be classified as inactive. Inactive dens in the direct path of disturbance may be excavated by hand and backfilled to reduce the likelihood of reuse by badgers or kit fox. Dens not directly impacted by construction shall not be excavated.

- If an active den is found outside the natal season (between August 1 and January 14), the den may be subject to passive relocation by progressively blocking the den with natural materials (e.g., rocks, dirt, sticks, or vegetation) or artificial, non-injurious materials placed in front of the entrance for a minimum of five consecutive nights to discourage continued use. Additional deterrents such as natural mixtures of aromatic organics (e.g., onions, garlic, and essential oils), transistor radios, and ultrasonic emitters may be used. The use of one-way doors may be used. Installation of one-way doors shall take place in the afternoon while desert kit fox/badgers are inactive and deep within the den complex. After verification that passive relocation has been successful and the den has been unoccupied for a total of five consecutive nights, the den may be fully excavated.

- If an active den is found during the natal season (January 15 and July 31), a 500-foot (150 m) no-disturbance buffer shall be established. All active dens found during the natal season shall be presumed natal and shall not be subject to passive relocation activities unless approval is obtained from the California Department of Fish and Wildlife.

- Buffers may be reduced, expanded, or temporarily modified to allow certain low-impact activities (e.g., vehicle access) to occur as determined feasible by the Designated Biologist without adversely affecting the den. All modifications to the size of exclusion buffers or allowance of certain Project activities within the exclusion buffer shall be documented by the Designated Biologist.

- Current guidelines from the California Department of Fish and Wildlife regarding minimizing transmission of canine distemper virus shall be followed.

MM BIO-10 **Stream Protection and Compensation.** Prior to ground-disturbing activities in waters potentially regulated by the state, the Applicant shall confer with the California Department of Fish and Wildlife (CDFW) and the Regional Water Quality Control Board (RWQCB) and, if required, obtain appropriate authorization. The Applicant shall implement all conditions associated with regulatory agency agreements and authorizations including compensatory mitigation and, unless otherwise specified by CDFW and/or the RWQCB, shall implement the best management practices identified below to minimize adverse impacts to streams and watersheds:

- Construction crews shall minimize disturbance to wetlands, streambeds, and banks of any state-jurisdictional waters to the extent feasible.
- Vehicles and equipment shall not be operated in standing or flowing water.
- The Applicant shall prevent water containing mud, silt, or other pollutants from grading or other activities from entering ephemeral drainages or being placed in locations that may be subjected to high storm flows.
- Raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources resulting from Project-related activities shall be prevented from entering ephemeral drainages.
- No petroleum products or other pollutants from the equipment shall be allowed to enter any state-jurisdictional waters.
- No broken concrete, debris, soil, silt, sand, bark, slash, sawdust, rubbish, or other organic or earthen material from any construction or associated activity shall be allowed to enter into or be placed where it may be washed by rainfall or runoff into off-site state-jurisdictional waters.
- Stationary equipment such as motors, pumps, generators, and welders shall be positioned over drip pans. Stationary heavy equipment shall have suitable containment to handle a catastrophic spill/leak. Cleanup equipment such as brooms, absorbent pads, and skimmers shall always be on site. The cleanup of all spills shall begin immediately.
- All excess materials or debris shall be removed from the work area after completion of construction.
- Project impacts to desert dry wash woodland and unvegetated ephemeral dry wash shall be mitigated by providing compensatory mitigation consistent with MM BIO-13.

MM BIO-11 **Desert Tortoise Protection.** No desert tortoise may be handled or relocated without authorization from the California Department of Fish and Wildlife (CDFW) and United States Fish and Wildlife Service (USFWS). The Applicant shall employ qualified desert tortoise biologist(s) for purposes of implementing desert tortoise protection measures identified below. The Designated Biologist noted in MM BIO-1 may also serve as qualified desert tortoise biologist if they meet the following qualifications. The desert tortoise biologist(s) qualifications shall be subject to review and approval by the applicable lead and permitting agencies. Qualifications shall include prior approval by CDFW and USFWS as an Authorized Desert Tortoise Biologist and/or at least two years of experience on trend plots or transect surveys, conducting surveys for desert tortoise, or other research or field work on desert tortoise. Attendance at a training course endorsed by CDFW and USFWS (e.g., Desert Tortoise Council tortoise training workshop) is required.

The qualified desert tortoise biologist(s) shall be responsible for overseeing compliance with desert tortoise protective measures, conducting preconstruction surveys for all work areas, monitoring for evidence of tortoises in construction areas, checking under vehicles and equipment, inspecting excavations and other potential entrapments, and ensuring worker compliance with all desert tortoise protection measures. Any incident that is considered by the qualified desert tortoise biologist(s) to be in noncompliance with desert tortoise protective measures shall be documented.

