# Appendix M

## BIRD AND BAT CONSERVATION STRATEGY

# BIRD AND BAT CONSERVATION STRATEGY

## Easley Renewable Energy Project

***Prepared for***

Intersect Power

**IP Easley, LLC**

**a subsidiary of Intersect Power, LLC**

***Submitted by***

Aspen environmental group

**August 2023**

| **Agency Review Status** |
| --- |
| Bureau of Land Management |
| U.S. Fish and Wildlife Service |
| California Department of Fish and Wildlife |

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# LIST OF ACRONYMS

| | |
|---|---|
| amsl | Above mean sea level |
| ACEC | Areas of Critical Environmental Concern |
| BGEPA | Bald and Golden Eagle Protection Act |
| BCC | Birds of Conservation Concern |
| BBCS | Bird and Bat Conservation Strategy |
| BLM | Bureau of Land Management |
| CBOC | California Burrowing Owl Consortium |
| CDCA | California Desert Conservation Area |
| CEQA | California Environmental Quality Act |
| DWMA | Desert Wildlife Management Area |
| DEIR | Draft Environmental Impact Report |
| ESA | Federal Endangered Species Act |
| Gen-tie | Generation tie line |
| MW | Megawatt |
| MBTA | Migratory Bird Treaty Act |
| NBMP | Nesting Bird Management Plan |
| NVCS | National Vegetation Classification Standard |
| NEPA | National Environmental Policy Act |
| O&M | Operation and maintenance |
| PV | Photovoltaic |
| ROD | Record of Decision |
| ROW | Right-of-way |
| SCADA | Supervisory Control and Data Acquisition System |
| TAG | Technical Advisory Group |
| USFWS | U.S. Fish and Wildlife Service |
| WHMA | Wildlife Management Habitat Area |

# 1. INTRODUCTION

IP Easley, LLC (Applicant or Proponent), a subsidiary of Intersect Power, LLC, proposes to construct, operate and decommission the Easley Renewable Energy Project (Easley or Project), a utility-scale solar photovoltaic (PV) electrical generating and storage facility, and associated infrastructure to generate and deliver renewable electricity to the statewide electricity transmission grid. The approximate 3,700-acre Project site is located in Riverside County near the Desert Center area (see POD Appendix A, Figure 1). The Project would generate and store up to 650 megawatts (MW) of renewable electricity via arrays of solar photovoltaic (PV) panels, battery energy storage system (BESS), and appurtenant facilities. A 6.7-mile 500 kilovolt (kV) generation-tie (gen-tie) line would mainly traverse the adjacent Oberon Renewable Energy Project that is owned by Intersect Power and connect into an approved substation that is under construction (see POD Appendix A, Figure 2). From the Oberon Substation, the power generated by the Easley Project would be transmitted to the SCE Red Bluff Substation via the Oberon 500 kV gen-tie line which is expected to be fully energized by the end of 2023.

The Project includes both public and private lands (see POD Appendix A, Figure 2). Public lands within the Project solar application area are managed by the U.S. Bureau of Land Management (BLM) and are designated as Development Focus Area (DFA) by the Desert Renewable Energy Conservation Plan (DRECP) and associated Record of Decision (ROD). They have thus been targeted for renewable energy development. Because the proposed Project is partially located on federal land under management of the BLM, the BLM is the lead agency under the National Environmental Policy Act (NEPA), 42 U.S.C. section 4321 et seq. Private lands within the Project solar application area are under the jurisdiction of Riverside County who will serve as the lead agency under the California Environmental Quality Act (CEQA).

Clean, renewable energy generation will have an overall benefit to plant and wildlife species on a local, regional, and global scale by replacing fossil fuel energy sources, reducing toxic emissions, and mitigating the effects of climate change on ecosystems. The solar and energy storage facility, gen-tie line, and associated components are collectively referred to as the Easley Renewable Energy Project (Project) throughout this report.

IP Easley, LLC, is voluntarily proposing this Bird and Bat Conservation Strategy (BBCS) to set forth the measures it will implement to avoid, minimize, or mitigate for potential adverse effects of the Project to birds and bats. Accordingly, IP Easley, LLC, will collect and evaluate data during the construction, operations and maintenance (O&M), and decommissioning phases of the Project and will implement adaptive management measures as necessary and appropriate to minimize or mitigate impacts to birds and bats. IP Easley, LLC, does not anticipate that construction, operations, or decommissioning of the Project will cause unauthorized take or prohibited disturbance of bird or bat species; however, some level of injury and/or mortality to species covered under the Migratory Bird Treaty Act (MBTA) may occur.

This BBCS was prepared according to guidelines recommended by the U.S. Fish and Wildlife Service (USFWS, 2010a and 2010b). The BBCS describes the proposed Easley Project components; summarizes baseline data regarding birds and bats in the Project vicinity; assesses potential risks to those species that could result from Project construction, operation, and decommissioning; and describes conservation measures to be implemented to minimize those risks.

A Post-Construction Bird and Bat Monitoring Plan was developed by Western EcoSystems Technology, Inc. for the neighboring Oberon, Arica, and Victory Pass Projects. Under this plan, monitoring will document known and projected bird and bat fatalities and injuries and estimate seasonal and annual post-construction fatality rates associated with Project features. The results of monitoring for these projects, with are expected to be online by the end of 2023, would inform the need for such additional post-construction bird and bat monitoring at the Easley Project site. For the purposes of this plan, the Project site refers to the area surveyed between 2019 and 2022 (Ironwood, 2022); the Project development area

refers to the area inside the Project site that will be developed (including access roads and the gen-tie route). The Project area refers to all land immediately surrounding the Project site, and the Project vicinity refers to the Desert Center region, including multiple land uses on public and private lands.

## 1.1. Project Description and Location

The approximately 3,700-acre Project site is located in unincorporated Riverside County, within the Chuckwalla Valley near the community of Desert Center, nearly halfway between the cities of Indio, CA and Blythe, AZ. More specifically, it is located immediately northwest of California Highway 177 (CA 177) and east of Kaiser Road (see POD Appendix A, Figure 1). A small portion of the site is east of CA 177/Rice Road. The Project is located across four U.S. Geological Survey (USGS) 7.5-minute topographic (topo) quadrangles including Desert Center, Victory Pass, East of Victory Pass, and Corn Spring.

The up to 650 MW Easley Project may be operational as early as late 2025, depending on interconnection agreements. The Project would operate for a minimum of 35 years, up to 50 years. At the end of its useful life, the Project would be decommissioned, and the land returned to its pre-Project contours. Revegetation would be conducted in accordance with the Decommissioning and Revegetation Plan.

Public sections of the Project site are located on lands designated as DFAs under the DRECP. The Project site is located near other DFAs lands for which renewable energy solar facilities are either under operation, under construction, or proposed (see POD Appendix A, Figure 4). The Project site is situated between the Desert Harvest Solar Facility (operational), Oberon Renewable Energy Project (under construction; full energization by end of 2023), and Sapphire Solar Project (proposed).

The Project site overlaps the Pinto Wash Linkage area as defined in the DRECP Land Use Plan Amendment (LUPA). The Project site is outside of but adjacent to desert tortoise critical habitat, which is located approximately 0.8 mile west of Kaiser Road, extending to the west into Joshua Tree National Park and to the south, south of the I-10 freeway into the Chuckwalla Mountains (see BRTR, Figure 1 in POD Appendix G). The gen-tie line would cross desert tortoise critical habitat south of BLM Open Route DC 379 to interconnect to the Oberon Substation.

The Alligator Rock Area of Critical Environmental Concern (ACEC) is approximately 3 miles south of the Project site and the Desert Lily Preserve ACEC is approximately 4 miles east of the Project site. The closest Joshua Tree National Park boundary is located approximately 4 miles northeast of the Project site. Nearby land uses include previously developed or developing solar facilities, transmission lines, fallow and active agriculture, and rural residences.

## 1.2. Regulatory Setting

This BBCS was prepared to ensure Project compliance with state and federal statutes protecting native birds, as well as NEPA and California Environmental Quality Act (CEQA) requirements to disclose environmental effects of the Project and provide public opportunity for comment. These applicable statutes are summarized below:

### Federal Regulations

**Endangered Species Act of 1973.** The Endangered Species Act (ESA) (16 USC 1531 et seq.) and subsequent amendments protect endangered and threatened species and the ecosystems upon which they depend. Section 9 prohibits the take of any fish or wildlife species listed as endangered and most species listed as threatened, and defines *take* to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." *Harm* is defined to mean "any act that kills or injures the species, including significant habitat modification." *Harass* is further defined as actions that create the likelihood of injury to listed species to an extent as to significantly disrupt normal behavior patterns which include breeding, feeding, and sheltering.

The ESA also includes mechanisms for allowing exceptions to the Section 9 take prohibitions. Section 7 requires federal agencies, in consultation with the U.S. Fish and Wildlife Service to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered wildlife species or result in the destruction or adverse modification of critical habitat for these species. Under Section 7, USFWS may authorize limited, incidental take (i.e., incidental to an otherwise lawful activity) of listed species in a Biological Opinion.

The Project is not expected to affect federally listed threatened or endangered bird or bat species, though it is possible that such federally listed migratory species may be found in the Project vicinity during seasonal migrations.

**Migratory Bird Treaty Act.** The Migratory Bird Treaty Act (16 U.S.C. §§ 703, et seq.; MBTA) established a prohibition to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird," except where specifically authorized by the USFWS (e.g., hunting waterfowl and upland game species). Under the MBTA, *migratory bird* is broadly defined as "any species or family of birds that live, reproduce or migrate within or across international borders at some point during their annual life cycle" and thus applies to most native bird species. Except where specifically permitted, most actions that cause bird mortality or result in the permanent or temporary possession of migratory birds or any associated body parts, feathers, eggs, or nests, constitute violations of the MBTA.

The USFWS recommends that electric utilities and utility-scale renewable energy project developers prepare and implement Bird and Bat Conservation Strategies to minimize the incidental take of resident and migratory birds.

**Bald and Golden Eagle Protection Act**. The Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668d; BGEPA) prohibits take of bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). The BGEPA defines *take* to include "pursuing, shooting, shooting at, poisoning, wounding, killing, capturing, trapping, collecting, molesting, and disturbing." The USFWS (2007) further defines *disturb* as "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior." Therefore, the requirements for guarding against impacts to eagles generally are more stringent than those required by the MBTA alone.

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 (50 CFR § 22.80). To authorize take, the USFWS must determine that the proposed action is consistent with the goal of maintaining stable or increasing breeding populations. That is, any authorized take must be offset or mitigated by the proposed action. The Project is not anticipated to result in take of eagles.

**Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds.** Directs federal agencies to review the effects of actions and agency plans on migratory birds according to NEPA or other established environmental review processes, with emphasis on species of concern (Section 6 of the order) and identify unintentional take reasonably attributable to agency actions, focusing first on species of concern, priority habitats, and key risk factors and to develop and use principles, standards, and practices to lessen the amount of unintentional take (Section 9).

**Desert Renewable Energy Conservation Plan (DRECP), Land Use Plan Amendment to the California Desert Conservation Area Plan.** The purpose of the DRECP is to conserve and manage plant and wildlife

communities in the desert regions of California while facilitating the timely permitting of compatible renewable energy projects (BLM, 2015). The DRECP covers over 10 million acres of BLM land. The BLM Proposed Land Use Plan Amendment (LUPA) and Final Environmental Impact Statement for the DRECP was released in November 2015 and the BLM Record of Decision (ROD) for the DRECP was issued in September 2016 (BLM, 2016). The Easley Project site is within the Chuckwalla Valley ecoregion subsection of the DRECP area. The DRECP LUPA identifies this area as a Development Focus Area (DFA). The DRECP LUPA identifies a series of Conservation Management Actions (CMAs) to be implemented on BLM lands including CMA LUPA BIO-17, which requires renewable energy projects to develop and implement a project specific BBCS.

### State Regulations

**California Endangered Species Act.** The California Endangered Species Act (CESA) prohibits take of wildlife listed as threatened or endangered and defines "*take*" as any action or attempt to "hunt, pursue, catch, capture, or kill." CESA also allows exceptions for take that occurs incidental to otherwise lawful activities. Approval requires minimization and full mitigation of projected impacts. For projects that affect a species listed under both CESA and the federal ESA, compliance with the federal ESA will satisfy CESA if CDFW determines that the federal incidental take authorization is consistent with CESA under Fish and Game Code § 2080.1. For projects that will result in take of a species listed under CESA but not under the federal ESA, the applicants must apply for a take permit under § 2081(b). No CESA listed bird species are expected to be taken by the Project.

**Native Birds (California Fish and Game Code, §§ 3503, 3503.5 and 3513).** California Fish and Game Code § 3503 prohibits take, possession, or needless destruction of bird nests or eggs except as otherwise provided by the Code; § 3503.5 prohibits take or possession of birds of prey or their eggs except as otherwise provided by the Code; and § 3513 provides for the adoption of the MBTA's provisions (above). Except for a few non-native species (e.g., European starling (*Sturnus vulgaris*)), the take of any bird or loss of active bird nests or young is regulated by these statutes. As with the MBTA, these statutes offer no statutory or regulatory mechanism for obtaining an incidental take permit for the loss of non-game migratory birds.

**California Fully Protected Species.** Prior to enactment of CESA and the federal ESA, California enacted laws to "fully protect" designated wildlife species from take, including hunting, harvesting, and other activities (Fish and Game Code § 3511). Unlike the subsequent CESA and ESA, there was no provision for authorized take of designated fully protected species. Currently, 36 fish and wildlife species are designated as fully protected, including golden eagle and several other desert species. No California fully protected bird or bat species are expected to be taken by this Project.

# 2. AGENCY COORDINATION

IP Easley, LLC, will initiate coordination with state and federal resource agencies (BLM, USFWS, and California Department of Fish and Wildlife (CDFW)) to discuss environmental review of the Easley Project, including review of potential impacts to native birds and bats, and minimization or mitigation of those impacts through the CEQA and NEPA processes. The results of coordination will be incorporated into the CEQA and NEPA documents, as drafted.

