U.S. Fish and Wildlife Service

Environmental Assessment

California Flats Solar, LLC

Eagle Non-purposeful Disturbance Take Permit Request

California

Finding of No Significant Impact

Prepared by
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I. Introduction

This Finding of No Significant Impact (FONSI) addresses the issuance of a non-purposeful eagle take permit pursuant to the Bald and Golden Eagle Protection Act (Eagle Act) (16 *United States Code* [U.S.C.] 668–668d) and its permitting regulations (50 *Code of Federal Regulations* [CFR] 22.26) for the disturbance to one breeding pair of golden eagles for one breeding season associated with the construction of the California Flats Solar Project, California Flats Solar, LLC (Applicant) (California Flats) in Monterey County, California.

In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4321 et seq.) and its implementing regulations (40 CFR 1506.6 and 43 CFR 46.300), we, the U.S. Fish and Wildlife Service (Service) prepared an Environmental Assessment (EA) analyzing the impacts to the human environment associated with permit issuance based on the California Flats Solar Project Eagle Non-Purposeful Take Permit Application (EA, Appendix A) (Application), as well as other alternatives. The EA is incorporated by reference into this FONSI and provided as Attachment 1. Permit issuance will authorize eagle take that is incidental to otherwise lawful operational activities described in Section E of the Application.

The EA and Application detail the impacts of the incidental disturbance take on golden eagles and how these impacts would be avoided, minimized, and mitigated. Eagle take permits may be issued only in compliance with the conservation standards of the Eagle Act. This means that to consider permit issuance, we must determine whether the take is compatible with the preservation of the golden eagle, defined as "consistent with the goal of stable or increasing breeding populations" (74 *Federal Register* [FR] 46836; September 11, 2009). The EA evaluates a range of reasonable alternatives, based on their ability to meet our purpose and need, and the associated impacts to the human environment. Upon review of the EA, the Service concludes that a finding of no significant impact is appropriate. Following review and analysis, the Service has chosen to issue a permit for activities under our Selected Alternative, which is Alternative 3 of the EA (Attachment 1).

II. Background

The EA analyzes the effects on the human environment of our proposed issuance of a short-term eagle take permit to allow non-purposeful disturbance take of one breeding pair of golden eagles for one breeding season. The analysis focuses on golden eagles, but also addresses other elements of the human environment, such as whether this action would substantially burden a Native American tribe's free exercise of its religion.

The Applicant is constructing a 280-megawatt (MW) alternating current (AC) photovoltaic (PV) solar power facility in unincorporated southeastern Monterey County, approximately seven miles southeast of the community of Parkfield and 25 miles northeast of the City of Paso Robles, near the borders of Monterey, San Luis Obispo, Kern, Kings and Fresno counties. Road access to the project is through San Luis Obispo County.

Phase I of the project is under construction. The project will be operated on an approximately 3,000-acre portion of an existing 72,000-acre cattle ranch, known as the "Jack Ranch." The project site is located in an area that is optimal for solar energy development, and has been identified as a Competitive Renewable Energy Zone (CREZ) under the State's Renewable Energy Transmission Initiative (RETI) (County of Monterey 2014a). With elevations of around 1,700 feet, the site is situated above the coastal marine layer and, unlike many other inland central California areas, is not subjected to "tule fog" during the winter. The project site therefore experiences substantial year-round sunlight. An existing 230 kilovolt (kV) transmission line with available transmission capacity, the Morro Bay-Gates line, transects the site.

III. Alternatives Considered

The EA analyzes the following Alternatives:

- Alternative 1: No Action
- Alterative 2: Issue Permit to Allow Installation of a Nesting Deterrent Device in One Golden Eagle Nest for One Breeding Season
- Alterative 3: Issue Permit to Allow Disturbance Take to One Golden Eagle Pair for One Breeding Season (Selected Alternative)

Evaluation of Alternatives

The EA evaluates potential impacts that could result from the issuance of the non-purposeful eagle take permit based on the Application or alternatives to the permit application. We developed the EA to assist us in evaluating effects on the human environment and assessing the significance of the impacts that could result from the alternatives. "Significance" under NEPA is defined by regulation at 40 CFR 1508.27, and requires short- and long-term consideration of both the context of a proposal and its intensity. As required by NEPA, all alternatives must undergo an equal level of analysis, and the final proposal may include all or some components of a single alternative, or it may include a combination of components from more than one alternative.

Selected Alternative

The Selected Alternative for our issuance of a non-purposeful eagle take permit to the Applicant for the California Flats project is Alternative 3 of the EA.

SELECTED ALTERNATIVE: ISSUE PERMIT TO ALLOW DISTURBANCE TAKE TO ONE GOLDEN EAGLE PAIR FOR ONE BREEDING SEASON

Under the EA's Alternative 3, our Selected Alternative, we would issue a permit allowing unrestricted disturbance take authorization within one mile of one eagle nest for a single breeding season (2017). In addition, the Applicant would provide compensatory mitigation by retrofitting power poles sufficient to compensate for the loss of a single nesting season's productivity for one breeding pair at a 2:1 mitigation ratio. If the eagles do not attempt to nest the following breeding season, this mitigation would be doubled. To address future impacts to eagles from future construction seasons and project operations, under this alternative, we will require the Applicant to apply for eagle take authorization within six months of permit issuance.

Effects of Implementation

As described in the EA, implementing any of the identified action alternatives would result in no significant impacts to any of the environmental resources identified in the EA. Therefore, implementing the Selected Alternative would result in no significant impacts to any of the environmental resources identified in the EA. Our Selected Alternative is consistent with the purpose and need stated in the EA. A summary of the impact analysis, mitigation measures, EA conclusions, and cultural practices follows.

Eagles

In determining the significance of effects of each alternative on eagles, we screened each alternative against the Eagle Act's permit issuance criteria (Chapter 1 of the EA) using the quantitative tools available in our ECP Guidance (Service 2013a). We also conducted a qualitative analysis based on our knowledge of the area, attendance at technical meetings, discussions with other local experts, and studies of local eagle populations.

The Service has interpreted the conservation standard of the Eagle Act to require maintenance of stable or increasing breeding populations of eagles (74 FR 46836; September 11, 2009). The Service independently evaluated the potential impacts from project operations along with the implications for direct, indirect, and cumulative effects. We developed conservative risk estimates for the project and our cumulative effects analysis to be protective of the species.

Take Authorization

Effects of authorizing take by disturbance of a single golden eagle breeding pair by construction activities associated with the California Flats Solar Project in Monterey County, California occurring within one mile of an inactive golden eagle nest located at 35°53'00.35"N, 120°19'40.68"W (19A; see Application, Appendix 1 of EA) during the 2017 eagle breeding season (1 February 2017 to 31 August 2017) may entail the loss of one year of productivity for the eagle pair.

In the Service's evaluation of the Eagle Act permit regulations it was estimated that breeding golden eagle pairs produce 0.55 young eagles per year (Service 2016b). When considering a take authorization, it is the Service's practice to round take values up to the nearest whole number representing the take of a whole bird. Therefore, we are considering authorization of the take of one eagle (0.55 rounded to one) for the assumed loss of productivity due to authorized disturbance near this nest site.

Monitoring

As described in greater detail in Chapter 2 of the EA, the Applicant will monitor the nesting territory of the eagle pair described above for evidence that the eagle pair continues to occupy the territory. As the disturbed eagle pair may have increased interactions with other eagles in the area and may alter the dynamics of the area eagle population, the Applicant will monitor all eagle use, during the eagle breeding season, within 10 miles of the project footprint for the duration of the permit and up to five years after its expiration.

Cumulative Effects

Cumulative effect estimates were calculated for the Shiloh IV Wind Project at 12.3 percent of the local area population taken annually (Service 2014) and for the Alta East Wind Project at 8 percent of the local area population taken annually (Service 2016a). California Flats Solar Project is located geographically about halfway between these two wind projects and within the same mountain range, the Diablo Range, as the Altamont Wind Pass Resource Area, which accounted for the majority of eagle take in the Shiloh IV project analysis. We therefore believe the estimate for the cumulative effects for California Flats Solar Project will fall within the range of these two estimates, 8-12.3 percent. To address these estimated cumulative effects we will require a compensatory mitigation ratio of 2:1.

Conclusion

While the incremental effect of the project is small and the impact intensity is low of authorizing disturbance that may affect productivity of one golden eagle pair for one breeding season, the project does contribute to local and possibly regional adverse effects on the species.

We have determined that, by issuing a permit, the Service would have a means to ensure that take of eagles would be minimized through implementation of required minimization and avoidance measures and offset by the retrofitting of additional utility power poles at levels above that currently undertaken by the utility company, and that these activities will help accomplish our population goal for eagles. Because the Applicant would offset take through compensatory mitigation at a 2:1 ratio, issuance of this is permit would be compatible with the preservation of golden eagles. It is our opinion that issuance of this permit will reduce impacts to eagles compared to allowing the project to operate without the conservation benefits required under a permit.

Therefore, the Service has determined that the direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of bald eagles and golden eagles.

IV. Significance Criteria

The Selected Alternative will not have a significant effect on the human environment. This conclusion is based on an examination of the significance criteria defined in 40 CFR Section 1508.27, and on the analysis in the EA.

Context

NEPA requires consideration of the significance of an action in several contexts, such as society as a whole (human, national), the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action. For instance, in the case of a site-specific action, significance would usually depend on the effects in the locale rather than in the world as a whole. Both short- and long-term effects are relevant in accordance with 40 CFR 1508.27(a). For purposes of analyzing the Selected Alternative, the appropriate context for potential impacts associated with the Selected Alternative is local and regional, because the Selected Alternative does not affect statewide or national resource values. The context of the Selected Alternative points to no significant unmitigated environmental impact considering the following (as discussed in Chapter 4 of the EA):

- The Applicant will offset golden eagle take and cumulative impacts though compensatory mitigation. This will ensure that the impacts of issuing an eagle take permit to the Applicant on the local and regional golden eagle populations will be less than significant.
- As discussed in Chapter 4 of the EA, issuance of an eagle take permit to the California Flats project for disturbance take of one eagle breeding pair for one breeding season, including the take of eagles anticipated under the permit, is not expected to interfere with cultural practices and ceremonies related to eagles, or to affect tribal use of eagle feathers. Any eagle remains that are found will be sent to our Repository and distributed to tribes for religious use. Under the Selected Alternative, increased monitoring should ensure that any eagle remains in the project area are found in a timely manner, facilitating efficient distribution to tribes.

Intensity

The term "intensity" refers to the severity of a proposed action's impact on the environment. In determining the intensity of an impact, the NEPA regulations direct federal agencies to consider ten specific factors, each of which is discussed below in relation to the Selected Alternative for the project.

1. *Impacts can be both beneficial and adverse and a significant effect may exist regardless of the perceived balance of effects.*

   While consideration of the intensity of project impacts must include analysis of both beneficial and adverse effects, only a significant adverse effect triggers the need to prepare an environmental impact statement (EIS) (40 CFR 1508.27). The potential beneficial effects and adverse impacts of the Selected Alternative are discussed briefly below.

   Beneficial Effects. As described in Chapter 4 of the EA, issuance of an eagle permit for disturbance take under the Selected Alternative would not result in adverse effects to golden eagle populations, but may also benefit other raptors at risk of electrocution on electric utility poles. Our analysis is in comparison to the No-Action Alternative, under which the project continues to construct without an eagle take permit's compensatory mitigation, implementing other minimization/avoidance commitments, or applying for eagle take authorization for future construction and project operations. In addition, issuance of this permit will allow the Applicant to operate in compliance with the Eagle Act should eagle take occur and comply with commitments under their project's Power Purchase

Agreement.

Adverse Effects. As described in detail in Chapter 4 of the EA, the construction of California Flats will result in adverse impacts primarily to the golden eagle breeding pair that utilizes nest 19A (see Application, Appendix 1 of EA). All known adverse impacts have been mitigated to the extent practicable by designing the Selected Alternative to avoid golden eagle disturbance take as much as possible. The EA describes commitments to avoid, minimize, and otherwise mitigate for impacts to golden eagles near the California Flats project site. Eagle use and activity impacts and will be monitored and reported. Mitigation included in the EA addresses and substantially reduces the potential impacts to less than significant levels under NEPA.

Summary. The analyses in the EA and implementation of the measures identified in the Selected Alternative, including those in the Application (EA, Appendix A), the Bird and Bat Conservation Strategy (EA, Appendix B) and previous commitments, support the conclusion that the Selected Alternative will not have a significant effect on the quality of the human environment.

2. *The degree to which the selected alternative will affect public health or safety.*

   As discussed in Chapter 1 of the EA, the proposed action is issuance of a non-purposeful eagle take permit to the California Flats Solar Project. This action will have no effect on public health or safety.

3. *Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farm lands, wetlands, wilderness, wild and scenic rivers, or ecologically critical areas.*

   Impacts to historic and cultural resources, parks lands, prime farmlands, wetlands, wild and scenic rivers, and ecologically critical areas were all considered in the County of Monterey California Flats Solar Project Environmental Impact Report (EIR) analyses (County of Monterey 2014a, County of Monterey 2014b). The relevant EIR analyses were incorporated by reference in the EA. Issuance of a non-purposeful eagle take permit to the California Flats Solar Project would have no further impacts.

4. *The degree to which the effects on the quality of the human environment are likely to be highly controversial.*

   No effects of the Selected Alternative were identified as highly controversial. As a factor for determining within the meaning of 40 CFR 1508.27(b)(4) whether to prepare a detailed EIS, controversy is not equated with the existence of opposition to a use. The NEPA implementation regulations (43 CFR 46.30) define controversial as "circumstances where a substantial dispute exists as to the environmental consequences of the proposed action and does not refer to the existence of opposition to a proposed action, the effect of which is relatively undisputed." Neither public comments on the County of Monterey's EIR (County of Monterey 2014b) nor internal discussions during preparation of the EA revealed any expert scientific evidence supporting claims that issuance of this permit to authorize disturbance take to one pair of breeding eagles for one breeding season will have significant effects, or that it is highly controversial.

5. *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*

   As summarized in the Application and EA, the impacts of issuance of an eagle permit for disturbance take to one pair of breeding golden eagles for one season are limited and small in scale.

   As a result, there are no predicted effects of the Selected Alternative on the human environment that are considered to be highly uncertain or involve unique or unknown risks.

6. *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

   Issuance of an eagle disturbance take permit to the Applicant does not set precedent for, or

automatically apply to, other eagle take permit applications the Service is reviewing or could review in the future. Each permit request will be evaluated on a case-by-case basis. Therefore, the Selected Alternative does not establish precedents for future actions or represent a decision in principle about a future action. Moreover, this project will not limit the Service's discretion when processing future eagle take permit applications under the Eagle Act's permitting regulations.

7. *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts-which include connected actions regardless of land ownership.*

Golden Eagles. We evaluated cumulative effects on golden eagles as required by NEPA (CFR 1508.8) and the Eagle Act's permitting regulations (EA Chapter 4). Under 50 CFR 22.26 (f)(1), when reviewing a permit application, the Service is required to evaluate and consider effects of take permits on eagle populations at three scales: (1) the eagle management unit/bird conservation region, (2) local area, and (3) project area. Our evaluation also considers cumulative effects. We incorporated data provided by the Applicant, other data on mortality at wind farms and electric utilities, and additional information on population-limiting effects in our eagle cumulative impact assessment. Our approach was mostly quantitative but combined some qualitative analysis based on available data and our knowledge of this area, attendance at local technical meetings, discussions with other local experts, and studies of local eagle populations.

As golden eagles are territorial, the disturbed eagle pair may have increased interactions with other eagles in the area and may alter the dynamics of the area eagle population. Therefore, the Applicant would monitor all eagle use, during the eagle breeding season, within 10 miles of the project footprint for the duration of the permit and up to 5 years after its expiration noting whether eagles continue to nest, roost, or forage in this area and identifying any nests within ten miles of the project footprint.

At the project level, foreseeable cumulative impacts to eagles may be caused by future construction, operations, the presence of infrastructure and increased human presence. Between 1-3 golden eagle breeding territories located within one mile of the project footprint could be affected by reduced productivity in future years or the territories could possibly be lost.

Our cumulative effects analysis contained within the EA (EA Chapter 4) estimates that between 8 – 12.3 percent of the local area population is taken annually, resulting primarily from wind fatalities operating in the Altamont Pass and Tehachapi WRAs and, to a lesser extent, other wind facilities and from electric utility infrastructure. While the amount of ongoing take exceeds the biological benchmark that our national guidance recommends (5 percent take of a local area population), we believe the additional offsetting mitigation we will require under our Selected Alternative will more than offset any impacts attributable to the California Flats Solar Project. In addition, we will require the Applicant to implement minimization and avoidance measures within one mile of any other nesting eagles (see EA, Table 1) and monitor eagles near the project. Our permit will also require the Applicant to apply for eagle take authorization for the remainder of construction activities and for long-term operations and maintenance. Therefore, there are no significant adverse cumulative effects contributed by issuance of this permit under the Selected Alternative.

Climate Change. The effects of climate change on eagles in the region is treated as a cumulative impact because it occurs later in time (see EA Chapter 4). Over the life of the project, the effects of climate change in California will likely result in more pronounced seasonal variation. However, because the golden eagles survive on a wide variety of prey species across a broad gradient of climatic zones, it is reasonable to surmise that golden eagles have the capacity to adapt to minor changes. Moreover, by generating electricity using solar energy rather than fossil fuels, operation of the project could offset production CO_2. This offset would constitute an indirect beneficial effect. Overall, there are no significant adverse cumulative effects contributed by issuance of a non-purposeful eagle take permit to California Flats under the Selected Alternative.

8. *The degree to which the action may adversely affect districts, sites, highways, structures, or other objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*

   The action of issuing an eagle take permit to the California Flats project to allow disturbance to one breeding golden eagle pair due to construction activities already authorized by Monterey County will have no adverse effect on historic properties.

9. *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973, or the degree to which the action may adversely affect a species proposed to be listed as endangered or threatened or proposed critical habitat.*

   Construction and operations. We issued a Biological Opinion and Incidental Take Statement on November 19, 2015 to the Army Corps of Engineers pursuant to Section 7(a)(2) of the Federal Endangered Species Act (ESA) addressing potential effects of the proposed issuance of a permit, pursuant to section 404 of the Clean Water Act, to the Applicant for the California Flats project on the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*) and the federally threatened California red-legged frog (*Rana draytonii*), California tiger salamander (*Ambystoma californiense*), and vernal pool fairy shrimp (*Branchinecta lynchi*).

   The Applicant requested an Incidental Take Permit (ITP) under Section 10(a)(1)(B) of the ESA and submitted a Low-Effect Habitat Conservation Plan (Althouse and Meade, Inc. 2016) for activities associated with the California Flats operations and maintenance. The Service expects to publish our decision to issue the ITP in the Federal Register in late January or early February 2017.

   Issuance of an eagle disturbance take permit to the Applicant under the Selected Alternative would have no additional impacts to species protected by the ESA.

   Required Compensatory Mitigation Effects.

   The California Flats mitigation will occur on PG&E lines in one of the following locations:

   Mitigation Site Option 1:

   Under this option, the compensatory mitigation for the California Flats permit for eagle disturbance take will occur as described in the Shiloh IV eagle take permit EA (Service 2014). The Pacific Gas and Electric Company (PG&E) Oilfields 1103 circuit was identified as a high priority area for retrofits. The mitigation area is located near the U.S. Army Garrison Fort Hunter Liggett property and directly adjacent to Monterey County's San Antonio Reservoir. The Oilfields 1103 circuit has experienced four known golden eagle mortalities since 2002. Three of these incidents occurred in recent years (i.e., one incident each in December 2009, January 2010, and January 2011). All three of these incidents occurred within 5 miles of one another. It should be noted that PG&E discovers eagle electrocutions incidentally after investigating a power outage, by personnel working on utility lines, or—less frequently—from reports from the public. We believe the rate of eagle electrocution events are higher than what is discovered and reported on an annual basis, and this variation is accounted for in our Shiloh IV Resource Equivalency Analysis (Service 2014, Appendix D).

   On April 1, 2014, we submitted an Intra-Service Section 7 ESA Biological Evaluation for the *Shiloh IV Wind Project Eagle Permit Mitigation: Utility Pole Retrofits in Southern Monterey County, California* and a concurrence request to the Service's Ventura Field Office. Our evaluation determined that with implementation of the following avoidance and minimization measures, the retrofit work will have no effect to California condor, least Bell's vireo, southwestern willow flycatcher, vernal pool fairy shrimp, and marsh sandwort, and is not likely to adversely affect San Joaquin kit fox, California red-legged frog, or purple amole.

Avoidance and Minimization Measures

The retrofit work will be conducted during the dry season (July 1-October 31 or as long as the dry season ensues) to avoid potential impacts to ESA-listed species and breeding birds that may be in the area, including eagles. If unusual weather patterns occur, PG&E will not conduct work until 10 days after a rain event that resulted in 0.5 inches of rain or more.

- The retrofit work will not be conducted if poles are located in or adjacent to wetland or riparian areas. Other alternate poles which are not located in or near these habitats would be selected for retrofits.
- The retrofit work will not be conducted if poles are located in or adjacent to ponds or vernal pools.
- The retrofit work will not involve ground-disturbing activities and vehicles will remain on existing public and private access roads to complete the work.
- Vehicles will maintain a speed limit of no more than 10 mph on roads within the right-of- way.

On May 6, 2014, we received a memorandum from the Service's Ventura Field Office stating they concur with our determinations (Attachment 2).

We will require the same ESA take minimization and avoidance measures to be implemented by PG&E when conducting the retrofit work as compensatory mitigation for the California Flats eagle take permit. Therefore, any retrofit work conducted by PG&E on behalf of California Flats in the Oilfields 1103 circuit will not differ in any way from work conducted for Shiloh IV.

Mitigation Site Option 2:

Under this option, the compensatory mitigation for the California Flats permit for eagle disturbance take will occur in conjunction with and as described in the Alta East eagle take permit EA (Service 2016a). The Alta East mitigation area is within an area covered by PG&E's San Joaquin Valley Habitat Conservation Plan (HCP). The retrofit work is a covered activity as described in the HCP's Section *E8 Electrical System Ple and Equipment Replacement and Repair* and the Section 10 permit issued to PG&E authorizes incidental take associated with the retrofit work. We have completed an internal Section 7 consultation under the ESA for issuance of the Alta East eagle take permit (Service 2016a) and determined that the mitigation activities required under the Eagle Act will not have an effect on listed species included as covered species in the HCP beyond that analyzed in the Intra-Service Biological Opinion prepared in association with the Service's issuance of the Section 10 permit to PG&E for their HCP (Service 2007). We also determined that issuance of the Alta East eagle take permit will not affect California condor (*Gymnogyps californianus*) or its critical habitat, southwestern willow flycatcher (*Empidonax traillii estimus*), or delta smelt (*Hypomesus transpacificus*). Any retrofit work conducted by PG&E on behalf of California Flats within this area will not differ from the retrofit work conducted by PG&E under its HCP, and is therefore a covered activity under PG&E's HCP.

10. *Whether the action threatens a violation of Federal, State, or local law requirements imposed for the protection of the environment.*

The Selected Alternative will not violate any federal, state, or local law.

Determination: Under the Selected Alternative, we would issue a permit allowing unrestricted disturbance take authorization within one mile of one eagle nest for a single breeding season (2017). In addition, the Applicant would provide compensatory mitigation by retrofitting power poles sufficient to compensate for the loss of a single nesting season's productivity for one breeding eagle pair and to address cumulative impact concerns at a 2:1 mitigation ratio. If the eagles do not attempt to nest the following breeding season, this mitigation would be doubled. To address future impacts to eagles from future construction seasons and project operations, under this alternative, we will require

the Applicant to apply for eagle take authorization within six months of permit issuance.

Our Resource Equivalency Analysis (EA Chapter 2) shows that between 27-62 retrofits (final number depends upon the type of retrofit and expected longevity) will mitigate for the predicted loss of eagles, that is one eagle for the loss of productivity in one breeding season, and also address cumulative effects concerns in this area.

Increased monitoring associated with this alternative will help to ensure that any additional effect to breeding eagles in the area are detected and will support validation of the take estimate. Based on the intensity and context of these effects and consideration of the elements associated with the Selected Alternative, issuance of an eagle disturbance take permit to the Applicant as analyzed in the EA is not expected to result in significant adverse effects on the human environment.

V. Conclusions

The Service developed the EA and FONSI in accordance with the National Environmental Policy Act of 1969, as amended, and the Council on Environmental Quality's Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508). The Service concludes that, with the implementation of the avoidance, minimization, and mitigation measures outlined in the EA for the Selected Alternative, issuance of an eagle disturbance take permit to the California Flats Solar Project will result in no significant impacts to the quality of the human environment, individually or cumulatively with other actions in the general area.

It is our determination that the Selected Alternative is not a major Federal action significantly affecting the quality of the human environment under NEPA Section 102(2)(c). Accordingly, an EIS is not required and our environmental review under NEPA is concluded with this finding of no significant impact (43 CFR 46.325). The EA prepared in support of this FONSI is incorporated by reference and attached (Attachment 1). Our Decision will be announced on the Service's Pacific Southwest Regional website at:

http://www.fws.gov/cno/conservation/MigratoryBirds/EaglePermits.html.

FOR Chief, Migratory Birds
Pacific Southwest Region
U.S. Fish and Wildlife Service

02/03/2017
Date

VI. Literature Cited

Althouse and Meade, Inc. 2016. *Low-Effect Habitat Conservation Plan for Issuance of an Incidental Take Permit Under Section 10(a)(1)(B) of the Endangered Species Act for California Flats Solar Project Operations and Maintenance Activities*. August.

County of Monterey. 2014a. *Draft Environmental Impact Report: California Flats Solar Project*. Resource Management Agency Planning Department. Prepared by: Rincon Consultants, Inc. PLN120294. August. Available: http://www.co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/current-major-projects/california-flats-solar/deir-volume-i. Accessed: 19 January 2017.

County of Monterey. 2014b. *Final Environmental Impact Report: California Flats Solar Project*. Resource Management Agency Planning Department. Prepared by: Rincon Consultants, Inc. PLN120294. December. Available: http://www.co.monterey.ca.us/planning/major/California%20Flats%20Solar/FEIR/FEIR_PLN120294_122314.pdf Accessed: 19 January 2017.

U.S. Fish and Wildlife Service (Service). 2007. *Intra-Service Biological and Conference Opinion on Issuance of a Section 10(a)(1)(B) Incidental Take Permit to Pacific Gas & Electric Company (PG&E) for the San Joaquin Valley Operations and Maintenance Program Habitat Conservation Plan, for portions of Nine Counties in the San Joaquin Valley, California.* December.

U.S. Fish and Wildlife Service (Service). 2013a. *Eagle Conservation Plan Guidance, Module 1 – Land-based Wind Energy*. Version 2. April.

U.S. Fish and Wildlife Service (Service). 2014. *Final Environmental Assessment: Shiloh IV Wind Project Eagle Conservation Plan*. Division of Migratory Bird Management, Sacramento, CA, USA. June.

U.S. Fish and Wildlife Service (Service). 2016a. *Final Environmental Assessment: Alta East Wind Project Eagle Conservation Plan*. Pacific Southwest Region, Migratory Birds and Habitats, Sacramento, CA, USA. September. Docket Number: FWS-R8-MB-2015-N183.

U.S. Fish and Wildlife Service (Service). 2016b. *Programmatic Environmental Impact Statement for the Eagle Rule Revision*. Division of Migratory Bird Management, Falls Church, VA, USA. December.

Attachment 1: Environmental Assessment, California Flats Solar, LLC. Eagle Non-purposeful Disturbance Take Permit

U.S. Fish and Wildlife Service

Environmental Assessment

California Flats Solar, LLC

Eagle Non-purposeful Disturbance Take Permit

California

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CHAPTER 1: PURPOSE AND NEED

Introduction

We, the U.S. Fish and Wildlife Service (Service), have prepared this Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] 4321 et seq.). This EA evaluates the effects of issuing a non-purposeful eagle take permit (permit) for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668–668d and 50 Code of Federal Regulations [CFR] 22.26) for construction activities described in Section E of the California Flats Solar Project Eagle Non-Purposeful Take Permit Application (Appendix A) (Application).

The applicant, California Flats Solar, LLC, (Applicant) (California Flats) is requesting non-purposeful Eagle Act disturbance take coverage for construction activities associated with the California Flats project. California Flats is a wholly owned subsidiary of First Solar, Incorporated.

Our decision as to whether to issue an eagle take permit constitutes a discretionary Federal action that is subject to NEPA. The Applicant requested a permit for the disturbance take of one golden eagle breeding pair for one season. In this EA, we independently analyze the Applicant's request for consistency with the Eagle Act permit regulations.

This EA evaluates potential impacts that could result from the issuance of the golden eagle disturbance take permit based on the Application or alternatives to the proposed request. It is intended to assist us in evaluating effects to the human environment due to permit issuance and in assessing the significance of the impacts that could result from the alternatives. "Significance" under NEPA is defined by regulation at 40 CFR 1508.27, and requires short-term and long-term consideration of both the context of a proposal and its intensity. As required by NEPA, all alternatives must undergo an equal level of analysis, and the final proposal may include all or some components of a single alternative, or it may include a combination of components from more than one alternative.

Our analysis within this EA shows that while the incremental effect of issuing this permit is small the project could contribute to local and possibly regional adverse effects on the species. We anticipate that, by issuing a permit, the Service would ensure that take of eagles would be offset through compensatory mitigation and additional requirements to address potential future project impacts to eagles from construction and operations.

Project Background

The Applicant is constructing a 280-megawatt (MW) alternating current (AC) photovoltaic (PV) solar power facility in unincorporated southeastern Monterey County, approximately seven miles southeast of the community of Parkfield and 25 miles northeast of the City of Paso Robles, near the borders of Monterey, San Luis Obispo, Kern, Kings and Fresno counties. Road access to the project is through San Luis Obispo County.

Phase I of the project is under construction. The project will be operated on an approximately 3,000-acre portion of an existing 72,000-acre cattle ranch, known as the "Jack Ranch." The project site is located in an area that is optimal for solar energy development, and has been identified as a Competitive Renewable

Energy Zone (CREZ) under the State's Renewable Energy Transmission Initiative (RETI) (County of Monterey 2014a). With elevations of around 1,700 feet, the site is situated above the coastal marine layer and, unlike many other inland central California areas, is not subjected to "tule fog" during the winter. The project site therefore experiences substantial year-round sunlight. An existing 230 kilovolt (kV) transmission line with available transmission capacity, the Morro Bay-Gates line, transects the site.

The Service first met with Element Power, the original project developer, on December 5, 2011. On August 8, 2013, we were notified the project was being sold to First Solar, the current owner. Since 2011, the Service has provided technical assistance and recommendations to the Applicant for how to best comply with the Endangered Species Act (ESA), Eagle Act, and the Migratory Bird Treaty Act (MBTA).

List of Project Permits and Authorizations

- U.S. Fish and Wildlife Service Low-Effect Habitat Conservation Plan for Issuance of an Incidental Take Permit Under Section 10(a)(1)(B) of the ESA for the California Flats Solar Project Operations and Maintenance Activities, Monterey and San Luis Obispo Counties, California. (Permit Pending)
- U.S. Fish and Wildlife Service, Biological Opinion on the California Solar Flats Project, Monterey and San Luis Obispo Counties, California. 08EVEN00-2015-F-0287 (Complete)
- Department of the Army, Section 404 of the Clean Water Act, Application: SPN-2012-00266S (Complete)
- California Department of Fish and Wildlife, Streambed Alternation Agreement: Notification No.: 1500-2015-0041-R4 (Complete)
- California Department of Fish and Wildlife, California Endangered Species Act Incidental Take Permit, No.: 2081-2015-027-04 (Complete)

Purpose of and Need for the Federal Action

The purpose of the Federal action is to consider issuing a permit to the California Flats project under the Eagle Act for disturbance take of one pair of breeding golden eagles for one season. This is driven by a need for the Service to make a permitting decision that may enable the Applicant to continue project construction for the purpose of generating renewable energy in a manner that is consistent with our Eagle Act regulations. In responding to the request for a permit, we, the Service, must ensure compliance with the Eagle Act and our goal to maintain stable or increasing breeding populations of bald and golden eagles. We may consider issuance of an eagle disturbance take permit if 1) the incidental take is necessary to protect legitimate interests, 2) the take is compatible with the preservation standard of the Eagle Act, 3) the applicant has avoided and minimized impacts to eagles to the extent practicable and, 4) compensatory mitigation will be provided for any take.