The qualified desert tortoise biologist(s) shall have the authority to halt any Project activity that is in violation of desert tortoise protective measures or that may result in take of a desert tortoise. The following incidents shall require immediate cessation of any Project activities: (1) location of a desert tortoise within 100 feet (30 m) of an active work area; (2) imminent threat of injury or death to a desert tortoise; (3) unauthorized handling of a desert tortoise, regardless of intent; and (4) operation of construction equipment or vehicles outside authorized work areas. Work activities may resume once the DB or qualified desert tortoise biologist(s) determines there is no threat to the desert tortoise and/or the tortoise has walked more than 100 feet (30 m) away from the work area. The Applicant shall be responsible for implementing the following requirements, under direction by the qualified desert tortoise biologist(s) where appropriate.

- Worker Training. The Worker Environmental Awareness Program described in MM BIO-2 shall incorporate desert tortoise specific training.

- Exclusion Fencing. Prior to construction of the Solar Site, it shall be fully enclosed by temporary, or permanent desert tortoise exclusion fencing. All exclusion fencing shall adhere to USFWS design guidelines. To the extent feasible and permissible by County flood control design guidelines, permanent exclusion fence shall be integrated with the site security fence for maximum durability. The Applicant may choose to install temporary desert tortoise exclusion fencing along the Linear Facility Routes, within the approved right-of-way, to be removed after completion of construction. The qualified desert tortoise biologist(s) shall monitor the installation of all fence. Once installed, exclusion fencing shall be inspected at least monthly until construction completion and following all rain events, and corrective action taken if fence maintenance is needed. Exclusion fencing shall incorporate the installation of tortoise guards, or cattle guards, and/or gates at each road entry point. Gates shall always remain closed, except when vehicles are entering or leaving the Project area. If it is deemed necessary to leave the gate open for extended periods of time (e.g., during high traffic periods), the gate may be left open if a qualified desert tortoise biologist is present to monitor potential tortoise activity.

- Preconstruction Survey. Preconstruction surveys shall be performed prior to ground disturbance to ensure no desert tortoises are present within the direct disturbance area. Preconstruction surveys shall be conducted in unfenced Project areas no more than 7 days prior to ground disturbance. Clearance surveys shall also be conducted after the Solar Site has been fully enclosed by temporary, or permanent desert tortoise exclusion fencing.

- Avoidance. Any potentially occupied burrows shall be avoided until monitoring or field observations (e.g., with a motion-activated camera or fiber-optic mounted video camera) determines absence. If a live tortoise or an occupied tortoise burrow is identified in the work area, all Projects activities that may result in take shall cease. The tortoise shall be allowed to leave on its own accord without handling or harassment.

- Unfenced Work Areas. If a tortoise is observed on or near the road accessing a work area, vehicles shall stop to allow the tortoise to move off the road on its own. The ground beneath vehicles parked outside of cleared areas within desert tortoise exclusion fencing shall be inspected immediately prior to the vehicle being moved. If a tortoise is found beneath a vehicle, the vehicle shall not be moved until the desert tortoise leaves of its own accord. Any work conducted in an area that is not fully enclosed by exclusion fencing must be monitored by a qualified desert tortoise biologist who shall stop work if a tortoise enters the work area. Work activities shall only proceed when the tortoise has moved away of its own accord and there is no threat of injury or death. Work sites with potential hazards to desert tortoise (e.g., auger holes, steep-sided depressions) shall be enclosed by temporary exclusion fence and not left open overnight.

- Dead or Injured Tortoises. If a dead or injured desert tortoise is found within the Project area, the Applicant or Designated Biologist shall notify by phone and email USFWS, CDFW, and lead agencies within 24 hours of detection. The information provided must include the date and time of the finding or incident (if known), location of the carcass or injured animal, a photograph, possible cause of death or injury, if known, and other pertinent information.

MM BIO-12 **Raven Management.** The Applicant shall provide funding to the Renewable Energy Action Team (REAT) Account held by the National Fish and Wildlife Foundation (NFWF) to support the USFWS Regional Raven Management Program. The one-time fee shall be $105 per acre of direct impacts, which is expected to total $117,915 for direct impacts to 1,123 acres. The actual fee would be determined based upon final calculation of impacted acreage. The Applicant shall also implement the following requirements, under direction by the Designated Biologist where appropriate:

- The Worker Environmental Awareness Program described in MM BIO-2 shall incorporate discussion of ravens and responsibilities to control subsidies.

- Reduce raven food sources by managing waste. Trash and food items shall always be contained in closed containers.

- Reduce raven food sources by managing surface disturbance and dead wildlife. The Designated Biologist or Biological Monitor(s) shall to the extent authorized relocate wildlife from harm's way during ground-disturbing activities to minimize incidental kill to the extent feasible. Vehicle traffic speeds shall adhere to posted limits and not exceed 15 mph on all unpaved roads. If dead wildlife remains and roadkill are found, they shall be collected and disposed of (e.g., buried, when possible).