# 3. SITING

## 3.1. Project Site Vegetation and Habitat

Two primary natural vegetation communities occur in the Project site, creosote bush scrub and desert dry wash woodland, a subtype of microphyll woodland. One distinct natural habitat type, desert pavement, occurs on the Project site. One vegetation community, desert dry wash woodland, is identified by BLM

and CDFW as sensitive due to the association with alluvial processes (Ironwood, 2022; CDFW, 2022a). Vegetation communities on the Project site are described in further detail and mapped in the Project's Biological Resources Technical Report (BRTR) (see POD Appendix G [Ironwood, 2022]).

**Sonoran Creosote Bush Scrub.** Sonoran creosote bush scrub has rarity rank of S5 (Ironwood, 2022), being demonstrably secure, and is not designated as a sensitive plant community by BLM. It is synonymous with *Larrea tridentata* (creosote bush) -*Ambrosia dumosa* (burro bush) alliance (Sawyer et. al 2009) and *Lower Bajada and Fan Mojavean-Sonoran Desert Scrub* (NVCS). Sonoran creosote bush scrub covers most of the Project site and intergrades with desert dry wash woodland along desert washes. Within the Project site, this community occurs on sandy soils with a shallow clay pan.

**Desert Dry Wash Woodland.** Desert dry wash woodland is a sensitive vegetation community recognized with a rarity rank of S4 (Ironwood, 2022). Desert dry wash woodland is characteristic of desert washes and is likely to be regulated by CDFW as jurisdictional state waters. This community is synonymous with blue palo verde (*Parkinsonia florida*) - ironwood (*Olneya tesota*) (microphyll) woodland alliance (Sawyer et. al 2009) and Sonoran - Coloradan Semi Desert Wash Woodland / Scrub (NVCS). 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. It is dominated by an open tree layer of ironwood, blue palo verde, and smoke tree (*Psorothamnus spinosus*) of at least 2-3% cover (Ironwood, 2022). The understory is a modified creosote scrub with big galleta grass (*Hilaria rigida*) and desert lavender (Condea [=*Hyptis emoryi*] *emoryi*). Within the Project site, the desert dry wash woodland occurs on mostly the western portion of the Project site, with several ribbons of desert dry wash woodland interspersed between creosote bush scrub.

**Desert Pavement.** Desert pavement is not descriptive of vegetation, but rather a geomorphic condition that results in tightly interlocking gravel and pebbles which develop over time on fluvially inactive upland areas within stabilized alluvial fans. It develops as gravel and rock deposits weather in place, causing rounding of pebbles, and as wind removes finer sediment (Ironwood, 2022). It has a state rarity rank of S4 and is synonymous to the rigid spineflower – hairy desert sunflower (*Chorizanthe rigida – Geraea canescens)* desert pavement sparsely vegetated alliance (Ironwood, 2002; Sawyer et. al 2009). It is sparsely vegetated with an intermittent layer of cryptogamic crust. The ground surface is sandy and gravelly mixed alluvium with various rocks and gravel. The shrub layer of creosote bush is extremely sparse. The herb layer, though sparse within this community on the Project site, is slightly larger than the shrub layer, and is characterized by rigid spine flower and desert sunflower. Desert pavement is often interwoven between areas of creosote bush scrub and desert dry wash woodland where it occurs on the Project site, and primarily occurs on the western portion of the Project site. Other occasional plants in the herb layer include annual buckwheat (*Eriogonum* sp.*)* and brittle spineflower (*Chorizanthe brevicornu*).

**Wetland and Riparian Vegetation.** Wetlands were mapped in two areas during the Spring 2022 surveys. One wetland, created from drainage from the aquaculture farm, is generally in the center of the Project site, on a private parcel. Most of the wetland is outside the Project area boundary. The second wetland is created from drainage from adjacent agriculture activity that allows water to drain through the wetland area into a pond area with no outlet. Both wetlands are dominated by herbaceous species, including softstem bulrush (*Schoenoplectus tabernaemontani*), cattail (*Typha latifolia*), and bearded sprangletop (*Diplachne fusca*). Two areas of invasive tamarisk (*Tamarix ramomissima*) riparian vegetation were mapped during the Spring 2022 surveys.

# 4. BIRD AND BAT SPECIES OF THE PROJECT VICINITY

## 4.1. Information Compiled to Date (Pre-Construction Surveys)

During all wildlife surveys for the Project, biologists recorded all wildlife species observed, regardless of status. The BRTR provides a compilation of special-status wildlife with potential to occur in the Project vicinity, and evaluates probability of occurrence for each species, based on habitat, elevational and geographic ranges, and field survey results. The complete methods and results of the surveys are provided in the BRTR (Ironwood, 2022). Noteworthy avian observations are depicted in Figure 9 of the BRTR (see POD Appendix G).

Most of the birds in the Project vicinity have no special conservation status, but all native birds are protected under the federal MBTA and California Fish and Game Code. In addition to the common birds of the area, a list of special-status bird and bat species with potential to occur in the vicinity of the Project was compiled. Special status criteria include:

- Officially listed, or candidate for listing, by California or the federal government as endangered, threatened, or rare under California Endangered Species Act (CESA) or federal Endangered Species Act (ESA) (CDFW, 2022c, 2022e)
- Birds listed in the USFWS's Birds of Conservation Concern 2021
- Birds or bats which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA)
- BLM Sensitive Species (BLM, 2014; CDFW, 2022b, 2022d)
- Birds or bats identified by CDFW as Species of Special Concern (CDFW, 2022b, 2022d)
- Birds or bats included in the CDFW lists of Special Plants or Special Animals (CDFW, 2022b, 2022d)
- Birds or bats protected under other statutes or regulations (e.g., Bald and Golden Eagle Protection Act, etc.)
- Considered special-status species in local or regional plans, polices, or regulations such as the NECO Plan/EIS

All special-status birds or bats identified by this literature review, and others known from the general region, are included in Table 1, which summarizes the natural history, agency status, and occurrence probability on the site for each species. Table 2 includes all avian observations documented during biological surveys between fall 2019 and fall 2022.

**Table 1. Special-status Birds and Bats with Potential to Occur in the Project Area**

| Species | Habitat Requirements | Conservation Status | Potential to Occur on Project Site |
|---|---|---|---|
| **BIRDS** | | | |
| **Golden eagle** *Aquila chrysaetos* | Typically rolling foothills, mountain areas, sage- juniper flats, desert. Nests on cliffs of all heights and in large trees in open areas. Rugged, open habitats with canyons and escarpments used most frequently for nesting. | Federal: BGEPA<br>State: CFP, WL<br>BLM sensitive | ■ Nesting - Absent<br>■ Foraging - Low<br>■ Project site supports suitable foraging habitat; nearest suitable nesting habitat 5 miles north in the Palen Mts.; regional surveys indicate relatively few golden eagle observations near the Project and prey sources are limited. |
| **Short-eared owl** *Asio flammeus* | Year-round residents in N. California and other parts of CA during wintering. Require open country that supports small mammals and adequate vegetation to provide cover for nests, including salt- and freshwater marshes, | Federal: None<br>State: SSC | ■ Nesting or Wintering - Absent<br>■ Migration - Moderate<br>■ No suitable nesting habitat; incidental during migration while foraging. |

| Species | Habitat Requirements | Conservation Status | Potential to Occur on Project Site |
|---|---|---|---|
| | irrigated fields, ungrazed grasslands, and old pastures. | | |
| **Western burrowing owl** *Athene cunicularia hypugaea* | A yearlong resident of open, dry grassland and desert habitats. Uses rodent or other burrows for roosting and nesting cover. In the Colorado Desert, generally occur at low densities in scattered populations. | Federal: BCC<br>State: SSC<br>BLM sensitive | ■ High<br>■ Observed live individuals and burrows with sign |
| **Redhead** *Aythya americana* | During breeding season may be found along the Colorado River and Salton Sea. Breeds locally in the Central Valley, coastal Southern California, eastern Kern County, and the Salton Sea. Nests in fresh water emergent wetland bordering open water. | Federal: None<br>State: SSC | ■ Low<br>■ Distant from nearest records; nearest breeding habitat in Salton Sea; occurrences are expected to be of migrants only; detected at Palen Solar Project (7 mi NW) |
| **Ferruginous hawk** *Buteo regalis* | Most common in grassland and agricultural areas in the southwest. Found in open terrain from grasslands to deserts, usually associated with concentrations of small mammals. | Federal: BCC<br>State: WL | ■ Nesting or Wintering - Low<br>■ Migration - Moderate<br>■ Potential foraging habitat during wintering or migration; outside breeding range; detected at Palen Solar Project (7 mi NW) |
| **Swainson's hawk** *Buteo swainsoni* | 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. Nesting range is well north of the Project site. | Federal: None<br>State: ST | ■ Nesting - Low<br>■ Migration - High<br>■ Potential migration season foraging habitat; outside nesting range; low probability of suitable habitat within the Project site; regularly detected in groups during migration over the Project vicinity |
| **Costa's hummingbird** *Calypte costae* | Primary habitats are desert wash, edges of desert riparian and valley foothill riparian. | Federal: BCC<br>State: None | ■ Moderate<br>■ Suitable foraging habitat and nesting habitat within desert scrub and microphyll woodlands; detected at Palen Solar Project (7 mi NW) |
| **Vaux's swift** *Chaetura vauxi* | Not known to breed in Southern Cali-fornia. They prefer to nest in the hollows inside of old, large conifer trees, especially snags, which are entirely lacking on the Project site. | Federal: BCC<br>State: SSC | ■ Nesting - Low<br>■ Migration - High<br>■ Outside geographic range for nesting; regularly detected during migration in the Project vicinity; occurrences expected to be migrants |
| **Mountain plover** *Charadrius montanus* | Habitat includes short-grass prairie or their equivalents; in southern California deserts are associated primarily with agricultural areas. | Federal: BCC<br>State: SSC<br>BLM sensitive | ■ Nesting - Low<br>■ Wintering or Migration - Moderate<br>■ Suitable habitat during migration; outside breeding range; may use the dry lakebed and nearby agricultural areas as winter habitat; detected at Palen Solar Project (7 mi NW) |
| **Black tern** *Chlidonias niger* | Freshwater habitats while breeding, can be fairly common on bays, salt ponds, river mouths, and pelagic waters in spring and fall migration. | Federal: None<br>State: SSC | ■ Low<br>■ Outside the geographical range for nesting; likely an uncommon migrant during the non-breeding season; detected at Palen Solar Project (7 mi NW) |

| Species | Habitat Requirements | Conservation Status | Potential to Occur on Project Site |
|---|---|---|---|
| **Northern harrier** *Circus cyaneus* | Uncommon breeding in California desert, but winters throughout California in areas with suitable habitat. Forage in open habitats including deserts, pasturelands, grasslands, and old fields. | Federal: None<br>State: SSC | ■ Nesting - Low<br>■ Wintering or Migration - High<br>■ Suitable habitat during winter and migration; outside geographic range for nesting; regularly detected in the Chuckwalla Valley. |
| **Western yellow-billed cuckoo** *Coccyzus americanus occidentalis* | Breeds along the major river valleys in southern and western New Mexico, and central and southern Arizona. In California, the western yellow-billed cuckoo's breeding distribution is now thought to be restricted to isolated sites in the Sacramento, Amargosa, Kern, Santa Ana, and Colorado River valleys. | Federal: FT<br>State: SE<br>BLM sensitive | ■ Low<br>■ No suitable nesting or wintering habitat; may migrate through the site; not detected in Project vicinity; |
| **Gilded flicker** *Colaptes chrysoides* | Stands of giant cactus, Joshua tree, and riparian groves of cottonwoods and tree willows in warm desert lowlands and foot-hills. Nests primarily in cactus, but also will use cottonwoods and willows of riparian woodlands. May be nearly extinct in California. | Federal: BCC<br>State: SE<br>BLM sensitive | ■ Low<br>■ Distant from nearest records; no suitable foraging or nesting habitat; not detected in the Project vicinity |
| **Black swift** *Cypseloides niger* | Nests in moist crevices or caves on sea cliffs or above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. Forages widely over many habitats. | Federal: BCC<br>State: SSC | ■ Low<br>■ Outside the geographical range for nesting; likely an uncommon migrant during the non-breeding season; detected at Palen Solar Project (7 mi NW) |
| **Willow flycatcher (Nesting)** *Empidonax traillii* | Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows (Serena, 1982). 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. | Federal: None<br>State: SE | ■ Low<br>■ May pass through site during migration; no suitable foraging or nesting habitat |
| **Southwestern willow flycatcher** *E. t. extimus* | | Federal: FE<br>State: SE | ■ Low<br>■ May pass through site during migration; no suitable foraging or nesting habitat |
| **California horned lark** *Eremophila alpestris actia* | Common resident in 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 treeline. In winter, flocks in desert lowlands and other areas augmented by winter visitants, many migrating from outside the state. | Federal: None<br>State: WL | ■ High<br>■ Suitable foraging and nesting habitat; observed frequently throughout Project |
| **Prairie falcon** *Falco mexicanus* | Grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub. Typically nests on cliffs and bluffs. | Federal: BCC<br>State: WL | ■ Nesting - Low<br>■ Foraging - High<br>■ Suitable foraging habitat; no suitable nesting habitat; regularly detected in the Project vicinity during avian surveys |
| **American peregrine falcon** *Falco peregrinus anatum* | Rare in the arid southwest occur and are suspected to breed in the lower Colorado River Valley. Require open habitat for foraging and prefer breeding sites near water. Nesting habitat includes cliffs, steep | Federal: None<br>State: CFP | ■ Nesting - Low<br>■ Foraging – Moderate<br>■ Suitable foraging habitat; no suitable nesting habitat; previously documented in the Project vicinity |