This purpose and need establishes the basis for determining if other viable alternatives to the Applicant's request as described in their Application may meet the project's intended purpose and reduce potential effects. Alternatives considered in this analysis are the No-Action Alternative and two action alternatives.

Regulatory Setting, Authorities, and Guidance

Two primary Federal statutes, the Eagle Act and the Migratory Bird Treaty Act, as well as regulations and guidance under those statutes, provide the basis for our review of the Application.

Bald And Golden Eagle Protection Act

The Eagle Act (16 U.S.C. 668–668d) makes it illegal to import, export, take (which includes molest or disturb), sell, purchase, or barter any bald eagle or golden eagle or parts thereof. The Service oversees enforcement of this act. Under the Eagle Act (72 FR 31132, June 5, 2007), "take" is defined as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest or disturb." "Disturb" is defined 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" (72 FR 31132).

With the removal in 2007 of the bald eagle from the ESA list of threatened and endangered species, we issued new regulations to authorize the limited take of bald and golden eagles under the Eagle Act, where the take that may be authorized is associated with otherwise lawful activities. A final Eagle Permit Rule was published on September 11, 2009 (74 FR 46836–46879; 50 CFR 22.26 and 22.27).

Under these rules, the Service can issue permits that authorize individual instances of 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. The regulations also authorize permits for "programmatic" take, which means that instances of "take" may not be isolated, but may recur. We developed the Eagle Conservation Plan (ECP) Guidance to provide recommendations for the development of ECPs in support of issuance of programmatic eagle take permits for wind facilities. The Draft Guidance was published in the Federal Register on February 18, 2011 (76 FR 9529), and a revised version was published in May 2013 (78 FR 25758, May 2, 2013). While our ECP Guidance was developed for wind energy permits, many of the concepts and tools are applicable to Eagle Act take permits for non-wind energy projects.

On December 16, 2016, the Service published a final rule revising certain permitting processes and monitoring requirements under the Eagle Act permitting regulations (81 FR 91494). This final rule became effective on January 17, 2017; however, the Applicant has elected to apply for coverage under the regulations in effect prior to January 17, 2017 as allowed under 50 CFR 22.26(i). Therefore, evaluation of this permit request is being considered and analyzed under the 2009 Eagle Rule (74 FR 46836–46879). References to the Eagle Act permitting regulations in the remainder of this EA refer to the 2009 regulations.

Although eagles are protected by both the MBTA and the Eagle Act, MBTA take authorization is not required because the Eagle Permit Rule (Service 2009) exempts those who hold Eagle Act permits from the requirement to obtain an MBTA permit (50 CFR 22.11[b]).

Migratory Bird Treaty Act

The MBTA protects migratory birds and prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service (16 U.S.C. 703; 50 CFR 21; 50 CFR 10). Under the MBTA, "take" is defined as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture or collect." Most actions that result in taking or the permanent or temporary possession of a protected species or nests containing eggs or young constitute violations of the MBTA. We are responsible for overseeing compliance with the MBTA. Most bird species and their occupied nests that occur in the project area are protected under the MBTA. The bird species protected by MBTA are listed in 50 CFR 10.13.

The Service's Migratory Bird Permit Memorandum (MBPM-2) (Service 2003) dated April 15, 2003, clarifies that the destruction of most unoccupied bird nests (containing no birds or eggs) is permissible

under MBTA. However, unoccupied nests of federally listed threatened or endangered bird species and eagles are protected under ESA (16 U.S.C. 1531, 1543) and the Eagle Act (16 U.S.C. 668).

California Flats has prepared a Bird and Bat Conservation Plan (Appendix B) as outlined in the Service's Land Based Wind Energy Guidelines (Service 2012a), in coordination with the Service, which addresses bats and migratory birds and sets forth measures to avoid, minimize, and implement voluntary conservation measures to offset effects of the project on those species. It must be noted that the MBTA has no specific provision for authorizing incidental take, and issuance of an Eagle Act permit shall not be construed to authorize take of any migratory birds other than eagles.

National Environmental Policy Act

Federal agencies must complete environmental documents pursuant to NEPA (42 USC 4321 et seq.) before implementing Federal actions. Such documents help ensure that the underlying objectives of NEPA are achieved: to disclose environmental information, assist in resolving environmental problems, foster intergovernmental cooperation, and enhance public participation. NEPA requires evaluation of the potential effects on the human environment related to the proposed action, alternatives to the proposed action, and a "No-Action Alternative."

An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). If we determine that this project has "significant" impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a FONSI would be signed for the EA approving the alternative selected, and a Set of Findings may be prepared.

We have prepared this EA pursuant to NEPA (42 U.S.C. 4321 et seq.), its implementing regulations (40 CFR 1500–1508), Department of Interior NEPA regulations (73 FR 61292– 61323), and Department of Interior and Service NEPA policy and NEPA guidance. This EA evaluates the environmental effects of issuing a non-purposeful eagle take permit under the Eagle Act (50 CFR 22.26).

Consultation and Coordination with Tribal Governments

Tribal participation is an integral part of the NEPA process, as well as a key component of determining whether to issue an eagle take permit. In accordance with Executive Order 13175 and our Native American Policy, we consult with Native American tribal governments whenever our actions taken under authority of the Eagle Act may affect tribal lands, resources, or the ability to self-govern or affect their cultural practices. This consultation process is also intended to ensure compliance with the National Historic Preservation Act and American Indian Religious Freedom Act. The County of Monterey contacted representatives of tribes in southern Monterey and northern San Luis Obispo Counties identified by the Native American Heritage Commission for comment on the construction of the California Flats Solar Project (County of Monterey 2014a). The effects of issuing a permit for disturbance take of one breeding golden eagle pair during the 2017 eagle breeding season at the California Flats project site would be minor and local in scale. No federally-recognized tribes are located in Monterey or San Luis Obispo Counties or in the project area.

Department Of Interior Adaptive Management Implementation Policy

This policy from the Department of the Interior states that Interior agencies should incorporate the operational components identified in Adaptive Management: The U.S. Department of the Interior Technical Guide (Williams et al. 2009). These operational components include the definition of adaptive management, the conditions under which adaptive management should be considered, and the process for implementing and evaluating adaptive management effectiveness. Adaptive management is a decision process promoting flexible decision making that can be adjusted in the face of uncertainties as outcomes

from management actions and other events become better understood. Careful monitoring of these outcomes both advances scientific understanding and helps adjust policies or operations as part of an iterative learning process. It is not a "trial and error" process, but rather one that emphasizes learning while doing. Adaptive management is considered here because of the challenges associated with avoiding, minimizing, and mitigating the take of eagles. Adaptive management is not an end in itself, but rather a means to more effective decisions and enhanced benefits.

Scope of Analysis

This EA considers alternatives for issuance of a permit for construction disturbance take of one breeding golden eagle pair during the 2017 eagle breeding season at the California Flats project site. It analyzes the effects of our proposed issuance of a short-term eagle take permit on the human environment. The analysis primarily focuses on golden eagles, but also addresses potential cultural affects to tribes.

As referenced in the Council for Environmental Quality (CEQ) NEPA regulations regarding the contents of an EA (40 CFR 1508.9[b]), NEPA Section 102(2)(E) requires Federal agencies to develop, study, and briefly describe alternatives to any proposed action with the potential to result in unresolved resource conflicts. This EA evaluates the effects of three alternatives:

- Alternative 1: No Action
- Alterative 2: Issue Permit to Allow Installation of a Nesting Deterrent Device in One Golden Eagle Nest for One Breeding Season
- Alterative 3: Issue Permit to Allow Disturbance Take to One Golden Eagle Pair for One Breeding Season

Each alternative's viability is evaluated for its ability to meet the Eagle Act permit issuance criteria as described below.

Permit Issuance Criteria

In the analysis of alternatives, we consider the degree to which each alternative will conform to the permit issuance criteria for non-purposeful take permits under the Eagle Act. We may not issue a take permit under the Eagle Act unless the following issuance criteria are met as required in 50 CFR 22.26(f)(1–6):

1. The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting eagle populations, are compatible with the preservation of bald eagles and golden eagles;
2. The taking is necessary to protect a legitimate interest in a particular locality;
3. The taking is associated with, but not the purpose of, the activity;
4. The taking cannot practicably be avoided; or for programmatic authorizations, the take is unavoidable;
5. The applicant has avoided and minimized impacts to eagles to the extent practicable, and for programmatic authorizations, the taking will occur despite application of advanced conservation practices; and
6. Issuance of the permit will not preclude issuance of another permit necessary to protect an

interest of higher priority as set forth in paragraph (e)(4) of 50 CFR 22.26.

Geographic Extent

The geographic scope of the analysis of all alternatives considers the local project level—the footprint of the California Flats project plus a 1-mile radius and 10-mile radius around it—and the local eagle population level. The local area population for both bald and golden eagles is defined by the dispersal distance of young—86 miles for bald eagles and 109 miles for golden eagles (Service 2016a). The California Flats local area population for bald eagles is within the Service's Region 8, which includes all of California and Nevada and the Klamath Basin in Oregon. The local area population for golden eagles includes parts of four Federal Bird Conservation Regions (BCRs): BCR 32 (Coastal California), BCR 15 (Sierra Nevada), BCR 9 (Great Basin), and BCR 5 (Northern Pacific Rainforest) as shown in Figure 1-3 and summarized in Table 4-1 (Service 2009).

Previous Environmental Analysis

Previous and pending authorizations obtained by the Applicant:

- U.S. Fish and Wildlife Service Low-Effect Habitat Conservation Plan for Issuance of an Incidental Take Permit Under Section 10(a)(1)(B) of the ESA for the California Flats Solar Project Operations and Maintenance Activities, Monterey and San Luis Obispo Counties, California. (Permit Pending)

- U.S. Fish and Wildlife Service, Biological Opinion on the California Solar Flats Project, Monterey and San Luis Obispo Counties, California. 08EVEN00-2015-F-0287 (Complete)

- Department of the Army, Section 404 of the Clean Water Act, Application: SPN-2012-00266S (Complete)

- California Department of Fish and Wildlife, Streambed Alternation Agreement: Notification No.: 1500-2015-0041-R4 (Complete)

- California Department of Fish and Wildlife, California Endangered Species Act Incidental Take Permit, No.: 2081-2015-027-04 (Complete)

Previous environmental analyses conducted for the project:

- County of Monterey, California Flats Solar Project Draft Environmental Impact Report (County of Monterey 2014a)

- County of Monterey, California Flats Solar Project Final Environmental Impact Report (County of Monterey 2014b)

- Department of the Army, Permit Evaluation and Decision Document (Department of the Army 2015)

Previous analyses for the issuance of Eagle Act take permits conducted at the National level and includes the following:

- U.S. Fish and Wildlife Service Final Environmental Assessment: Proposal to Permit Take Provided under the Bald and Golden Eagle Protection Act (Service 2009)

- U.S. Fish and Wildlife Service Programmatic Environmental Impact Statement for the Eagle Rule

Revision (Service 2016c)

Previous analyses applicable to our local area population cumulative affects analysis:

- Cumulative Affects Analysis: U.S. Fish and Wildlife Service Final Environmental Assessment: Shiloh IV Wind Project Eagle Conservation Plan (Service 2014)
- Cumulative Affects Analysis: U.S. Fish and Wildlife Service Final Environmental Assessment: Alta East Wind Project Eagle Conservation Plan (Service 2016b)

These documents provide a foundation for the analysis of most other elements of the project or our eagle take permit process related to the human environment, and consequently allow the current analysis to focus primarily on eagles and our action, which is consideration of issuance of an eagle disturbance take permit. The analyses listed above are hereby incorporated by reference into this EA.

Public Participation

The County of Monterey Draft Environmental Impact Report for California Flats (County of Monterey 2014a) was released for public comment in August 2014. Monterey County received substantial comments regarding impacts to eagles and recommendations that the county require the California Flats project to comply with the Eagle Act regulations. In response, Monterey County required a one mile no disturbance buffer around active golden eagle nests at the project site. The county stipulated that this buffer could be reduced only in consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game.

CHAPTER 2: ALTERNATIVES

Introduction

As referenced in the CEQ's NEPA regulations regarding the contents of an EA (40 CFR 1508.9[b]), NEPA requires federal agencies to develop, study, and briefly describe alternatives to a proposed action and evaluate how those alternatives can resolve resource conflicts. This chapter describes the alternatives we considered during preparation of this EA and alternatives that were considered but eliminated from further consideration. Alternative 3 is our Preferred Alternative.

Alternatives Analyzed in this EA

Alternative 1: No Action

Under the No-Action Alternative, we would take no action or would deny the permit application and would not issue an eagle take permit. The California Flats project would continue its construction and presumably operate without a take permit being issued. We considered this alternative because NEPA requires evaluation of a No-Action Alternative, and either issuing or not issuing the permit are the

potential responses to the permit application. Under the No-Action Alternative, we would deny the permit application because it fails to meet one or more of several issuing criteria under 50 CFR 22.26 as described in section 1.5.2, or because we have determined that the risk to eagles is so low that a take permit is unnecessary.

Alternative 2: Issue Permit to Allow Installation of a Nesting Deterrent Device in One Golden Eagle Nest for One Breeding Season

Under Alternative 2, we would issue a permit as requested by the Applicant to place a nesting deterrent device in one eagle nest (nest19A, see figure on page 6 of Application, Appendix 1) for one breeding season. California Flats would install a nesting deterrent device in the nest immediately prior to the 2017 nesting season to temporarily deter nesting in a particular nest. Any new nests constructed by the eagle pair in the immediate vicinity of the nest with the deterrent device or within one mile of construction activities would be removed. Under this alternative, the Applicant would provide compensatory mitigation by retrofitting power poles sufficient to compensate for the loss of a single breeding season's productivity for one breeding pair at a 1.2:1 mitigation ratio. If the eagles do not attempt to nest the following breeding season in 2018, the Applicant would provide compensatory mitigation for the loss of a second season's productivity. To address future impacts to eagles from future construction seasons and project operations, under this alternative, we would require the Applicant to apply for eagle take authorization within six months of permit issuance.

Alternative 3: Issue Permit to Allow Disturbance Take to One Golden Eagle Pair for One Breeding Season

Under Alternative 3, we would issue a permit allowing unrestricted disturbance take authorization within one mile of one eagle nest (19A, see figure on page 6 of Application; Appendix 1) for a single breeding season (2017). In addition, the Applicant would provide compensatory mitigation by retrofitting power poles sufficient to compensate for the loss of a single breeding season's productivity for one breeding pair at a 2:1 mitigation ratio. The higher rate of 2:1 versus the standard 1.2:1 compensatory mitigation rate will both offset take, as well as address cumulative impacts. If the eagles do not attempt to nest the following breeding season in 2018, this mitigation would be doubled. To address future impacts to eagles from future construction seasons and project operations, under this alternative, we would require the Applicant to apply for eagle take authorization within six months of permit issuance.

Key Elements for the Action Alternatives

Take Authorization

Effects of authorizing take by disturbance of a single golden eagle breeding pair by construction activities associated with the California Flats Solar Project in Monterey County, California occurring within one mile of an inactive golden eagle nest located at 35°53'00.35"N, 120°19'40.68"W (19A, see figure on page 6 of Application; Appendix 1) during the 2017 eagle breeding season (1 February 2017 to 31 August 2017) may entail the loss of one year of productivity for the eagle pair.

In the Service's evaluation of the Eagle Act permit regulations it was estimated that breeding golden eagle pairs produce 0.55 young eagles per year (Service 2016c). When considering a take authorization, it is the Service's practice to round take values up to the nearest whole number representing the take of a whole bird. Therefore, we are considering authorization of the take of one eagle (0.55 rounded to one) for

the assumed loss of productivity due to authorized disturbance near this nest site.

Monitoring

Through permit terms and conditions, the Applicant would be required to monitor the nesting territory of the eagle breeding pair described above for evidence that the eagle pair continues to occupy the territory. California Flats would employ qualified biologists to monitor the breeding territory at least once every two weeks during the eagle breeding season for a minimum of 4 hours per survey. The Applicant would also monitor the area surrounding the nesting territory for evidence that the eagle pair has expanded their territory or moved into an adjacent area. As golden eagles are territorial and the disturbed eagle pair may have increased interactions with other eagles in the area and may alter the dynamics of the area eagle population, the Applicant would be required to monitor all eagle use, during the eagle breeding season, within 10 miles of the project footprint for the duration of the permit and up to 5 years after its expiration noting whether eagles continue to nest, roost, or forage in this area and identifying any nests within ten miles of the project footprint. Monitors would use survey methodology as described in *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations* (Pagel et al. 2010).

Compensatory Mitigation

Service Eagle Policy

To calculate compensatory mitigation, we used a Resource Equivalency Analysis (REA) to quantify the number of power pole retrofits needed to offset the take of golden eagles (see Appendix G of the ECP Guidance [Service 2013]). We used utility pole retrofits to eliminate electrocutions because:

- High-risk power poles cause quantifiable adverse impacts to eagles;
- The "per eagle" effects of high-risk power pole retrofitting are quantifiable and verifiable through accepted practices;
- Success of and subsequent maintenance of retrofitting can be monitored; and
- Electrocution from high-risk power poles is known to cause eagle mortality and this can be corrected.

Our take prediction is one of several fundamental variables that we use to populate the REA (see Appendix G of the ECP Guidance [Service 2013]). The REA generates a project-area eagle impact calculation (debit), expressed in bird-years, and an estimate of the quantity of compensatory mitigation (credit) (e.g., power pole retrofits) necessary to offset this impact. The REA and take estimate both consider the age of the eagle in their calculations and assume that the age distribution of eagles killed at a facility will be the same as the age distribution of eagles in the wild (i.e., 20% juvenile, 35% sub-adult, 45% adult). These estimates come from information contained in the 2009 Final Environmental Assessment for the Eagle Rule (Service 2009). In the REA, this age distribution is used in both the debit and credit sides of the calculations.

Effectiveness of Power Pole Retrofits

This EA incorporates by reference the *Effectiveness of Power Pole Retrofits* analysis conducted in the *Final Environmental Assessment: Alta East Wind Project Eagle Conservation Plan* (Alta East EA) (Service 2016b).

REA Calculations

This EA incorporates by reference the *REA Calculations* discussion and analysis conducted in the Alta East EA (Service 2016b).

Under each action alternative, the Applicant would deposit compensatory mitigation funds, calculated using the REA as described in our ECP Guidance (Service 2013), in the Service's Pacific Southwest Region Bald and Golden Eagle Mitigation Account with the National Fish and Wildlife Foundation (NFWF Eagle Mitigation Account).

Under both action alternatives, the Applicant would provide compensatory mitigation for eagles by retrofitting electric utility poles. The intent is to minimize the potential for electrocutions in this area and ensure that the effects of eagle take authorized by issuance of this permit are offset.

Under Alternative 2, in order to mitigate for the predicted loss of eagles, that is one eagle for the loss of productivity in one breeding season, take would be offset at a 1.2:1 ratio. The Applicant would be required to retrofit approximately between 16-37 electric utility poles for a single season's loss of productivity. If monitoring indicates the pair does not attempt to reoccupy the nest in the 2018 breeding season, the Applicant would provide the same amount of compensatory mitigation to address the loss of productivity in 2018.

Under Alternative 3, in order to mitigate for the predicted loss of eagles, that is one eagle for the loss of productivity in one breeding season, and to address cumulative effects in this area, we would require take be offset at a 2:1 ratio. The Applicant would be required to retrofit approximately between 27-62 electric utility poles for a single season's loss of productivity. If monitoring indicates the pair does not attempt to reoccupy the nest in the 2018 breeding season, our permit conditions would require the same amount of compensatory mitigation be provided to address the loss of productivity in 2018.

Mitigation Site

We worked with a utility company to identify high-risk utility poles appropriate for eagle compensatory mitigation. We selected the mitigation site options below based on areas identified as having higher than average electrocution rates and high densities of wintering and breeding eagles. The retrofits are not duplicative of the utility company's other obligations to retrofit poles within its system.

The California Flats mitigation will occur on Pacific Gas and Electric Company (PG&E) lines in one of the following locations:

Mitigation Site Option 1:

Under this option, the compensatory mitigation for the California Flats permit for eagle disturbance take will occur as described in the Shiloh IV eagle take permit EA (Service 2014). The PG&E Oilfields 1103 circuit was identified as a high priority area for retrofits. The mitigation area is located near the U.S. Army Garrison Fort Hunter Liggett property and directly adjacent to Monterey County's San Antonio Reservoir. The Oilfields 1103 circuit has experienced four known golden eagle mortalities since 2002. Three of these incidents occurred in recent years (i.e., one incident each in December 2009, January 2010, and January 2011). All three of these incidents occurred within 5 miles of one another. It should be noted that PG&E discovers eagle electrocutions incidentally after investigating a power outage, by personnel working on utility lines, or—less frequently—from reports from the public. We believe the rate of eagle electrocution events are higher than what is discovered and reported on an annual basis, and this variation is accounted for in our Shiloh IV Resource Equivalency Analysis (Service 2014, Appendix D).

Mitigation Site Option 2:

Under this option, the compensatory mitigation for the California Flats permit for eagle disturbance take will occur in conjunction with and as described in the Alta East eagle take permit EA (Service 2016a). PG&E's Tejon 1102 circuit was identified as a high-priority area for retrofits. The Tejon 1102 circuit is located in Kern County, California south of the city of Bakersfield at the base of the Grapevine Pass. The Tejon 1102 circuit experienced four known golden eagle mortalities in 2013. It should be noted that PG&E discovered these eagle fatalities incidentally by personnel working on utility lines. Although PG&E already retrofitted a section of line in response to these incidents and plans to retrofit more in the future, we believe prioritizing further retrofits within this type of habitat will benefit the local-area eagle population.

NFWF Eagle Mitigation Account

We established an Eagle Mitigation Account with the National Fish and Wildlife Foundation (NFWF Eagle Mitigation Account) to facilitate the eagle permit process in our Pacific Southwest Region. Deposits to this account will be used to accomplish specified conservation practices as identified in permits issued under the Eagle Act. Under both action alternatives, California Flats would deposit compensatory mitigation funds into the NFWF Eagle Mitigation Account to fund electric utility pole retrofits. Within 30 days of permit issuance, the Applicant would make the initial deposit into our NFWF Eagle Mitigation Account. Further deposits would be required if the funds run out before the required retrofits are completed.

Retrofit Effectiveness Monitoring

As required by the California Public Utilities Commission (CPUC), electric utility companies establish inspection cycles and record-keeping protocols for their utility distribution equipment. These requirements are set forth in General Order 165 (CPUC 1997). In general, utilities must patrol (walk, drive, or fly by) their systems once per year (in urban areas) or once every 2 years (in rural areas). For example, Pacific Gas and Electric Company (PG&E) must conduct detailed inspections every 3–5 years, depending on the type of equipment. For detailed inspections, utilities' records must specify the condition of inspected equipment, any problems found, and a scheduled date for corrective action. We have determined that the monitoring requirements set forth by the CPUC are sufficient to comply with our policy for monitoring the effectiveness of retrofits.

Conclusion

Based on the available data sets, we have determined that retrofitting poles within the California Flats project Eagle Management Unit and/or within the same local-area population would satisfy the compensatory mitigation requirement for an eagle disturbance take permit.

Alternatives Considered but Eliminated from Further Consideration

In their Application, California Flats suggested an alternate scenario to their preferred request under which the Service might consider issuing a disturbance take permit. This "Option 2" presented in their application requests disturbance take authorization at one nest site (19A, see figure on Application page 6) for one season with reduced nest protection buffers that vary by nesting stage as described in their application and presented below:

Applicant's Proposed Option 2:

Option 2 - As an alternative to Option 1, California Flats proposes to leave Nest 19A untouched to allow

eagles the opportunity to attempt to use the nest regardless of construction activities but to decrease the existing buffer assumptions. If, based on the pre-construction eagle nest surveys, Nest 19A is confirmed to be active, the following no-work buffer zones would be maintained:

- *Courtship and Nest Building Phase – A no-work buffer zone will be maintained within 0.25 mile of the nest. Construction outside of this buffer zone will not be restricted.*

- *Incubation and Brooding Phase – A limited-work buffer zone will be maintained within 0.5 mile of the nest – work will be limited to 9am to 5pm in this buffer and will primarily consist of commissioning activities (2-4 people in 1-2 vehicles/pickup trucks) and "punchlist" Project finalization items such as general troubleshooting and limited module/component repair/replacement. A biologist will monitor the nest for signs of disturbance to the nesting birds, and adjustments will be made where practical. Construction outside of this buffer zone will not be restricted.*

- *Post-Brooding Nestling and Post-Fledging Dependency Phases – A no-work buffer zone will be maintained within 0.25 mile of the nest. During these phases, construction will be limited to 9am to 5pm from 0.25 to 0.5 mile of this nest. Construction further than 0.5 from this nest will not be restricted.*

- *No-work buffers will involve avoiding all construction activities within these zones (including all foot and vehicle traffic). Nest 19A will be monitored throughout the construction process to assess status, nesting phase, and document eagle responses to various construction activities. A report after the 2017 nesting season will be prepared that documents nest status, eagle activity, and responses to construction activities. This report will be provided to the USFWS during the third quarter of 2017.*

We rejected this proposed Alternative because it is inconsistent with our recommendations for minimizing and avoiding disturbance to breeding eagles (Table 1). It is the Service's determination that the buffers suggested by the Applicant would not adequately reduce disturbance impacts and would unduly restrict the Applicant while providing inadequate disturbance buffers for eagles.

Table 1. U.S. Fish and Wildlife Pacific Southwest Region recommended buffer zones for level and duration of activities during golden eagle nesting.

NESTING PHENOLOGY (Risk Level)				
Length of Activity	**Courtship and Nest Building (High)**	**Incubation, and Brooding (High)**	**Post-Brooding Nestling Period (Moderate)**	**Post Fledging Dependency (Moderate)**
In-Vehicle, Recreational[a] Activity: Any recreational vehicle driving off-road, or on dirt roads, and not part of a routinely used transportation corridor.				
less than 1 hour[b]	None	None	None	None
less than 1 hour[c]	½ Mile	½ Mile	None	None
greater than 1 hour	1 Mile	1 Mile	½ Mile	½ Mile
Out-of-Vehicle, Recreational Activity: including, but not limited to hiking, dispersed camping, rock climbing, bird watching, fishing, hunting, biological surveys.				
less than 1 hour[b]	½ Mile	½ Mile	None	None
less than 1 hour[c]	1 Mile	1 Mile	½ Mile	½ Mile
greater than 1 hour	1 Mile	1 Mile	1 Mile	1 Mile
Developed Recreation: including, but not limited to snowmobile and off-road vehicle courses, developed campground sites, and group tour operations.				
	1 Mile	1 Mile	1 Mile	1 Mile
Industrial, Municipal, and Transportation Disturbance: including, but not limited to urbanization; mining; oil and gas development; logging; power line construction; road construction & maintenance; agricultural operations; fixed wing and helicopter over flights.				
less than 1 hour[b]	1 Mile	1 Mile	½ Mile	½ Mile
less than 1 hour[c]	1 Mile	1 Mile	1 Mile	½ Mile
greater than 1 hour	1 Mile	1 Mile	1 Mile	1 Mile
Blasting and other loud, intermittent noises[d]: This recommendation applies to the use of fireworks classified by the Federal Department of Transportation as Class B explosives, which includes the larger fireworks that are intended for licensed public display.				
	2 Mile	2 Mile	2 Mile	1 Mile

a Recreational activities are defined as those providing outdoor recreation, entertainment, or adventure.

b No more than 1 repetition in a 24 hour period for a duration of less than 1 hour is allowable.

c More than one repetition per 24 hours, spaced no less than 2 hours apart, occurs during daylight hours. Full buffer zone is required for any activities occurring during nighttime hours.

d Avoid blasting and other activities that produce extremely loud noises within 2 miles of active nests, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.

CHAPTER 3: ENVIRONMENTAL SETTING

Introduction

This chapter provides background on the environmental resources that are evaluated in the context of the Federal action and alternatives. Specifically, this chapter describes the physical environment, climate change, eagle use and demographics.

Setting Discussions

Physical Environment

The project area is in southeastern Monterey County, with road access through the northeastern corner of San Luis Obispo County north of State Route 41. It lies within the southern terminus of the Diablo mountain range with Cholame Valley to the west. The town of Parkfield and the city of Paso Robles lie approximately 7 miles to the northwest and 25 miles to the southwest, respectively, from the project area. The region is sparsely populated and dominated by agriculture and ranching activities, with land use in the project footprint historically consisting of cattle grazing. The project footprint is approximately 3,000 acres. The landscape in the project vicinity is dominated by gently rolling terrain and grasslands, surrounded by woodlands and shrublands where various trees, primarily oak trees, provide nest substrates suited to eagles and other raptors.

Climate Change

This EA incorporates by reference the Climate Change analysis conducted in the Alta East EA (Service 2016b).

Eagle Use and Demographics

This EA incorporates by reference the Eagle demographic analysis conducted in the following documents:

1. U.S. Fish and Wildlife Service. *Programmatic Environmental Impact Statement for the Eagle Rule Revision*. December 2016. (Service 2016c)

2. U.S. Fish and Wildlife Service. *Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United Sates, 2016 update*. April 2016. (Service 2016a).

3. County of Monterey. *California Flats Solar Project Draft Environmental Impact Report*. August 2014. (County of Monterey 2014a)

4. County of Monterey. *California Flats Solar Project Final Environmental Impact Report*. December 2014. (County of Monterey 2014b)

5. U.S. Fish and Wildlife Service. *Final Environmental Assessment: Shiloh IV Wind Project Eagle*

Conservation Plan. June 2014. (Service 2014)

6. U.S. Fish and Wildlife Service. *Final Environmental Assessment: Alta East Wind Project Eagle Conservation Plan*. September 2016. (Service 2016b)

7. H.T. Harvey & Associates. *Baseline Raptor Nest Surveys for the Proposed California Flats Solar Project in Monterey County, California: 2013*. September 2013. (H.T. Harvey & Associates 2013)

Project and Local Area Eagle Use and Demographics

Golden eagle habitat in central California consists mainly of open grasslands and oak savanna interspersed with oak and shrub woodlands. The eagles in this area, therefore, have little opportunity for cliff-nesting, so predominately nest in trees, utilizing nearby open areas for foraging on ground squirrels and jackrabbits. Golden eagles are territorial, aggressively defending territorial boundaries. Breeding eagles in the area are supplemented by floater individuals, which quickly fill any territory vacancies that occur. The populations of golden eagles in these areas remain resident throughout the winter and pairs will occupy, maintain, and defend their territories even in years in which they do not breed (Hunt 2002).

Pre-project eagle nesting surveys conducted in 2013 identified one bald eagle breeding territory and at least 21, but possibly up to 33, golden eagle breeding territories located within 10 miles of the California Flats project site (H.T. Harvey & Associates 2013). The study confirmed the presence of several other adult and sub-adult eagles that appeared to be floaters (i.e., potential breeding birds that have not yet established a breeding territory). Surveys and monitoring in 2016 within the project footprint and a one-mile buffer outside of the project footprint identified six golden eagle and one bald eagle territories, as well as the potential for several floater eagles, within the project footprint and one-mile buffer (West Inc. 2016).