- Reduce water availability. Do not use excess water for fugitive dust control and correct standing water issues promptly. Water tanks shall be maintained in proper operating condition. Designated Biologist and Biological Monitors will monitor raven activity during construction. All raven sightings/encounters shall be documented in daily logs.

- The Designated Biologist shall notify the BLM, CDFW, and USFWS of any active raven nests encountered within the Project area. Nests within 100 feet of active work areas will be monitored weekly to identify any evidence of predation on desert tortoises and results will be reported to the BLM, CDFW, and USFWS accordingly.

MM BIO-13 **Compensation for Impacts to Native Vegetation**. The table below provides an estimate of compensation acreages; however, final compensation shall be based upon final calculation of impacted acreage.

Impacts to Native Vegetation and Habitat Compensation

Natural Vegetation Community[1]	Estimated Total Disturbance (ac)	Compensation Ratio	Compensation Acres (ac)
LFRs (BLM Land)			
Sonoran creosote bush scrub[3]	32.5	1:1	32.5
Ephemeral dry wash	2.6	1:1	2.6
Desert dry wash woodland	1.1	5:1	5.5
Solar Site (Private Land)			
Disturbed Sonoran creosote bush scrub	0.4	0.5:1	0.2
Disturbed ephemeral dry wash	31.6	0.5:1	15.8
Disturbed desert dry wash woodland	6.7	1.5:1	10.1

[1] Nonnative vegetation types have been excluded (i.e., non-native riparian, fallow agriculture, and developed/disturbed)
[2] Actual disturbance acreage within LFRs will be less; entire ROW will not be disturbed.
[3] No impacts to desert tortoise critical habitat or desert pavement.

- Summary of Compensatory Mitigation:
  - Total compensation acreage: 66.7 ac
  - Sonoran creosote bush scrub: 32.7 ac
  - Ephemeral dry wash: 18.4 ac
  - Desert dry wash woodland: 15.6 ac
- Linear Facility Routes (BLM-Administered Lands). Habitat compensation ratios on BLM-administered lands shall be subject to the DRECP and consistent with Table 18 of the DRECP LUPA, including the 5:1 ratio for desert dry wash woodland. Compensation acreage shall be adjusted based upon final calculation of impacted acreage.
- Solar Site (Private Lands). Habitat compensation ratios for disturbance on private lands are not subject to the DRECP. No compensation would be required for impacts to anthropogenic land use or fallow agriculture. Compensation acreage shall be adjusted based upon final calculation of impacted acreage. Compensation shall be provided for impacts to the following resources, at the specified ratios (acres acquired and preserved to acres impacted):
  - Disturbed Desert Dry Wash Woodland: 1.5:1.
  - Disturbed Ephemeral Wash: 0.5:1.

- The Applicant shall provide funding or bonding for the acquisition and conservation of compensation lands. Conservation instruments, associated documentation, and/or securities shall be submitted to the applicable agencies for review and approval, prior to initiating ground disturbance, pursuant to the requirements of permits and authorizations issued by lead, responsible, and permitting agencies.

4.2 DRECP Conservation Management Actions

In addition to the Mitigation Measures listed above, the Project will comply with applicable Conservation Management Actions (CMA) on BLM-administered lands. CMAs would not be implemented within the Solar Site (private lands). The following CMAs, directly cited from the DRECP Programmatic Biological Opinion (USFWS, 2016), would be implemented within the LFRs to reduce direct and indirect effects to federally listed species addressed in this BA (Table 4-1).

Table 41. Applicable Conservation Management Actions.