| Species | Habitat Requirements | Conservation Status | Potential to Occur on Project Site |
|---|---|---|---|
| | banks, dunes, mounds, and some human-made structures. | | |
| **Lesser sandhill crane** *Antigone canadensis canadensis* | Breeds in open wetlands surrounded by shrubs or trees, such as in marshes, bogs, wet meadows, prairies, burned-over aspen stands, and other moist habitats, preferring those with standing water. Outside of known wintering grounds, extremely rare except during migration over much of interior California. | Federal: None<br>State: SSC | ■ Nesting - Low<br>■ Migration – Moderate<br>■ No suitable foraging or nesting habitat; occurrences are expected to be of migrants only; detected at Palen Solar Project (7 mi NW) |
| **Yellow-breasted chat** *Icteria virens* | Shrubby riparian habitat with an open canopy, will nest in non-native species, including tamarisk. | Federal: None<br>State: SSC | ■ Low<br>■ May migrate through site in desert dry wash woodland; no suitable foraging or nesting habitat; detected at Palen Solar Project (7 mi NW) |
| **Loggerhead shrike** *Lanius ludovicianus* | Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open- canopied valley foothill hard-wood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. | Federal: BCC<br>State: SSC | ■ High<br>■ Suitable foraging and nesting habitat; observed throughout Project site; regularly detected in Chuckwalla Valley |
| **Gila woodpecker** *Melanerpes uropygialis* | In California, 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, their range may be expanding. | Federal: BCC<br>State: SE<br>BLM sensitive | ■ Low<br>■ No suitable foraging or nesting habitat; nearest observation greater than 5 miles from Project site |
| **Elf owl** *Micrathene whitneyi* | A very rarely seen spring and summer resi-dent of the Colorado River Valley. Nests in desert riparian habitat with cottonwood, sycamore, willow or mesquite; absent from desert riparian habitat dominated by Tamarisk. | Federal: None<br>State: SE<br>BLM sensitive | ■ Low<br>■ No suitable foraging or nesting habitat; not detected on site or in Project vicinity |
| **Long-billed curlew** *Numenius americanus* | Preferred breeding and winter habitats include large coastal estuaries, upland her-baceous areas, and croplands. On estuaries, feeding occurs mostly on intertidal mudflats. | Federal: BCC<br>State: WL | ■ Nesting - Low<br>■ Migration - Moderate<br>■ No suitable foraging or nesting habitat; occurrences are expected to be of migrants only; detected at Palen Solar Project (7 mi NW) |
| **Lucy's warbler** *Oreothlypis luciae* | Summer resident and breeder along the Colorado River, common locally in a few other desert areas, and rare near Salton Sea. Typical nesting habitat, mesquite wash and desert riparian habitats. | Federal: None<br>State: SSC<br>BLM sensitive | ■ Moderate<br>■ No suitable nesting habitat (mesquite thickets); tamarisk and dry wash woodland within the Project site may serve as nesting habitat; detected at Palen Solar Project (7 mi NW) |
| **American white pelican** *Pelecanus erythrorhynchos* | Common spring and fall migrant at Salton Sea and Colorado River. Migrant flocks pass overhead almost any month, but mainly in | Federal: BCC<br>State: SSC | ■ Nesting/Wintering - Low<br>■ Migration - Moderate<br>■ No suitable foraging or nesting habitat; occurrences are expected |

| Species | Habitat Requirements | Conservation Status | Potential to Occur on Project Site |
|---|---|---|---|
| | spring and fall throughout the state, especially in southern California. | | to be of migrants only; detected at Palen Solar Project (7 mi NW) |
| **Black-tailed gnatcatcher** *Polioptila melanura* | Year-round resident in southwestern U.S. and central and northern Mexico; in California, found in the southeast desert wash habitat from Palm Springs and Joshua Tree National Park south, and along the Colorado River. Rare in eastern Mojave Desert north to the Amargosa River, Inyo County. Nests primarily in wooded desert washes, also occurs in creosote scrub outside breeding season. | Federal: None<br>State: WL | ■ High<br>■ Suitable foraging and potential nesting habitat associated with large trees in microphyll woodlands; detected at Palen Solar Project (7 mi NW) |
| **Purple martin** *Progne subis* | Historical breeding range includes south-western California, but not the Colorado Desert; populations have shrunk dramatically. Habitat requirements include adequate nest sites and availability of large aerial insects, and therefore are most abundant near wetlands and other water sources. | Federal: None<br>State: SSC | ■ Low<br>■ No wintering or nesting habitat; occurrences are expected to be of migrants only |
| **Vermilion flycatcher** *Pyrocephalus rubinus* | Usually found near water in arid scrub, farmlands, parks, golf courses, desert, savanna, cultivated lands, and riparian woodlands; nesting substrate includes cottonwood, willow, and mesquite. | Federal: None<br>State: SSC | ■ Low<br>■ No suitable habitat; occurrences are expected to be of migrants only |
| **Yuma Ridgway's rail** *Rallus obsoletus yumanensis* | Occurs in inland areas in the southwestern U.S. Partially migratory, with many birds wintering in brackish marshes along the Gulf of California. Some remain on their breeding grounds throughout the year; nesting and foraging habitat limited to the Lower Colorado River (from Topock Marsh southward) and around the Salton Sea. | Federal: FE<br>State: ST, CFP | ■ Low<br>■ No suitable foraging or nesting habitat on site; nearest records from Salton Sea |
| **Bank swallow** *Riparia riparia* | A neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the spring-fall period. Uses holes dug in cliffs and riverbanks for cover. Will also roost on logs, shoreline vegetation, and telephone wires. | Federal: None<br>State: ST<br>BLM sensitive | ■ Nesting/Wintering - Low<br>■ Migration – Moderate<br>■ Outside the geographical range for nesting; likely a relatively common migrant during the non-breeding season |
| **Sonora Yellow warbler** *Setophaga petechia sonorana* | In southeastern California known only from the lower Colorado River Valley from the middle of San Bernardino County through Riverside and Imperial Counties; commonly uses wet, deciduous thickets for breeding, and seeks a variety of wooded, scrubby habitats in winter. | Federal: None<br>State: SSC | ■ Nesting - Low<br>■ Migration - Moderate<br>■ Suitable foraging habitat during migration in desert dry wash woodland; outside geographic range for nesting; detected at Palen Solar Project (7 mi NW) |
| **Lawrence's goldfinch** *Spinus lawrencei* | Highly erratic and localized in occurrence. Rather common along western edge of south-ern 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. | Federal: BCC<br>State: none | ■ Low<br>■ No suitable wintering or nesting habitat; occurrences are expected to be of migrants only |

| Species | Habitat Requirements | Conservation Status | Potential to Occur on Project Site |
|---|---|---|---|
| **Bendire's thrasher** *Toxostoma bendirei* | 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. | Federal: BCC<br>State: SSC<br>BLM sensitive | ■ Low<br>■ No suitable habitat; occurrences are expected to be of migrants only |
| **Crissal thrasher** *Toxostoma crissale* | Prefers dense, low scrubby vegetation, which, at lower elevations, includes desert and foothill scrub and riparian brush. | Federal: None<br>State: SSC | ■ Low<br>■ No suitable habitat; occurrences are expected to be of migrants only |
| **Le Conte's thrasher** *Toxostoma lecontei* | Occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats; also occurs in Joshua tree habitat with scattered shrubs. | Federal: BCC<br>State: SSC | ■ High<br>■ Suitable foraging habitat; suitable nesting habitat in desert dry wash woodlands; regularly detected in Chuckwalla Valley |
| **Arizona Bell's vireo** *Vireo bellii arizonae* | Summer resident along Colorado River. Chiefly inhabits will thickets with under-growth of *Baccharis glutinosa*. Nests in willows, mesquite, or other small tree/ shrub, within 8 ft (usually 2-3 ft) off ground. | Federal: None<br>State: SE<br>BLM sensitive | ■ Low<br>■ No suitable wintering or nesting habitat; occurrences are expected to be of migrants only |
| **Least Bell's vireo** *V. b. pusillus* | Summer resident along Colorado River. Chiefly inhabits riparian forests and willow thickets with undergrowth *of Baccharis glutinosa*. Nests in willow, mesquite, or other small tree/shrub, within 8 ft (usually 2-3 ft) of ground. | Federal: FE<br>State: SE | ■ Low<br>■ No suitable wintering or nesting habitat; occurrences are expected to be of migrants only |
| **Yellow-headed blackbird** *Xanthocephalus xanthocephalus* | Nests in freshwater emergent wetland with dense vegetation and deep water, often along borders of lakes or ponds. Forages in wetland and moist, open areas, especially cropland and muddy shores of lacustrine habitat. Occurs as a migrant and local breeder in deserts. | Federal: BCC<br>State: SSC | ■ Low<br>■ No suitable wintering or nesting habitat; occurrences are expected to be of migrants only; observed in Project vicinity |
| **BATS** | | | |
| **Pallid bat** *Antrozous pallidus* | Inhabit low elevation (less than 6,000 feet) rocky, arid deserts and canyon-lands. Typical roosting habitat is shrub/steppe grasslands. Day and night roosts include crevices in rocky outcrops and cliffs; however, roosting opportunities may exist outside caves, mines, trees with exfoliating bark, and various human structures. | Federal: None<br>State: SSC<br>BLM sensitive<br>WBWG: L | ■ Roosting – Low, no suitable habitat<br>■ Foraging – Moderate<br>■ Roosting opportunities may exist outside the site in the Project vicinity; not observed; detected at Palen Solar Project (7 mi NW) |
| **Townsend's big-eared bat** *Corynorhinus townsendii* | Coniferous forests, deserts, prairies, riparian communities, active agricultural areas, and coastal habitats. Forage in edge habitats along streams, adjacent to and within wooded habitats. | Federal: None<br>State: SSC<br>BLM sensitive<br>WBWG: H | ■ Roosting – Low, no suitable habitat<br>■ Foraging – Moderate<br>■ Not observed |
| **Big brown bat** *Eptesicus fuscus* | Widespread and abundant, known from virtu-ally every North American vegetation type. Uncommon in hot desert habitats, and ab-sent from the highest alpine meadows and talus slopes. Vagrant individuals may be seen in any habitat. Uses buildings and other struc- | Federal: None<br>State: None<br>WBWG: L | ■ Low, no suitable roosting habitat<br>■ Not observed, distant from nearest records |

| Species | Habitat Requirements | Conservation Status | Potential to Occur on Project Site |
|---|---|---|---|
| | tures for roosting to such an extent that natural roosting habits are under-documented. | | |
| **Spotted bat** *Euderma maculatum* | Arid, low desert habitats to high elevation conifer forests and prominent rock features appear to be a necessary feature for roosting. | Federal: None<br>State: SSC<br>BLM sensitive<br>WBWG: M | ■ Low, no suitable roosting habitat<br>■ Not observed, distant from nearest records |
| **Western mastiff bat** *Eumops perotis* | 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. | Federal: None<br>State: SSC<br>BLM sensitive<br>WBWG: M | ■ Low, no suitable roosting habitat<br>■ Not observed |
| **Hoary bat** *Lasiurus cinereus* | Forested habitats, usually at the edge of a clearing, although more unusual roosting sites have been reported in caves, beneath rock ledges, wood-pecker holes, squirrel nests, building sides, and in dried palm fronds on palm trees. | Federal: None<br>State: None<br>WBWG: M | ■ Roosting – Low, no suitable habitat<br>■ Foraging – Moderate<br>■ Not observed |
| **Western yellow bat** *Lasiurus xanthinus* | Recorded below 600 m (2000 ft) in valley foothill riparian, desert riparian, desert wash; occurs year-round in California. | Federal: None<br>State: SSC<br>WBWG: H | ■ Moderate; no suitable foraging and roosting habitat<br>■ Not observed; detected at Palen Solar Project (7 mi NW) |
| **California leaf-nosed bat** *Macrotus californicus* | Roosts in caves or mines. All major maternity, mating, and overwintering sites are in mines or caves; forage almost exclusively among desert wash vegetation within 10 km of their roost. | Federal: None<br>State: SSC<br>BLM sensitive<br>WBWG: H | ■ Low; no suitable roosting habitat<br>■ Not observed |
| **California myotis** *Myotis californicus* | Optimal habitats for this species include all desert, chaparral, woodland, and forest from sea level up through ponderosa pine, mixed conifer, and Jeffrey pine. | WBWG: L | ■ Roosting – Low; no suitable habitat<br>■ Foraging – Moderate<br>■ Not observed; detected at Palen Solar Project (7 mi NW) |
| **Arizona myotis** *Myotis occultus* | Commonly known in conifer forests from 6,000 to 9,000 feet in elevation, although maternity roosts are known in much lower elevations including areas along the Colorado River in California. | Federal: None<br>State: SSC<br>WBWG: M | ■ Low; no suitable roosting habitat<br>■ Not observed; distant from nearest records in Blythe |
| **Cave myotis** *Myotis velifer* | Found primarily at lower elevations of the arid southwest in areas dominated by creosote bush, palo verde, and cactus; caves are the main roosts, may also use mines, buildings, and bridges. | Federal: None<br>State: SSC<br>BLM sensitive<br>WBWG: M | ■ Low; no suitable roosting habitat<br>■ Not observed; distant from nearest records in Mule Mountains |
| **Yuma myotis** *Myotis yumanensis* | Associated with permanent sources of water, typically rivers and streams, feeding primarily on aquatic emergent insects. Also use tinajas (small pools in bedrock) in the arid west. Occurs in riparian, arid scrublands and deserts, and forests. Roosts in bridges, buildings, cliff crevices, caves, mines, and trees. | Federal: None<br>State: None<br>BLM sensitive<br>WBWG: L | ■ Low; no suitable roosting habitat<br>■ Not observed; distant from nearest records in Blythe |
| **Pocketed free-tailed bat** *Nyctinomops femorosaccus* | Migratory, occurs in desert from Mar-Aug, then migrate out of the area. In California, found primarily in creosote bush and chaparral habitats in proximity to granite boulders, cliffs, or rocky canyons. | Federal: None<br>State: SSC<br>WBWG: M | ■ Low; no suitable rooting habitat<br>■ Not observed; distant from nearest records in Orocopia Mountains |

| Species | Habitat Requirements | Conservation Status | Potential to Occur on Project Site |
|---|---|---|---|
| **Big free-tailed bat** *Nyctinomops macrotis* | Generally, sea level to 8,000 ft elevation; desert shrublands. Roosts mostly in the crevices of rocks although may roost in buildings, caves, and tree cavities. | Federal: None<br>State: SSC<br>WBWG: M | ■ Roosting – Low; no suitable roosting habitat<br>■ Foraging – Moderate<br>■ Not observed; detected at Palen Solar Project (7 mi NW) |
| **Canyon bat** *Parastrellus hesperus* | Common to abundant resident of deserts, arid grasslands, and woodlands. Occupies all desert, brush, grassland, and woodland habitats up through mixed conifer forests. The most abundant bat in desert regions. Common in arid brushlands, grasslands, and woodlands, and uncommon in conifer forests. This species is a yearlong resident in California. | WBWG: L | ■ Roosting – Low; no suitable roosting habitat<br>■ Foraging – Moderate<br>■ Not observed; detected at Palen Solar Project (7 mi NW) |
| **Mexican free-tailed bat** *Tadarida brasiliensis* | Common in California and may be locally abundant. All habitats up through mixed conifer forests are used, but open habitats such as woodlands, shrublands, and grasslands are preferred. | WBWG: L | ■ Roosting – Low; no suitable roosting habitat<br>■ Foraging – Moderate<br>■ Not observed; detected at Palen Solar Project (7 mi NW) |