Additional eagle data is available within the local area. Winter bald eagle surveys were conducted at San Antonio Reservoir in Monterey County between 1979 and 2012 as part of U.S. Geological Survey's Midwinter Bald Eagle Survey program. These surveys documented an average of 26 wintering bald eagles per year (USGS 2014). Incidental golden eagle sightings were also recorded during the surveys. The surveys documented an average of 11 wintering golden eagles per year and a total of 192 golden eagle observations between 1988 and 2010, the highest total observations of any midwinter survey location in California (USGS 2014).

U.S. Army Garrison Fort Hunter Liggett is a military installation encompassing 162,000 acres within the Santa Lucia Mountains in southern Monterey County. In 1996, biologists at Fort Hunter Liggett documented the first occupied bald eagle nest in Monterey County since the 1930s (U.S. Army 2012). Since then, the installation has annually surveyed for and monitored bald eagle nests in accordance with its Integrated Natural Resources Management Plan. The bald eagle pairs had fledged at least 26 eaglets, collectively, between 1996 and 2011. Golden eagle nest monitoring began in 2010. During the Fort Hunter Liggett surveys for both wintering bald and resident golden eagles, five golden eagles were observed on January 12, 2011. During bald and golden eagle nesting surveys at Fort Hunter Liggett in 2010 and 2011, seven of eight known nests were monitored (Guilliam 2012). Four of the eight nests were identified as golden eagle nests (U.S. Army 2012).

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

Introduction

This chapter describes the environmental consequences of the three permitting alternatives. The analysis considers two action alternatives that provide a reasonable range of options for responding to the California Flats application for an eagle permit, and evaluates the impacts on the human environment; most specifically, impacts on the local area and project level eagle populations.

- Alternative 1: No Action
- Alterative 2: Issue Permit to Allow Installation of a Nesting Deterrent Device in One Golden Eagle Nest for One Breeding Season
- Alterative 3: Issue Permit to Allow Disturbance Take to One Golden Eagle Pair for One Breeding Season

Impact Analysis

Effects Related To Take Of Golden Eagles

Approach and Methods

In determining the significance of effects of each alternative on eagles, we screened each alternative against the Eagle Act's Permit Issuance Criteria as described in Chapter 1. We used our Resource Equivalency Analysis and Cumulative Effects Analysis methods as described in our ECP Guidance (Service 2013) to calculate compensatory mitigation and cumulative impacts to eagles. We have also used some qualitative analysis based on our knowledge of the area, attendance at local technical meetings, discussions with other local experts, and studies of local eagle populations.

To address the effects of golden eagle take on cultural practices, we assessed whether the Proposed Action or alternatives would substantially burden a Tribe's free exercise of its religion.

Effects Common to Alternatives

All alternatives have the potential to result in permitted or unpermitted take of eagles. The potential is substantially greater for golden eagles than bald eagles due to their frequency of occurrence in the project area and different foraging requirements. We believe that effects to bald eagles will not occur and therefore no permit for bald eagle take is required. Accordingly, this analysis focuses on golden eagles, primarily the breeding pair associated with the nest location, 19A, for which we are considering issuance of a disturbance take authorization.

Direct and Indirect Effects

Direct effects of authorizing take by disturbance to a single golden eagle breeding pair by construction activities associated with the California Flats project to occur within one mile of a golden eagle nest (19 A) during the 2017 eagle breeding season (1 February 2017 to 31 August 2017) may entail the loss of one year of productivity for the pair.

Indirect effects of this authorization may result in temporary or long-term displacement of the breeding pair. To address this potential affect, we would require monitoring of the pair and their territory and include in our permit requirements for additional compensatory mitigation if the pair fails to breed in the 2018 season. Also, if the eagle pair builds an alternate nest site close to a neighboring breeding eagle's territory, it could put the pair in conflict with neighboring eagles. This may negatively affect the neighboring eagle pair by lowering their productivity. Therefore, we would also require monitoring of the rest of the project area eagle breeding population located within 10 miles of the California Flats project site for 5 consecutive breeding seasons.

Cumulative Effects

The purpose of this cumulative effects evaluation is to identify situations where take, either at the individual project level or in combination with other present or foreseeable future actions and other limiting factors at the local-area population scale, may be approaching levels that are biologically problematic or which cannot reasonably be offset through compensatory mitigation. The scale of our analyses to assess cumulative effects for eagles is the natal dispersal distance for the given species, which is a 109-miles radius around the project site to examine effects to golden eagles.

At the project level, foreseeable cumulative impacts to eagles may be caused by future construction, operations, the presence of infrastructure and increased human presence. Between 1-3 golden eagle breeding territories located within one mile of the project footprint could be affected by reduced productivity in future years or the territories could possibly be lost.

Cumulative effect estimates were calculated for the Shiloh IV Wind Project at 12.3 percent of the local area population taken annually (Service 2014) and for the Alta East Wind Project at 8 percent of the local area population taken annually (Service 2016b). California Flats Solar Project is located geographically about halfway between these two wind projects and within the same mountain range, the Diablo Range, as the Altamont Wind Pass Resource Area, which accounted for the majority of eagle take in the Shiloh IV project analysis. We therefore believe the estimate for the cumulative effects for California Flats Solar Project will fall within the range of these two estimates, 8-12.3 percent. Alternative 3 addresses these estimated cumulative effects by including a compensatory mitigation ratio of 2:1.

We anticipate that issuing a permit would ensure that take of eagles would be minimized and offset by compensatory mitigation. Because the Applicant would offset take through compensatory mitigation, issuance of a non-purposeful/incidental take (through disturbance) permit would cause no significant adverse cumulative effects on golden eagle populations. Further, our permit conditions would require the Applicant to implement minimization and avoidance measures within one mile of any other nesting eagles (see Table 1) and monitor eagles near the project. Our permit would also require the Applicant to apply for eagle take authorization for remaining construction activities of the project and for long term operations and maintenance. Therefore, issuance of this short-term take authorization will ensure future impacts to eagles at this project site are minimized to the maximum degree practicable.

It is the Service's objective to manage the species by authorizing take at a level that is less than 5 percent of the local-area population annually. However, in areas such as this, where the annual ongoing fatality of eagles is above this benchmark, our goals will be focused on additional mitigation and overall reduction of ongoing impacts to eagles to ensure that projects are compatible with the preservation of eagles.

Cultural Effects

Eagles and their feathers are revered and considered sacred in many Native American traditions. Construction and operations of the project, including disturbance take of eagles, is not expected to interfere with cultural practices and ceremonies related to eagles, or to affect the ability to utilize eagle feathers. Further, any eagles or eagle parts that are found would be sent to our repository and, if in good condition, would be made available for these practices. In addition, there are no federally-recognized

tribes are located in Monterey or San Luis Obispo Counties or in the project area. Therefore, we do not anticipate any adverse effect on cultural practices.

Climate Change

The effects of climate change on eagles in the region are treated as cumulative impacts because they occur later in time. Over the life of the project, the effects of climate change in California will likely result in more pronounced seasonal variation. Due to climate change, the project area is anticipated to shift to a warmer and dryer regime. The ultimate effect of these changes on golden eagles in the project area and the region is difficult to predict. However, because the species survives on a wide variety of prey species across a broad gradient of climatic zones, it is reasonable to surmise that golden eagles have the capacity to adapt to minor changes. The project, by generating electricity using solar energy rather than fossil fuels, could offset CO_2 productions (Service 2012b). Over the life of the project, this would constitute an indirect beneficial effect. Over the term of this permit, impacts will be negligible.

Other Priority Uses

Other priority uses described in our regulations include safety emergencies, Native American use for rites and ceremonies, activities necessary to ensure public health and safety, renewal of programmatic nest-take permits, and resource development or recovery operations (for inactive golden eagle nests only). Operation of the project, including disturbance take of eagles, is not expected to interfere with other priority uses or permits because a no-net-loss standard is expected to be achieved under the action alternatives.

Conclusion

While the incremental effect of the project is small and the impact intensity is low of authorizing disturbance that may affect productivity of one golden eagle pair for one breeding season, the project does contribute to local and possibly regional adverse effects on the species.

We have determined that, by issuing a permit, the Service would have a means to ensure that take of eagles would be minimized through implementation of required minimization and avoidance measures and offset by the retrofitting of additional utility power poles at levels above that currently undertaken by the utility company, and that these activities will help accomplish our population goal for eagles. The Applicant would offset take through compensatory mitigation, and it is our opinion that issuance of a permit would reduce impacts to eagles compared to allowing the project to operate without the conservation benefits required under a permit.

Assessment of Alternatives

In assessing whether there is a "significant" impact, we have considered both the context and intensity of the action and its effects (40 CFR 1508.27). Context refers to the affected environment in which the proposed action takes place and may include the socioeconomic, legal, and political situation surrounding an action. Intensity refers to the severity of the proposed action's impact on the environment and may consider environmentally beneficial actions, public health, unique characteristics of the geographic area, controversy, uncertainty, precedent- setting elements, cumulative effects, cultural resource effects, effects on endangered species, and consistency with environmental laws (40 CFR 1508.27[b]). In the case of the Proposed Action—issuance of a short-term disturbance eagle take permit—we have assumed that the context is the presence of the California Flats project construction site. Consideration of intensity addresses the relative severity of effects on eagles, the possibility of the Federal action to establish a precedent for future eagle take permits, and the efficacy of the action in mitigating adverse effects.

Under the action alternatives, the "action" of issuing a disturbance take permit to the Applicant will result in no additional impacts to the human environment. The Applicant will continue construction of the

project as allowed by other permissions California Flats has already received.

Alternative 1: No Action

Under the No-Action Alternative, we would take no action or would deny the permit application and would not issue a permit. Without a permit, California Flats may not complete their construction within timelines required under the project's Power Purchase Agreement with Pacific Gas and Electric Company and Apple assuming eagles use this nest to breed in the 2017 season. If eagles do not attempt to breed in the 2017 season, not issuing the permit may not affect the project and may not result in loss of productivity to eagles.

Under the No-Action Alternative, the project might continue to construct without a take permit. Should direct or indirect take of eagles occur under the No-Action Alternative, the Applicant would be in violation of the Eagle Act and would thereby be subject to investigation and possible prosecution by the Office of Law Enforcement.

If we decide not to issue a take permit because we assess the risk to be zero, and take occurs, then we will have been in error and law enforcement action against the Applicant would be unlikely. However, following the initial take, the Applicant would be directed by the Office of Law Enforcement to immediately coordinate with us and may be directed to halt construction activities to avoid additional eagle take until preventative measures are implemented. Failure to implement Service recommendations to avoid additional take and/or failure to obtain a permit would likely result in investigation and could result in prosecution under the Eagle Act if take occurs. In the alternate scenario—in which we do not issue a take permit because the application and conservation commitments made by the Applicant fail to meet our issuing criteria—then, if take occurs, immediate law enforcement action would be more likely.

Alternative 2: Issue Permit to Allow Installation of a Nesting Deterrent Device in One Golden Eagle nest for One Breeding Season

Under this alternative, we would issue a permit as requested by the Applicant to place a nesting deterrent device in one eagle nest for a single breeding season. California Flats would install a nesting deterrent device in the nest immediately prior to the nesting season to temporarily deter nesting in a particular nest (19A). Any new nests constructed by the eagle pair in the immediate vicinity of the nest with the deterrent device or within one mile of construction activities would be removed. Under this alternative, the Applicant would provide compensatory mitigation by retrofitting power poles sufficient to compensate for the loss of a single breeding season's productivity for one breeding pair at a 1.2:1 mitigation ratio. If the eagles do not attempt to nest the following breeding season, this mitigation would be doubled. Under this Alternative, the Applicant would be required, through a permit term and condition, to apply for Eagle Act authorization for remaining construction activities and for impacts due to operations and maintenance activities.

Under this alternative, for the eagle pair to breed in the 2017 season, they would be forced to construct an alternate nest site. If constructed in the immediate vicinity of the nest with the deterrent device, the Applicant would remove it. Eagle nests are protected from take under the Eagle Act and if the Applicant removed a nest as the pair attempts to construct it, it would likely result in direct harassment take of this breeding pair.

Under Alternative 2, the eagle pair may also be forced to construct an alternate nest in which to lay their eggs in 2017 that the Applicant would not remove. Because our authorization would allow disturbance which assumes the birds will not successfully produce young and requires compensatory mitigation to offset that loss, this affect would be negligible.

If the eagles build an alternate nest site close to a neighboring breeding eagle's territory, it could put the

birds in conflict with neighboring eagles. This may negatively affect the neighboring eagle pair by lowering their productivity. There is a greater likelihood of this occurring if the disturbed eagle pair is prevented from using their existing nest. Therefore, we would require monitoring of the project area eagle breeding population located within 10 miles of the California Flats project site for 5 consecutive breeding seasons.

Alternative 3: Issue Permit to Allow Disturbance Take to One Golden Eagle Pair for One Breeding Season

Under this alternative, we would issue a permit allowing unrestricted disturbance take authorization within one mile of one eagle nest for a single breeding season (2017).

Under this Alternative, the Applicant would provide compensatory mitigation by retrofitting power poles sufficient to compensate for the loss of a single breeding season's productivity for one breeding pair at a 2:1 mitigation ratio. This 2:1 mitigation ratio would also address estimated cumulative effects. If the eagles do not attempt to nest the following breeding season, this mitigation would be doubled. To address future impacts to eagles from future construction seasons and project operations, under this alternative, we would require the Applicant to apply for eagle take authorization within six months of permit issuance.

Under this Alternative, the eagle pair may utilize the existing nest site or may, but would not be forced to, build an alternate nest site for use during the 2017 season. This pair may or may not breed successfully. If the eagles tolerate the construction activities and breed successfully, there will be a positive effect to the local area eagle population as the Applicant will have already provided compensatory mitigation for anticipated impacts. If the eagles fail to produce young in 2017, that take will have been fully mitigated and there will be no effect to the local area eagle population.

If the eagles build an alternate nest site close to a neighboring breeding eagle's territory, it could put the birds in conflict with neighboring eagles. This may negatively affect the neighboring eagle pair by lowering their productivity. As the disturbed pair would retain access to their existing nest site, this is less likely to occur. We would require monitoring of the project area eagle breeding population located within 10 miles of the California Flats project site for 5 consecutive breeding seasons.

Based on the intensity and context of these effects and consideration of the elements associated with this alternative, Alternative 3 is not expected to result in significant adverse effects.

CHAPTER 5: REFERENCES

California Public Utilities Commission (CPUC). 1997. *General Order Number 165*. San Francisco, CA. Available: http://docs.cpuc.ca.gov/published/Graphics/617-2.PDF Accessed: 19 January 2017.

County of Monterey. 2014a. *Draft Environmental Impact Report: California Flats Solar Project*. Resource Management Agency Planning Department. Prepared by: Rincon Consultants, Inc. PLN120294. August. Available: http://www.co.monterey.ca.us/government/departments-i-z/resource-management-agency-rma-/planning/current-major-projects/california-flats-solar/deir-volume-i. Accessed: 19 January 2017.

County of Monterey. 2014b. *Final Environmental Impact Report: California Flats Solar Project*. Resource Management Agency Planning Department. Prepared by: Rincon Consultants, Inc. PLN120294. December. Available: http://www.co.monterey.ca.us/planning/major/California%20Flats%20Solar/FEIR/FEIR_PLN120294_122314.pdf Accessed: 19 January 2017.

Department of the Army. 2015. Department of the Army Permit Evaluation and Decision Document: California Flats Solar Project. Application: SPN-2012-00266S. 14 December 2015.

Guilliam, K. 2012. *Bald and golden eagle monitoring report for 2011*. Albion Environmental, Inc. Prepared for U.S. Army Garrison Fort Hunter Liggett. February. J2007-008.052.03.

H.T. Harvey & Associates. 2013. *Baseline Raptor Nest Surveys for the Proposed California Flats Solar Project in Monterey County, California: 2013*. September.

Hunt, W. G. 2002. *Golden eagles in a Perilous Landscape: Predicting the Effects of Mitigation for Wind Turbine Blade-Strike Mortality*. California Energy Commission Report #P500-02-043F. Sacramento, CA.

Pagel, J.E., D.M. Whittington, and G.T. Allen. 2010. *Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations*. Division of Migratory Bird Management, U. S. Fish and Wildlife Service.

U.S. Army Garrison Fort Hunter Liggett (U.S. Army). 2012. *Final Integrated Natural Resources Management Plan/Environmental Assessment*. U.S. Army Garrison Fort Hunter Liggett. October. Available <http://www.liggett.army.mil/sites/dpw/environmental.asp>. Accessed: 19 January 2017.

U.S. Fish and Wildlife Service (Service). 2003. *Migratory Bird Permit Memorandum*. April 15. United States Department of the Interior, Fish and Wildlife Service, Washington, DC. Available: http://www.fws.gov/policy/m0208.pdf. Accessed: 18 January 2017

———. 2009. *Final Environmental Assessment: Proposal to Permit Take Provided under the Bald and Golden Eagle Protection Act*. Division of Migratory Bird Management, Washington, DC, USA. April.

———. 2012a. *U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines*. March 23.

———. 2012b. *Final Environmental Assessment for the Shiloh IV Wind Project Habitat Conservation Plan*. March. (ICF 00810.10.). Sacramento, CA. With technical assistance from ICF International, Sacramento, CA.

———. 2013. *Eagle Conservation Plan Guidance*. Module 1: Land-based Wind Energy Development. Version 2. April.

———. 2014. *Final Environmental Assessment: Shiloh IV Wind Project Eagle Conservation Plan*. Division of Migratory Bird Management, Sacramento, CA, USA. June.

———. 2016a. *Bald and Golden Eagles: Population demographics and estimation of sustainable take in the United States, 2016 update*. Division of Migratory Bird Management, Washington D.C., USA.

———. 2016b. *Final Environmental Assessment: Alta East Wind Project Eagle Conservation Plan*. Pacific Southwest Region, Migratory Birds and Habitats, Sacramento, CA, USA. September. Docket Number: FWS-R8-MB-2015-N183.

———. 2016c. *Programmatic Environmental Impact Statement for the Eagle Rule Revision*. Division of Migratory Bird Management, Falls Church, VA, USA. December.

U.S. Geological Survey (USGS). 2014. Golden Eagle Records from the Midwinter Bald Eagle Survey Map Viewer. Available: https://srfs.wr.usgs.gov/wintergoea/index.html. Accessed: 19 January 2017.

West Inc. 2016. *California Flats Solar Project, Monterey County, California: Pre-construction Survey Report: Eagle Nests*. February.

Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2009. *Adaptive Management: The U.S. Department of the Interior Technical Guide*. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC. Available: https://www2.usgs.gov/sdc/doc/DOI- Adaptive ManagementTechGuide.pdf Accessed: 19 January 2017.

CHAPTER 6: PREPARERS & CONTRIBUTORS

U.S. Fish and Wildlife Service, Pacific Southwest Region, Migratory Bird Program

Heather Beeler, Eagle Permit Coordinator, NEPA Lead

Tracy Borneman, Migratory Bird Biologist, Permit Lead

Appendix A: California Flats Solar, LLC, Section E of Eagle Non-Purposeful Take Permit Application

California Flats Solar Project
Eagle Non-Purposeful Take Permit Application (Federal Fish and Wildlife Permit Application Form)
Section E - REVISED

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1. The name and contact information for any U.S. Fish and Wildlife Service employee(s) who has provided technical assistance or worked with you on this project.

- Amedee Brickey, email: amedee_brickey@fws.gov, telephone: (916) 414-6480
- Heather Beeler, email: heather_beeler@fws.gov, telephone: (916)414-6651
- Tom Dietsch, email: thomas_dietsch@fws.gov, telephone: (760) 431-9440 Ext. 214
- Chris Diel, email: christopher_diel@fws.gov, telephone: (805) 644-1766 Ext. 305

2. The species and number of eagles that are likely to be taken and the likely form of that take (e.g., disturbance, other take).

California Flats Solar, LLC (California Flats) proposes to temporarily disturb one golden eagle (*Aquila chrysaetos*) nest located in the vicinity of an active solar project construction zone in southern Monterey County, California (Nest 19A). Based on surveys and monitoring completed every year since 2013, this nest has not had chicks survive beyond the post-fledging dependency stage (2013: nest inactive; 2014: nest active but single egg failed to hatch; 2015: nest inactive; 2016: two chicks killed by predators shortly after fledging). Construction of the California Flats Solar Project (Project) began in the first quarter of 2016. As construction proceeds, disturbance to eagles at this nest could potentially occur during the 2017 nesting season.

Given the low level of activities and noise associated with an operating solar energy facility, disturbances to nesting eagles is not anticipated after construction is completed and the California Flats Solar Project goes into operation. Nevertheless, monitoring and additional minimization measures will be implemented to ensure operation of the Project would not result in the take of eagles (see the attached draft Bird and Bat Conservation Strategy).

3. The dates the activity will start and is projected to end. If the project has begun, describe the stage of progress.

Construction at the Project begun during the first quarter of 2016 and will occur continuously through 2017. Limited construction, including staging activities and installation of a project substation and microwave tower, took place approximately 0.8 to 1.0 mile from the Nest 19A site during the 2016 nesting season following U.S. Fish and Wildlife Service (USFWS) consultation and with the incorporation of recommended conservation measures. Although biomonitoring of the nest was underway during this phase of construction (including about 384

hours of monitoring effort), no disturbance or agitation to the nesting eagles were observed during monitoring from early April to late June[1].

Construction activities that could occur within one mile of Nest 19A from now until Project construction is completed includes site preparation, installation of PV solar modules and all the necessary electrical equipment, and maintaining and fueling the water line pumps.

4. A detailed description of the activity that will likely cause the disturbance or other take of eagles.

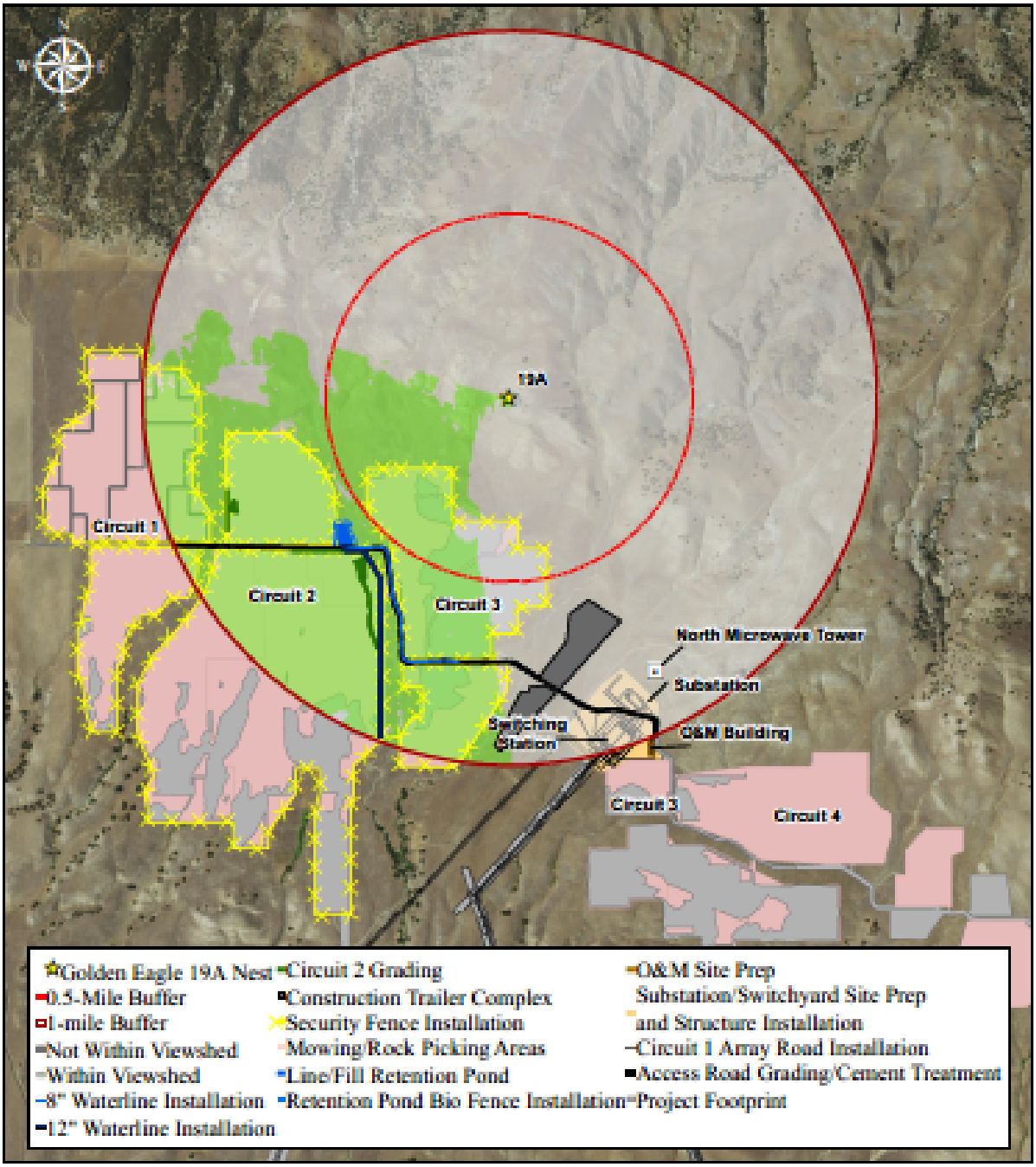
Construction of the Project includes site preparation that might involve mowing, grading, rock picking, and access road improvements. Installation of the photovoltaic solar panels involves installation of the panel racking system and mounting the panels. Additionally, construction will involve installation of electrical inverters and aboveground/belowground electrical collector lines. Typical construction equipment used during construction will include:

- scrapers
- dozers
- dump trucks
- watering trucks
- motor graders
- vibratory compactors
- backhoes
- Truck-mounted Auger
- Pneumatic post drivers
- cranes
- all-terrain Forklift

The figure below illustrates the location of the construction activities in relation to Nest 19A.

[1] Two nestling fledged from this nest on June 2 and June 26, 2016. Both nestlings were confirmed to be killed by predators within days of leaving the nest.

Proposed Site Work in Golden Eagle Nest 19A Buffer



California Flats Solar Project

5. An explanation of why the take of eagles is necessary, including what interests will be protected by the project or activity.

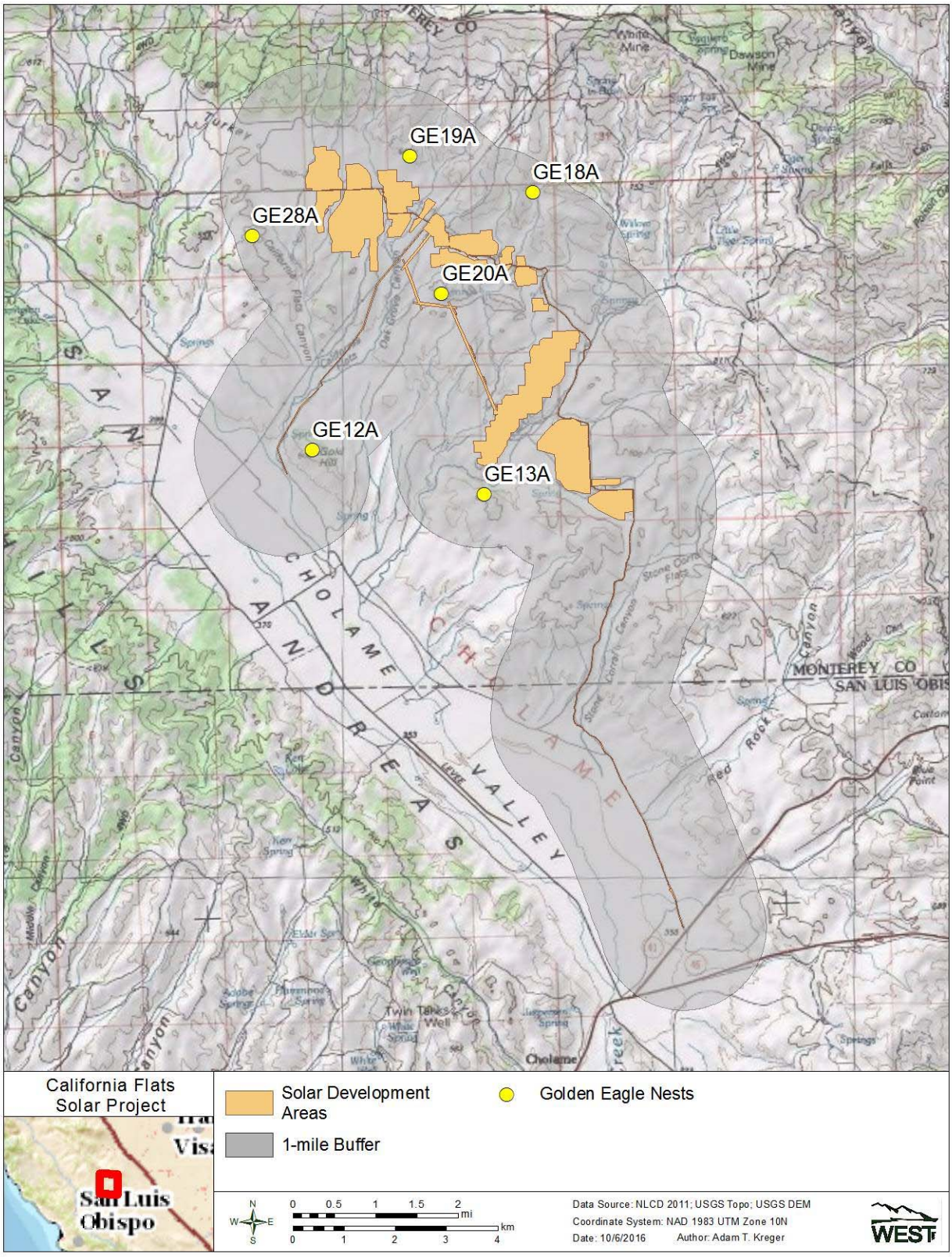
The California Flats Solar Project was proposed due to interest by the Jack Ranch in developing a state-of-the-art solar energy facility in an area with high solar resource potential as an alternative to other land use or development options. The objectives of the Project include supporting the State of California and Monterey County's renewable energy and greenhouse gas emission goals. Additionally, the Project was designed to optimize the delivery of solar-produced energy given its location adjoining existing electrical transmission infrastructure with excess transmission capacity. After extensive federal, state, and county environmental reviews, development of the California Flats Solar Project was approved by numerous federal, state, and county authorities. This environmental review included the development of a Draft and Final Environmental Impact Report pursuant to the California Environmental Quality Act, Environmental Assessment pursuant to the National Environmental Policy Act, negotiations and settlements with all of the major non-government environmental organizations in the region, adoption of extensive mitigation, minimization and avoidance measures, and the development of related management plans. In particular, the Project's habitat mitigation plan involves the preservation, enhancement, and maintenance of 6,298 acres of conservation lands in nearby areas of the Jack Ranch to compensate for anticipated project impacts on special-status plant and wildlife species and sensitive habitats. The location of these compensatory mitigation lands will provide particularly high value to the long-term protection of eagles in the southern Diablo Range given the relatively high density of eagles that nest and forage in this area along with the growth of both agricultural (vineyard) and rural-residential developments in the surrounding environs.

After the environmental reviews and site permitting were completed, construction of the California Flats Solar Project began during the first quarter of 2016. During 2016, California Flats, in coordination with USFWS, was able to avoid potential disturbances to all eagle nests in the area through the use of no-work buffer zones. Maintaining these buffers during 2016 came at significant additional financial costs (estimated at $7,000,000) and delays to the construction schedule. Given the current construction schedule, additional delays put California Flats at risk of missing its contracted in-service power delivery deadline, which would result in the loss of the Power Purchase Agreement (PPA) and associated financing, the consequences of which in would negatively impact the Project up to $500,000,000 as well as delay placing additional renewable power into California's transmission grid and achieving federal and state mandates. Accordingly, it is not practicable to continue to maintain a conservative no-work buffer zone around Nest 19A during the 2017 nesting season.