LUPA-BIO	Plan-wide CMAs to be Implemented for All Activities
LUPA-BIO-1	Determine whether suitable habitat and target species are present through habitat assessments and protocol or adequate surveys.
LUPA-BIO-2	Employ designated biologists to conduct activity-specific biological monitoring during pre-construction, construction, and decommissioning to ensure that avoidance and minimization measures are appropriately implemented and are effective (We have retained our use of the phrase “authorized biologist” for this biological opinion but view authorized and designated biologists as having the same qualifications).
LUPA-BIO-3	Implement setbacks to avoid and minimize the adverse effects to specific biological resources.
LUPA-BIO-4	Implement all required species-specific seasonal restrictions on pre-construction, construction, operations, and decommissioning activities or install visual barriers.
LUPA-BIO-5	Implement a worker education program during all phases of the project.
LUPA-BIO-6	Implement measures to reduce subsidies that activities may provide to predators; provide compensatory mitigation to plan-wide management of common ravens.
LUPA-BIO-7	Restore areas disturbed by project activities to the pre-disturbance plant community.
LUPA-BIO-8	Implement project-specific closure and decommissioning actions.
LUPA-BIO-9	Implement standard practices for construction sites to prevent toxic or hazardous materials from entering washes and other waters; avoid the use of evaporation ponds for water management when the water could harm birds or other terrestrial wildlife due to selenium, hypersalinity, etc.
LUPA-BIO-10	Implement actions to manage weeds during all phases of activities.
LUPA-BIO-11	Manage nuisance animals and invasive species such that treatment methods will not affect native species.
LUPA-BIO-13	Site and design projects to avoid impacts to vegetation types, unique plant assemblages, climate refugia, occupied and suitable habitat for sensitive species and to maintain the function of connectivity of sensitive species in identified areas.
LUPA-BIO-14	Minimize the loss of wildlife through best management practices while implementing activities and the loss of vegetation through site- and project- specific measures.
LUPA-BIO-15	Use state-of-the-art construction and installation techniques that minimize new site disturbance, soil erosion and deposition, soil compaction, disturbance to topography, and removal of vegetation.

LUPA-BIO-16	Implement appropriate measures, including siting and project design, to avoid and minimize mortality of birds and bats from specific activities.
LUPA-BIO-17	Implement a bird and bat conservation strategy to monitor impacts of an activity and direct adaptive management programs to reduce mortality during operations.
LUPA-BIO-RIPWET	**Listed Species or Critical Habitat - Plan-wide**
LUPA-BIO-RIPWET-1	Avoid riparian and wetland vegetation to the maximum extent practicable with the specified setbacks.
LUPA-BIO-RIPWET-3	Conduct a pre-activity survey for sensitive nesting bird species according to agency-approved protocols when within 0.25 mile of riparian or wetland vegetation and implement appropriate setbacks, based on the results of the survey.
LUPA-BIO-COMP	**Compensation to Terrestrial Resources**
LUPA-BIO-COMP-1	Compensate for impacts to biological resources from activities in the action area using the standard compensation ratio of 1:1, except for the situations in this table and specific conservation and management actions. Proponents may fulfill compensation requirements through non-acquisition (i.e., restoration and enhancement), land acquisition, or a combination of these options, depending on the activity specifics and the Bureau approval or authorization. Compensation for the impacts to desert tortoise critical habitat will be in the same critical habitat unit as the impact. Compensation for impacts to desert tortoises will be in the same recovery unit as the impact.
LUPA- BIO-COMP-2	Compensate for mortality impacts to birds that are focus and Bureau special status species based on initial estimates of anticipated mortality (if any) and on monitoring of bird mortality; see discussion that follows.
LUPA-BIO-IFS	**Individual Focus Species – Plan-wide**
LUPA-BIO-IFS-1	Ensure long-term viability within each linkage given the linkage's specific characteristics.
LUPA-BIO-IFS-2	Avoid construction of new roads or routes within conservation areas or identified linkages.
LUPA-BIO-IFS-3	Design all culverts to allow unrestricted access and to be large enough that desert tortoises are unlikely to use them as shelter sites.
LUPA-BIO-IFS-4	Install and maintain exclusion fencing around the perimeter of the activity's footprint
LUPA-BIO-IFS-5	Monitor initial clearing and grading activities to ensure that desert tortoises missed during the initial clearance survey are moved from harm's way.
LUPA-BIO-IFS-6	Monitor geotechnical boring and associated vehicle movement to ensure desert tortoises are not killed or burrows crushed.
LUPA-BIO-IFS-7	Inspect the ground under vehicles to ensure desert tortoises are not crushed.
LUPA-BIO-IFS-8	Limit vehicle speeds to 15 miles per hour in areas where desert tortoises may be present.
LUPA-BIO-TRANS	**Transmission Activities**
LUPA-BIO-TRANS-1	Bury electrical collector lines along roads or other previously disturbed paths to minimize new surface disturbance, restrict perching opportunities for common ravens, and reduce collision risks, where feasible.
LUPA-BIO-TRANS-2	Install flight diverters on all transmission activities spanning or within 1,000 feet of stream and wash channels, canals, ponds, and any other natural or artificial body of water in coordination with the USFWS, as appropriate, and based on the best available scientific and commercial data.
DFA-VPL-BIO-IFS	**Individual Focus Species – DFA and VPL**
DFA-VPL-BIO-IFS-1	Conduct protocol surveys in the desert tortoise habitat areas indicated in Figure H-6 of Appendix H.

DFA-VPL-BIO-IFS-3	Translocate desert tortoises from impact areas on activity sites when 35 or fewer adult desert tortoises are present according to the USFWS's protocols; if more than 35 adult desert tortoises or the density of desert tortoises exceeds 5 adults per square mile, redesign, re-site, or relocate the activity.

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