**Conservation 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

*State:*

SSC = State Species of Special Concern
SE = State listed as endangered
WL = State watch list
CFP = California Fully Protected
ST = State listed as threatened

*Bureau of Land Management:*

BLMS = BLM Sensitive

*Western Bat Working Group (WBWG):*

H = imperiled or at high risk of imperilment
M = warrant closer evaluation, more research, and conservation actions
L = most of the existing data support stable populations

## Table 2. Avian Species Observed in the Easley Project Area (2019 - 2022)

| Common Name | Scientific Name |
|---|---|
| **Birds** | |
| American avocet | *Recurvirostra americana* |
| American coot | *Fulica americana* |
| American kestrel | *Falco sparverius* |
| American pipit | *Anthus rubescens* |
| American white pelican | *Pelecanus erythyrorhynchos* |
| Anna's hummingbird | *Calypte anna* |
| Barn swallow | *Hirundo rustica* |
| Bell's sparrow | *Artemisiospiza belli* |
| Belted kingfisher | *Megaceryle alcyon* |
| Black phoebe | *Sayornis nigricans* |

| Common Name | Scientific Name |
|---|---|
| **Birds** | |
| Black-tailed gnatcatcher | *Polioptila melanura* |
| Black-throated gray warbler | *Setophaga nigrescens* |
| Blue-gray gnatcatcher | *Polioptila caerulea* |
| Brewer's blackbird | *Euphagus cyanocephalus* |
| Brewer's sparrow | *Spizella breweri* |
| Brown-headed cowbird | *Molothrus ater* |
| Bullock's oriole | *Icterus bullockii* |
| Burrowing owl | *Athene cunicularia* |
| California quail | *Callipepla californica* |
| Canada goose | *Branta canadensis* |
| Cassin's vireo | *Vireo cassinii* |
| Cattle egret | *Bubulcus ibis* |
| Chipping sparrow | *Spizella passerina* |
| Cliff swallow | *Petrochelidon pyrrhonata* |
| Common poorwill | *Phalaenoptilus nuttallii* |
| Common raven | *Corvus corax* |
| Costa's hummingbird | *Calypte costae* |
| Dark eyed junco | *Junco hyemalis* |
| Domestic chicken | *Gallus gallus domesticus* |
| Double-crested cormorant | *Phalacrocorax auritus* |
| Eurasian collared-dove | *Streptopelia decaocto* |
| European starling | *Sturnus vulgaris* |
| Gambel's quail | *Callipepla gambelii* |
| Great blue heron | *Ardea herodias* |
| Great horned owl | *Bubo virginianus* |
| Greater roadrunner | *Geococcyx alifornianus* |
| Greater yellowlegs | *Tringa melanoleuca* |
| Great-tailed grackle | *Quiscalus mexicanus* |
| Green winged teal | *Anas carolinensis* |
| Horned lark | *Eremophila alpestris* |
| House finch | *Carpodacus menicanus* |
| House sparrow | *Passer domesticus* |
| Killdeer | *Charadrius vociferus* |
| Ladder-backed woodpecker | *Dryobates scalaris* |
| Least sandpiper | *Calidris minutilla* |
| LeConte's thrasher | *Toxostoma lecontei* |
| Lesser nighthawk | *Chordeiles acutipennis* |
| Lincoln's sparrow | *Melospiza lencolnii* |
| Loggerhead shrike | *Lanius ludovicianus* |
| Mallard | *Anas platyrhynchos* |
| Marsh wren | *Cistothorus palustris* |

| Common Name | Scientific Name |
|---|---|
| **Birds** | |
| Mourning dove | *Zenaida macroura* |
| Nashville warbler | *Oreothlypis ruficapilla* |
| Northern harrier | *Circus cyaneus* |
| Northern mockingbird | *Mimus polyglottos* |
| Nothern rough-winged swallow | *Stelgidopteryx serripennis* |
| Orange-crowned warbler | *Leiothlypis celata* |
| Osprey | *Pandio haliaetus* |
| Prairie falcon | *Falco mexicanus* |
| Red-tailed hawk | *Buteo jamaicensis* |
| Red-winged blackbird | *Agelaius phoeniceus* |
| Ruby crowned kinglet | *Corythylio calendula* |
| Ruddy duck | *Oxyura jamaicensis* |
| Savannah sparrow | *Passerculus sandwichensis* |
| Say's phoebe | *Sayornis saya* |
| Sora | *Porzana carolina* |
| Sharp-shinned hawk | *Accipiter striatus* |
| Song sparrow | *Melospiza melodia* |
| Townsend's warbler | *Setophaga townsendi* |
| Tree swallow | *Tachycineta bicolor* |
| Turkey vulture | *Cathartes aura* |
| Vaux's swift | *Chaetura vauxi* |
| Verdin | *Auriparus flaviceps* |
| Violet green swallow | *Tachycineta thalassina* |
| Warbling vireo | *Vireo gilvus* |
| Western kingbird | *Tyrannus verticalis* |
| Western meadowlark | *Sturnella neglecta* |
| White-crowned sparrow | *Zonotrichia leucophrys* |
| White-faced Ibis | *Plegadis chihi* |
| White-throated swift | *Aeronautes saxatalis* |
| Wilson’s warbler | *Wilsonia pusilla* |
| Yellow-rumped warbler | *Stophaga coronata* |
| Yellow warbler | *Dendroica petechia* |
| Yellow-rumped (Audubon's) warbler | *Setophaga audubonii* |

Source: Easley Biological Resources Technical Report, Appendix D – Wildlife and Plant Compendiums (see POD Appendix G [Ironwood, 2022])

## 4.2. State and Federally Listed Threatened or Endangered Species

### Swainson’s Hawk: ST, BLMS, FOC

Swainson’s hawk (*Buteo swainsoni*) 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 (Ironwood, 2022). The only desert breeding

occurrences are in the Antelope Valley, over 200 miles northwest of the Project site. These birds favor open habitats for foraging, and are near- exclusive insectivores as adults, but may also forage on small mammals and reptiles. The Project site provides potential migration season foraging habitat but is well outside the nesting range. Swainson's hawk may be found throughout the Project site during migration. No Swainson's hawks were observed during surveys or avian counts.

## Gila Woodpecker: SE, BLMS, BCC

Gila woodpecker (*Melanerpes uropygialis*) 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. A pair of Gila woodpeckers was incidentally observed near the Corn Springs campground feeding young in 2018, approximately 7 miles southeast of the Project site (Ironwood, 2022). Suitable habitats include riparian woodlands, uplands with concentrations of large columnar cacti, old- growth xeric-riparian wash woodlands, and urban or suburban residential areas. Gila woodpeckers prefer large patches of woody riparian vegetation for nesting (greater than 49 acres), but they have also been documented in various habitat types, such as desert washes and residential areas (Ironwood, 2022).

In California, their primary habitat is cottonwood-willow riparian woodland. Where Gila woodpeckers occur in dry desert wash woodlands, they excavate cavity nests in large blue palo verdes (Ironwood, 2022). They also may nest in ornamental trees including palms. Availability of suitable nesting trees is a limiting factor in breeding habitat suitability (Ironwood, 2022). Potentially suitable habitat within the Project site is found in desert washes in palo verde or ironwood trees large enough for cavity nests. The probability of this species nesting on the Project site is low since only a few palo verde trees on the site are large enough for tree cavities, and the site is near the western margin of the Gila woodpecker's range. Only two tree cavities were observed in surveys, but no live Gila woodpeckers were observed (see BRTR, Figure 9 in POD Appendix G). Gila woodpeckers are loud and conspicuous, and readily located by field biologists when present.

## Elf Owl: SE, BLMS

Elf owl (*Micrathene whitneyi*) 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 Project site is near the western margin of its geographic range (Ironwood, 2022); the nearest occurrences are near the Corn Springs campground and Cottonwood Springs vicinities (Ironwood, 2022). 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 (Ironwood, 2022).

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 (Ironwood, 2022). Gila woodpeckers sometimes nest in blue palo verde and palms, and elf owls have been documented nesting in blue palo verde near Wiley's Well, southeast of the Project site, by Robert McKernan (Ironwood, 2022). Trees within the desert dry wash woodland habitat could provide suitable marginal habitat for nesting. Two tree cavities were observed during surveys and could be potential nesting cavities. No elf owls were observed during the survey.

## Other Listed Avian Species

No suitable breeding or wintering habitat for the avian species below occur within or near the Project site. These state or federal listed bird species have been recorded at other utility-scale solar energy facilities. There is a moderate potential for them to be in the Project vicinity during migration periods, but there is no suitable nesting or foraging habitat on the site for these species. None of these species were observed during field surveys.

- **Western yellow-billed cuckoo: SE, FT, BLMS, FSS, FOC.** Western yellow-billed cuckoo (*Coccyzus Americanus occidentalis*) breeds in expansive riparian areas in portions of California, Nevada, Arizona, and New Mexico. The closest known breeding habitat is located approximately 35 miles away along the Colorado River (Ironwood, 2022). 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 Development Focus Areas (DFAs) identified in the DRECP LUPA (Ironwood, 2022). No suitable nesting habitat is present on the Project site, although it is possible that western yellow-billed cuckoo could occur on the site briefly during migration season.
- **Southwestern Willow Flycatcher: SE, FE, FSS.** All subspecies of willow flycatcher (*Empidonax traillii*) are state endangered, while one subspecies (*E. T. extimus*) is federally endangered. Willow flycatcher breeds in dense riparian habitats in the southwestern United States, and winters in southern Mexico, Central America, and northern South America (Ironwood, 2022). The willow flycatcher species is comprised of several recognized subspecies, including the southwestern willow flycatcher, which is the only subspecies that nests in the region. The closest known breeding habitat to the Project site is approximately 25 miles away along the Colorado River and adjacent to the Salton Sea (Ironwood, 2022). Recent studies indicate that southwestern willow flycatchers do not migrate over the area of the desert where the Project site is located (Ironwood, 2022). However, other willow flycatcher subspecies (not listed as threatened or endangered) may pass through the area during migration. No suitable breeding habitat occurs on the Project site and it is outside the southwestern willow flycatcher's migratory routes.
- **Yuma Ridgway's Rail: ST, CFP, FE.** Yuma Ridgway's rail (*Rallus obsoletus yumanensis*), formerly known as Yuma clapper rail (*Rallus longirostris yumanensis*), nests in freshwater marshes. It 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. A total of 444 rails were captured from 2016-2019 and transmitters were attached to 103 rails to document annual migration and dispersal behaviors (Ironwood, 2022). As of December 16, 2019, 24 migratory or dispersal movements were documented (Ironwood, 2022). Yuma Ridgway's rail were thought to be mostly sedentary, but recent rail mortalities at solar energy facilities and preliminary results of the telemetry study suggest that these rails fly over desert regions during dispersal and migration (Ironwood, 2022). The transmitter data confirms that rails migrate primarily at night. 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 (Ironwood, 2022). These results help explain how Yuma Ridgway's rails perished at solar facilities far removed from any major sources of water or rail habitat (Ironwood, 2022). 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.
- **Least Bell's Vireo: SE, FE.** Least Bell's vireo (*Vireo bellii pusillis*) breeds in riparian habitats in southern California and portions of northern Baja California, Mexico and winters in southern Baja California, Mexico. Its numbers and distribution have probably increased since its listing, although it remains absent from large parts of its former range (Ironwood, 2022). The closest known breeding habitat to the Project site is to the northwest in the Big Morongo Canyon. Least Bell's vireos are also uncommon breeders at the Anza-Borrego Desert State Park, located approximately 70 miles southwest (Ironwood,

2022). The subspecies Arizona Bell's vireo (*V. b. arizonae*) is not ESA-listed, but is State-listed in California as endangered, and occurs along the lower Colorado River, approximately 35 miles east of the Project site. Although there is little information on its migration behavior, least Bell's vireo likely migrates through the Colorado Desert. It is presumed that it may use riparian habitat and possibly upland scrub habitat during migration (Ironwood, 2022). No suitable nesting habitat is present on the Project site, although least Bell's vireo could occur on the site briefly, during migration season.

### Avian Carcasses

Carcasses of three avian species (American white pelican, double-crested cormorant, great egret) were observed in the northern parcel near the existing fish farm as summarized in the BRTR (Ironwood, 2022). Cause of death for these species is unknown. It was unusual to have so many carcasses in one area, so avian biologists took note of the species that were identifiable during the surveys. Several other partial old avian carcasses were also observed but could not be identified to species.

### Avian Counts

A total of seventy-six avian species were observed when avian counts were conducted during spring surveys in the mornings, including common species and any special-status species that were observed. Appendix C-6 of BRTR lists all species observed during avian counts (see POD Appendix G).