6. Maps, digital photographs, county/city information, and latitude/longitude geographic coordinates of the proposed activity.

The map included below shows the locations of eagle nests in the immediate vicinity of the California Flats Solar Project. Nest 19A is located in southern Monterey County, California at

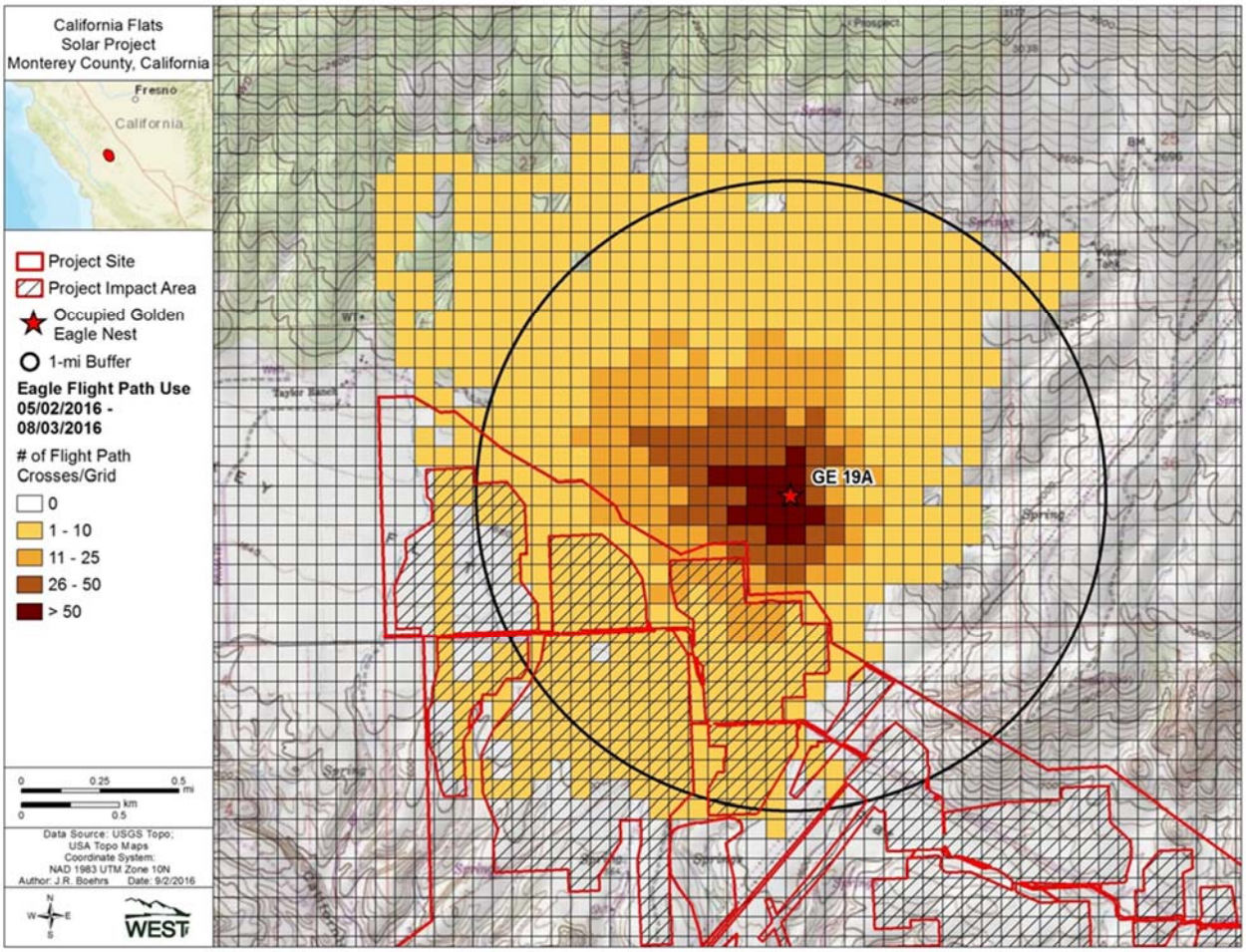
35°53’00.35”N, 120°19’40.68”W. Nests 18A, 20A, and 28A have not been active in recent years suggesting they may be historic or alternative nest sites. Disturbances to all other eagle nests in the Project area would be avoided given the distance to active construction areas or through the establishment of no-work buffer zones agreed to in coordination with the USFWS.


GE19A
GE18A
GE28A
GE20A
GE12A
GE13A
CHOLAME VALLEY
MONTEREY CO
SAN LUIS OBIS
California Flats Solar Project
Solar Development Areas
1-mile Buffer
Golden Eagle Nests
San Luis Obispo
0 0.5 1 1.5 2 mi
0 1 2 3 4 km
Data Source: NLCD 2011; USGS Topo; USGS DEM
Coordinate System: NAD 1983 UTM Zone 10N
Date: 10/6/2016 Author: Adam T. Kreger
WEST

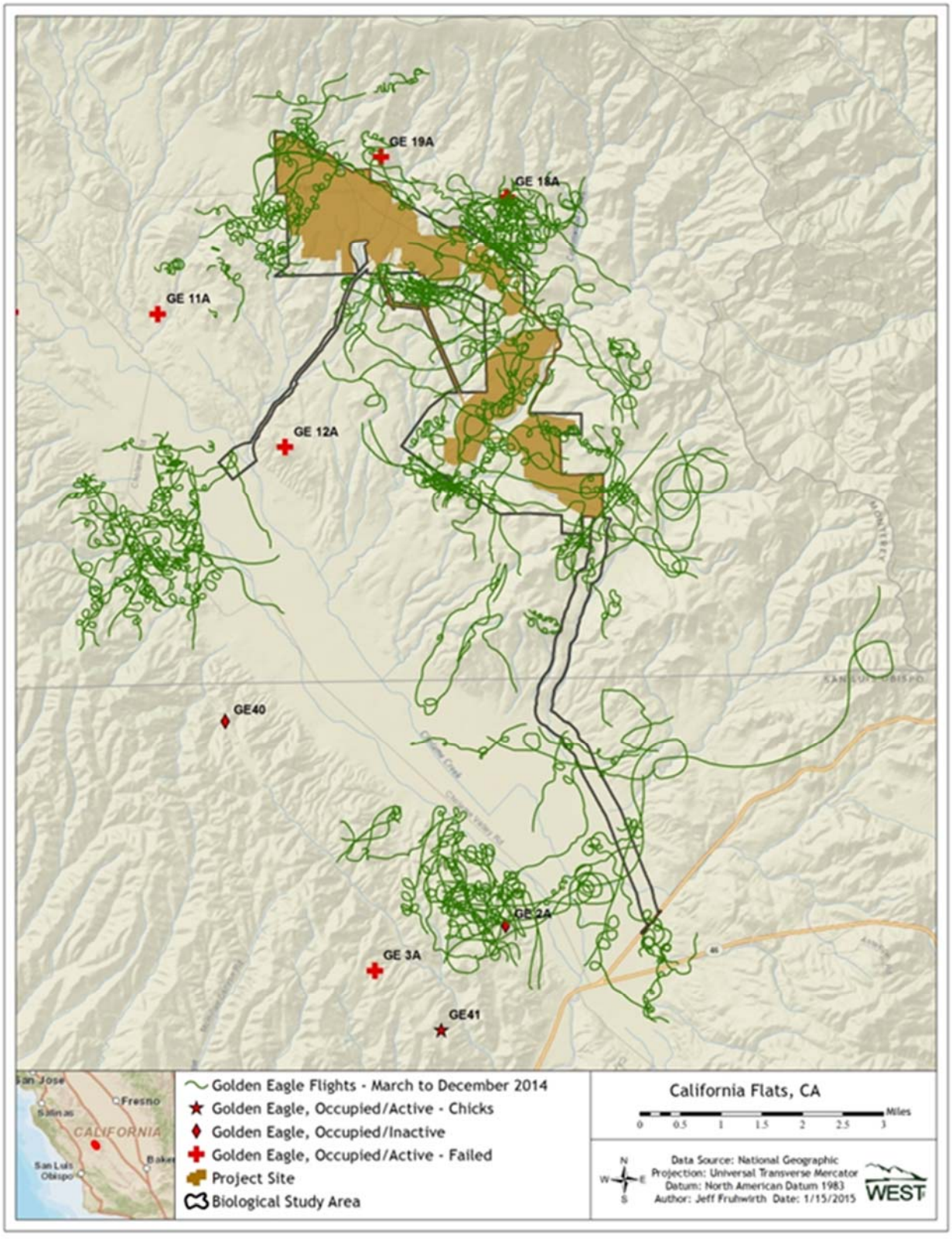
7. Maps, digital photographs, county/city information, and latitude/longitude geographic coordinates of eagle-use areas in the vicinity of the activity, including nest site(s), roost areas, foraging areas, and known migration paths. Provide the specific distance and locations of nests and other eagle-use areas from the project footprint.

Alternative eagle nesting and foraging areas that would not be detrimentally affected by construction of the Project are available to the eagles that have used Nest 19A in the past. Primarily, these alternative use areas, including other potential nest trees located to the north, northeast, and east of Nest 19A.

The map below illustrates eagle use areas at Nest 19A based on 384 hours of observation completed during biomonitoring conducted between early April and late June 2016.



The map below shows occupied eagle nests and eagle use over a broader area from early March to late December 2014 (during a season where Nest 19A was active but unsuccessful). Data collected during this avian use study were from 597 hours of survey from 10 different observation points covering the Project and adjacent areas.



8. If the projected take of eagles is in the form of disturbance, answer the following two questions:

a. Will the activity be visible to eagles in the eagle-use areas, or are there visual buffers such as screening vegetation or topography that blocks the view?

Topography at Nest 19A provides screening of a portion of the Project construction site. Only a portion of the work area is within the view shed of the nest (see green shaded area shown in map under item #4).

b. What is the extent of existing activities in the vicinity that are similar in nature, size, and use to your activity, and if so, what is the distance between those activities and the important eagle use areas

Historically, the Project site has been used for ongoing ranching operations. Turkey Flats Road is an actively used ranch road that is located as near as 0.55 mile from Nest 19A.

During construction of the Project site in early 2016, Nest 19A only became active in mid-March after construction of the site had already begun and various construction activities were underway. In particular, extensive biological clearance activities (up to 10 biologists on foot conducting clearances), the excavation of the retention pond (including the use of heavy equipment)and extensive “rock picking” activities using manual labor (approx.. 25 workers) and heavy equipment was underway while this nest became active..

After the chicks at 19A died in 2016, construction activities were restarted within the 1-mile buffer to complete as much work as possible prior to the 2017 nesting season. Activities have included the completion of the water pond (approx. 0.6 mile from Nest 19A), installation of posts, racking and solar panels, installation of inverter and transformer pads (called “PCS” pads), improvement of internal access roads, installation of underground electrical trench runs, and completion of the switchyard and substation.

9. A detailed description of all avoidance and minimization measures that you have incorporated into your planning for the activity that you will implement to reduce the likelihood of take of eagles.

California Flats understands that to receive a permit, an applicant for a standard take permit must implement practical measures to minimize impacts to eagles. As described under item #5, continued use of conservative no-work buffer zones around Nest 19A is not practical to achieve the Project objectives and in-service power delivery requirements. As described in the draft Bird and Bat Conservation Strategy prepared for the Project (see attachment), a variety of steps were taken to minimize impacts to golden eagles, including implementing conservative one-mile no-disturbance buffers for four months at great expense and schedule risk to the Project. Specific options to minimize ongoing impacts to Nest 19A during the 2017 nesting seasons include:

Option 1 – California Flats would install a structure in the nest site immediately prior to the nesting season to temporarily deter nesting in the site (see photo below for an example of the nest deterrent structure). If eggs are observed in this nest, no nest deterrent structure or nest removal activities would be completed. Ongoing monitoring would be completed of this nest site. If attempts by eagles to build an alternate nest are completed in the immediate vicinity of this nest (and within 1.0 mile of proposed construction activities), biologists would remove the nest and/or supporting tree limbs to deter alternate nesting in areas where they could be disturbed by construction.

Option 2 – As an alternative to Option 1, California Flats proposes to leave Nest 19A untouched to allow eagles the opportunity to attempt to use the nest regardless of construction activities but to decrease the existing buffer assumptions. If, based on the pre-construction eagle nests surveys, Nest 19A is confirmed to be active, the following no-work buffer zones would be maintained:

- Courtship and Nest Building Phase – A no-work buffer zone will be maintained within 0.25 mile of the nest. Construction outside of this buffer zone will not be restricted.

- Incubation and Brooding Phase – A limited-work buffer zone will be maintained within 0.5 mile of the nest – work will be limited to 9am to 5pm in this buffer and will primarily consist of commissioning activities (2-4 people in 1-2 vehicles/pickup trucks) and "punchlist" Project finalization items such as general troubleshooting and limited module/component repair/replacement. A biologist will monitor the nest for signs of disturbance to the nesting birds, and adjustments will be made where practical. Construction outside of this buffer zone will not be restricted.

- Post-Brooding Nestling and Post-Fledging Dependency Phases – A no-work buffer zone will be maintained within 0.25 mile of the nest. During these phases, construction will be limited to 9am to 5pm from 0.25 to 0.5 mile of this nest. Construction further than 0.5 from this nest will not be restricted.

No-work buffers will involve avoiding all construction activities within these zones (including all foot and vehicle traffic). Nest 19A will be monitored throughout the construction process to assess status, nesting phase, and document eagle responses to various construction activities.

A report after the 2017 nesting season will be prepared that documents nest status, eagle activity, and responses to construction activities. This report will be provided to the USFWS during the third quarter of 2017.

Regardless of whether Option 1 or Option 2 is selected, California Flats proposes to provide compensatory mitigation for the potential decrease in productivity or nest abandonment at Nest 19A. The *Programmatic Environmental Impact Statement for the Eagle Rule Revision* (U.S. Fish and Wildlife Service, December 2016) , notes that golden eagles have a mean nest productivity of 0.55 young fledged per breeding season per occupied nesting territory. Assuming compensatory mitigation would be provided at a 1.2 to 1 ratio, California Flats proposes to provide compensatory mitigation for the lost reproduction of Nest 19A in the form of power pole retrofits to account for 0.66 eagles per season (0.55 eagles per season X 1.2). A Resource Equivalency Analysis indicates that 9.35 power line poles would need to be retrofitted to APLIC standards to avoid the electrocution of 0.66 eagles, thus fully offsetting the potential impacts of the Project construction in 2017 (see Appendix G of the *Eagle Conservation Plan Guidance: Module 1 – Land-based Wind Energy Version 2,* April 2013). The details and location of the

compensatory mitigation (e.g., the direct retrofit of power poles or providing an in lieu fee) will be finalized in coordination with the USFWS.

Additionally, California Flats proposes to complete a nest survey during 2018. If the Nest 19A territory is not again occupied by golden eagles during the 2018 nesting season, California Flats is committed to providing compensatory mitigation for a second lost nesting season in the form of power pole retrofits that account for another 0.66 eagles (i.e., 9.35 power line poles retrofitted to APLIC standards).

10. You must retain records relating to the activities conducted under your permit for at least 5 years from the date of expiration of the permit. Please provide the address where these records will be kept.

Records will be kept at 135 Main Street (6th Floor), San Francisco, CA 94105

11. Any permit issued as a result of this application is not valid unless you also have any required State or Tribal permits associated with the activity. Have you obtained all required State or Tribal permits or approvals to conduct this activity? Indicate "Yes," Have applied," or None Required." If "Yes," attach a copy of the approval(s). If "Have applied," submit a copy when issued.

Yes, appropriate state permits have been obtained for construction of the California Flats Solar Project. The major state permits, the Incidental Take Permit and the Streambed Alteration Agreement, are attached – other federal, state, or local permits can be made available upon request. We are aware of no tribal jurisdiction or permits associated with the activity in this location.

12. If you have received technical assistance for your project from your State wildlife agency, please provide the name and contact information for the individual(s).

- Lisa Gymer, Senior Environmental Scientist Specialist, California Department of Fish and Wildlife, email: lisa.gymer@wildlife.ca.gov, telephone: (559) 243-4014 x238

13. Disqualification factor. A conviction, or entry of a plea of guilty or nolo contendere, for a felony violation of the Lacey Act, the Migratory Bird Treaty Act, or the Bald and Golden Eagle Protection Act disqualifies any such person from receiving or exercising the privileges of a permit, unless such disqualification has been expressly waived by the Service Director in response to a written petition. (50 CFR 13.21(c)) Have you or any of the owners of the business, if applying as a business, been convicted, or entered a plea of guilty or nolo contendere, forfeited collateral, or are currently under charges for any violations of the laws mentioned above? Indicate "Yes" or "No." If you answered "Yes" provide: a) the individual's name, b) date of charge, c) charge(s), d) location of incident, e) court, and f) action taken for each violation.

No.

Appendix B: California Flats Solar Project Bird and Bat Conservation Stategy

California Flats Solar Project
Bird and Bat Conservation Strategy

Prepared for:

California Flats Solar, LLC

135 Main Street, 6th Floor
San Francisco, California 94105

Prepared by:

Western EcoSystems Technology, Inc.

415 W. 17th Street, Suite 200
Cheyenne, Wyoming 82001

December 5, 2016

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1 INTRODUCTION

California Flats Solar, LLC (California Flats) proposes to construct, own, operate, and eventually decommission a 280-megawatt (MW) alternating current (AC) photovoltaic (PV) solar generating facility referred to as the California Flats Solar Project (Project). This Bird and Bat Conservation Strategy (BBCS) was developed to provide a written record of California Flats' efforts to understand potential project impacts to birds and bats and to document conservation measures that have or will be taken to avoid, minimize, and/or mitigate for those potential impacts. After introductory material on project description, the BBCS purpose, and regulatory framework, the BBCS includes the following major sections:

- baseline conditions
- risk assessment
- risk reduction and conservation measures
- construction and post-construction monitoring
- adaptive management

1.1 Background and Purpose

The BBCS is not intended to initiate formal consultation for take of federal or state listed or protected species; rather, it provides a summary of current biological conditions and describes conservation measures intended to avoid, minimize, and/or mitigate potential impacts to bird species. Information in this BBCS is intended to correspond to California Flats' proposed measures and mitigation to be described in environmental review documentation being prepared for the Project pursuant to the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA), and includes the following objectives:

- describe baseline conditions for bird and bat species present within the Project site, including results of surveys performed to date;
- present a risk assessment identifying activities during the construction and operation and maintenance (O&M) phases that may increase the potential of adverse effects to bird and bat species located on and adjacent to the Project components;
- specify conservation measures that will be employed to avoid, minimize and/or mitigate any potential adverse effects to these species;
- provide details for an Avian Fatality Monitoring Study to be conducted post-construction including applicable approved protocols that would be used for surveys and monitoring; and
- detail long-term monitoring and reporting goals for the Project.

1.2 Corporate Policy and Coordination

California Flats is committed to working cooperatively with federal and state agencies to minimize adverse impacts to protected bird and bat species. Through the planning stages of the Project, California Flats and its consultants have been working in coordination with federal and state agency personnel regarding necessary wildlife surveys and siting considerations to ensure that all parties understand the scope of the Project and potential issues that could be identified and addressed early in the planning process. California Flats will continue to work with the agencies to implement conservation measures intended to avoid, minimize, and/or mitigate potential impacts to bird species, including those measures identified in this BBCS.

2 SITE AND PROJECT DESCRIPTION

The California Flats Solar Project is a proposed 280-MW AC photovoltaic solar power plant located in southeastern Monterey County, California (Figure 1). When approved, the solar facility and related operational infrastructure will be built within an approximately 3,000 acre area of private ranchland. The solar generating portion of the Project (shown as "Project site" on the figures in this document) would be located on approximately 2,720 acres, including an approximately 2,120-acre solar development area. The Project will include construction, installation, and operation of energy-related infrastructure (e.g., solar panels, inverters, substations, a switching station to be owned and operated by Pacific Gas and Electric Company (PG&E), and new power poles and lines) and improvements needed to operate and maintain energy-related facilities (e.g., buildings, internal roadways, access roads, fencing, and lighting). The overall development will also include approximately 60-acres of improvements to an existing access road and its connection to the California Department of Transportation (Caltrans) right-of-way at California State Route (Hwy) 41, approximately 5 miles south of the Project site, as well as a new 155-acre utility corridor. Because the utility corridor was added to the Project plan after some of the initial surveys reported here began, some surveys summarized in the BBCS did not cover that area; however, the relevant area has been subsequently surveyed. The Project site and access road/Hwy 41 improvement areas constituted the original Project impact area (PIA), where all direct, Project-related impacts are projected to occur. A Biological Study Area (BSA) delineated around the PIA and the utility corridor identified the area in which most Project-related biological surveys and assessments were conducted (Figure 1).

California Flats has developed a plan to construct and operate the proposed Project within the Competitive Renewable Energy Zone, under the State's Renewable Energy Transmission Initiative. The Project site's elevation and generally flat, south-facing topography creates an ideal place for solar development. Sunlight is plentiful year round because the elevation places the site above the coastal marine layer, and the site does not receive winter fog from the Central Valley. The flat, south-facing topography minimizes the need for mass grading and alteration of landforms to position modules in a way that favors collection of solar energy. In addition, the Morro Bay–Gates 230-kilovolt transmission line crosses the Project site, with capacity sufficient to accommodate the Project.

2.1 Routine General Operations and Maintenance

The proposed Project would operate primarily during daylight hours, seven days per week. Some equipment operates 24 hours a day and limited operations and maintenance (O&M) activities must occur at night due to safety or operational concerns. Project personnel would operate the Project from the O&M facility, and would be onsite to monitor, maintain, and repair the PV generation and transmission systems. Onsite personnel would include a site manager and technicians.

In general, routine O&M activities may include:

- Preventative maintenance inspections and any required resulting correction maintenance activities such as:
    - module inspection, testing, maintenance, repair and replacement
    - equipment inspection, testing, maintenance, repair, and replacement
    - electrical production and facilities inspection and reporting
    - fence and security systems inspection and repair
    - module cleaning, as necessary

All-terrain utility vehicles, pickup trucks, flatbed trucks, trailers, forklifts, scissor lifts, bucket trucks and loaders would be used to conduct routine operational and maintenance activities.

Routine general site maintenance activities may include:

- vegetation management including mowing and grazing, and the limited use of herbicides
- biological surveys
- fence and security systems maintenance and repair
- road inspection and maintenance including re-grading and erosion repair, if necessary
- general upkeep of the O&M facility

All-terrain utility vehicles, pickup trucks, flatbed trucks, trailers, forklifts, scissor lifts, bucket trucks, loaders, mowers, back-hoes, and graders would be used to conduct general site maintenance activities.

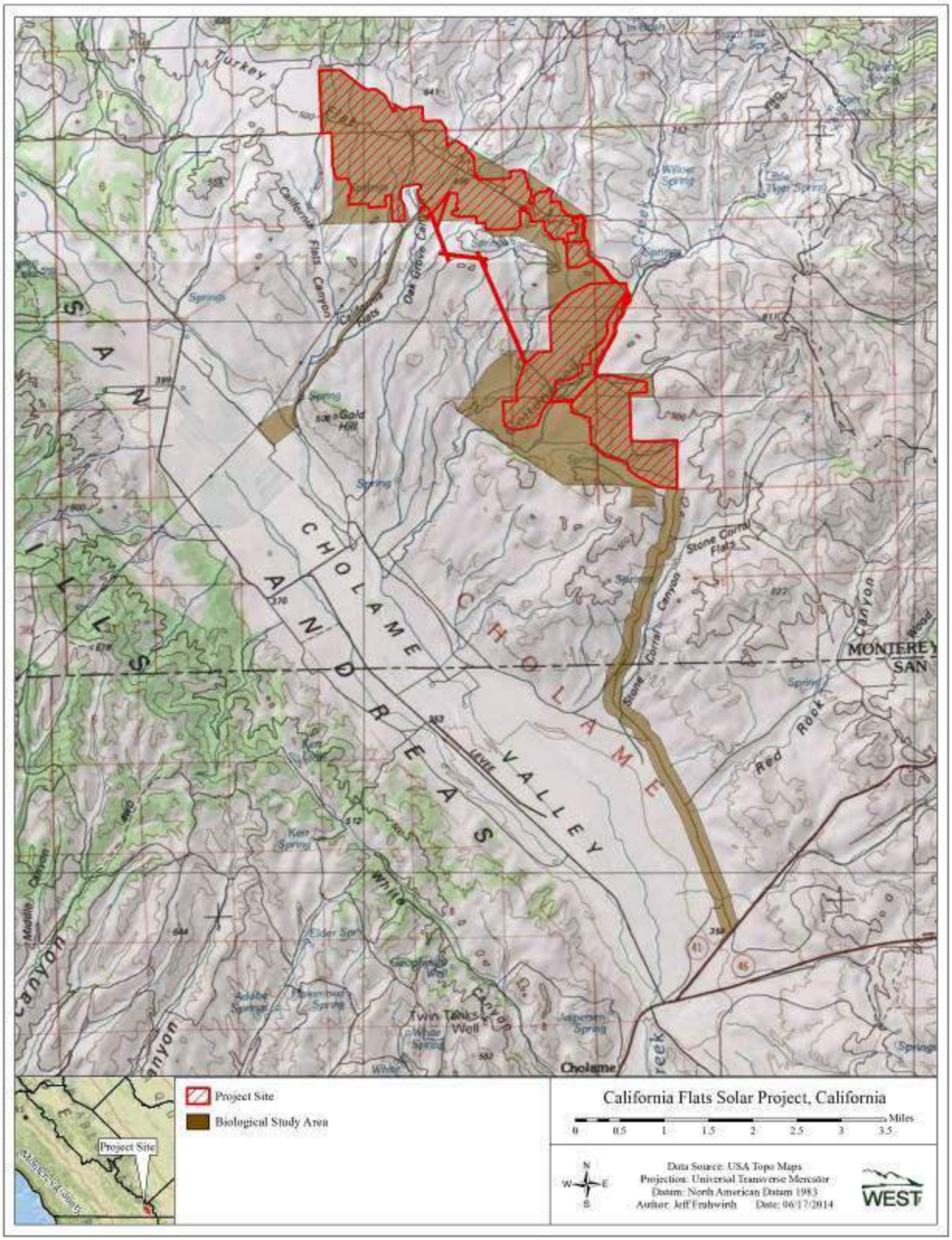
PG&E would be responsible for inspecting, operating, and maintaining its own facilities in compliance with state and federal wildlife regulations, including the Project switching station and the existing Morro Bay–Gates transmission line. These facilities are not covered under this BBCS.

2.2 Non-Routine Operations and Maintenance

Occasional non-routine repair or replacement of Project components (e.g., transformers, invertors, combiner boxes, etc.) may be needed. These non-routine repair or replacements may require larger machinery, such as cranes, boom trucks, tracker trailers, excavators, or heavy-haul

transport. Typically, a smaller malfunctioning component of a larger piece of equipment needs to be repaired within the larger equipment housing. Very rarely an entire large Project component such as a transformer or inverter needs to be replaced using a boom truck or crane.

Figure 1. California Flats Project Location



3 REGULATORY REQUIREMENTS RELEVANT TO THIS BBCS

Several federal and state laws and regulations, including NEPA, Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), CEQA, California Endangered Species Act (CESA), and California Code of Regulations, provide the foundation for the development of the BBCS. This document represents a comprehensive plan to address the requirements of these regulatory mechanisms as they apply to birds and bats in the Project site.

3.1 National Environmental Policy Act

Under NEPA (42 U.S.C. §§ 4321-4370h), federal agencies are required to analyze the potential environmental effects of a major federal action. Because an Individual Permit will be necessary under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (USACE) is the lead federal agency responsible for the NEPA analysis for this Project and is in the process of preparing an Environmental Assessment to analyze the potential impacts of the Project.

3.2 Endangered Species Act

Certain species at risk of extinction, including many birds and bats, are protected under the federal ESA of 1973, as amended (16 U.S.C. §§ 1531-1544). The ESA 1973 defines and lists species as "endangered" and "threatened" and provides regulatory protection for the listed species. The federal ESA provides a program for conservation and recovery of threatened and endangered species. Section 7(a)(2) directs all federal agencies to insure that any action they authorize, fund, or carry-out does not jeopardize the continued existence of an endangered or threatened species or designated or proposed critical habitat (collectively, referred to as protected resources). The USACE is consulting with the U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7(a)(2) of the ESA.

3.3 Migratory Bird Treaty Act

The MBTA (16 U.S.C. §§ 703, et seq.), passed by the U.S. Congress and signed into law in 1918, makes it unlawful to "pursue, hunt, take, capture or kill; attempt to take capture or kill; possess; offer to or sell, barter, purchase, or deliver; or cause to be shipped, exported, imported, transported, or received any native migratory bird, part, nest, egg, or product." The MBTA, enforced by the USFWS, protects all MBTA-listed migratory birds within the United States. In the continental U.S., native non-covered species generally belong to the Order Galliformes. Common non-native species not protect by the MBTA include rock pigeon (*Columba livia*), Eurasian collared-dove (*Streptopelia decaocto*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*) (USFWS 2005). Although permits may be obtained to collect MBTA-listed birds for scientific purposes or to destroy depredating migratory birds, the MBTA does not provide any permit mechanism authorizing the incidental take of migratory birds in connection with otherwise lawful activities. Nevertheless, federal agencies such as the USACE have been directed to evaluate the effects of its actions on migratory birds, with an emphasis on species of concern (per Executive Order 13186).

3.4 Bald and Golden Eagle Protection Act

BGEPA (16 U.S.C. §§ 668-668d) prohibits the take, defined as to "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb," of any bald eagle (*Halieetus leucocephalus*) or golden eagle (*Aquila chrysaetos*). Through recent regulation (50 C.F.R. § 22.26), the USFWS may authorize the 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. The USFWS has issued Eagle Conservation Plan Guidance (USFWS 2013) for land-based wind energy projects to help project proponents avoid unanticipated take of bald and golden eagles and comply with the BGEPA. Although the guidelines were developed for land-based wind energy projects, certain components of eagle surveys and monitoring are applicable to other renewable energy projects, including PV solar plants, and have been incorporated into this BBCS.

3.5 California Environmental Quality Act

Under the California Environmental Quality Act (CEQA) as amended (Public Resources Code [PRC] Section 21000, et seq.), state and local agencies must identify the significant environmental impacts of their actions and avoid or mitigate those impacts, if feasible. The County (Monterey) is the public agency with the principal responsibility for approving the Project, and as such is the Lead Agency for this project under CEQA. The County has determined that the proposed Project is a project of regional importance and that it would have a potentially significant impact on the environment, and therefore is preparing an Environmental Impact Report (EIR), which will address the impacts. Potential impacts to birds and bats are being considered in this document.

3.6 California Endangered Species Act

The California Endangered Species Act (CESA; Fish and Game Code Sections 2050 to 2097) protects and preserves species designated by the Fish and Game Commission as either threatened or endangered in the state of California. These protected resources include native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction as well as those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation. CESA also allows for take that is incidental to otherwise lawful development projects.

3.7 California Fish and Game Code

3.7.1 Fully Protected Species

The California Fish and Game Code provides protection for a variety of species, referred to as fully protected species. Section 5050 lists fully protected amphibians and reptiles, Section 3515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals. The California Fish and Game Code defines take as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected species is prohibited, and the California Department of Fish and Wildlife (CDFW) cannot issue take permits for fully protected species.