## 4.3. Bald and Golden Eagle Protection Act

### Golden Eagle: CFP, WL, CDF-S, BCC, BLMS, FOC

Golden eagles (*Aquila chrysaetos*) are typically year-round residents throughout most of their western United States range. They breed from late January through August with peak activity March through July (Ironwood, 2022). 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 (Ironwood, 2022). 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 (Ironwood, 2022). 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. Additional unmitigated mortality will steepen the rate of decline that the golden eagle population is presently undergoing (Ironwood, 2022).

The Project site lacks suitable nesting habitat for golden eagles. The nearest known cliff nest sites that have some potential for golden eagle use are approximately 3.5 miles from the Project site (see BRTR, Figure 11 in POD Appendix G). The Project site supports suitable foraging habitat for golden eagles, but no golden eagles were observed during Project surveys. Results of regional golden eagle surveys are described in Table 3.

**Table 3. Regional Golden Eagle Surveys**

| Year | Type of Survey | Associated Project(s) | Surveying Firm | Golden Eagle Observations |
|---|---|---|---|---|
| 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 |

| Year | Type of Survey | Associated Project(s) | Surveying Firm | Golden Eagle Observations |
|---|---|---|---|---|
| 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 |
| 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 |
| 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, 7 in Coxcomb Mountains |
| 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 (Bloom 2013) | 1 subadult at bait station during all 5 weeks; 3rd year flying along cliffs |
| 2014 | Air and ground survey | BLM raptor-raven nest survey | Boarman | No observations in area surveyed |
| 2015 | Ground survey | BLM raptor-raven nest survey | Corvus Ecological | No observations in area surveyed |
| 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 (Corvus Ecological 2020) | General locational information pending |

## 4.4. CDFW Species of Special Concern

### Short Eared Owl: SSC, BCC

The short-eared owl (*Asio flammeus*) is a widespread winter migrant in central and western California, and generally present from September through April. It is an uncommon winter migrant in southern California. Habitat requirements include grasslands, prairies, dunes, meadows, irrigated lands, and wetlands. Short-eared owls generally require dense vegetation for roosting and nesting (Ironwood, 2022). The Project site does not support suitable nesting habitat for short eared owl due to the sparse vegetation. However, the species may be found incidentally during migration while foraging in or near wetlands,

riparian areas, or irrigated areas associated with the adjacent aquaculture farms and residences. No short-eared owls were observed on the Project site during field surveys.

## Vaux's Swift: SSC, BCC

Vaux's swift (*Chaetura vauxi*) is a summer resident of northern California and a fairly common migrant throughout most of the state in spring and fall. It roosts in hollow trees and snags, and often in large flocks. Vaux's swifts feed exclusively on flying insects (Ironwood, 2022). The entire Project site provides suitable habitat during migration for foraging, but there is no suitable nesting habitat on the Project site. No Vaux's swifts were observed during surveys on the Project site.

## Northern Harrier: SSC, BCC

Northern harrier (*Circus cyaneus*) inhabits most of California at various times of the year and is found up to 3000 m elevation. Northern harriers frequent meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands. It is a widespread winter resident and migrant in suitable habitat. They primarily feed on small mammals, birds, frogs, small reptiles, crustaceans, and insects (Ironwood, 2022). There is suitable foraging throughout the Project site, but no suitable nesting habitat. No northern harriers were observed during surveys or avian counts on the Project site.

## Yellow-breasted Chat: SSC

The yellow-breasted chat (*Icteria virens*) is an uncommon summer resident and migrant in coastal California, in foothills of the Sierra Nevada, and within the Colorado Desert. Breeding occurrences closest to the Project are known from the Salton Sea and Colorado River. In southern California, yellow-breasted chats breed locally on the coast, and very locally inland (Ironwood, 2022). During migration, they may be found in lower elevations of mountains in riparian habitat (Ironwood, 2022). The yellow-breasted chat may be found on the Project site during migration likely within desert dry wash woodland areas, but suitable nesting habitat is not present. No yellow breasted chats were observed during surveys on the Project site.

## Loggerhead Shrike: SSC (nesting)

Loggerhead shrikes (*Lanius ludovicianus*) are small predatory birds that 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 (Ironwood, 2022). 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 (Ironwood, 2022). 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 (Ironwood, 2022). 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 (Ironwood, 2022). Suitable foraging and nesting habitat for loggerhead shrike is found throughout the Project site. Twenty observations of live individuals were documented during all surveys and avian counts (see BRTR, Figure 9 in POD Appendix G).

## Sonora Yellow Warbler: SSC

The Sonora yellow warbler (*Setophaga petechia sonorana*) occurs principally as a migrant and summer resident from late March through early October, and breeds from April to late July (Ironwood, 2022). The Sonora yellow warbler breeds only along the lower Colorado River in California, and from southern Arizona and southwest New Mexico to north-central Mexico and possibly the Colorado River Delta

(Ironwood, 2022). During breeding season, it generally nests and forages in riparian shrubs and trees close to water. Its diet includes ants, bees, wasps, caterpillars, beetles, true bugs, flies, and spiders (Ironwood, 2022). The Project site supports suitable foraging habitat for Sonora yellow warbler during migration in the desert dry wash woodland areas, but there is no suitable nesting habitat present on the site. No Sonora yellow warblers were observed during field surveys on the Project site.

### Crissal Thrasher: SSC, BLMS

Crissal thrasher (*Toxostoma crissale*) is a year-round resident of southeastern deserts, occupying dense shrubs in desert riparian and desert wash habitats, including mesquite, ironwood, and acacia. It primarily forages on the ground, feeding on invertebrates, berries, and seeds (Ironwood, 2022). The Project site provides limited but suitable nesting and foraging habitat primarily associated with dry wash woodlands. No crissal thrashers were observed within the Project site during surveys.

### Le Conte's Thrasher: SSC, BLMS, BCC

In California, Le Conte's thrasher (*Toxostoma lecontei*) is a resident in the San Joaquin Valley and the Mojave and Colorado Deserts (Ironwood, 2022). 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 (Ironwood, 2022). 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. Suitable foraging habitat for Le Conte's thrasher occurs throughout the Project site, and suitable nesting habitat occurs in the desert dry wash woodland areas of the Project site. Le Conte's thrasher was not observed during surveys.

## 4.5. Species Fully Protected Under the California Fish and Game Code

### American Peregrine Falcon: FP, CDF-S

The American peregrine falcon (*Falco peregrinus anatum*) was formerly listed under CESA and ESA but has been delisted under both Acts. In California, range is primarily central to northern California, with wintering habitat and (more recently) nesting occurrences located in southern California. Migrants occur along the coast and in the western Sierra Nevada in spring and fall. It breeds mostly in woodland, forest, and coastal habitats, and favors open landscapes with cliffs as nest sites. They are found irregularly in the southern desert region, generally during migratory and winter seasons, but also during breeding season in recent years. They nested historically in desert mountain ranges near the Colorado River (Ironwood, 2022) and may be re-occupying this historical part of their nesting range as their populations recover. Their diet consists primarily of birds and bats (Ironwood, 2022). Waterfowl and shorebirds make up a large proportion of their prey, and nest sites are often within foraging range of large water bodies. Suitable migratory or foraging habitat is present throughout the Project site, but no suitable nesting habitat is present. No American peregrine falcons were observed on the Project site during surveys or avian counts.

## 4.6. BLM Sensitive Species

### Western Burrowing Owl: SSC, BCC, BLMS, FOC

The Western burrowing owl (*Athene cunicularia hypugaea*) inhabits arid lands throughout much of the western United States and southern interior of western Canada (Ironwood, 2022). 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 (Ironwood, 2022). 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 (Ironwood, 2022).

In the Colorado Desert, 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 (Ironwood, 2022). Burrowing owls tend to be opportunistic feeders, and a large portion of their diet consists of beetles, grasshoppers, and other large arthropods. The consumption of insects increases during the breeding season (Ironwood, 2022). Small mammals, especially mice and voles (*Microtus* and *Peromyscus* spp.) are important food items. Other prey animals include herpetofauna, young cottontail rabbits, bats, and birds such as sparrows and horned larks.

Two live individuals, both in flight, were observed during survey periods. Eight burrows with either white-wash, feathers, and/or pellets were documented. The BRTR (Ironwood, 2022) summarizes all the burrowing owl observations from wildlife surveys (see BRTR, Figure 9 in POD Appendix G).

### Mountain Plover: SSC, BCC, BLMS, FOC

Mountain plover (*Charadrius montanus*) 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 (Ironwood, 2022). Its distribution was modeled as occurring in the Chuckwalla Valley (Ironwood, 2022). The entire Project site provides suitable habitat during migration but is unlikely to support suitable nesting habitat, since the Project site is outside its breeding range. No mountain plovers were observed during surveys on the Project site.

## 4.7. CDFW Watch List

### Ferruginous Hawk: WL

The ferruginous hawk (*Buteo regalis*) is an uncommon winter resident and migrant at lower elevations and open grasslands in the Central Valley and Coast Ranges, and a fairly common winter resident of grasslands and agricultural areas in southwestern California (Ironwood, 2022). This species frequents open grasslands, sagebrush flats, and desert scrub. Prey items include lagomorphs, small mammals, reptiles, and amphibians (Ironwood, 2022). There is potential foraging habitat throughout the Project site that ferruginous hawks could use during wintering or migration seasons. The site is outside the Ferruginous hawk's breeding range, and Ferruginous hawk are not expected in the area during nesting season. No ferruginous hawks were observed during field surveys on the Project site.

### California Horned Lark: WL

The California horned lark (*Eremophila alpestris actia*) is found throughout California except the north coast and is less common in mountainous areas. It prefers open areas that are barren or with short vegetation including deserts, brushy flats, and agricultural areas, and includes creosote scrub. Eggs are laid March to early June, and it frequently lays a second clutch (Ironwood, 2022). There are numerous records in western Riverside County (Ironwood, 2022). Suitable foraging and nesting habitat occur

throughout the Project site and California horned larks were observed frequently during surveys. Observation locations were not mapped because of the low conservation status (WL) and widespread occurrence throughout the site.

### Prairie Falcon: WL

The prairie falcon (*Falco mexicanus*) is on the CDFW watch list and is a USFWS Bird of Conservation Concern. It inhabits dry environments in the North American west from southern Canada to central Mexico. It is found in open habitat at all elevations up to 3,350 m, but is associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Prairie falcons require cliffs or bluffs for nesting though will sometimes nest in trees, on power line structures, on buildings, or inside caves or stone quarries. Ground squirrels and horned larks are the primary food source, but prairie falcons will also prey on lizards, other small birds, and small rodents (Ironwood, 2022).

There were four observations of prairie falcon, either flying through the Project site or perched within the Project site (see BRTR, Figure 9 in POD Appendix G). The entire Project site contains suitable foraging habitat for this species but does not have suitable nesting habitat.

### Black-tailed Gnatcatcher: WL

Black-tailed gnatcatchers (*Polioptila melanura*) are permanent residents from southeastern California and Arizona to southern Texas and northern Mexico. They are found in arid scrublands, desert brush, and dry washes amongst creosote bush, ocotillo, mesquite, paloverdes, and cactus. They live in pairs all year-round, defend their territory, and forage for small insects amongst low shrubs and trees. The Project site contains suitable foraging and potential nesting habitat for this species throughout the site and there was one observation during surveys and avian counts (see BRTR, Figure 9 in POD Appendix G).

## 4.8. Other Special Status Bird Species

Several special-status birds of prey are found seasonally, especially during winter, in the region. These include ferruginous hawk, northern harrier, prairie falcon, and short-eared owl, discussed in detail above. Outside their breeding seasons, these raptors need not return to their nests to feed young or tend eggs allowing them to forage over wide areas, where they capture birds or small mammals. Suitable winter or migratory season foraging habitat for all of these raptors is widely available throughout the region. The Project would eliminate a portion of suitable foraging habitat, cause increased noise and disturbance to adjacent habitat, and may present collision or electrocution hazards, such as the gen-tie line and other Project facilities.

Several species had low potential to occur, as shown in Table 1, and are not discussed in detail. The Project site does not support suitable wintering or nesting habitat or is outside the geographic range for nesting, and occurrences are expected to be of migrants only. These species include redhead, black tern, gilded flicker, black swift, lesser sandhill crane, long billed curlew, Lucy's warbler, American white pelican, purple martin, vermilion flycatcher, bank swallow, Lawrence's goldfinch, Bendire's thrasher, Arizona Bell's vireo, yellow-headed blackbird. The Project may disturb potential stopover habitat if these species migrate through the Project vicinity.

## 4.9. Special Status Bat Species

Bat roosts that occur in the vicinity of the Project site include McCoy Mountains, Eagles Nest Mine approximately 20 miles east of the Project site, within the Little Maria Mountains approximately 20 miles northeast of the Project site, and Paymaster Mine within the Pinto Mountains approximately 30 miles northwest of the Project site (Ironwood, 2022). No active bat roosts were documented on the Project site during any of the surveys to date. It is not expected that any special status bat species would have a substantial roost on the Project site since habitat features most associated with these species (e.g., rock

ledges, cliffs, large tree hollows, mine shafts) do not occur on the Project site. However, roosting opportunities for more common bat species, such as the canyon bat and California myotis, are available in tree cavities, soil crevices and rock outcroppings within dry desert wash woodland habitat. Additionally, suitable foraging habitat for common and special status bats is found on the Project site within desert dry wash woodland and near the adjacent aquaculture farms where water is available year-round. Seven CDFW special status bat species may forage on or near the Project site; they are discussed further below.

Dry wash woodland in the Project site and vicinity may provide limited roosting habitat for certain bat species, as noted below. Other special status bat species known from the region typically inhabit rocky sites and would not be expected to use the Project site for roosting.

## Townsend's Big-Eared Bat: SSC, BLMS, FSS, FOC, H

Townsend's big-eared bat (*Corynorhinus townsendii*) roosts in caves, mines, abandoned dwellings, and large basal hollows of large trees (e.g., redwoods). Townsend's big-eared bat occurs from sea level to approximately 9,000 feet (2743 meters) elevation within a range of habitats. It typically forages along streams and within woodlands. The Project site does not provide roosting areas for Townsend's big eared bat. Foraging habitat occurs along the desert dry wash woodlands and within riparian habitat along artificial water sources near the aquaculture farm adjacent to the Project.

## California Leaf-Nosed Bat: SSC, BLMS, FOC, H

California leaf-nosed bat (*Macrotus californicus*) occurs in the deserts of California, southern Nevada, Arizona and south to northwestern Mexico. In California, it is known from eastern San Bernardino, Riverside, and San Diego counties and all of Imperial County (Ironwood, 2022). California leaf-nosed bat relies on caves and mines for roosting habitat. Foraging habitat typically consists of riparian and desert wash habitats, which occur on the Project site. California leaf-nosed bat may forage within the Project site, but it is not expected to roost due to absence of suitable caves and mines.

## Pallid Bat: SSC, BLMS, FSS, FOC, L

The pallid bat (*Antrozous pallidus*) is a locally common species throughout California, and a year-round resident in most of the range. It occupies a wide variety of habitats at elevations less than 6,000 feet (1829 meters) 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 (Ironwood, 2022). The Project site may provide suitable foraging habitat for pallid bats within the dry wash woodland but does not provide suitable roosting habitat. Acoustic bat surveys for Palen Solar Power Project (about 4 miles east of the Project site) detected pallid bat within the Project vicinity (Ironwood, 2022).

## Western Mastiff Bat: SSC, BLMS, M

The western mastiff bat (*Eumops perotis californicus*) is widespread throughout the southwestern U.S. and into Mexico. Its distribution in California is widespread, with year-round occurrence data primarily in central and southern California (Ironwood, 2022). The western mastiff bat is found in a range of habitats, including coastal, forests, woodland, and desert scrub areas where roosting sites are available (Ironwood, 2022). Roosting habitat typically consists of rocky crevices in canyons and cliffs with vertical or nearly vertical walls. The majority of roost sites are at least two meters above the ground (e.g., on cliff faces) and without obstructions. Suitable habitat for foraging occurs throughout the Project site, but roosting habitat is lacking. Western mastiff bat was detected within the vicinity on acoustic bat surveys for Palen Solar Power Project (Ironwood, 2022).

### Western Yellow Bat: SSC, H

The western yellow bat (*Lasiurus xanthinus*) is a CDFW 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 (Ironwood, 2022). Potential roosting habitat exists within the Project site in desert dry wash woodlands and riparian habitat. Suitable habitat for foraging also occurs in those same areas. Western yellow bat was detected within the vicinity during acoustic bat surveys for the Palen Solar Power Project (Ironwood, 2022).

### Big Free-Tailed Bat: SSC, M

The big free-tailed bat (*Nyctinomops macrotis*) is distributed in the southwest U.S., and northern South America, generally from sea level to 8,000 feet (2438 meters) in elevation. It is rare in California, prefers rocky terrain, and roosts in tree cavities and man-made structures. It wanders in autumn, out of its normal range (Ironwood, 2022). Foraging and potential roosting habitat for the big free-tailed bats occurs within the Project in desert dry wash woodland. Big free-tailed bat was detected within the Project vicinity through acoustic surveys conducted for the Palen Solar Energy Project (Ironwood, 2022).

### Pocketed Free-Tailed Bat: SSC, M

The pocketed free-tailed bat *(Nyctinomops femorosaccus*) is common in Mexico but less common in western North America, from southern California, central Arizona, southern New Mexico, and western Texas (Ironwood, 2022). The pocketed free-tailed bat has been documented in Riverside, San Diego, and Imperial counties. Typical habitats include pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis. Roosting habitat typically includes rock crevices associated with granite boulders, cliffs, or rocky canyons at a height suitable for approach and takeoff (Ironwood, 2022). Pocketed free-tailed bats occur in the desert from March through August, when they then migrate out of the area (Ironwood, 2022). Suitable habitat for foraging exists on the Project site, but roosting habitat is lacking. Call sequences that may have been pocketed free-tailed bat were detected within the Project vicinity during acoustic surveys for Palen Solar Energy Project, but lacked features for definitive confirmation (Ironwood, 2022).

# 5. RISK ASSESSMENT

This section of the BBCS describes Project-specific risks that the Easley Project would or could pose to birds and bats. The USFWS (2010b) recommends that the project-specific risk assessments for solar projects should address the potential for take, including lethal take, based on each of the threats described below (Sections 5.1 through 5.7).

## 5.1. Collision

During the construction, O&M, and decommissioning Project phases, the Project component of greatest potential concern that would pose lethal collision risk to birds or bats is the gen-tie line. Smaller risks would be posed by other components during any of the three phases. These include any above-ground distribution lines, meteorological station(s), guy wires that may support meteorological instruments, and large equipment such as cranes that would be in use during the construction and decommissioning phases. As a solar PV facility, the Project would not include a power tower.

Bird collisions with structures typically occur when the structures are not visible (e.g., bare power lines or guy wires at night), deceptive (e.g., glazing and reflective glare), or confusing (e.g., light refraction or reflection from mist). Transmission lines, including the proposed gen-tie line, present collision hazards to birds. Based on mortality data for projects in the region, including Genesis Solar LLC and Desert Sunlight

Solar Farm, mortality of approximately 24 birds per year per kilometer of gen-tie is expected for the Proposed Action (WEST, 2017a; WEST, 2017b; WEST, 2018c; WEST, 2018d).

While bird fatalities may be expected to occur due to collisions with project facilities and equipment, the risk of significant impact to avian populations is minimal. A collection of 13 fatality monitoring studies at PV solar facilities in three bird conservation regions (BCRs) in California and Nevada have shown the highest percentage of fatalities across all studies were common species including mourning dove, horned lark, house finch, and western meadowlark. Passerines (55.0%) and doves/pigeons (17.0%), on average, are the most common detections (Kosciuch et al., 2020). Carcasses of water-associated birds (e.g., herons and egrets) and water obligate birds (e.g., loons and grebes) have been found at PV solar facilities in the Sonoran and Mojave Deserts, primarily at sites within 60 miles of the Salton Sea. Water associated (6.3%) and water obligate species (7.8%) each compose less than 10% of the detections. Raptors are very uncommon detections (less than 1.0%) (Kosciuch et al., 2020). Five sensitive species that could occur at the Easley Project site have been detected as fatalities in the arrays at other desert sites including loggerhead shrike (four), yellow-breasted chat (two), long-eared owl (one), yellow warbler (one), and yellow-headed blackbird (one). The causal mechanism is not known and is under investigation at other facilities.

Therefore, it is not presently possible to determine if the conditions present at the Project site may cause impacts and/or what level of impacts may occur. The Project would include an anti-reflective coating designed to reduce glare. While the causes of avian injuries and the fatality monitoring studies at commercial-scale solar projects are being evaluated, uncertainty remains because: (1) mortality data has been collected over a relatively short period and still is being evaluated; (2) in many cases, the cause of death is not clear; and (3) mortality information from one project location is not necessarily indicative of the mortality information that might be found at another project location.

The Easley Project will construct all transmission lines and distribution lines according to Avian Power Line Interaction Committee (APLIC) guidelines to minimize the risk of avian and bat collision. Results of post-construction bird and bat monitoring at the Oberon, Arica, and Victory Pass Projects would be used to develop adaptive management measures.

Consistent with LUPA-BIO 16, the Project will design the gen-tie lines without the use of guy wires to the greatest extent feasible, and where guy wires are unavoidable, it will demarcate them using the best available methods to minimize hazards to birds and bats. In addition, if feasible, IP Easley, LLC, is willing to consolidate the gen-tie infrastructure by stringing conductors on existing structures or allowing another project to string its conductors on the Easley Project's poles.

## 5.2. Electrocution Potential

Large birds can be electrocuted by transmission lines if a bird's wings simultaneously contact conductors, or a conductor and a ground wire or grounded hardware. This happens most frequently when a bird attempts to perch or take off from a structure with insufficient clearance between these elements. Distribution lines that are less than 69 kilovolts (kV) but greater than 1 kV generally have less spacing than transmission lines, thus posing an electrocution hazard for perching raptors. Configurations less than 1 kV or greater than 69 kV typically do not present an electrocution potential, based on conductor placement and orientation (APLIC 2006). The Easley gen-tie line is 500 kV so would have minimal electrocution potential and the majority of the Easley Project's medium voltage collector lines would be installed underground.

Results of post-construction bird and bat injury and mortality monitoring at the Oberon, Arica, and Victory Pass Projects would be used to develop adaptive management measures to mitigate or minimize any substantial Project-related avian impacts. IP Easley will design and construct the gen-tie and collector lines to avoid potential for electrocution and minimize potential for roosting on the structures or colliding with

them. These measures would effectively minimize or mitigate adverse effects of electrocution to the extent feasible.

## 5.3. Territory Abandonment

While the majority of the desert dry wash woodland would be avoided and large swaths of native habitat will be available for use by wildlife, construction activities would cause most mobile vertebrate wildlife to leave the site. Animals dispersing from the site would be subject to further adverse effects, including potential mortality. They would be at increased risk of predation as they flush from cover during site clearing. After leaving their home territories, displaced animals may be unable to find suitable food or cover in new, unfamiliar areas. They may attempt to return to their home ranges, possibly resulting in increased predation risk or other effects. If they find food and other resources at new locations off site, these may be within the occupied territory of another individual of the same or similar species, resulting in competition for resources. These displacement effects would apply to common wildlife species and to special-status species.

## 5.4. Nest and Roost Site Disturbances

Many adult birds would flee from equipment during initial vegetation clearance for Project construction. However, nestlings and eggs would be vulnerable to impacts during Project construction. If initial site grading or brush removal were to occur during nesting season, then it likely would destroy bird nests, including eggs or nestling birds. One special-status species, the burrowing owl, is unlikely to flee the site during construction, due to its characteristic behavior of taking cover in burrows. Potential Project impacts and avoidance for burrowing owl are summarized below.

Some birds will likely nest in the Project area during construction and O&M phases, even after initial site preparation. Depending on the species, birds may nest on the ground close to equipment; within the open metal framework of the panel support structures; on buildings, foundations, structures, or construction trailers; or on idle vehicles or construction equipment left overnight or during a long weekend. In areas where construction is phased (e.g., footings, or tower structures) birds may quickly use these features as nest sites between active construction phases. The species most likely to nest in the Project area during construction are common raven, house finch, and mourning dove, all of which are protected by the MBTA and Fish and Game Code Sections 3503 and 3513, but have no other special conservation status.

IP Easley will conduct pre-construction surveys for active nests throughout the entire Project and adjacent off-site habitat areas, beginning January 1 for raptors and hummingbirds and February 1 for other species, and continue through August 15. Pre-construction nest surveys will occur no more than seven days prior to scheduled activities at any given site and will be repeated as needed if activities are delayed. At each active nest, the qualified biologist will delineate and mark buffer areas of various sizes depending upon the species. The qualified biologist will also document baseline environmental conditions and construction activity levels. If a nest would be removed for any reason during the nesting season (while following all regulations in F&G code 3503 and 3503.5), IP Easley, LLC, will notify CDFW and USFWS and retain written documentation of the correspondence. Nests would only be removed if they are inactive, or if an active nest presents a hazard (i.e., being built where it could be harmed). Due to the high probability that birds may nest on site during construction, IP Easley, LLC, will conduct monitoring of the work area throughout the breeding season, so that all active work sites and equipment are monitored at least weekly. During bird breeding season, surveys for active nests will occur no more than 7 days prior to ground disturbance at any work site.

Impacts to burrowing owl and golden eagle are discussed separately, below, due to species specific impacts and avoidance requirements resulting from the sensitivity of nesting to human activity and, in the case of burrowing owl, their presence in burrows during both nesting and non-nesting seasons.

**Burrowing Owl.** Project impacts to burrowing owls would be similar to those described for nesting birds, but construction activities could destroy occupied burrows or cause the owls to abandon burrows during both breeding and non-breeding seasons. If owls are present, construction during the breeding season could cause nest abandonment, or the incidental loss of fertile eggs or nestlings. IP Easley will conduct preconstruction surveys for burrowing owls, possible burrows, and sign of owls (e.g., pellets, feathers, whitewash). If owls or active burrows are found within the solar facility, avoidance measures and set-back distances will be implemented. Disturbance of owls or occupied burrows during the breeding season (February 1 through August 31) will not be permitted. Any unoccupied suitable burrows within the solar facility footprint (verified by the Lead Biologist) will be excavated and filled in under the supervision of the Lead Biologist prior to site preparation. If necessary, passive relocation of burrowing owls will occur and a three-year monitoring program will be implemented. IP Easley will also minimize habitat impacts, avoid direct impacts to owls, and provide a worker environmental awareness training (WEAP) to all personnel on the Project. These measures would aid in preventing take of occupied burrowing owl burrows.

**Golden Eagle.** Human intrusions near golden eagle nest sites have resulted in nest abandonment; high nestling mortality, when young go unattended, due to altered behavior by the parent birds; premature fledging; and ejection of eggs or young from the nest (Pagel et al., 2010). Project activities that result in nest-site abandonment would constitute take under the Bald and Golden Eagle Protection Act (USFWS, 2007). Project construction is not expected to cause direct disturbance to nest sites (e.g., noise, lighting, visual disturbance) in the local nesting territories due to their distance from the site. The nearest known cliff nest sites that have some potential for golden eagle use are approximately 3.5 miles from the Project site. In 2020, active nests were observed in Joshua Tree National Park, which is located approximately 5 miles to the west of the Project site. Regional surveys completed between 2010 and 2015 resulted in observations of active territories and nests, golden eagles, and three young.

## 5.5. Habitat Loss and Fragmentation

**Habitat Loss.** The solar and BESS facility development footprint would result in permanent and long-term impacts to vegetation and habitat types, including Sonoran Creosote Bush Scrub (approximately 1,546 acres), Desert Pavement (approximately 44 acres), and Desert Dry Wash Woodland (approximately 4 acres), pending adjustments during final engineering and development. Site preparation and construction methods are intended to minimize impacts to soils and vegetation, and revegetation of temporarily disturbed areas will replace certain habitat values (e.g., food sources and cover). Vegetation and habitat conditions following construction would likely remain suitable for common species such as common raven, house finch, and mourning dove. Native vegetation will be re-established beneath the arrays and conditions may become suitable for birds. A research study by USGS, UC Davis, and Cornell University is being conducted on neighboring project sites to demonstrate whether such occupancy may be achieved over time.