3.7.2 Section 3503 and 3503.5 (Protection of Birds and Raptors)

Section 3503 of the California Fish and Game Code prohibits the killing of birds and/or the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and/or the destruction of raptor nests. Typical violations include destruction of active bird and raptor nests as a result of tree removal and failure of nesting attempts (loss of eggs and/or young) as a result of disturbance of nesting pairs caused by nearby human activity. Consultation with CDFW would be required if nesting would be affected by construction activities.

4 ENVIRONMENTAL SETTING AND PRELIMINARY SITE EVALUATION

The Biological Study Area (BSA) for the Project, which is intentionally larger than the Project site, comprises approximately 4,872 acres in an unincorporated area of southeastern Monterey County and northeastern San Luis Obispo County, California, near the Kings County and Fresno County borders (Figure 1). The BSA is located along the eastern rim of the Cholame Valley. The San Andreas Rift Zone trends northwest-southeast south of the BSA. The BSA is bounded by mostly undeveloped private land in all directions. Sparse residential settlements and small farms are located south and east of the BSA. The BSA is vacant and is currently a working landscape that includes cattle ranching. Most level areas of the BSA (i.e., the area north of the access road spur to Hwy 41) have been historically disked and dryland farmed for hay and small grain production. The BSA can be found on three U.S. Geological Survey (USGS) 7.5-minute quadrangle maps: The Dark Hole, Cholame Valley, and Cholame. Elevation ranges from 1,180 feet National Geodetic Vertical Datum (NGVD) at the intersection with Hwy 41 to approximately 1,860 feet NGVD along the northwest edge of the BSA. Topography within the BSA consists of steeply rolling hills along the edges of the Project site, with extensive alluvial terraces forming wide level plains, primarily within the Project site. These plains and hills are bisected by a number of drainages that typically flow from north to south, with drainage eventually to the Cholame Valley.

Based on vegetation mapping conducted in 2012 (H.T. Harvey and Associates [HTH] 2013a), the predominant natural community on the Project site and BSA includes California annual grassland dominated by non-native grasses typical of the region but also supporting a healthy complement of native forbs (Figures 2a – 2d). Other habitats within the Project site include wildflower fields, serpentine bunchgrass grasslands, valley needlegrass grasslands, grassland riparian, interior coast range goldenbush scrub, willow–cottonwood riparian woodlands, ornamental non-native woodlands, blue oak (*Quercus douglasii*) woodlands, valley oak (*Quercus lobata*) riparian woodlands, ephemeral streams, intermittent streams, perennial streams, perennial marsh, seasonal wetlands, and developed/ruderal grasslands. Habitat composition of the larger BSA is generally similar to that of the Project site with the exception that the BSA contains areas of shrubland (interior coast range goldenbush scrub) that is absent from the Project site. Acreages and the percent of the total land area of communities and habitats on the Project site and BSA, as well as the access road/Hwy 41 improvement areas, are listed in Tables 2 and 3, respectively, of the Biotic Report (Appendix A).

Figure 2a. Natural communities/biotic habitats present within the California Flats Solar Project site and Biological Study Area; based on vegetation mapping conducted by H.T. Harvey and Associates (2013a).

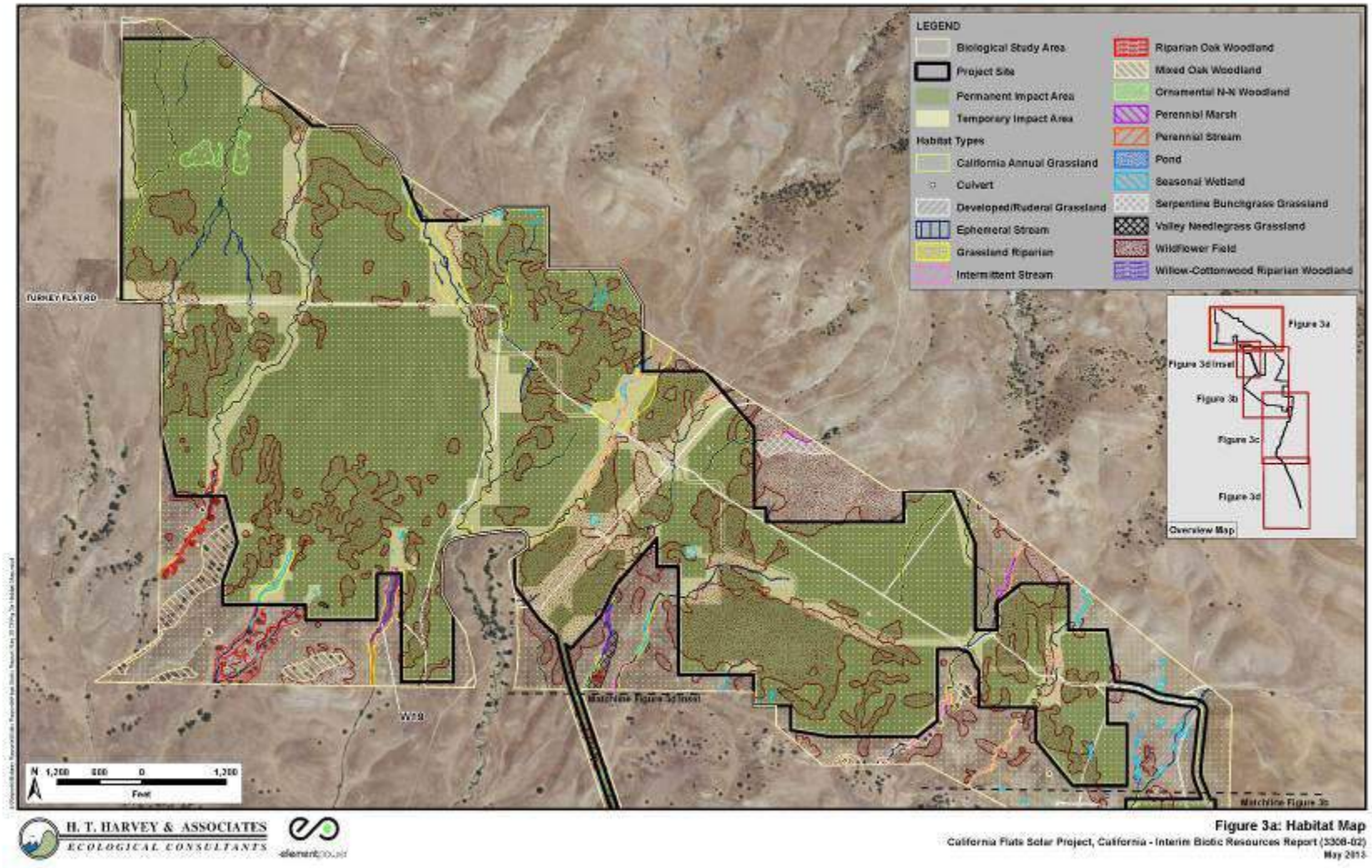


Figure 2b. Natural communities/biotic habitats present within the California Flats Solar Project site and Biological Study Area; based on vegetation mapping conducted by H.T. Harvey and Associates (2013a).

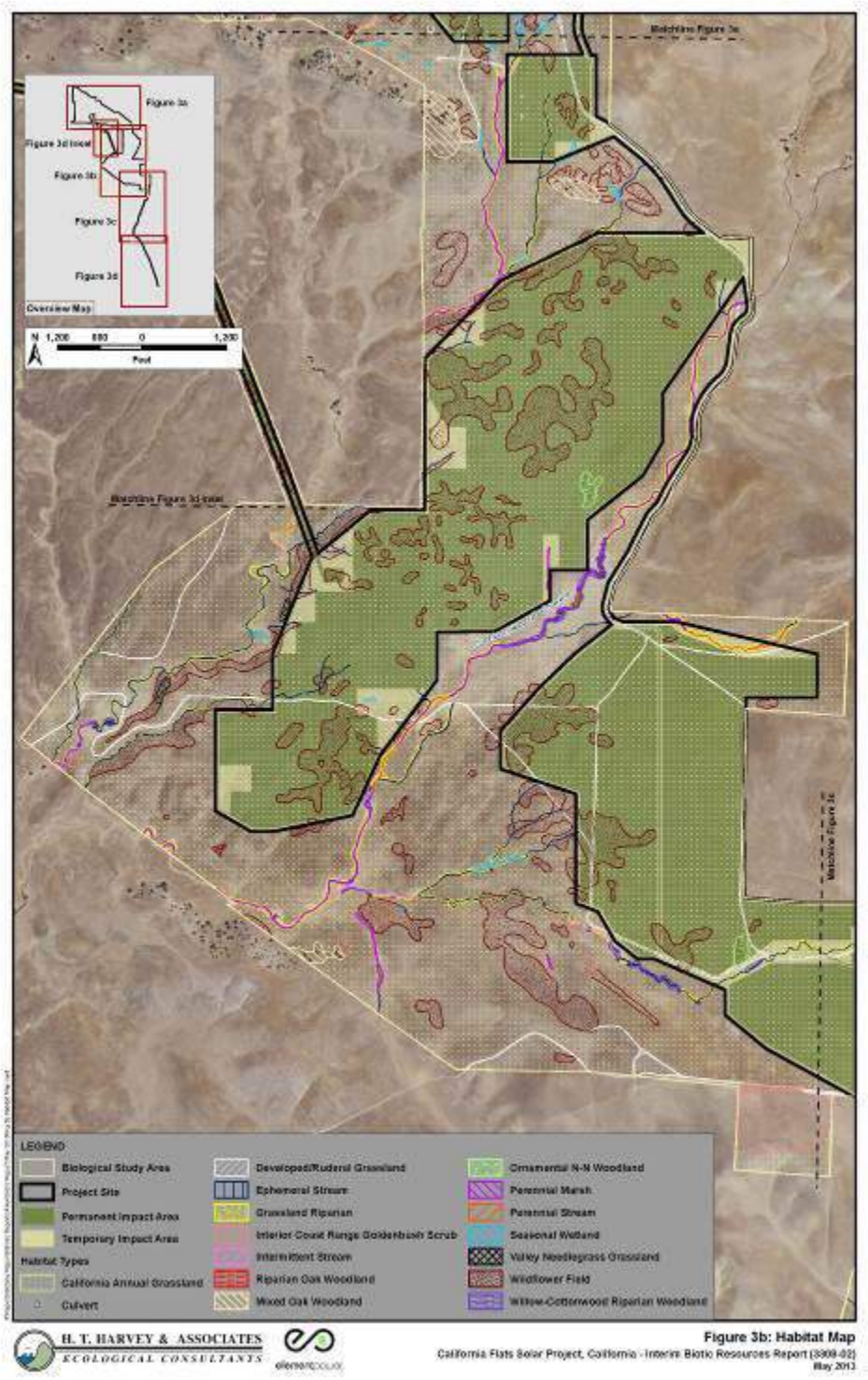


Figure 2c. Natural communities/biotic habitats present within the California Flats Solar Project site and Biological Study Area; based on vegetation mapping conducted by H.T. Harvey and Associates (2013a).

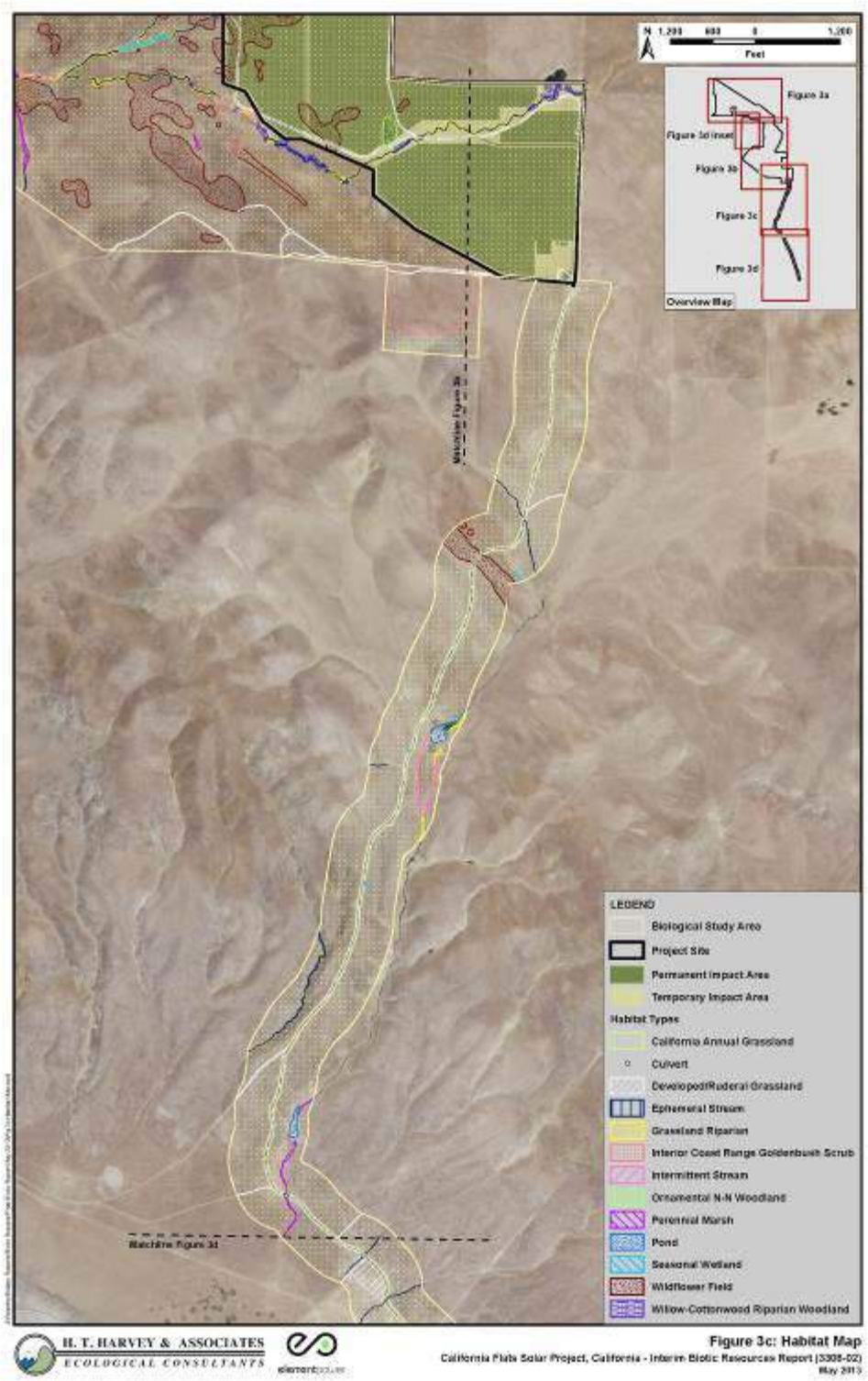
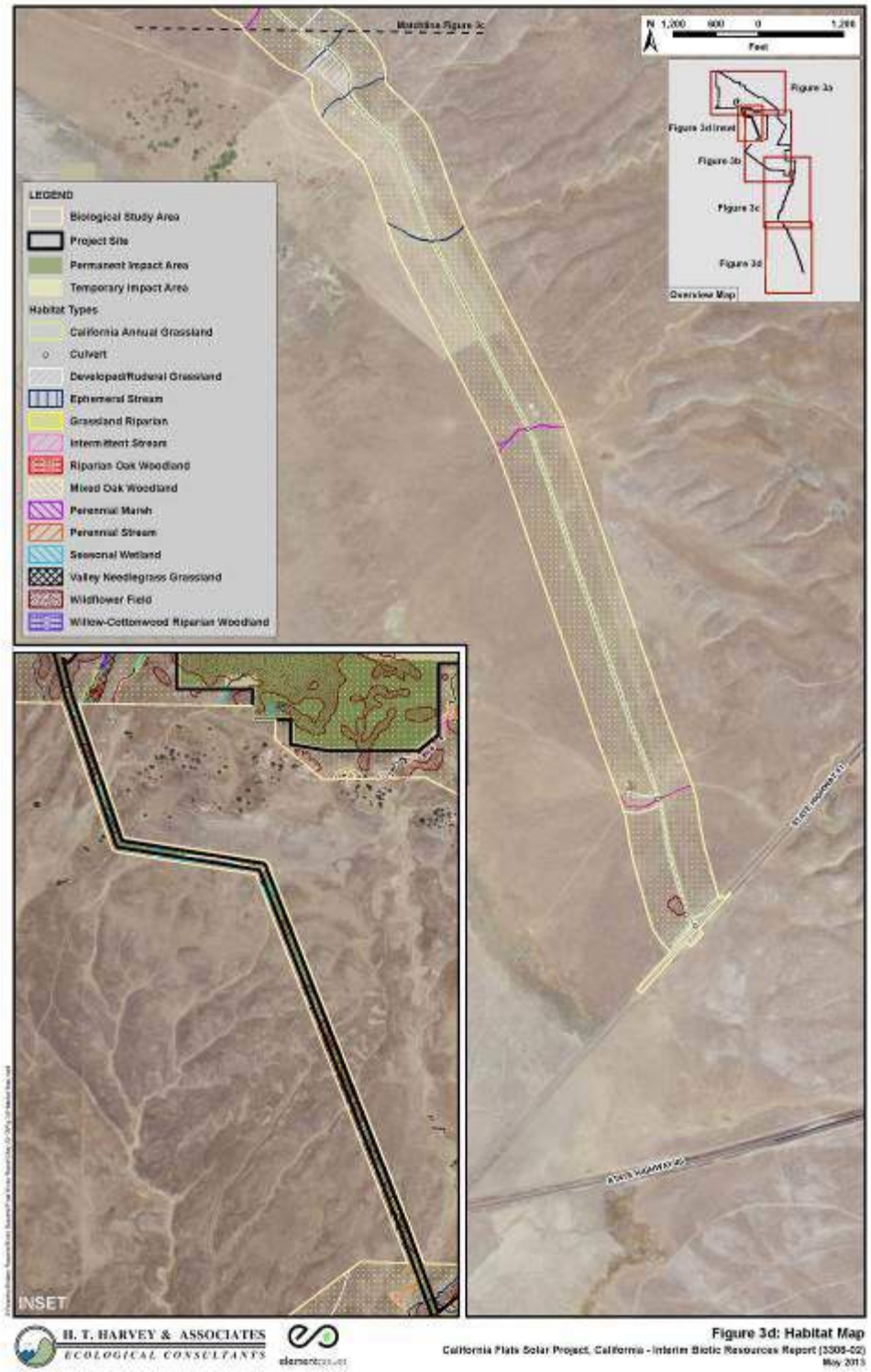


Figure 2d. Natural communities/biotic habitats present within the California Flats Solar Project site and Biological Study Area; based on vegetation mapping conducted by H.T. Harvey and Associates (2013a).



A preliminary evaluation of biological resources within the Project site and surrounding area was conducted by HTH through site visits and a desktop review of existing information. Site visits consisted of reconnaissance field surveys conducted within portions of the BSA on August 19 and 24, 2011 to identify biotic habitats, evaluate botanical and wildlife resources, and assess habitat suitability for special-status plant and animal species that may occur within the Project site. Additionally, HTH collected and reviewed published literature and datasets concerning threatened, endangered, and other special-status species and habitats in the Project vicinity (including the BSA and 5-mile radius). Information was obtained from the California Natural Diversity Database (CNDDB), National Wetlands Inventory, and technical publications.

A list of special-status bird and bat species with potential for occurrence in the Project site has been compiled based on the site evaluation conducted by HTH, an updated search of the CNDDB (2014), and the site-specific baseline studies conducted for the Project to date (see Section 5 and Appendices A, B, C and E; Table 1).

Table 1. Special-status bird and bat species with the potential for occurrence in the California Flats Solar Project.

Species	Scientific Name	Status[1] Fed/State	Detected During Baseline Surveys?
Birds			
Allen's hummingbird	*Selasphorus sasin*	BCC/-	No
Bald eagle	*Haliaeetus leucocephalus*	BGEPA, BCC/SE, FP	Yes
Burrowing owl	*Athene cunicularia*	BCC/SSC	Yes
California condor	*Gymnogyps californianus*	E/E	No
Golden eagle	*Aquila chrysaetos*	BGEPA, BCC/FP	Yes
Grasshopper sparrow	*Ammodramus savannarum*	-/SSC	No
Lawrence's goldfinch	*Spinus lawrencei*	BCC/-	No
Lewis's woodpecker	*Melanerpes lewis*	BCC/-	Yes
Loggerhead shrike	*Lanius ludovicianus*	BCC/SSC	Yes
Long-billed curlew	*Numenius americanus*	BCC/SSC	Yes
Long-eared owl	*Asio otus*	-/SSC	No
Mountain plover	*Charadrius montanus*	BCC/SSC	No
Northern harrier	*Circus cyaneus*	-/SSC	Yes
Nuttall's woodpecker	*Picoides nuttallii*	BCC/-	Yes
Oak titmouse	*Baeolophus inornatus*	BCC/-	Yes
Oregon vesper sparrow	*Pooecetes gramineus affinis*	-/SSC	No
American peregrine falcon	*Falco peregrinus anatum*	BCC/FP	No
Purple martin	*Progne subis*	-/SSC	No
Short-eared owl	*Asio flammeus*	-/SSC	Yes
Swainson's hawk	*Buteo swainsoni*	BCC/T	Yes
Tricolored blackbird	*Agelaius tricolor*	BCC/SSC	Yes
White-tailed kite	*Elanus leucurus*	-/FP	No
Yellow-billed magpie	*Pica nuttalli*	BCC/-	Yes
Yellow warbler	*Dendroica petechia brewsteri*	BCC/SSC	No
Vaux's swift	*Chaetura vauxi*	-/SSC	No

Bats			
Pallid bat	*Antrozous pallidus*	-/SSC	Yes
Townsend's big-eared bat	*Corynorhinus townsendii*	-/SSC	No
western red bat	*Lasiurus blossevillii*	-/SSC	No
Western mastiff bat	*Eumops perotis californicus*	-/SSC	No

[1]Compiled from the California Natural Diversity Database (CNDDB) as well as baseline studies (CNDDB 2014; Appendices B-D).

E=Endangered (CDFW 2014); T=Threatened (CDFW 2014); BCC=USFWS Bird of Conservation Concern in Bird Conservation Region 32 (Coastal California; USFWS 2008); FP=Fully Protected (CDFW 2014); SSC=Species Special Concern (CDFW 2014); BGEPA= Bald and Golden Eagle Protection Act (BGEPA 1940)

5 SITE-SPECIFIC BASELINE AVIAN AND BAT STUDIES

A number of site-specific baseline avian and bat studies have been, and continue to be, conducted within the BSA (Table 2). Summaries of the baseline avian and bat studies are provided below and final reports are provided in Appendices B-E.

Table 2. Baseline avian and bat studies conducted at the California Flats Solar Project.

Study Type	Dates	Description	Report
Burrowing owl surveys	November 2012	Daytime grid surveys and nighttime spotlight surveys in Project site and access road/Hwy 41 improvement areas.	H.T. Harvey and Associates (2013a) (Appendix A)
Raptor nest surveys	March – June 2013	Aerial survey for golden eagle, bald eagle, and California condor nesting territories within 10 miles of Project and Swainson's hawk nests within 5 miles of Project; ground surveys for other raptors nesting within 500 m of Project.	H.T. Harvey and Associates (2013b) (Appendix B)
Aerial golden eagle nest surveys	March – June 2014	Aerial (helicopter) surveys to locate golden and bald eagle nests and assess nest productivity within 10 miles of Project site.	WEST (2014a) (Appendix B)
Bird use count surveys	March 2013 – March 2014	Fixed-point bird use surveys within 800-m survey viewshed conducted at eight locations throughout the BSA; 20-min surveys conducted at each point twice/month.	H.T. Harvey and Associates (2014a) (Appendix C)
Eagle use/distribution surveys	March – December 2014 (ongoing)	Eagle (and other raptor) use surveys within unlimited viewshed conducted at 10 points (6 in Project site and 4 in surrounding landscape); 3-hr surveys conducted at each point twice/month.	WEST (2014a) (Appendix D)
Bat habitat assessment	October 4 and 15, 2013	Driving/walking surveys to identify and evaluate potential bat habitat within the BSA.	H.T. Harvey and Associates (2014b) (Appendix E)

Acoustic bat surveys	October 16-24, 2013	Passive acoustic surveys at locations identified during initial habitat assessment as having potential for higher bat use or roosts.	H.T. Harvey and Associates (2014b) (Appendix E)

5.1 Burrowing Owl Surveys

5.1.1 Methods

Surveys for burrowing owls, and other burrowing animals, were conducted by HTH throughout the Project site over the course of 10 days in November 2012. Surveys were conducted by walking transects throughout the entire Project site and recording all direct observations of burrowing owls or owl sign (e.g., potential burrows and burrow systems, whitewash, pellets, feathers).

Additionally, spotlight surveys were conducted over three nights in November and December 2012 and six nights in September 2013 by two teams comprising two surveyors each. Surveyors searched from both sides of the vehicle with high output spotlights. Animals were identified using high-powered binoculars or spotting scopes.

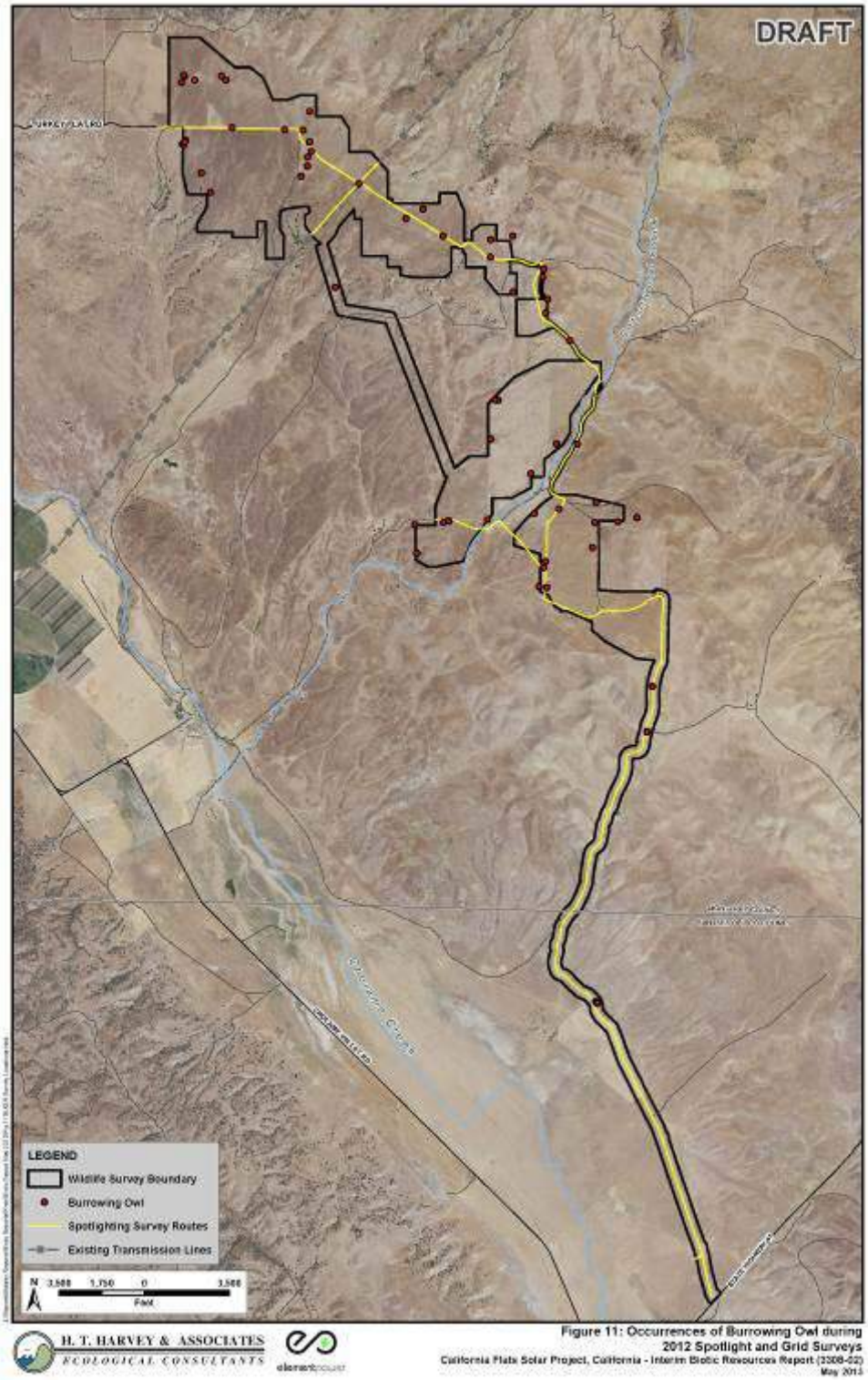
5.1.2 Results

Daytime transect surveys and nighttime spotlight surveys conducted in 2012 confirmed burrowing owls or their sign throughout most areas of the Project site and in several areas along the access road (Figure 3).

5.1.3 Conclusions

Nearly the entire Project site currently provides suitable foraging and breeding habitat for burrowing owls. The grassland, rolling foothill habitats and California ground squirrel (*Otospermophilus beecheyi*) burrow systems in the area provide suitable foraging, nesting, and sheltering opportunities for resident, wintering, and transient owls. Suitable habitat for the species is also present along the access road.

Figure 3. Occurrences of burrowing owl during 2012 spotlight and burrowing animal surveys, taken from Biotic Report by H.T. Harvey and Associates (2013a).



5.2 Raptor Nest Surveys

5.2.1 Methods

Ground and aerial surveys for nesting raptors within the Project vicinity were conducted by HTH during the 2013 breeding season (Appendix B). The goals of the surveys were to determine the degree to which Project development might influence the nesting and foraging activities of golden eagles whose home ranges overlap the Project site, and to assess the potential for Project development to adversely affect other raptors that nest or roost on or near the Project site. The study involved both aerial (helicopter) and ground surveys. The primary objectives of the helicopter surveys, conducted in late March and mid-May, were to: 1) achieve a comprehensive, baseline inventory of golden eagle, bald eagle, and California condor occupied nesting territories, nest locations, and nesting activity within 10 miles of the Project site (Figure 1); 2) search for potential Swainson's hawk nesting territories within 5 miles of the Project site; and 3) obtain an indication of nesting success and productivity for the local golden eagle population. The objective of the ground surveys, conducted from March through June 2013, was to collect additional information about raptor nesting activity on the Project site and within a 1,640-foot buffer area.

A second year of eagle nesting surveys was conducted by WEST during the 2014 breeding season (Appendix B). The goals of this survey effort were to identify the distribution of golden and bald eagle nests within a 10-mile radius of the Project site, as well as territory occupancy, hatching success, and fledgling production. An initial comprehensive nest survey that included initial notes on active nesting status was conducted on April 15-17 and a follow-up survey to further document and confirm nesting status and productivity was conducted on May 23, 2014. All aerial surveys, conducted during both 2013 and 2014, were consistent with the USFWS survey guidelines (Pagel et al. 2010).

Basic nest use was categorized consistent with definitions from the USFWS Eagle Conservation Plan Guidance (April 2013). Nests were classified as occupied if any of the following were observed at the nest structure: (1) an adult eagle in an incubating position, (2) eggs, (3) nestlings or fledglings, (4) occurrence of a pair of adult eagles (or, sometimes subadults), (5) a newly constructed or refurbished stick nest in the area where territorial behavior of an eagle had been observed early in the breeding season, or (6) a recently repaired nest with fresh sticks (clean breaks) or fresh boughs on top, and/or droppings and/or molted feathers on its rim or underneath. Occupied nests are further classified as active if an egg or eggs have been laid or nestlings are observed, or inactive if no eggs or chicks are present. A nest that is not occupied will be classified as inactive, as evidenced by no indication of recent use or attendance by adult eagles. Eagle nests are classified as unoccupied if no eagles were seen at the nest nor in the vicinity of the nest—evidence that the breeding territory itself may be unoccupied.