**Habitat Fragmentation.** Wildlife, including birds and bats, are often restricted to specific habitat types or elevations. Their habitats may be contiguous over extensive areas, or they may be scattered in patches in a landscape. For species with patchy distributions, dispersal between habitat patches may be important in colonizing (or recolonizing) areas or in supplementing demography or genetic makeup in isolated populations. Because large swaths of native vegetation will be retained within the Project application footprint but outside of the Project development footprint, the Project would not present an absolute barrier to bird or bat movement. However, it could reduce movement throughout the area for resident shrubland species, including loggerhead shrike, Crissal thrasher, or Le Conte's thrasher. Any of these species would be likely to disperse around or through the Project site via the undeveloped open areas within the site. For migratory birds or wide-ranging non-migrants routinely flying long distances within or among habitat patches, the Project's effects on habitat fragmentation would be relatively unimportant.

## 5.6. Disturbance Due to Ongoing Human Presence at the Facility

Construction noise would be a substantial increase over existing background noise levels near the solar field site. Although not anticipated to be required, if construction activities were to occur at night, lighting would be required. Noise and lighting during construction could affect wildlife in adjacent habitats by disrupting foraging, breeding, sheltering, and other activities; it could also cause animals to avoid otherwise suitable habitat surrounding the site. The effects of construction noise include annoyance, which could lead to nest or den abandonment; interference with sleep and other activities; and interference with acoustic communication by masking important sounds or sound components, such as territorial calls, contact calls, or alarm calls (Dooling and Popper, 2007). Lighting can affect behavior and physiology and may also increase the risk of predation of wildlife because they may be more detectable to nocturnal predators. Lighting could attract nocturnal insects and, in turn, bats; possibly including special-status bats. IP Easley, LLC, will minimize the impacts of noise and lighting by ensuring that lighting is focused only on work areas, and by adhering to noise restrictions to be identified in the Project's EIR and EA. Lighting would be directed downward and focused to minimize impacts.

During operation, some birds and other small wildlife species would re-occupy the solar field site once construction activities are completed, where ongoing O&M noise and lighting may affect them. Noise and lighting may also affect wildlife in the nearby off-site habitat. These effects would be qualitatively similar to the description of construction phase effects of noise and lighting but would be of lesser magnitude. IP Easley, LLC, will minimize these impacts as described above. In addition, only infrared lighting would be used for security and emergency night work. Motion sensor lighting will be used for wildlife cameras during monitoring and research.

## 5.7. Additional Risk Factors

**Predator subsidies.** Project construction, operation, and decommissioning activities could provide subsidies in the form of trash, litter, or water, which attract unnaturally high numbers of predators such as common ravens, coyotes (*Canis latrans*), and feral dogs. This influx of predators could cause unnaturally high predation pressure on wildlife in the vicinity. Ravens are opportunistic omnivores, and they prey on the eggs and nestlings of native birds, among many other food sources (Zeiner et al., 1990), including juvenile desert tortoises. Ravens and coyotes habituate to human activities and are subsidized by food (trash, road killed animals) and water (irrigation or dust control overspray). For ravens, new perching, roosting, and nesting sites, such as transmission line and other structures, would be introduced or augmented by human encroachment. IP Easley, LLC, will require management of all potential predator subsidies (i.e., food trash, pooled water, roosting/nesting sites, shelter), monitoring of raven presence and abundance, and predator control measures as needed.

# 6. CONSERVATION MEASURES

IP Easley, LLC will adopt conservation measures to avoid and minimize impacts to avian species. The measures that relate to bird and bat conservation are listed and briefly summarized below. The full text of each measure is provided as Attachment A: Mitigation Measures.

**Biological Monitoring.** IP Easley will assign biological monitors to the Project. Duties of the biological monitors will include, but are not limited to, nesting season bird monitoring and reporting, conducting clearance surveys, and removing inactive nests (except for raptor nests).

**Avian Species Protection.** IP Easley, LLC, will avoid or minimize impacts to avian species specifically by containing all food-related trash in containers inaccessible to ravens or other birds; regularly inspecting and maintaining bird deterrent netting; securing Project excavations and covering or capping all pipes to prevent avian entrapment; and reporting all dead or injured special-status bird species to CDFW.

**Burrowing Owl Avoidance and Relocation:** Burrowing owl protection and relocation will be implemented. Pre-construction surveys for burrowing owls, possible burrows, and sign of owls (e.g., pellets, feathers, whitewash) will be conducted throughout each work area no more than 30 days prior to construction. If burrowing owl or active burrows are found within the solar facility, avoidance and set-back distances will be implemented within the solar facility. Disturbance of owls or occupied burrows during the breeding season from February 1 through August 31 will be avoided. Unoccupied burrows will be excavated and filled in under the supervision of the Lead Biologist prior to site preparation. If relocation of burrowing owls is necessary, a plan with detailed methods for passive relocation, artificial burrow construction, and monitoring and management, including a three-year monitoring program, will be implemented.

**Gen-tie lines.** IP Easley, LLC, will design the gen-tie line support structures and other facility structures in compliance with APLIC guidelines and current standards and practices to discourage their use by raptors for perching or nesting (e.g., by use of anti-perching devices). This design will also reduce the potential for increased predation of special-status species, such as the desert tortoise. Mechanisms to visually warn birds, such as permanent markers or bird flight diverters, will be placed on gen-tie lines at regular intervals to prevent birds from colliding with the lines (APLIC, 2006). To the extent practicable, the use of guy wires shall be avoided because they pose a collision hazard for birds and bats. Necessary guy wires will be clearly marked with bird flight diverters to reduce the probability of collision. Shield wires will also be marked. Gen-tie lines will maintain sufficient distance between all conductors and grounded components to prevent potential for electrocution of the largest birds that may occur in the area (e.g., golden eagle and turkey vulture). They will utilize non-specular conductors and non-reflective coatings on insulators.

# 7. MONITORING AND REPORTING

This section summarizes the contents of a Nesting Bird Management Plan (NBMP) (Attachment B) and a standardized approach to document and report all bird and bat injuries and mortalities that occur during the construction and O&M phases of the Project. The NBMP will estimate post-construction fatality rates associated with Project features, and institute sampling methodologies to estimate searcher efficiency and carcass persistence to incorporate into the post-construction fatality rate assessment. The post-construction monitoring methods and sampling protocol is based on the standards, guidelines, and proposed methods developed for renewable energy industries to quantify fatality estimates for birds and bats due to interactions with energy-related infrastructure development and maintenance (Anderson et al., 1999; APLIC, 2005, 2006 and 2012; CDFG and CEC, 2007; USFWS, 2010a and 2012; Kosciuch et al., 2020; Desert Harvest Solar Project, 2013). Details on the methodology for monitoring during construction and O&M phases (post-construction), procedures for handling and reporting injured or deceased wildlife, sampling protocol and efficiency testing, agency reporting, and adaptive management are provided below.

## 7.1. Bird and Bat Monitoring Requirements

Several of the conservation measures summarized above specify monitoring and reporting requirements. The Lead Biologist will be responsible for monitoring and reporting on biological resources for Project activities, beginning with pre-construction surveys and continuing through the construction and O&M Project phases. Specific monitoring requirements related to bird and bat conservation are listed below.

**Construction Phase Only:**

- Biologists will conduct pre-construction surveys of work areas prior to the start of construction (time varies for different species).
- Worker Environmental Awareness Training would be given to all personnel working at the Project.
- Biologists will ensure biologically sensitive resources are clearly marked for avoidance.
- Biologists will conduct monitoring of construction activities for compliance with agency permits and other Project requirements.

**Construction and O&M Phases:**

- Lead Biologist who is the primary point of contact regarding all biological resources and compliance will be responsible for all agency reporting, communication, and submittals.
- Biologists and on-site qualified staff will conduct required ongoing monitoring and reporting during O&M activities (Section 7.2).
- Within nesting bird season, the Lead Biologist will survey for nesting birds prior to vegetation clearance or construction activity that may affect active nests.
- Active nests will be monitored to ensure that measures are being employed to minimize disturbance to nesting birds. The Lead Biologist must keep updated records of all active nests, buffers, buffer reductions, and nest outcomes (Attachments C, D: Avian Nest Reporting Form).

## 7.2. Bird and Bat Monitoring Approach and Strategy

Bird and bat fatality and injury monitoring is being performed at the neighboring Oberon, Arica, and Victory Pass Projects. The existing plans for these projects include monitoring and sampling methods, sampling design, and survey and data collection protocols. It provides a standardized approach to document known and projected bird and bat fatalities and injuries, and to estimate seasonal and annual post-construction fatality rates associated with Project features. Results of post-construction bird and bat monitoring at the Oberon, Arica, and Victory Pass Projects would be used to inform the Easley Project, to develop adaptive management measures, and to minimize impacts to avian and bat species.

## 7.3. Injury and Mortality Procedures

This section details procedures to be employed in the event of any reportable incident of bat or bird mortality, as defined above. As part of this process, a Special Utility Permit (SPUT) will be obtained from the United States Fish and Wildlife Service, which authorizes the collection, transport and temporary possession of migratory birds. No birds, bats, or carcasses will be handled except as allowed under the SPUT. A "bird kit" with handling supplies such as bags and gloves will be onsite at all times. The kit will include:

- Copies of Avian/Bat Incident Reporting Forms
- Avian/Bat Injury and Mortality Log binder for retaining forms
- Easley Project personnel and agency contact information
- Camera
- Zip-top bags (to be used if carcasses or parts must be retained at agency direction)
- Garbage bags or similarly sized bags with zip fasteners (for larger carcasses)
- Latex or protective disposable gloves
- Large forceps
- Leather gloves
- Pin flags and flagging
- Permanent markers, pencils, and pens
- 3x5 index cards

All bird and bat injuries and fatalities discovered during, or incidental to, the standard carcass surveys will be documented according to the requirements and standards reflected in the USFWS Avian/Bat Incident Reporting Form (E).

If a dead or injured bird or bat is found, the following procedures will be followed:

1. Easley Project personnel will immediately report observations of injured birds or bats to the site manager responsible for implementing the BBCS. When an injured bird or bat is found, Easley Project personnel will maintain a large enough distance so as not to further disturb or distress the animal. Personnel will follow the procedures for reporting and care of injured wildlife found in step 2 below. If a bat is hanging, head down, in a concealed or semi-concealed location, personnel will not disturb it, but will re-check later. If a bird or bat is certainly dead, Easley Project personnel will continue on to step 3 below.

2. Easley Project personnel will in, turn, report to the applicable agency contact for further instructions. No live animal will be handled or harassed in any way by unauthorized personnel. Only qualified personnel who are trained to implement BBCS injury procedures and appropriately permitted as applicable will be authorized to handle dead or injured animals.
   - The Easley Project site manager will contact CDFW for further instructions and to determine whether a rehabilitator should come and pick up the injured animal. If the injured animal is found after normal business hours, the site manager will leave a message (if possible) and report it again the next available working day.
   - If Easley Project personnel cannot reach the appropriate agency contact with the initial phone call, they will phone the USFWS Division of Law Enforcement and request further instruction.
   - Easley Project personnel will fill out an Avian/Bat Incident Reporting Form and place the form in the Easley Project Avian/Bat Injury and Mortality Log maintained for the facility.
3. For dead bats or birds, Easley Project personnel will flag the location of the carcass while data is being taken. Carcasses present a potential human health hazard and may attract scavengers (bird and mammal) to Project facilities and work areas, further increasing the risk of wildlife mortality on the Project site. Carcasses of eagles or other raptors, state or federally listed species, and sensitive species require special consideration described under step 8. Unless otherwise directed (see step 8), other carcasses will be covered with an open crate or similar container to prevent scavenging. Scavenged or scattered carcasses (e.g., bones, feathers), will be left in place or removed based on agency feedback (Number 7 below), and the location documented so that they are not reported again during subsequent facility inspections.
4. Easley Project personnel will complete an Avian/Bat Incident Reporting Form (Attachment E). All reportable incidences discovered be recorded using the reporting form that identifies the type of animal (bird or bat), the species (if known), its condition (e.g., predated, injured) with evidence of collision or other injury, surrounding vegetation type or Project component, and the date, time, and location of the incident. Personnel will then determine whether the death appears to be related to Project construction or O&M activities. If the mortality apparently occurred through contact with equipment, the observer would also list the type of equipment and damage sustained by the equipment (if any).
5. Easley Project personnel will record the date and time of the discovery and the observer's name on a 3x5 index card using a permanent marker. This card will be photographed with the bird or bat remains to ensure that photos and datasheets are correctly correlated to the incident.
6. Easley Project personnel will photograph the bird or bat carcass as it was found. The carcass will be photographed from at least four angles: two close-up shots with the 3x5 index card next to the animal, and two more expansive views that include the area surrounding the animal.
7. After completing the Avian/Bat Incident Reporting Form and photographs, Easley Project personnel will immediately contact the site manager responsible for implementing the BBCS. The site manager will take the appropriate steps listed below to report the mortality to the resource agencies. Based on feedback from the agencies, personnel will be instructed to take appropriate action (e.g., remove the carcass). These actions will be recorded on the Mortality Reporting Form and maintained in the Easley Project Avian/Bat Injury and Mortality Log, copies of which will be provided to agency representatives on a quarterly basis. The site manager will be responsible for making sure the incident data is entered into the USFWS Bird Fatality/Injury Reporting Program (https://birdreport.fws.gov/). A record of all dead or injured bird or bat species will be maintained in the Easley Project Avian/Bat Injury and Mortality Log, copies of which will be provided to agency representatives on request and as part of the quarterly report.

8. Carcasses will not be handled by Easley personnel except under authorization of the Project SPUT permit. Carcasses will be temporarily stored on-site at the specific direction of USFWS, until they can be shipped to a specified laboratory or institute. If directed, Project personnel will place a large, open crate upside-down over the carcass, and secure the crate to the ground with stakes or other devices to reduce scavengers' access to the carcass until it can be appropriately handled under permit.