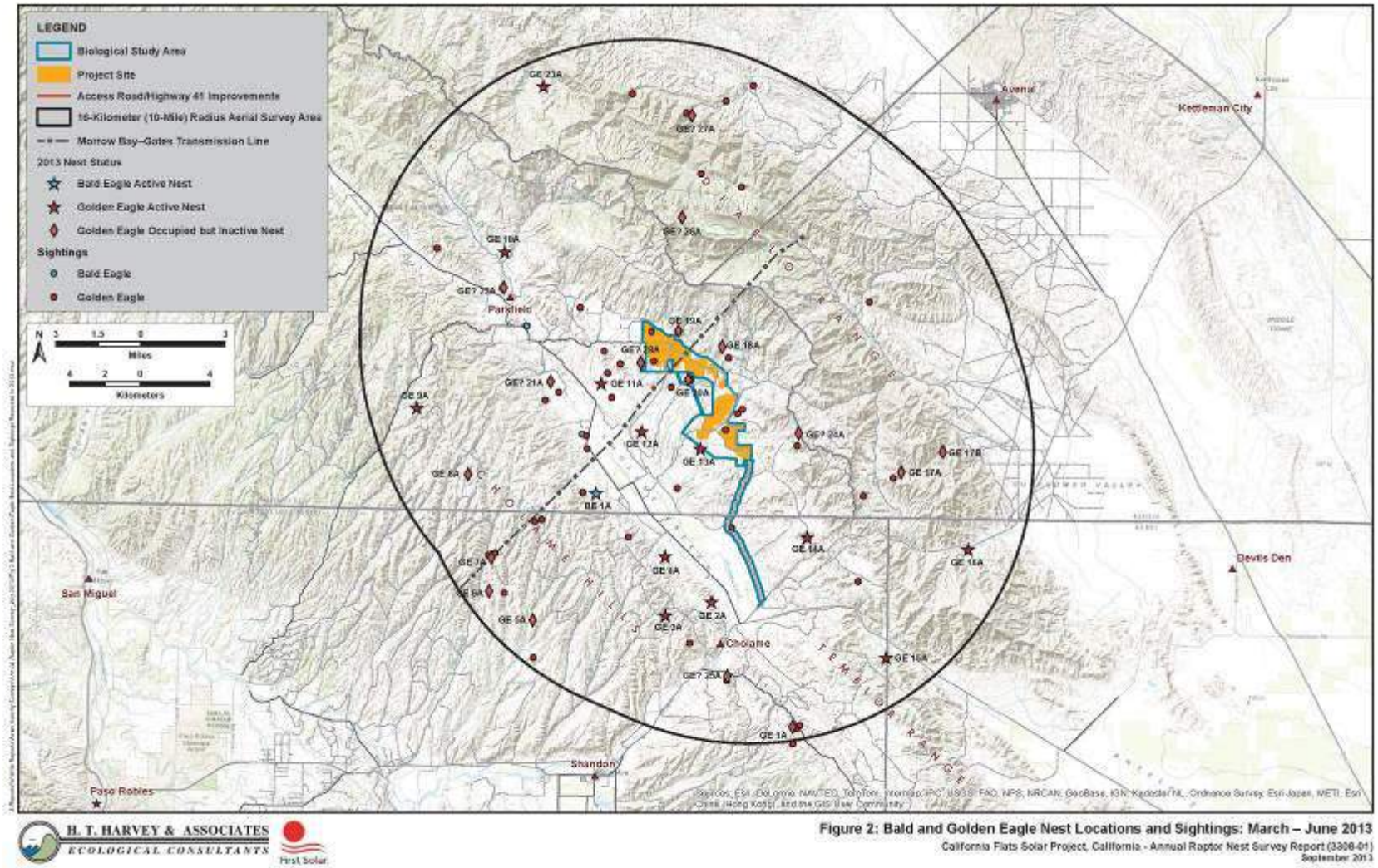
5.2.2 Results

<u>2013 Surveys</u>

During the 2013 survey effort, 12 occupied and active golden eagle nests and one occupied and active bald eagle nest were documented (Figure 4) within the survey area but outside of the

Project site. No Swainson's hawks or California condors were observed within the overall aerial survey area. A single bald eagle nest was located along the eastern edge of the Cholame Hills, 4.0 miles southwest of the Project boundary. Active golden eagle nest 13A was located in Cholame Valley on an oak-covered hillside southwest of the Project site and 0.3 mile from a proposed solar array location. Active golden eagle nests 11A and 12A were located 1.9–2.0 miles west of the Project site in Cholame Valley, in a gray pine and oak, respectively. Five other active golden eagle nests were located on oak hillsides ≤ 5 miles from the Project site or access road: golden eagle nests 14A and 15A were located south of the Project in the western foothills of the Diablo Range; golden eagle nests 2A and 4A were located in the southeastern Cholame Hills overlooking Cholame Valley; and golden eagle nest 3A was located in the southwestern Cholame Hills. The four remaining, active golden eagle nests (9A, 10A, 16A, and 23A) were located > 5 miles from the Project site or access road (Figure 4).

Figure 4. 2013 Raptor Nest Locations. Taken from H.T. Harvey 2013 Raptor Nest Survey Report



In addition to the 12 pairs tending active nests, five pairs of adult golden eagles were documented near an inactive nest or a nest that clearly did not belong to another pair's core nesting area. Two of these pairs were associated with large, distinctive eagle nests (1A and 18A) that were in good shape and had been built up over several years. The remaining three eagle pairs were observed at inactive nests 6A, 19A, and 20A. Although pairs of golden eagles were observed near each of these nests, the nest structures were not unequivocally classifiable as eagle nests. Two other locations (17A and 5A) clearly represented other distinct golden eagle nesting areas, but the presence of established breeding pairs was not confirmed (Figure 4).

While no eagle nests were documented within 1,640 feet of the Project site, a number of other raptor nests were identified in this area, including five active red-tailed hawk (*Buteo jamaicensis*) nests and one active great horned owl (*Bubo virginianus*) nest (Appendix B). No prairie falcon (*Falco sparverius*) nests were documented within, or in the immediate vicinity of, the Project site or access road; however, two active prairie falcon nests with chicks were documented 1.3 miles northwest of the Project site, and 2.0 miles east of the Project site (Appendix B).

2014 Surveys

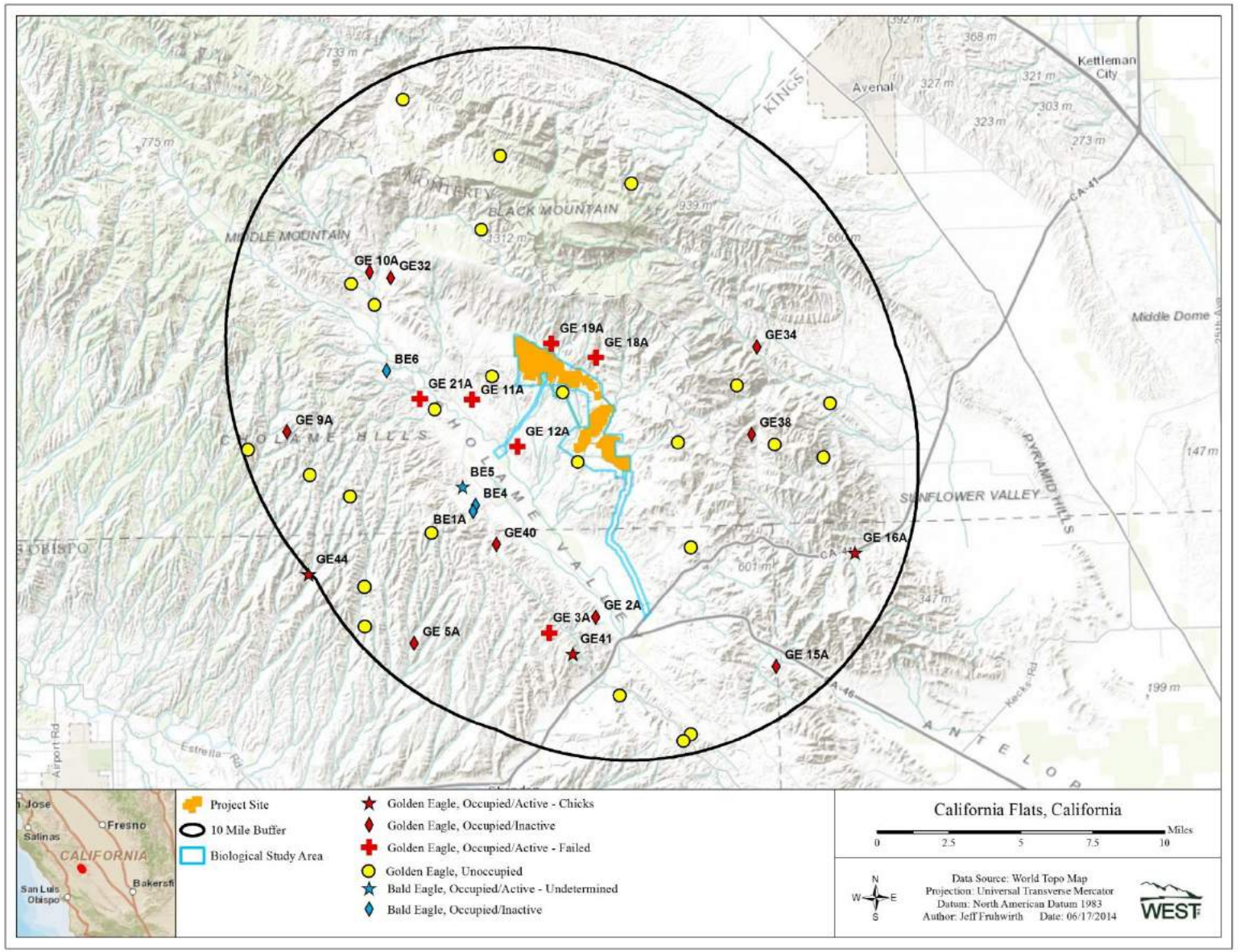
During the April 2014 eagle nesting survey, a total of nine occupied and active golden eagle nests and one occupied and active bald eagle nest were documented. Of the active nests, six golden eagle nests (GE18A, GE19A, GE11A, GE12A, GE3A, and GE21A) were determined to have failed and the remaining three active golden eagle nests (GE13, GE16A, and GE19) and the single active bald eagle nest (BE15) all successfully fledged young. Nine additional golden eagle nests and one bald eagle nest were documented as occupied but inactive, and 25 nests were documented as unoccupied golden eagle nests (Figure 5). Of the active nests, five failed golden eagle nests and one successful bald eagle nest are located within 8 km (5 miles) of the Project site. These include GE19A and GE18A which are 0.3-1.1 km (0.2-0.7 miles) northeast of the Project site, GE11A, GE12A, and GE21A which are 3.0–5.8 km (1.9–3.6 miles) west of the Project site, and BE15 which is approximately 6.7 km (4.2 miles) southeast of the Project site (Figure 5).

Of the 13 eagle nests identified as active in 2013, four were active again during the 2014 nest survey (GE16A, GE3A, GE11A, GE12A), four were occupied but inactive in 2014 (GE15A, GE2A, GE9A, GE10A) and the remaining five were unoccupied in 2014 (GE14A, GE4A, BE1A, GE13A, and GE23A).

Two occupied active, failed golden eagle nests (GE 18A and GE 19A) were located within 1.5 miles of the Project site. No other occupied (active or inactive) eagle nests were located within 1.5 miles of the Project site, although three unoccupied golden eagle nests were located within this distance.

Appendix B provides more information on the results of the 2013 and 2014 eagle nest surveys.

Figure 5. 2014 Raptor Nest Locations



5.2.3 Conclusions

The landscape in the Project vicinity is dominated by gently rolling terrain and grasslands, surrounded by woodlands and shrublands where various trees and rocky outcrops provide nest substrates suited to eagles. While eagle nesting substrate is lacking within the Project site, the site does provide potential foraging habitat for eagles nesting in the surrounding region. Results from the two years of eagle nest surveys suggest that the Project vicinity supports a relatively high density of nesting golden eagles.

One-half the mean inter-nest distance has been used as a coarse estimate for the territory boundary in a number of raptor studies (e.g., Soutullo et al. 2013). As such, the USFWS (2012, 2013) recommends using nearest-neighbor distances among occupied nests to estimate approximate territory size in the vicinity of a project. Typically, this involves measuring the distances between occupied nests and calculating a mean inter-nest distance, with half this value being the radius of an eagle territory. For this Project, both occupied bald eagle and golden eagle nests were used to calculate this distance, since it appears that the bald eagles in the Project are using similar foraging and breeding habitat as the golden eagles, and would therefore be assumed to affect the territory of adjacent breeding golden eagles. Nearest-neighbor distances among occupied nests (active and inactive) ranged from 0.38 to 7.71 km (0.24 – 4.79 mi) with a mean inter-nest distance of 3.42 km [2.12 mi]). Note that two of the occupied-inactive bald eagle nests (BE1A and BE4) are located 0.38 km from each other; based on field observations it is assumed that both of these nests and nest BE5 are all occupied by the same bald eagle pair. Therefore, the overall range and mean is likely conservative (i.e., indicating a smaller/denser territory size than is actually the case). In comparison, in 2013, the nearest-neighbor distances for occupied eagle nests (active and inactive) had a mean of 4.9 km (3.0 mi; HTH 2013).

Understanding that eagle territories are not perfectly circular, the nearest-neighbor calculations for this study population nevertheless suggest that the typical distance that nesting eagles are defending is on the order of 1.05 to 1.5 miles from the nest. This range of values suggests that the territories of eagles that nest within 1.5 miles could overlap the Project site. Based on the 2014 survey results, there were two occupied nesting territories that were outside of the Project site but were within 1.5 miles.

In other areas of the country where golden eagles are relatively common, the 3.42 to 4.9 km (2.12 – 3.0 mi) mean nearest distances recorded at the California Flats Project area in 2013 and 2014 appear comparable. For example, in 12 areas of Wyoming, mean distances between adjacent occupied golden eagle nests ranged from 3.1 to 8.2 km (1.9 – 5.1 mi, mean 5.3 km [3.3 mi]; Phillips et al. 1984). In Denali National Park, Alaska, among 72 golden eagle pairs, nearest-neighbor distances ranged from 1.5 to 8 km (0.9 – 5.0 mi, mean 6 km [3.7 mi]), and among 56 golden eagle pairs in southwest Idaho, nearest-neighbor distances were 0.8 to 16 km (0.5 – 9.9 mi, mean 4.3 km [2.7 mi]; Kochert et al. 2002).

One of the greatest densities of nesting golden eagles in California was documented in a radio-telemetry study conducted in Central California's oak savannah and woodland habitat near the

Altamont Wind Resource Area near the northern end of the Diablo Mountain range (Hunt et al. 1995, 1999; Hunt 2002, Hunt and Hunt 2006). In this study area near Altamont, extensive radio-telemetry research demonstrated minimum densities of about 1 golden eagle pair per 30 square kilometers (Hunt 2002). While the data collected in the California Flats project area does not provide for a direct comparison, it appears habitats and likely eagle nesting densities (and presumably territory sizes) in the Cholame Valley and the southern Diablo Range is roughly comparable to that found in similar habitats in the northern Diablo Range.

The relatively high density of occupied golden eagle territories recorded at the Project (2.12 to 3.0 mile mean inter-nest distance compared to 2.7 – 3.7 mile for other studies in the western U.S.) is likely in part due to the abundance of high quality foraging habitat located throughout the area. Preferred habitats include mountainous canyon land, rim-rock terrain of open desert and grassland areas, particularly those areas that are greater than 457 m (1,499 ft.) in elevation (Kochert et al. 2002). In central California, golden eagles nest primarily in open grasslands and oak savanna and to a lesser degree in oak woodland and open shrublands (Hunt et al. 1995, 1999), all habitats to be found in abundance surrounding the Project. In addition, golden eagles are common in grazed areas and much of the remaining habitat in central and southern California is found in patches of relatively inaccessible mountainous country, primarily livestock ranches (Thelander 1974) like those found within and surrounding the Project.

Eagle use surveys were specifically conducted to better understand eagle use of the Project site and the surrounding landscape (see Section 5.4).

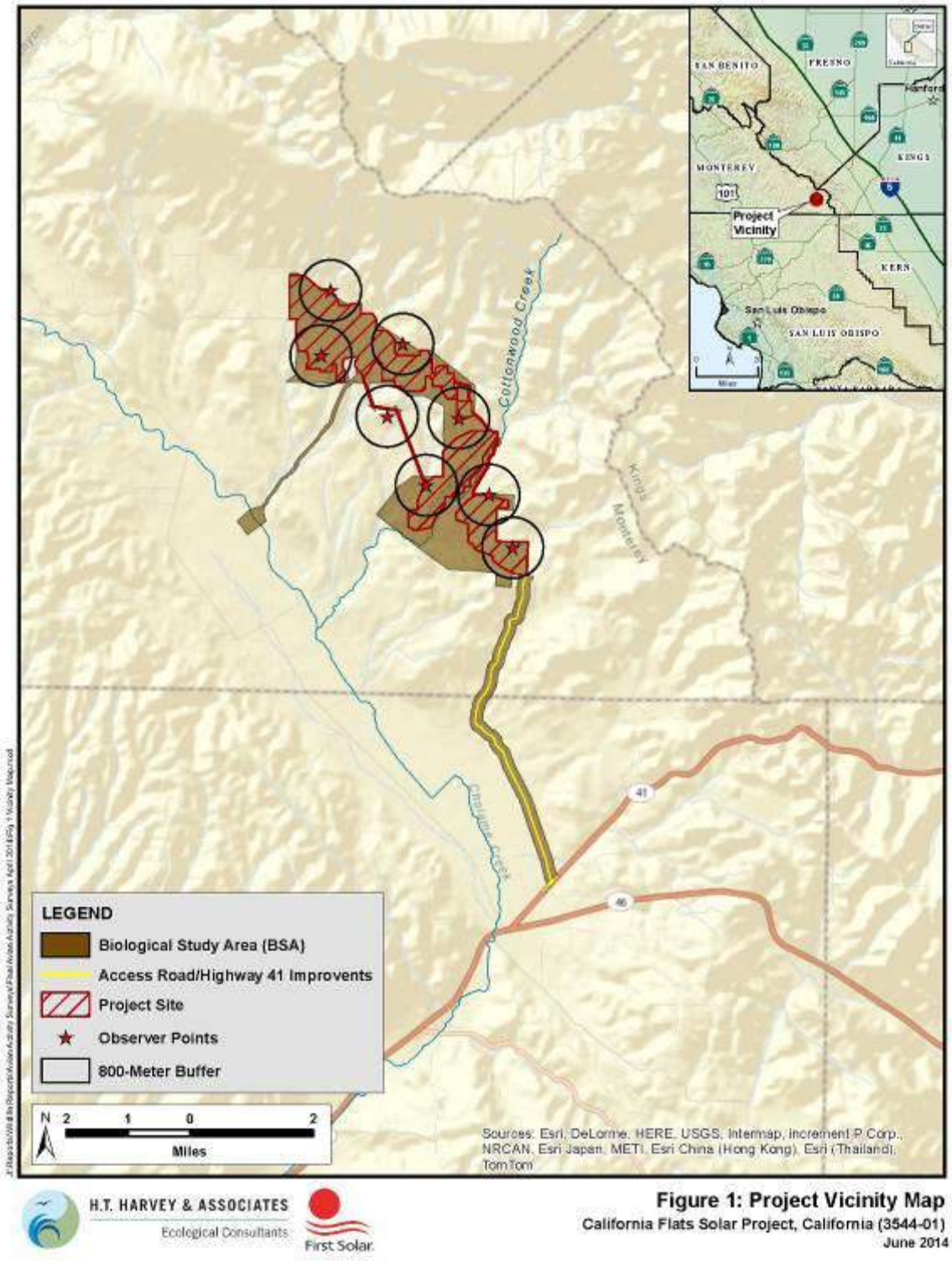
5.3 Bird Use Counts

5.3.1 Methods

Bird use count (BUC) surveys were conducted by HTH from late March 2013 through early March 2014 at eight locations chosen to represent the proposed Project site (Figure 6, Appendix C). The 0.5-mile-radius (800 meter) viewsheds of the eight survey plots collectively covered approximately 44% of the Project site, effectively representing the proposed development areas and the primary habitats found within the site. Each month, two 20-min surveys were conducted at each BUC location, one during morning hours and one during afternoon hours. Counts generally occurred semimonthly, on one day each, during the first and third weeks of the month. The order in which surveys occurred each month was based on a random-start, systematic-progression protocol designed to ensure equitable coverage of all sites during morning and afternoon hours. During each 20-min BUC, all birds seen or heard within 0.5 miles of each count location were recorded. For informational purposes, larger birds, such as eagles, seen beyond the 800-m plot were also occasionally and separately recorded; however, these observations were not included in the analyses.

For summary purposes, raw counts were translated into sightings per hour, and patterns of variation were examined for five distinct species groups: raptors (hawks, eagles, falcons, owls, and vultures), shorebirds (sandpipers, plovers, and allies), corvids (Corvidae: ravens, crows, magpies, and jays), icterids (Icteridae: blackbirds, orioles, and starlings), and other, mostly smaller, birds (passerines, hummingbirds, swallows/swifts, woodpeckers, quail, etc.). Metrics of activity were evaluated for the five groups of birds as a function of survey location and season.

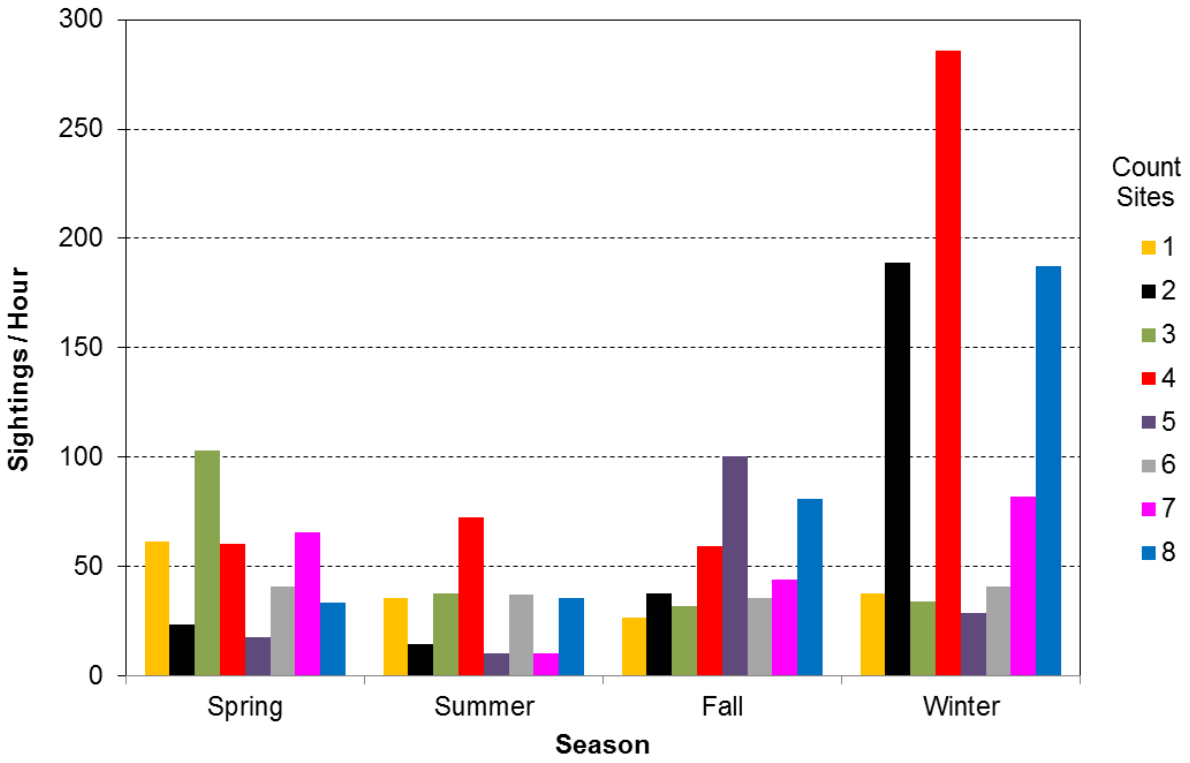
Figure 6. Bird Use Count Locations, and associated 800-m viewsheds, at the California Flats Solar Project, March 2013 – March 2014. Taken from H.T. Harvey 2013 Avian Activity Survey Report



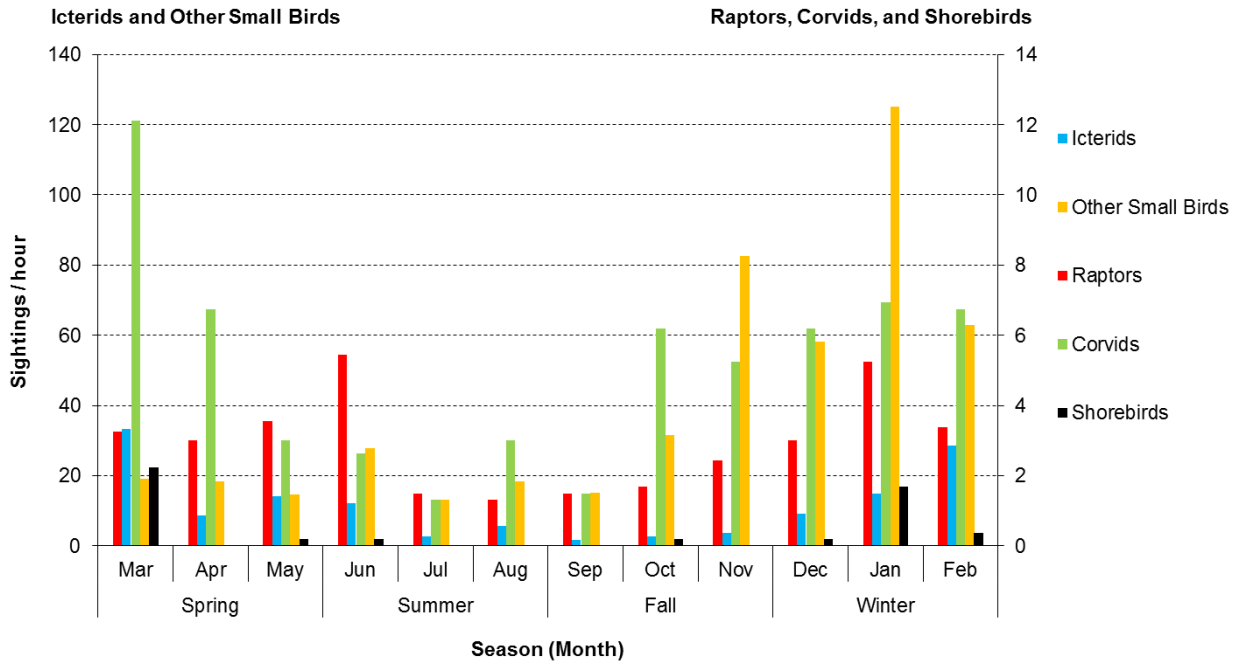
5.3.2 Results

From late March 2013 through early March 2014, a total of 200 20-minute BUCs were conducted, with each count site surveyed at least six times during each quarterly season (spring, summer, fall, and winter) across the year-long survey period. It should be noted that throughout the survey period, moderate to severe drought conditions prevailed across the entire region and Project site. The low precipitation resulted in minimal to no growth of grassland vegetation and limited seasonal development of wetlands and intermittent streams preceding and during the survey period.

A total of 4,061 individual bird observations, representing 45 species were recorded during the surveys (Appendix C). Species diversity was higher in spring and winter than in summer and fall (Appendix C). With data for all species combined and summarized across all seasons, the highest average activity rates occurred at BUC Site 4 (117 sightings/hour) and BUC Site 8 (82 sightings/hour), with slightly lower rates at BUC Sites 2, 3, and 7 (51–64 sightings/hour), and the lowest rates occurred at BUC Sites 1, 5, and 6 (38–41 sightings/hour) (Appendix C). The high overall activity rates at BUC Sites 4 and 8 mostly reflect relatively large wintering flocks of horned larks and house finches. Examination of site-specific activity rates across seasons revealed that most sites supported at least moderate activity during at least one season. At the species-group level, raptors, shorebirds, corvids, and icterids showed higher activity rates in spring, lower activity rates in summer, and then higher activity rates again from late fall through winter (Appendix C).



Graph 1. All-bird average activity rates by count site and season.



Graph 2. Seasonal activity pattern of primary species groups.

One hundred ninety-seven raptor and vulture observations, representing nine species, were recorded during surveys. Raptors and vultures accounted for 4.9% of total bird sightings (Appendix C). American kestrels (*Falco sparverius*; 39 sightings) and red-tailed hawks (113 sightings) were relatively abundant and recorded during all seasons. Golden eagles (16 sightings) were also recorded during all seasons and at all locations but Site 2, and turkey vultures (*Aura cathartes*; nine sightings) were generally present year round. Ferruginous hawks (*Buteo regalis*; 11 sightings) were observed relatively frequently during fall and winter; prairie falcons (five sightings) between October and June (they nested in the nearby foothills); and northern harriers (*Circus cyaneus*), burrowing owls, and Swainson's hawks only once or twice each during the scheduled fall, winter, and spring counts (Appendix C).

The modeling results confirmed marginally significant seasonal variation in overall raptor activity, as well as significant variation across sites. Average raptor activity was lower in fall and lower at BUC Sites 2, 5, 7, and 8. Sites 1, 3, and 4 encompassed active red-tailed hawk nests, and Sites 1 and 3 were among the survey areas closest to an active golden eagle nest. The analysis of shorebird activity rates indicated no overall seasonal variation, but indicated marginally higher activity at BUC Site 3 compared to the sites where no shorebird activity was observed (Sites 5, 6, and 8).

Five special-status bird species were observed during the scheduled surveys: Swainson's hawk (state threatened), golden eagle (state fully protected and federal bird of conservation concern [BCC]), northern harrier (state species of special concern [SSC]), burrowing owl (SSC and BCC), and loggerhead shrike (*Lanius ludovicianus*; SSC and BCC). Two short-eared owls (*Asio*

flammeus; SSC) and several small flocks of tricolored blackbirds (*Agelaius tricolor*; SSC and BCC) were also observed on the Project site outside of the scheduled survey times.

5.3.3 Conclusions

The species observed during BUCs constituted a diurnal assemblage typical of the open grassland, oak savanna woodland, and riparian habitats of the inner Coast Ranges of central California, with species representation varying by season. Species notably absent from the survey counts included waterfowl and most other aquatic-oriented species. These species generally are not expected in upland grassland habitats, but may be expected to be more prevalent in the area during years when drought conditions do not prevail, including in the seasonal wetland habitats identified on the Project site and along the riparian corridors that transect the area.

The overall seasonal patterns, much of the species composition, and the activity rates were similar to those documented over a two-year period (fall 2011 to fall 2013, and ongoing) at the California Valley Solar Ranch (CVSR) on the open grassland habitats of the Carrizo Plain, approximately 40 miles to the south (HTH 2014b). However, the Project site features a considerably greater abundance of woodland habitat than is found at CVSR, and the observed species composition therefore includes several additional species more characteristic of such habitats; e.g., Bullock's oriole (*Icterus bullockii*), ash-throated flycatcher (*Myiarchus cinerascens*), Lewis's woodpecker (*Melanerpes lewis*), Nuttall's woodpecker (*Picoides nuttallii*), and yellow-billed magpie (*Pica nuttalli*). In addition, the density and relative proximity of tree-nesting raptors such as golden eagles and red-tailed hawks is greater in this Project area. For most of these additional species, however, development of this Project is not expected to pose a substantial threat, because little woodland habitat will be directly affected. The occurrence of special-status species in the Project vicinity has been limited, with the exception of golden eagles, which are present in the Project vicinity.