Annual reports will be provided to USFWS, CDFW, and BLM, thoroughly summarizing each year's findings. The quarterly reports will be brief and include a list of species found with associated spatial and temporal information. A full statistical analysis will not be completed for the quarterly report. The goal of the quarterly report will be to provide a detailed summary of monitoring results to date and to identify any major concerns with the monitoring program. The annual report will provide a robust statistical analysis of the results of seasonal monitoring results. The report will evaluate results relative to the study objectives. The report will be provided to the Technical Advisory Group (TAG) which consists of, at least one member, of the BLM, USFWS, and CDFW, for review and revision, if necessary, and quarterly meetings will be held to discuss the annual effort. If a significant fatality event is discovered (e.g., eagle or listed bird species), more than three raptors in a single event, more than ten birds or bats in a single event) or if nesting attempts reach a nuisance level, the site manager will contact the USFWS and CDFW as soon as possible for coordination.

## Injured Bird Rescue

Any injured or rescued birds located during surveys or monitoring will be recorded. A qualified biologist will determine if the injured bird should be transported to the nearest CDFW-permitted rehabilitation facility, or if the individual should be released. Injured raptors will be handled only by experienced, trained personnel and/or biologists and will be taken only to rehabilitation facilities that are permitted to handle raptors. The closest rehabilitation facilities to the Project area that are capable of handling injured birds are outlined in Table 3.[1] Rehabilitation facilities will be compensated by the Project ROW holder for costs associated with each bird put into their care.

**Table 3. Wildlife Rehabilitation Facilities Near the Project Area**

| Wildlife Facility Name | Address | Contact | Specialty |
|---|---|---|---|
| Coachella Valley Wild Bird Center | 46500 Van Buren<br>Indio, CA 92201 | Phone: 760-347-2647<br>Hours: Sat-Sun 9:00am-2:00pm | Water birds, songbirds, raptors |
| The Living Desert Zoo & Gardens | 47900 Portola Avenue<br>Palm Desert, CA 92260 | Phone: 760-346-5694 x8 x1;<br>Contact North American Manager<br>Hours: June-Sept 8:00am-1:30pm;<br>Oct-May 9:00am-5:00pm | Native Birds and Reptiles |
| Hope Wildlife Rescue | 18950 Consul Avenue<br>Corona, CA 92881 | Phone: 951-279-3232<br>No hours listed | Most birds, hawks, owls, and small mammals |
| All God's Creatures Wildlife Rescue and Rehabilitation | Chino Hills, CA | Phone: 909-393-1590<br>No hours listed | Wildlife, songbirds, raptors |
| International Bird Rescue | Los Angeles Center<br>San Pedro, CA 90731 | Phone: 310-514-2573<br>Hours: 8:00am-5:00pm | Waterbird Rescue, Mass Stranding Events |

Any stranded, but uninjured, water-associated birds discovered during post-construction surveys will be secured and transferred, by a qualified biologist, to Lake Tamarisk and be released into the water. If a qualified biologist if not available, all stranded birds (injured or uninjured) will be taken to the nearest

[1] A list of CDFW-permitted wildlife rehabilitation facilities can also be found at https://wildlife.ca.gov/Conservation/Laboratories/Wildlife-Investigations/Rehab/Facilities

rehabilitation center that can care for water-associated birds (Table 4). Injured or exhausted water-associated birds should be taken to the International Bird Rescue.

If a mass-stranding event involving many water-associated birds occurs within the Project area, it will be determined if they are injured and if so, transferred to the nearest rehabilitation facility (Table 4). International Bird Rescue can also assist with these mass stranding events.

If a Project personnel identifies a dead bird or bat that is a special-status or listed species, for which handling is not specifically authorized under the SPUT permit, data will be collected, and photos taken as described for other fatalities. In addition, the personnel will flag the carcass, cover it with a protective surface such as a bucket, and leave it in place. If it is confirmed to be a special-status or listed species under the ESA or is a golden eagle, the Project personnel will need to immediately notify a USFWS Office of Law Enforcement special agent with 24 hours to determine appropriate next-step actions. CDFW will also be notified to prompt coordination between USFWS and CDFW.

# 8. ADAPTIVE MANAGEMENT

## 8.1. Adaptive Management Process

Adaptive management is an iterative process in which impact minimization and mitigation measures are continuously reevaluated to improve upon them to meet management objectives. As action is taken, the results are monitored, and future actions are modified accordingly if necessary. This is an especially useful strategy for managing resources where uncertainty surrounds appropriate management actions and their consequences. Because utility-scale solar energy development is a relatively new and rapidly expanding industry, its effect on bird and bat populations is uncertain. There is also uncertainty surrounding current fatality estimates as well as which measures are most effective at reducing fatalities and mitigating impacts to bird and bat populations. Fatality estimates are expressed per unit area (e.g., acres) per MW, per year. As more data are gathered at facilities and new strategies are tested, these uncertainties will be reduced, and agency guidance will be refined.

IP Easley is committed to incorporating adaptive management principles into its BBCS in coordination with the Project TAG. To facilitate the adaptive management process, IP Easley will submit seasonal monitoring reports to USFWS, BLM, and CDFW summarizing results of operational monitoring and the wildlife reporting system, including estimates of fatalities calculated as fatalities/MW/year.

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# Attachment A

## MITIGATION MEASURES

***To be developed during the NEPA and CEQA processes and added once mitigation is finalized.***

# Attachment B

## NESTING BIRD MANAGEMENT PLAN (NBMP)

***Note: the NPMP is POD Appendix O and it will be copied/attached here as a reference once it is final.***

# Attachment C

## CONSTRUCTION PHASE – AVIAN NEST REPORTING FORM

## Construction Phase – Solar Facility Avian Nest Reporting Form

**Discoverer's Name** _____

**Phone Number** _____ **Date of Nest Discovery** _____

**Nest Location (circle one)** Tree Shrub Structure Ground

**Nest Coordinates** _____

**Other Location Information** _____

**Surrounding Habitat (circle all that apply)**

Agricultural Desert Scrub Riparian

Grassland Disturbed/Developed Bare

**Nest Condition (circle one)** Active Inactive, Intact
Inactive, Partial Deterioration Inactive, Heavy Deterioration

**Describe any Bird Signs around the Nest (feathers, scat, prey remains)** _____

_____

**Are Birds Present? (circle one)** Yes No

**Number of Birds Visible** _____

**Age of Bird(s) (circle all that apply)** Adult Juvenile Nestling Eggs Unknown

**Bird Species (if known)** _____

**Type of Bird (circle one if species is unknown)**

Diurnal Raptor (hawk, falcon, eagle) Owl Crow/Raven

Passerine (songbird) Unknown

**Risk to Birds/Construction (circle one)**

No Risk Potential Risk – Not Imminent Potential Risk – Imminent

**Additional Comments** _____

_____

_____

## Construction Phase – Gen-tie Line Avian Nest Reporting Form

**Discoverer's Name** _____

**Phone Number** _____ **Date of Nest Discovery** _____

**Nest Location (circle one)** Tree Shrub Structure Ground

**Nest Coordinates or Closest Pole Location** _____

**Other Location Information** _____

**Surrounding Habitat (circle all that apply)**

| | | |
|---|---|---|
| Agricultural | Desert Scrub | Riparian |
| Grassland | Disturbed/Developed | Bare |

**Nest Condition (circle one)** Active Inactive, Intact
Inactive, Partial Deterioration Inactive, Heavy Deterioration

**Describe any Bird Signs Around the Nest (feathers, scat, prey remains)**

_____

_____

**Are Birds Present? (circle one)** Yes No

**Number of Birds Visible** _____

**Age of Bird(s) (circle all that apply)** Adult Juvenile Nestling Eggs Unknown

**Bird Species (if known)** _____

**Type of Bird (circle one if species is unknown)**

| | | |
|---|---|---|
| Diurnal Raptor (hawk, falcon, eagle) | Owl | Crow/Raven |
| Passerine (songbird) | Unknown | |

**Risk to Birds/Construction (circle one)**

No Risk Potential Risk – Not Imminent Potential Risk – Imminent

**Additional Comments** _____

_____

_____

# Attachment D

## OPERATION AND MAINTENANCE – AVIAN NEST REPORTING FORM

## Operational Phase – Solar Facility Avian Nest Reporting Form

**Discoverer's Name** _____

**Phone Number** _____ **Date of Nest Discovery** _____

**Nest Location (circle one)** Facility Equipment or Structure Tree Shrub Ground

**Nest Coordinates** _____

**Other Location Information** _____

**Surrounding Habitat outside of Solar Array Fence (circle all that apply)**

Agricultural Desert Scrub Riparian

Grassland Disturbed/Developed Bare

**Nest Condition (circle one)** Inactive Under Construction Active

**Describe any Bird Signs around the Nest (feathers, whitewash, scat, prey remains)**

_____

_____

**Are Birds Present? (circle one)** Yes No

**Number of Birds Visible** _____

**Age of Bird(s) (circle all that apply)** Adult Juvenile Nestling Eggs Unknown

**Bird Species (if known)** _____

**Type of Bird (circle one if species is unknown)**

Diurnal Raptor (hawk, falcon, eagle) Owl Crow/Raven

Passerine (songbird) Unknown

**Risk to Solar Array and Equipment (circle one)**

No Risk Potential Risk – Not Imminent Potential Risk – Imminent

**Additional Comments** _____

_____

_____

## Operations Phase – Gen-tie Line Avian Nest Reporting Form

**Discoverer's Name** _____

**Phone Number** _____ **Date of Nest Discovery** _____

**Pole Number of Nest Location** _____

**Other Location Information**

_____

**Surrounding Habitat (circle all that apply)**

| | | |
|---|---|---|
| Agricultural | Desert Scrub | Riparian |
| Grassland | Disturbed/Developed | Bare |

**Nest Condition (circle one)** Inactive Under Construction Active

**Describe any Bird Signs Around the Nest (feathers, scat, prey remains)** _____

_____

**Are Birds Present? (circle one)** Yes No

**Number of Birds Visible** _____

**Age of Bird(s) (circle all that apply)** Adult Juvenile Nestling Eggs Unknown

**Bird Species (if known)** _____

**Type of Bird (circle one if species is unknown)**

| | | |
|---|---|---|
| Diurnal Raptor (hawk, falcon, eagle) | Owl | Crow/Raven |
| Passerine (songbird) | Unknown | |

**Risk to Electrical Equipment (circle one)**

Potential Risk – Not Imminent Potential Risk – Imminent

**Additional Comments** _____

_____

_____

# Attachment E

## AVIAN/BAT INCIDENT REPORTING FORM

## Avian/Bat Incident Reporting Form

**Discoverer's Name** _____

**Phone Number** _____ **Date of Discovery** _____

**Date and Time of Incident/Discovery** _____

**Location, include Pole and GPS Coordinates (if available)** _____

_____

**Species (if known)** _____

**Type of Bird or Bat (circle one if species is unknown)**

| | | |
|---|---|---|
| Diurnal Raptor (hawk, falcon, eagle) | Owl | Crow / Raven |
| Passerine (songbird) | Bat | Unknown / Other |

**Number of Individuals** _____

**Age of Bird(s) (circle all that apply)** Adult Juvenile Nestling Eggs Unknown

**Surrounding Habitat (circle all that apply)**

| | | |
|---|---|---|
| Agricultural | Chaparral/Shrubs | Desert Scrub |
| Disturbed/Developed | Grassland | Riparian |

**Type of Incident (circle one)** Injury Mortality

**Description of Incident**. Include condition of bird, circumstances of incident and cause of injury or mortality (if known), and any damage to facilities._____

_____

_____

_____

_____

_____

_____

**Please attach a picture of the bird or bat, if possible.**

**OPERATIONS MORTALITY REPORTING FORM FOR AVIAN AND BAT SPECIES**

DATE: _____ TIME: _____ OBSERVER: _____

PROXIMAL TO PROJECT COMPONENT: _____

**CARCASS POSITION**

GPS COORDINATES (UTM NAD83) 11S East: _____ North: _____

BEARING (degrees) to PROJECT COMPONENT: _____

DISTANCE (meters) to PROJECT COMPONENT: _____

**CARCASS DESCRIPTION**

SPECIES: _____

SEX (*circle*): M F U AGE (*circle*): A J U Tag/Band Number: _____

CONDITION (*circle*): intact scavenged dismembered feather spot injured ESTIMATED TIME SINCE DEATH/INJURY (no. of days): >1 1 2 3 4 5 6 7 7+ CAUSE OF DEATH:

_____

_____

OBSERVABLE INJURIES:

_____

_____

SUBSTRATE/GROUND COVER (*at carcass location)*:_____

DISPOSITION OF CARCASS[1] (*circle*): left in place removed collected for trials collected for other: _____

SHIPPED TO:

[name of institution] _____

[physical address] _____

[phone/email] _____

**WEATHER CONDITIONS**

AIR TEMPERATURE (degrees Fahrenheit): _____

PRECIPITATON (last 24 hours, *circle*): none light rain rain heavy rain hail snow

CLOUD COVER (*circle*): clear mostly clear partly cloudy mostly cloudy cloudy

WIND DIRECTION: _____ SPEED (mph, *circle*): 0-10 10-20 20-30 30+ gusty

NOTES (describe noteworthy weather conditions since last search, including high wind, fog, precipitation, and storm events):

_____

_____

_____

_____

**PHOTOGRAPHS[2]:**

Close Up: Photo 1 _____ Photo 2 _____

Landscape: Photo 3 _____ Photo 4 _____

PHOTO NOTES:

_____

_____

**NOTIFICATION[3]:**

DATE: _____ TIME: _____

NAME: _____ AGENCY/ASSOCIATION: _____

**NOTES:**

_____

_____

_____

_____

_____

[1] Permit required to handle bird carcasses.

[2] At least four photographs should be taken. Two should be close-in shots of the carcass and should be taken from at least two different angles. Two should be shots taken farther away showing the landscape (project components, surrounding habitat, etc.) and should be taken from at least two different angles).

[3] Indicate who was notified of the event, date, time, etc.