5.4 Eagle Use Surveys

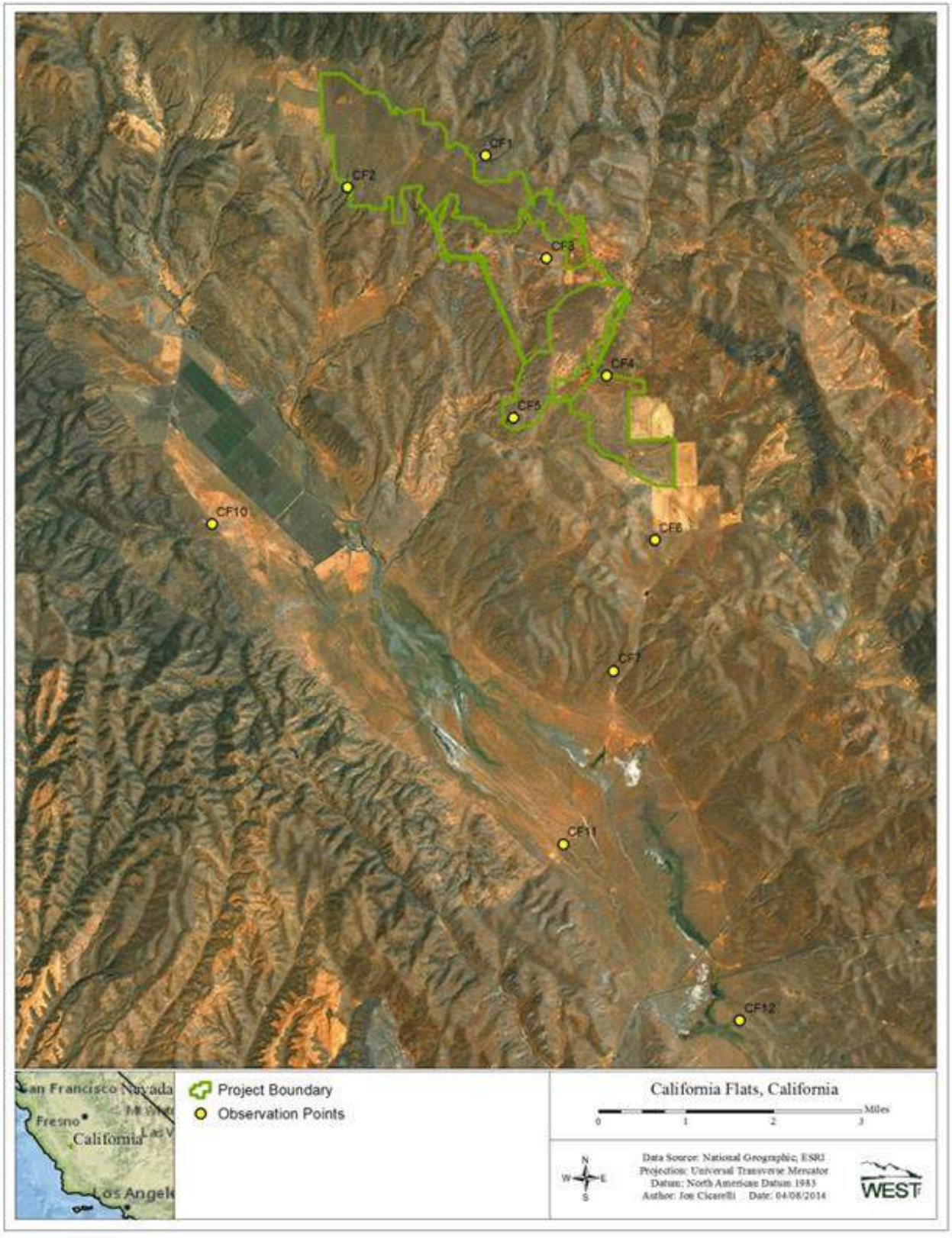
5.4.1 Methods

Eagle use/activity surveys were conducted by WEST from March 2014 through December 2014 (WEST 2015). The purpose of the surveys was to characterize use of the Project site and surrounding landscape by golden eagles, particularly the foraging habits of locally breeding, migrant, and wintering eagles. Surveys were conducted every two weeks from 10 observation points including six points located within or adjacent to the Project site, and four points located in areas to the west and south of the Project site (Figure 7). Observation points were established in locations that afford broad overviews of the Project site and surrounding landscape and allow for effective documentation of the activity patterns and home-range dynamics of resident breeders, as well as use of the region by migrant and wintering eagles. Documentation of flight paths and identification of potential high activity areas (foraging, perching, roosting) or seasons was the primary focus of the survey effort. Each observation point was surveyed every two weeks for a

continuous 3-hour period, with surveys scheduled such that observation periods covered most daylight hours (approximately 9:00 am to 6:00 pm) over the course of the 10-month study.

Although the focus of the surveys was eagles (particularly golden eagles), all raptors and other sensitive avian species seen or heard during each survey were recorded, as well as observations of these species made while in-transit between points. Data collected during each 3-hour survey included: date, start and end time of the observation period, plot number, species or best possible identification, number of individuals, sex and age class, distance from plot center when first observed, direction of flight, height above ground, activity, and habitat. Additionally, for each individual eagle observed during the survey period, the above data were recoded for each minute that eagle was in view.

Figure 7. Location of 2014 eagle use/activity survey stations at the California Flats Solar Project.



5.4.2 Results

As stated above, WEST began the eagle use/activity surveys in March 2014 and continued these surveys through December 2014. Surveys were conducted at 10 observation stations once every two weeks over the course of the ten-month study, for a total of 199 surveys totaling 597 hours of survey. During the course of the study, a total of 216 separate golden eagle observations (flying and perched) were recorded and 1,215 golden eagle flight minutes were recorded within an unlimited viewshed surrounding the survey stations. Eagle flight paths that were mapped during this time period are shown on Figure 8.

During the ten-month study period, the greatest overall golden eagle use occurred in the spring, with use appearing to gradually decrease throughout the summer, and increasing somewhat during the fall and early winter.

While the mapped flight paths shown on Figures 8 and 9 indicate golden eagles are clearly using the general Project area, they do suggest that golden eagles flying in the vicinity of the Project are not using the landscape consistently and/or evenly. Furthermore, the mapped flight pathways illustrate that over extended periods of observation of the Project site during the spring, summer, fall, and early winter of 2014, golden eagles did not appear to be consistently using substantial portions of the Project site, particularly in some of the flatter areas for the solar arrays. This may be due to a combination of factors that seem to attract higher levels of eagle use such as prey availability (based on a burrowing animal survey of the site, ground squirrel burrows appear particularly concentrated along the edge of drainages) and/or areas of steeper topography creating wind updrafts conducive to efficient soaring. Additionally, a substantial amount of the activity that was observed near point CF1 on the northeast edge of the Project site was associated with golden eagle activity in the vicinity of the two active (failed) nests (GE19A and GE18A), while activity near points CF3 and CF5 on the west and southwest edge of the Project site was associated with golden eagles traveling to and from trees in the ravines outside of the Project site, which they used as temporary perching points.

Figure 8. Digitized golden eagle flight paths recorded during eagle surveys at the California Flat Solar Project, March 10 to December 22, 2014.

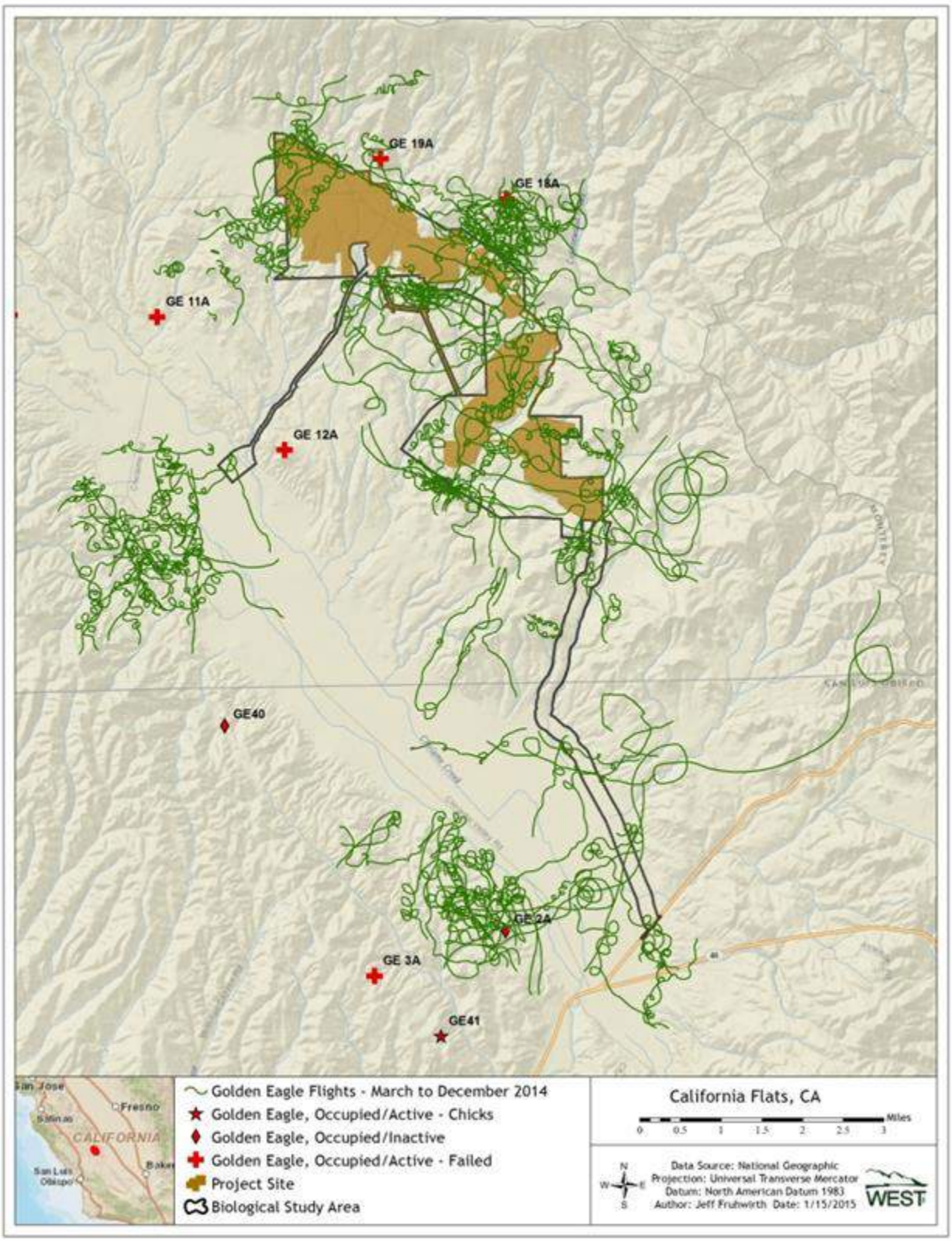
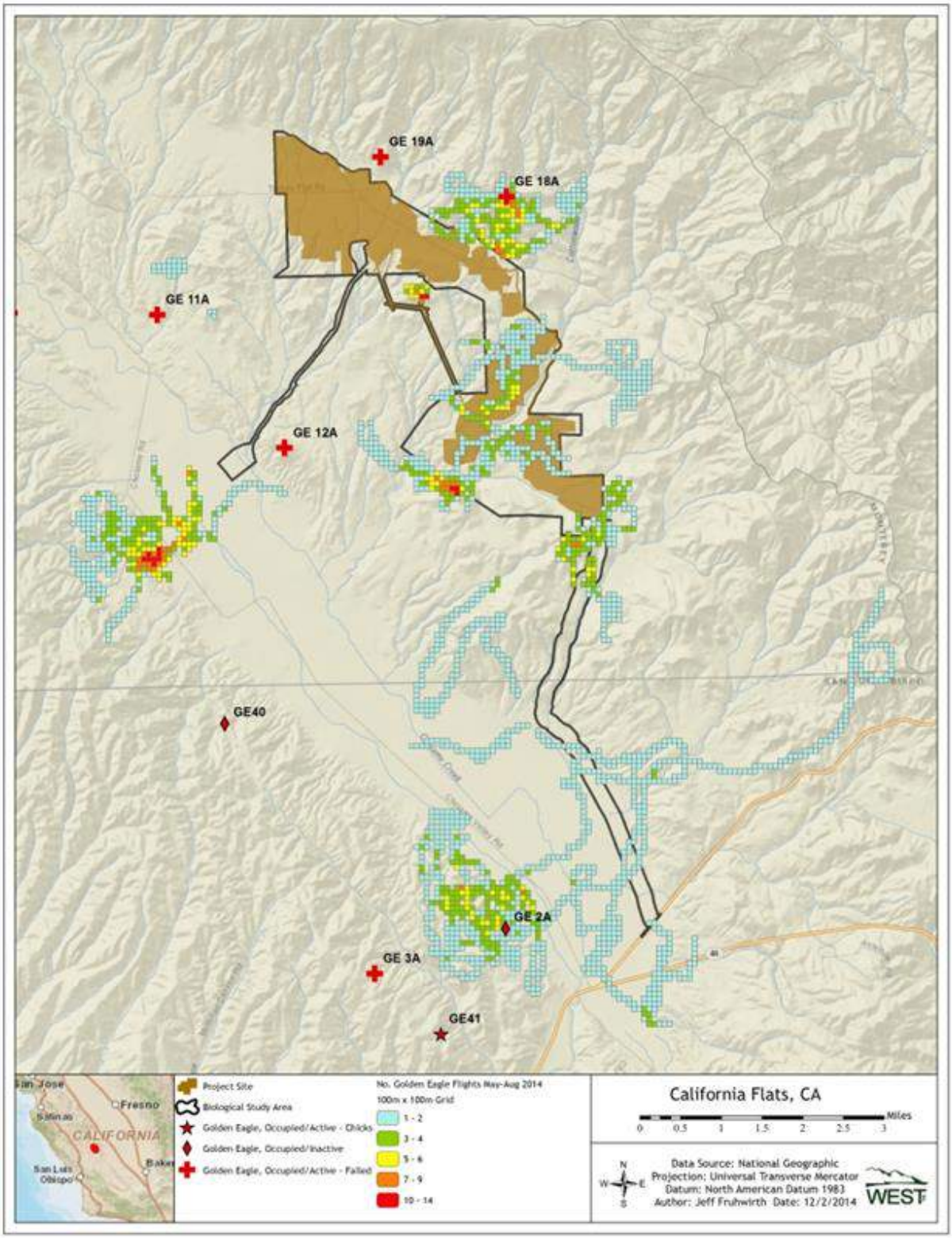
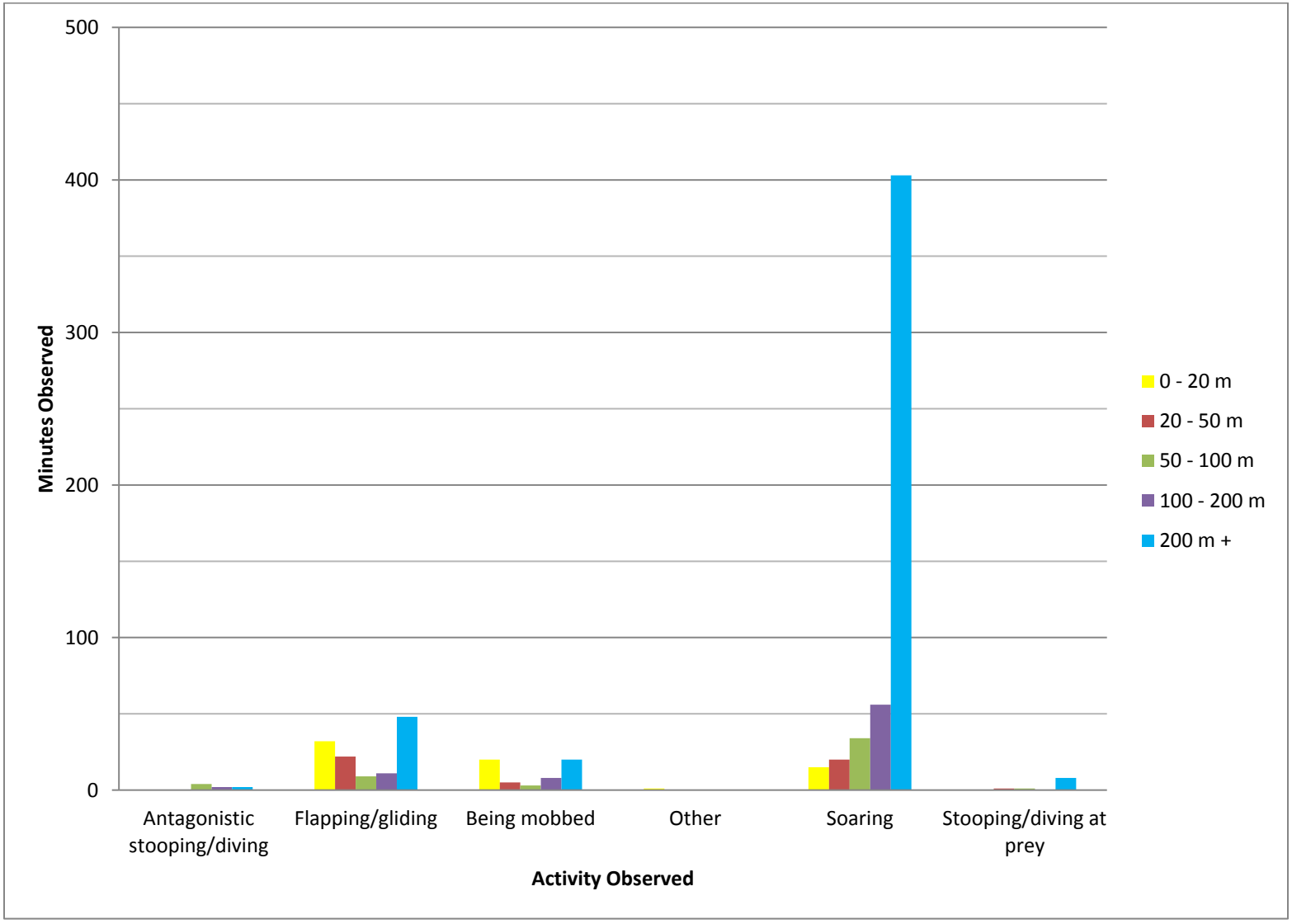


Figure 9. Golden eagle flights recorded during eagle use surveys at the California Flats Solar Project during May through August (late breeding season).



An examination of the flight height and type of activity indicates that the majority (56%) of observed golden eagle flight minutes were eagles soaring over 200 m. Overall, the majority (73%) of activity observed was soaring at various heights, with flapping/gliding activities occurring for approximately 17% of the minutes, eagles being mobbed by other birds occurring for approximately 8% of the minutes, and stooping/diving at prey, antagonist stooping/diving at other eagles or birds, and other activities each taking up less than 2% of the minutes. No hunting or kiting/hovering activities were recorded during this time period. The majority (66%) of all activities occurred at heights over 200 m, followed by 100 – 200 m (11%), 0 – 20 m (9%), and 20 – 50 m and 50 – 100 m (7% each). Figure 10 shows the height/activity breakdown for flights recorded between March 10 and June 24, 2014.

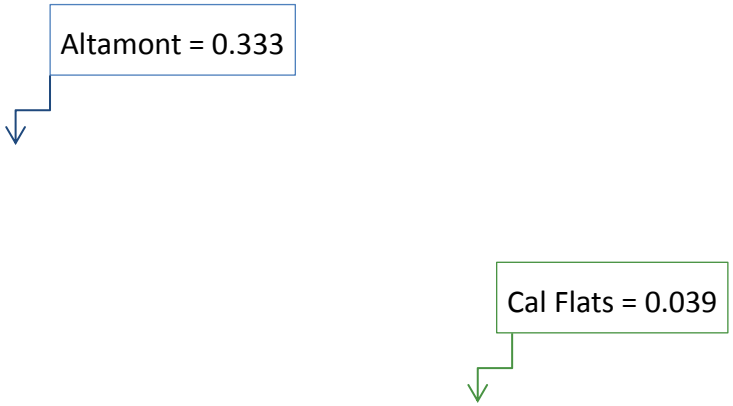
Figure 10. Golden Eagle Activity and Flight Height, March 10 – June 24, 2014.



5.4.3 Conclusions

As expected from the eagle nest surveys, the observed flight paths shown on Figures 7 – 9 indicate golden eagles are using the Project vicinity (while bald eagles were observed in Cholame Valley, they were not seen during surveys of the Project site). To compare the level of golden eagle use observed to date at the California Flats site to that of other projects in the western U.S., the eagle obs/hr use rate was examined for those eagles that were observed within 800 m of the survey points per 20 minutes of observation (whereas the use rates discussed in Section 5.4.2 include all eagle observations out to any distance where they are identifiable, and are shown per one hour of observation). This was done to provide a similar basis for comparison, since most publicly available eagle use information is limited to 800-m radius survey plots for 20-minute survey periods. Figure 11 shows that the mean eagle use rate for California Flats (0.039 obs/20-min) is within the lower range of mean use rates compared to other Projects; it is lower than the use found at six other sites in California, and higher than five California sites.

Figure 11. Comparison of Golden Eagle Use (Obs/20-min Survey/800 m) between California Flats and Other Projects in the Western U.S.



5.5 Bat Habitat Assessment and Acoustic Surveys

5.5.1 Methods

An initial bat habitat assessment was conducted by HTH on October 4 and 15, 2013 (Appendix E). The assessment was conducted by driving the entire main access road, beginning at the northern edge of the Project site at Turkey Flat Road and ending at the southern edge of the Project site, near Hwy 41. From the main road, biologists walked to many parts of the BSA such as rocky outcroppings and riparian areas. Aerial photos highlighting areas of rocky outcrops, trees, and buildings were used to target potential bat roosting habitat in the BSA and within 200 feet of the BSA. All rocky outcrops identified on the aerial photos were visually inspected and evaluated for their height, overhanging features, and the quality of cracks and fissures that could potentially support roosting bats. Trees within the Project site and along the access road were assessed by an unpublished evaluation system (D. Johnston, HTH) that assigns a number from 0 to 3 based on the probability of bats roosting in a given tree (0=no probability of roosting; 3=potentially occupied roosting habitat). In addition to rocky outcrops and trees, an abandoned granary building and several riparian areas with mature trees and snags were also examined by walking and visually inspecting these areas for the presence of cavities or gaps and guano (granary), and exfoliating bark or cavities (trees). Any tree that scored a 3 or any riparian area or rocky habitat that showed bat sign or the potential for bat roosting habitat was acoustically surveyed.

Based on the initial bat habitat assessment, HTH deployed five Song Meter SM2 BAT bat detectors (Song Meter) (Wildlife Acoustics Inc., Concord, MA, USA), to monitor for bat activity (Figure 12). One detector was deployed at each of five locations within the BSA: two rocky outcrops, the granary, a riparian area with a perennial stream and mature cottonwoods, and a stock pond. The detectors were set to record acoustic data from sunset to sunrise during the period of October 16 – 24, 2013. Data were analyzed using AnaLook, v.3.9c (Corben 2011), and examined for temporal and spatial activity patterns that would indicate the presence of maternity colonies in the area. Where possible, calls were identified to species, as described further in Appendix E.

5.5.2 Results

Habitat Assessment

The bat habitat assessment determined that low- to moderate-quality roosting habitat (rocky outcrops with crevices, deciduous trees and snags with cavities and exfoliating bark), and a few anthropogenic structures that have cave-like areas like attics, are present on the BSA for mostly solitary-roosting bats or small congregations of bats (Appendix E). Three rocky outcrop areas include crevices that could potentially provide day roosting habitat for solitary pallid bats (*Antrozous pallidus*) and canyon bats (*Parastrellus esperus*), although none of these appeared large enough to support maternity colonies of either species. Many trees within the riparian areas included cavities and exfoliating bark that would support roosting bats including small maternity roosts of pallid bats. The western red bat (*Lasiurus blossevillii*) is expected to roost in the foliage

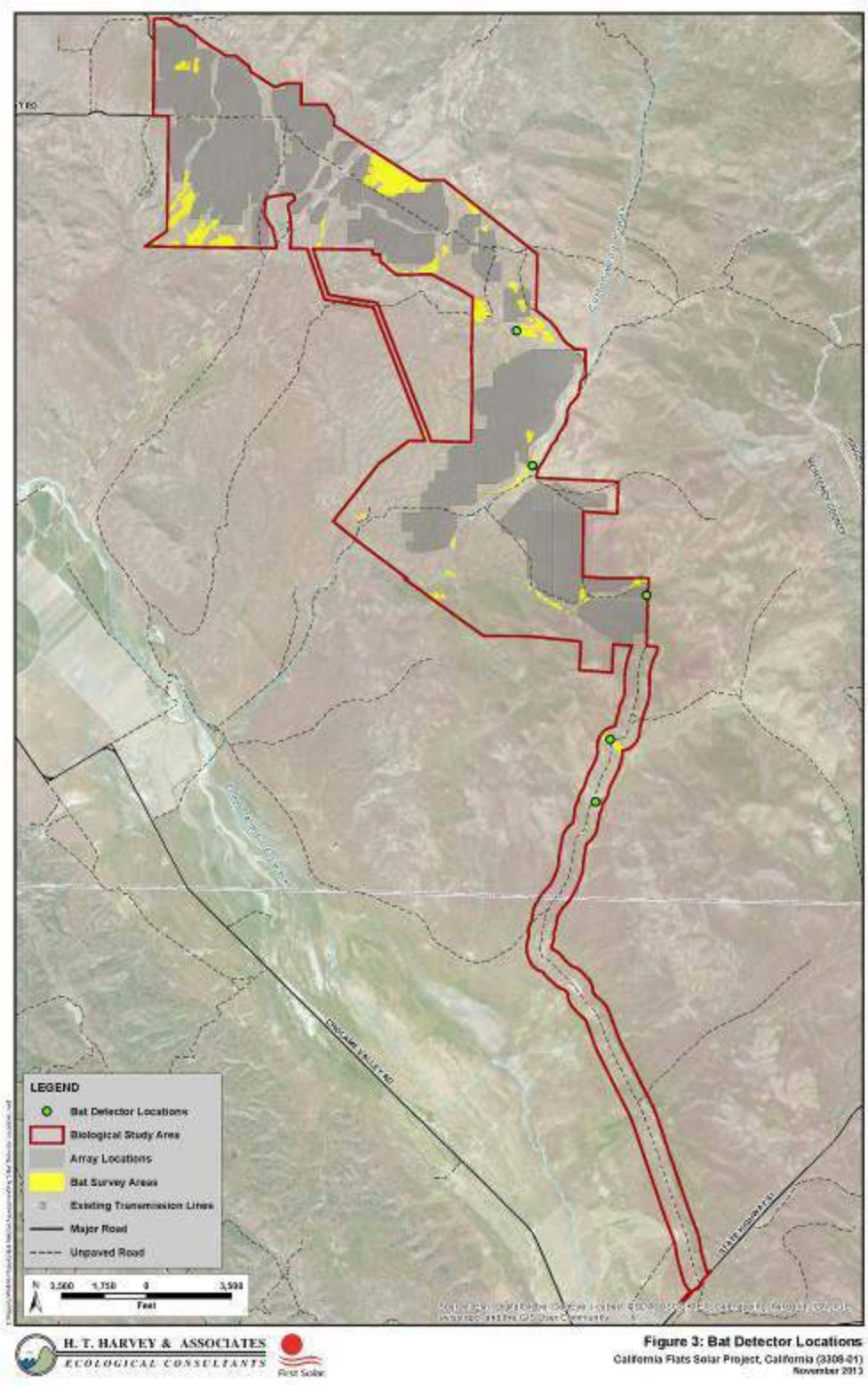
of riparian trees during spring and fall migratory periods, but is not expected to breed (raise young) in the BSA. Cavernous roosting habitat occurs in a very few areas of the BSA where structures provide potential habitat for the Townsend's big-eared bats (*Corynorhinus townsendii*). This species may occasionally occur as dispersed males, particularly in the winter, in buildings within the BSA. No western mastiff bat (*Eumops perotis*) roosting habitat occurs in the BSA, and no roosting habitat for any species of bats occurs within the Project site; however, pallid bats are expected to roost in small numbers in larger trees occurring in the riparian areas and as individuals in the crevices of rocky outcrops within the larger BSA.

Acoustic Surveys

The average minutes of activity per site per hour ranged from 1.8 minutes at the western outcrop to 18.2 minutes at the southern outcrop (Appendix E). Although only four nights of data were collected at the riparian site, this site showed the most activity in the early evening hours, and this activity was sustained over the evening, as would be expected in an area supporting aquatic foraging habitat. Recorded bat activity levels ranged from 0 to 60 minutes of activity per hour at each of the four sites where data were successfully collected. The general pattern of activity at all sites demonstrated a strong pulse of activity early in the evening that gradually tapered off until the following morning. There were no pulses of activity in the early morning hours at any of the sites, but rather very low levels of activity. There was no activity at the granary past 11 PM on any of the three nights during which data were collected. Because high activity levels were generally absent in the early morning hours, it is presumed that there are no large (> 75 individuals), sensitive colonial roosts in the BSA. Bats are generally most active in the early evening after sunset and then in the early morning before sunrise (Hayes 1997). Peaks in bat activity in early morning hours generally indicate final foraging and commuting before returning to day roosts (Kunz 1974), and if placed in proximity to a potentially suitable roost site, a bat detector may also detect the presence of a bat roost.

The species identified through acoustic analysis varied across the surveyed sites. At the granary site, the dominant frequency group detected was California/Yuma myotis bats (*Myotis californicus/Myotis yumanensis*). At the other three sites, there was considerably more species richness. At the southern outcrop, hoary/Mexican free-tailed bats (*Lasiurus cinereus/ Tadarida brasiliensis*), small-footed/long-legged bats (*Myotis ciliolabrum, Macrophyllum macrophyllum*), and canyon bats were detected. At the western outcrop, canyon bats as well as all four of the broader frequency groups were detected. All frequency groups were also detected in the riparian area. Given the known presence of pallid bats in the region and the high-quality foraging habitat for the pallid bat in the BSA, this sensitive species is presumed to be among the 30-kHz bats detected. Appendix E contains additional information on the results of the acoustic surveys.

Figure 12. Bat Detector Locations and Bat Survey Locations at the California Flats Solar Project. Taken from H.T. Harvey 2013 Bat Assessment Report



5.5.3 Conclusions

Four species of special-status bats (pallid bat, western mastiff bat, western red bat, and Townsend's big-eared bat) are expected to roost and/or forage in the BSA; however, no roosting habitat occurs within the Project site, and the BSA contains no high-quality roosting habitat in rocks, such as vertical or horizontal crevices on large or small rocky cliff faces, that could support a large maternity colony of pallid bats or other cliff-roosting bats. Additionally, no signs of pallid bat or any other bat roosts were detected in any of the areas inspected during the assessment. There were numerous small cracks, fissures, and crevices in the rocky outcrop areas that could support solitary roosting species or small congregations (two or three individuals) of pallid bats; however, these areas are not considered to have strong potential to support other potentially occurring special-status bats (Townsend's big-eared bat or western mastiff bat). The riparian areas support broadleaf trees such as sycamore (*Platanus occidentalis*), which could provide suitable roosting habitat for western red bat and small maternity colonies of the pallid bat. Western red bats were not detected during acoustic surveys and are expected to only winter or migrate through the BSA and then only within the small riparian area. Pallid or western red bats occurring in the riparian area would not be directly affected by the Project. Further, the Townsend's big-eared bat is considered mostly extirpated from the region but dispersed solitary males may occur occasionally in unused attics or other cavernous habitats within the BSA. The granary was the only building within the Project site considered to potentially support roosting bats. However, very little activity was detected at this site, suggesting few if any bats roosted at this location.

6 ASSESSMENT OF RISK TO BIRDS AND BATS

The prediction of impacts to birds and bats from the construction and operation of various types of solar facilities is somewhat speculative in nature as no systematic studies detailing the impacts to birds and bats from these types of facilities have been made publicly available to date. The following section discusses potential risks by referring to known information regarding impacts to birds from other types of facilities (e.g., wind) as well as presenting some information that is beginning to become available from a number of new and existing solar facilities where efforts have been made to collect data regarding impacts to birds. This emerging information appears to confirm that bats are not at risk for significant mortality during the operation of PV projects since they do not tend to collide with stationary (or slowly tracking) objects. This appears to be supported as no bats were found during formal wildlife fatality monitoring at three major PV facilities in California where reports are available (HT Harvey 2014c; Althouse & Meade 2014; WEST 2016).

6.1 Indirect Impacts

Indirect impacts include changes to the landscape with unintended and often unforeseen consequences to bird populations. Indirect impacts associated with habitat loss, land alterations and Project development on existing bird populations within the vicinity of the Project are not easily assessed or determined. Potential indirect impacts include:

- territory abandonment, nest and roost site abandonment;

- increased opportunities for predators of special status species;
- habitat fragmentation;
- human presence, noise and light;
- dust and hazardous materials; and
- altered hydrology

6.1.1 Territory abandonment, nest and roost site abandonment

Most wildlife species are susceptible to visual and noise disturbances caused by the presence of humans and construction equipment. Such disturbances can result in the alteration of species' behavior. Noise and visual disturbance caused by construction and vehicles would have the potential to cause nest abandonment or habitat avoidance directly adjacent to and within the proposed Project footprint. Birds avoiding habitat in the vicinity of the Project site may opt for less suitable habitat which could increase stress on these birds as a result of increased energetic costs. This would also place additional stress on available resources through increased density of birds in off-site areas.

Without the inclusion of avoidance and minimization measures (see Section 7), nest and roost site disturbances and territory abandonment could occur due to direct nest removal during vegetation removal activities.

6.1.2 Predation risk to special status species

The Project may indirectly result in mortality to wildlife through an increased risk of predation. Though some predators may avoid areas with human activity, some predator species such as ravens and coyotes are attracted to human activity. Installation of fencing and transmission towers create additional perching structures from which ravens and raptors may hunt for prey. Construction, operation, and maintenance of the Project would result in trash and debris that would further attract species such as ravens and coyotes. To avoid or minimize human impacts a Worker Environmental Awareness Program (WEAP) and trash abatement program will be implemented (see Section 7.2).

6.1.3 Habitat fragmentation

The permanent fencing of the Project area would possibly reduce access for terrestrial species resulting in habitat fragmentation. This fragmentation could cause wildlife to rely more heavily on habitat within the surrounding area for foraging, shelter, and nesting opportunities. This could have an indirect effect on wildlife inhabiting areas adjacent to the Project area. Wildlife inhabiting adjacent areas could be faced with increased competition as a result of the displaced individuals relocating into their home ranges.

6.1.4 Human Presence, Noise and Light

Indirect impacts to wildlife species would result from human presence, noise, and light in the Project site. Increased levels of noise and human activity could be detrimental to many wildlife species. Noise from construction activities could temporarily discourage wildlife from foraging and nesting immediately adjacent to the Project site. Many bird species rely on vocalization during the breeding season to attract a mate within their territory. Noise levels from certain construction,

operations, and decommissioning activities could reduce the reproductive success of nesting birds.

The most common wildlife responses to noise and human presence are avoidance or accommodation. Avoidance would result in displacement of wildlife from an area larger than the actual disturbance area. The total extent of habitat lost as a result of wildlife avoidance response is impossible to predict since the degree of this response varies from species to species, and can even vary between different individuals of the same species. Also, after initial avoidance of human activity and noise producing areas, certain wildlife species may acclimate to the activity and begin to reoccupy areas formerly avoided.

Artificial lighting impacts on wildlife species may include disorientation from and attraction to artificial light, impact-related mortality due to disorientation, and effects on the light-sensitive cycles of many species (Saleh 2007). Lighting plays a substantial role in collision risk because lights attract nocturnal migrant songbirds, bats, and major bird kill events have been reported at lighted communications towers (Manville 2001). Bright night-lighting close to the ground can attract bats and flying insects and disturb wildlife (e.g., nesting birds, foraging mammals).

Impacts associated with human presence, noise, and light would be reduced through implementation of mitigation measures for protection of wildlife and other resources (see Section 7.2).

6.1.5 Dust and Hazardous Materials

Direct habitat loss and degradation both inside and outside of the Project site could also occur if project activities resulted in release of dust or hazardous materials, resulted in modification of soil erosion or sedimentation rates, or introduced or encouraged the growth of noxious weeds. Hazardous material and pollutant releases could occur as a result of the Project. Materials released could include fuels and other materials used by work crews as part of routine construction and maintenance activities. Hazardous materials could also be released if construction-related excavation were to disturb areas that have existing environmental contamination. Hazardous materials release could impact biological resources by injuring or killing vegetation and wildlife through either short-term acute exposure or long-term chronic exposure. Soil erosion from site grading and use of heavy equipment, which affects vegetation and soil properties, could have an adverse effect on wildlife foraging and burrowing potential to lands outside of the Project boundaries. Noxious weeds could impact wildlife species by displacing native vegetation species necessary for forage or cover.

Impacts associated with dust and hazardous materials would be reduced through implementation of mitigation measures for dust control and the management of hazardous materials.

6.1.6 Altered Hydrology

Biological resources could potentially be impacted if the Project were to modify the availability or quality of surface water and/or groundwater. Although the Project would use groundwater, the size of the aquifer, depth to groundwater (23 to 64 feet), and implementation of erosion controls

and spill control and countermeasure plans suggest that the Project would not impact wildlife through groundwater depletion or impacts to groundwater quality.

The Project could potentially have an indirect effect on wildlife habitat adjacent to the Project site, if the Project were to modify down gradient sedimentation or erosion rates. This could occur as a result of the removal of soil-stabilizing vegetation or modification of onsite precipitation infiltration rates.

Impacts associated with modification of down gradient sedimentation and erosion rates would be reduced through implementation of mitigation measures for the protection of wildlife and other resources.

6.2 Habitat Loss

Construction of the Project will result in some habitat loss for avian species. The bird assemblages documented using the BSA, which includes area surrounding the Project that will not be developed, are typical of the open grassland, oak savannah woodland, and riparian habitats of the inner Coast Ranges of central California. A majority of the Project will be constructed in level areas that have been historically disked and dryland farmed for hay and grain production. A small portion of the Project will be constructed in woodland and forest habitat (11.75 ac; <1.0% of the Project), 77% of which has been identified as non-native ornamental woodland. There are large expanses of woodland and forested habitat types both adjacent to and further outside of the Project. Sparse residential settlements and small farms are located south and east of the BSA. The BSA is vacant and is currently a working landscape that includes cattle ranching. Potential causes of impacts to the surrounding area during construction could result from noise generated by construction equipment and machinery, artificial lighting, and possibly dust blown from the construction site. Any effects of habitat loss will be minimized and offset by the general avoidance and minimization measures outlined in Section 7. Additionally, the planned acquisition of off-site lands for long-term conservation will serve to preserve habitat and further offset habitat loss.

6.3 Electrocution potential

The potential for electrocutions depends of the arrangement and spacing of energized and grounded components of poles and towers that are sometimes used for perching, nesting and other activities (APLIC 2012). Research has found that nearly all electrocutions occur on smaller, more tightly spaced residential and commercial electrical distribution lines that are less than 69 kilovolts (APLIC 2012).

All transmission and sub-transmission towers and poles will be designed to be avian safe in accordance with the suggested practices outlined in, “Reducing Avian Collisions with Power Lines: State of the Art in 2012” (APLIC 2012).

6.4 Collision Risk

6.4.1 Siting in High Risk Areas

Based on a review of sources of avian mortality at three existing utility scale PV solar projects in California, fatality rates for solar arrays, while preliminary, are not high in relation to other anthropogenic mortality (WEST 2014). While concern over wind projects is primarily focused on raptor and bat mortality, few fatalities of those groups have been found at PV facilities. Overall, songbird fatalities appeared in the largest numbers at the PV facilities surveyed, which is consistent with their prolific population levels relative to other avian species. The observed mortality is spread out among species, with no species appearing to account for a large percentage of the fatality finds at all facilities.

Avian mortality concerns are typically elevated when projects are sited in high use areas for bird species, bird groups or taxa considered at risk from the particular mortality source. For example, concern over levels of raptor mortality at wind projects are elevated at sites with high raptor nesting, high prey base, topography that is believed to increase risk, and other factors. Although the Project site is located in an area of relatively high eagle use, the collision risk for raptors from a solar project, consisting of relatively low profile, unmoving or slowly tilting panels, is much lower than a wind project. Historically, raptor fatalities have been an issue of special concern at wind facilities. In North America, raptors compose up to 8% of fatalities and wind facilities, and 6% regionally. As a function of energy output, PV facilities are not expected to pose risk to raptors in the same way as wind energy facilities because PV facilities do not possess the density of tall structures found at wind facilities. As expected, a study of three PV facilities where avian fatality monitoring data is available, few raptor fatalities were associated with the solar facilities. Raptor fatalities at the three solar facilities composed just over 1% of all fatalities (range: 0-3%), and included fatalities potentially attributed to overhead power lines, which would be present at any utility-scale power facility (WEST 2014).

Waterfowl and waterbird collision risk with tall structures such as unmarked transmission lines is often elevated near wetlands, playas and other suitable habitat; however, as noted above there are relatively few waterfowl/waterbirds that utilize the Project site, and the 230-kV transmission line would be designed following the most recent APLIC guidelines for placing and installing bird flight diverters, to minimize avian collisions. Concerns over potential risk of collision for migrating songbirds with structures is often elevated when projects are located in high migration areas such as the Texas Gulf Coast, near significant migration stopover areas. However, night migration in the more arid western United States is known to be much less dense than in the eastern one-half of North America (Gauthreaux et al. 2003). As a result, we know of no large-scale fatality events at communication towers in the western United States, yet there are dozens reported from the eastern part of the country (Shire et al. 2000).

In evaluating avian issues at three utility scale solar project in the region, Walston et al. (2016) found there was considerable variability in mortality rates for bird carcasses with known project-related causes of death ranged from 0.50 to 10.24 birds/MW/year. Within the southern California study region, avian mortalities at utility scale solar facilities were within the range of mortalities

estimated for utility-scale wind energy facilities. The lower end of avian mortality was from the California Valley Solar Ranch Project in San Louis Obispo County (0.5 birds/MW/year), the closest utility scale solar site to this Project site that could be representative of the level of risk of migrating songbird collision with Project infrastructure (Walston et al. 2016).

6.4.2 Vehicle and equipment collisions

Equipment and vehicles could collide with slower-moving species, species in subsurface burrows, and ground-nesting birds resulting in injury or mortality. Some species of birds go into a state of torpor and become immobile during periods of cold weather (Fletcher el al. 2003), increasing the potential for impacts from vehicles or equipment. For most bird species, direct impacts would be limited to areas within the Project footprint or immediately adjacent to it. Active bird nests in shrubs or near the ground would be vulnerable to crushing during ground-disturbing activities.

During the construction phase, an increase in vehicle traffic from construction personnel, biologist and other project-related persons, potentially poses an increase risk to birds that inhabit remote desert regions. Birds nesting adjacent to project access roads are more likely to be impacted due to an increase in the number of vehicles using the road.

Due to a decrease in project personnel and habitat alterations, these types of risks will be lessened during the operations and maintenance phase, compared to the construction phase. Mitigation measures described in Section 7.2 would avoid and minimize this risk.

6.4.3 Height of Structures

A risk factor for avian collision mortality is the height of structures within a development. For songbirds, height of structures has been a very important risk factor, with taller structures (buildings, communication towers) typically affecting more birds than shorter structures (Kerlinger et al. unpublished; Gehring et al. 2011, Kerlinger et al. 2012). Particular dangers associated with buildings are the presence of windows and certain lighting regimes known to attract birds (Klem et al. 2009). Very tall structures represent greater risk to birds because most night migrating birds fly at heights between 1,350 and 6,560 feet (Kerlinger 2001), generally occurring in higher densities at greater heights above ground level (AGL). In a study by Gehring et al. (2011) and Kerlinger et al. (unpublished), the number of birds killed at communication towers was found to be positively correlated in a non-linear fashion with tower height. The northern half of the site will have underground electrical collection lines that daylight adjacent to the Project substation. The southern half will have above ground electrical collection lines on typical wooden poles. As the height of structures associated with the Project will be relatively low (10 to 13 feet), risk of collision will also be low accordingly.

6.4.4 Light Attraction

In most studies to date, poor weather has been associated with large-scale mortality events that have occurred at tall structures such as communication towers (Manville 2000, Kerlinger 2010, Longcore et al. 2012, 2013), as well as street lights, lighthouses, water towers, ski lifts, and other tall, lit structures. In addition, large-scale fatality events have even been reported to occur at natural gas compressor stations that are equipped with bright flood lights. These events usually

occur in inclement weather (fog, light rain, light snow, low ceiling) when navigational cues are obscured and as a result, attracted to the lights of facilities and structures, birds become disoriented and remain in the lighted zone where they circle the structures at risk of collision with the tower and its guy wires, and collisions with each other, or possible exhaustion (Gauthreaux and Belser 2006). Fortunately, recent studies have demonstrated that avian collisions with manmade structures can be reduced dramatically with the adoption of certain lighting regimes that do not attract birds (Gehring et al. 2009, Kerlinger et al. 2010, Patterson 2012). Further, most birds (approximately 90%) that die after being attracted to communication towers by lighting are killed when they collide with the guy wires that support those towers (Gehring et al. 2011). As described in Section 7, California Flats will minimize new lighting, and any lighting associated with the Project shall be designed to limit the lighted area (e.g., using shielding and/or downcast lights) to the minimum necessary.

6.4.5 "Lake Effect Hypothesis"

The concern over deaths at solar facilities of waterbirds or waterfowl is centered around the hypothesis that these species may potentially mistake the extensive solar arrays for water features on which the birds can land, usually at night. Such collisions which also occur at structures like parking lots and train yards (usually a black cinder surface), both of which resemble water bodies at night, often do not result in direct mortality because the angle of collision is relatively shallow. Such birds sometimes cannot take off after collisions because they are adapted to take off from water, not dry land. These birds can perish due to exposure to the elements and/or predators.

Finally, as noted in Section 5.3.3, the baseline avian surveys showed a low number of waterfowl/waterbird species using the California Flats area; even when drought conditions lessen it is still expected that relatively few of these aquatic-based birds would use the Project site in the absence of the project. However, there remains uncertainty in whether birds on migration might be attracted to the project post construction. Waterfowl or waterbirds have not been found in high numbers at the California Valley Solar Ranch site, a large solar project to the south of the Project that might be representative of avian risk for local utility scale solar projects (Walston et al. 2015).

6.5 Potential Risk to Special Status Species

Special status species were evaluated for their potential to occur within the BSA and included special status species for which focused surveys were conducted or sightings were recorded during general or other species-specific wildlife surveys. The subsequent section describes a risk assessment for these species. Those species that were not specifically surveyed for, or are considered to have a low potential for occurrence and were not observed during surveys were eliminated from further analysis. Detailed risk reduction and conservation measures are thoroughly described in Section 7.

6.5.1 Golden Eagle

Adult golden eagles may easily range a mile or more from their nest sites in search of prey, and their breeding-season home ranges often extend across more than ten square miles (Kochert et al. 2002). The available data suggest that adult eagles most often forage within 0.6–1.9 miles of

their nest site while provisioning chicks (Marzluff et al. 1997, Hunt 2002). That said, the nearest-neighbor analysis indicated that the approximate average territory of golden eagles nesting in the Project area encompasses a radial area of only 1.05–1.5 miles, which translates to nesting territory sizes of 3.5–7.1 square miles. These territory sizes suggest that the Project area supports a relatively high density of nesting golden eagles. The highest known density of nesting golden eagles is located in central California in the northern Diablo Range, in oak savannah and woodland habitat similar to that found in the vicinity of the Project (Hunt and Hunt 2006). In that study area, extensive radio-telemetry research demonstrated home-range sizes that are similar to those that the Project-related surveys suggested for the population nesting in Cholame Valley and the southern Diablo Range (Hunt et al. 1995, 1999; Hunt 2002). Elsewhere in the western U.S., population densities have ranged from 11–97 square miles/pair (Kochert et al. 2002).

Given the initial projections of nesting territory sizes and apparent density of nesting eagles in Cholame Valley and the adjacent hills, it appears unlikely that the golden eagles nesting in the Cholame Hills, in the eastern and southern portions of the Diablo Range, and in the northern Temblor Range would routinely, if ever, travel onto the Project site to provision their chicks. Instead, foraging on the Project site during the nesting season appears possible only for eagles occupying the confirmed and potential territories located in the eastern half of Cholame Valley and the adjacent western foothills of the Diablo Range. There is, however, a reasonable likelihood that the foraging home ranges of two to five golden eagle territories overlap the access road area (Figure 4). Regardless, the oak and pine woodlands and interspersed savannas that characterize Cholame Valley and the adjacent foothills of the Cholame Hills and Diablo Range provide ideal nesting and foraging habitat for golden eagles and even an atypical (see, for example, Boal et al. 2006) pair of bald eagles (possibly two). The ground squirrels, jackrabbits, and feral pigs found in the region provide a variety of food resources for the eagles.

The availability of suitable, natural nesting substrates clearly constrains most nesting golden eagles to the wooded and cliff/outcrop areas located primarily outside the Project site. The electrical transmission line that crosses the Diablo Range and the Project site from northeast to southwest is a possible exception (Figure 1). During both 2013 and 2014, although there were several active red-tailed hawk and common raven nests on the transmission towers, no active golden eagle nests were observed on this transmission line within the survey area. Surveys conducted for a nearby project located on the Carrizo Plain revealed several active golden eagle territories centered on transmission-tower nests (HTH 2012). Therefore, the potential exists for golden eagles to nest on the existing transmission towers in the Project vicinity.

6.5.2 Burrowing Owl

The grassland, rolling foothill habitats and abundant California ground squirrel burrow systems in the Project vicinity provide suitable foraging, nesting, and sheltering opportunities for resident, wintering, and transient owls. Therefore, nearly the entire Project site currently provides suitable foraging and breeding habitat for burrowing owls. However, risk of collision with Project infrastructure should be low. Monitoring at several solar facilities where burrowing owls are known to occur, have yielded no carcasses of the species exhibiting injuries suggesting collision with stationary objects was the cause of mortality.

6.5.3 California Condor

The Project site and access road lie within the historic and current range of the California condor, and most of the 3,000-acre Project currently provides potentially suitable foraging habitat for the species. The mountain ranges within the region provide conditions favorable to condor movement, and mortality of California ground squirrels, mule deer (*Odocoileus hemionus*), feral pig, pronghorn (*Antilocapra americana*), and other wildlife provides suitable foraging opportunities within the Project site and along the access road/Hwy 41 improvement areas.

The condor release locations closest to the Project are the Bitter Creek National Wildlife Refuge, approximately 80 miles southeast, and Pinnacles National Monument, approximately 62 miles north of the Project site. The Project site and access road do not occur within any designated critical habitat for California condors, the nearest being the East Unit of the Hi Mountain-Beartrap Condor Area approximately 35 miles south of the Project (USFWS 1977). Recent global positioning system (GPS) daytime tracking data indicate that captive-released
California condors periodically occur in the mountain ranges that border the Project site to the west, north, and east, and condors were recorded in the vicinity of the Project site in 2005 and 2006 (California Condor Wind Energy Work Group 2011, USFWS 2011a). Given the current distribution of condors, condors are unlikely to forage within the Project site and along the access road/Hwy 41 improvement areas. The solar generation facilities are not planned in an area that is expected to bisect a high-use flight path for the species. No condors were observed during nearly two years of BUC and eagle use surveys conducted for the Project. Although there is suitable roosting and nesting habitat for California condors in the surrounding mountain ranges, the Project site contains no such habitat.

6.5.4 Other Special Status Avian Species

Swainson's Hawk

Swainson's hawk is a state-listed (threatened) raptor species that breeds in much of western North America. Within California, nesting occurs in the Central Valley, Great Basin and Mojave and Colorado Deserts. Regular nesting also occurs in the high desert between the Tehachapi Mountains and Lancaster. This species winters in southern South America with a migration route of over 20,000 miles (Woodbridge 2008). Arrival at breeding areas generally occurs from late February to early May depending on geographical characteristics of the breeding area (Woodbridge 2008). Swainson's hawks prey on a wide variety of small vertebrates to crayfish and insects, although breeding success appears to be tied to availability of small mammals. In the Central Valley, nest sites are associated with riparian forest vegetation, whereas in the Great Basin, nest sites can be found within trees located in uplands.

The BSA is 20 miles from the nearest documented nesting records for this species, although moderately suitable nesting habitat is present in the riparian and oak woodland portions of Cholame Valley. This species was observed once in the spring during the 2013 avian use surveys, a migrant flying at an altitude over 492 feet; one individual Swainson's hawk was also observed incidentally as part of the 2014 eagle use surveys. One of the main objectives of the raptor nest survey effort was to search for nesting Swainson's hawks within 5 miles of the Project site. No

Swainson's hawks were detected during the nest search effort. Overall, this species is expected to have a relatively low potential for occurrence within the Project Site during the breeding season. Risks from the Project would generally be expected to be reduction of foraging habitat during migration. Potential for impacts to the species would be further reduced through implementation of mitigation measures for protection of wildlife and other resources, as described in Section 7.

Northern Harrier

The northern harrier is a State Species of Special Concern. Many California populations are resident, and migrating individuals may winter in California from sea level up to 10,000 feet elevation; others migrate through to Central and South America (MacWhirter & Bildstein 1996). Habitat includes fresh and saltwater wetlands, coastal dunes, grasslands, deserts, meadows, and crop lands, but they are rarely found in wooded areas. This species breeds in areas up to 5,700 feet above sea level, and builds nests on the ground, in upland fields or marshes. Northern harriers prey on a variety of small vertebrates and invertebrates, although they predominantly feed on small mammal, mainly microtus, species.

The BSA is within the edge of the documented breeding range for this species and nesting habitat is present in the BSA (Shuford et al, 2008). Project-specific BUC surveys, eagle/raptor use surveys, and nesting raptor surveys were designed to detect species such as northern harrier. Observations of northern harriers occurred in spring (1 sighting) and fall (1 sighting) during the 2013 avian use surveys; both sightings involved one adult coursing low over grasslands. One individual northern harrier was observed incidentally during the 2014 eagle use surveys conducted to date. One northern harrier individual was documented in the 2013 raptor nest surveys, approximately 1.5 miles northeast of the Access Road/Hwy 41 improvements; no nests were observed.

Direct and indirect impacts to these species would be similar as discussed above for golden eagles. Direct impacts also would include the potential for direct take of nests and permanent reduction of potential foraging and nesting habitat associated with development of the Project. Development of the Project would result in an incremental increase in noise and human presence, and these could cause an indirect impact to the northern harrier. The Project would also include gen-tie transmission line, which would present a potential collision hazard. Impacts to northern harrier would be reduced through implementation of mitigation measures for protection of wildlife and other resources, as described in Section 7.

Loggerhead Shrike

The loggerhead shrike is a State Species of Special Concern and a year-round resident in parts of the Southern California desert. It is typically found in open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. As a predatory bird, its diet consists of insects, amphibians, small reptiles, small mammals, and other birds. Shrikes typically build nests three to ten feet above the ground depending on the height of the vegetation. During surveys, this species

was observed within the BSA throughout the year (15 total observations), with suitable nesting and foraging habitat located within the Project Site.

Direct impacts would include the potential for direct take of nests and permanent reduction of potential foraging and nesting habitat associated with development of the Project. Development of the Project would result in an incremental increase in noise and human presence, and these could cause an indirect impact to the loggerhead shrike. The project would also include a gen-tie transmission line, which could present a potential collision hazard. Impacts to loggerhead shrike would be reduced through implementation of mitigation measures for protection of wildlife and other resources, as described in Section 7.

Short-eared Owls

The short-eared owl is a State Species of Special Concern. In California, it is a year-round resident in some areas; their populations are highly dependent on their prey's "boom or bust" cycles (particularly the California vole, *Microtus californicus*), and can vary dramatically. These owls nest on the ground, and require open country with sufficient microtine rodent prey species as well as herbaceous cover to conceal the nests. Suitable nesting habitat includes irrigated alfalfa or grain fields, marshes, old pastures and ungrazed grasslands. In the San Joaquin Valley and adjacent Coast Range valleys, nesting is generally episodic, usually after wet winters (Shuford et al, 2008).

The BSA is outside of, but relatively near (15 – 20 miles), the documented breeding range for this species and there is a lack of suitable grassland cover in the Project site (HTH 2013); overall, this species would have a relatively low potential for occurrence during the breeding season. Short-eared owls were seen incidentally during the 2013 raptor nest survey, and in November 2012 and April 2013 during visits to the site for the avian use surveys. Risks from the Project would generally be expected to be reduction of foraging habitat.

Impacts to short-eared owl would be reduced through implementation of mitigation measures for protection of wildlife and other resources, as described in Section 7.

Tricolored Blackbirds

The tricolored blackbird is a State Species of Special Concern, and is a permanent resident of California. Their range includes the Sacramento and San Joaquin valleys, coastal slope from Sonoma County to the Mexican border, and the foothills of the Sierra Nevada to Kern County. While many birds migrate extensively within this range, some blackbirds appear to reside within the Central Valley throughout the year. Nesting sites for this species have historically been located in marshes, where colonies of 20,000 to 30,000 nests have been documented. More recently, colonial nests have also been documented in blackberry and thistle, as well as in grain fields. The success of selected nesting sites depends on having a nearby source for abundant insect prey (primarily Coleopterans, Orhopterans and Hemipterans). Wintering blackbirds forage in agricultural fields and grasslands with low-growing vegetation (Shuford et al, 2008).

The BSA is within the documented breeding range for this species and some nesting habitat is present in some areas of Cholame Valley. Tricolored blackbirds were seen incidentally in the Project site in March 2013 and March 2014. The species is an expected winter resident and transient, due to the limited availability of potentially suitable breeding habitat in the immediate Project vicinity (HTH 2014). Risks to this species from development of this Project would generally be expected to be reduction of foraging habitat.

Impacts to the tricolored blackbird would be reduced through implementation of mitigation measures for protection of wildlife and other resources, as described in Section 7.

Grasshopper Sparrow

The grasshopper sparrow (*Ammodramus savannarum*) is a State Species of Special Concern that breeds in grasslands from the foothills of the Sierra Nevada and Cascade Range west and south to San Diego County (Shuford et al. 2008). The species is generally a summer resident of the state, occurring from March to September, with the breeding season extending from mid-March to August. The species is at least partially migratory, with rare winter sightings in California, generally occurring on the coastal slope of southern California (Shuford et al. 2008). The species nests on the ground in short to moderate height grasslands with patchy bare ground and/or sparse shrub cover, and they forage in dense grassland and low growing vegetation; in general, they are more likely to be found in large tracts of habitat (minimum of 75 to 250 acres) than in small tracts (Vickery et al. 1994; Herkert 1994). The CNDDB contains records of grasshopper sparrow observations approximately five miles south of the Project. While no grasshopper sparrows have been observed on the Project, there is suitable nesting and foraging habitat throughout the BSA. Risks to this species would include the potential for direct take of nests and permanent reduction of potential foraging and nesting habitat associated with development of the Project.

Impacts to grasshopper sparrows would be reduced through implementation of mitigation measures for protection of wildlife and other resources, as described in Section 7.

6.5.5 Bats

Four species of special-status bats are expected to roost and/or forage in the BSA; however, no roosting habitat occurs within the Project site. Although pallid bats were likely detected during acoustic surveys, and they have been documented in the region, they are expected to only forage, not roost, in the Project site. Numerous smaller cracks and crevices were observed in the rocky outcrop habitat in the BSA; these are likely suitable for only individual pallid bats or small congregations (i.e., two or three individuals). Although solitary roosting bats or small congregations of bats may roost in these outcrop areas or roost as maternity colonies in large riparian trees, these habitats are located outside the Project site, and would not be directly affected by the proposed activities. No roosting habitat occurs within the BSA for the western mastiff bat and the western red bat is expected to only winter or migrate through the BSA and then only within the small riparian area. Further, the Townsend's big-eared bat is considered mostly extirpated from the region but dispersed solitary males may occur occasionally in unused attics or other cavernous habitats within the BSA. The granary was the only building within the

Project site considered to potentially support roosting bats. However, because very little activity was detected at this site, the low activity levels suggest few if any bats roosted at this location.

The habitat assessment and acoustic surveys were conducted just after the high-activity season for bats (May through September) when data collection is optimal for assessing bat activity levels. Nevertheless, given the absence of high-quality roosting habitat and the fact that all roosting habitats occur outside the Project site, direct impacts on roosting bats are not expected to result from the Project. Because roosting habitat for pallid bats occurs immediately adjacent to the Project site, and because this species is expected to forage on the widespread high-quality foraging habitat that occurs throughout the Project site, a change in the foraging habitat within the Project site may result in indirect impacts to pallid bats. Prey species comprise primarily orthopterans (grasshoppers, crickets, etc.) and other ground-dwelling insects that pallid bats take mostly from the ground (Johnston and Fenton 2001). Although the ground disturbance was minimized at a nearby solar photovoltaic project, the California Valley Solar Ranch (CVSR) in San Luis Obispo County, preliminary acoustic results from that project suggest that pallid bats foraged less in completed solar arrays (activity = 0.12 calls/min) compared to the same areas before they were developed and compared to adjacent undeveloped conservation areas (activity = 0.19 calls/min) (H. T. Harvey & Associates 2013). Although pallid bats are expected to at least initially forage less in the Project site than adjacent undeveloped habitat, even a permanent decrease in pallid bat activity levels in the Project site is not expected to result in a significant impact to the pallid bat population of the region. Further, a reduction in optimal foraging habitat adjacent to maternity colonies could potentially result in a slight reduction in colony size for any colony located within three miles of the Project site. However, a potential small reduction in colony size would not be expected to result in a significant impact to the regional pallid bat population.

Good-quality foraging habitat for the western mastiff bat also occurs within the Project site. However, this species typically forages at 100 to 200 feet above ground level (Best et al. 1996). HTH (2013) reported that mastiff bat activity appeared unaffected by the development of solar arrays at CVSR, which suggests that mastiff bat activity may be unaffected within the Project site.

On a landscape scale, the addition of solar arrays to an area that previously had minimal structural attributes may affect bat activity in several ways. Bats are known to commute and forage along linear landscape elements (Verboom and Huitema 1997). At clearly demarcated edges, such as forest-field interfaces in early stages of succession, all bat species have been shown to increase their activity (Jantzen and Fenton 2013). Morris et al. (2010) found higher concentrations of flying insects on the leeward side of trees on windy nights. As such, it is possible that flying insects could similarly gather in higher concentrations at the leeward edges of the PV solar arrays on windy nights. As observed at CVSR, high frequency bats (California myotis, western small-footed bats, and canyon bats) that forage in situations with clutter (e.g., with shrubs and trees) are likely to take advantage of this effect and are expected to increase their activity at the leeward edges of the arrays (HTH 2013).

7 RISK REDUCTION AND CONSERVATION MEASURES

California Flats has developed the following risk reduction and conservation measures for the Project based on site-specific baseline avian and bat information. The project design features and conservation measures proposed herein represent California Flat's willingness to ensure the least harm to avian and bat species. The risk reduction and conservation measures presented in this document are being developed separate from the NEPA and CEQA processes, although mitigation measures adopted as part of those processes will coincide and be coordinated with measures proposed herein.

7.1 Risk Reduction Measures Implemented During Site Selection and Facility Design

California Flats sited the Project to avoid and minimize impacts to bird and bat species where possible, including the following macro-siting considerations:

- The Project is sited entirely within a working private ranch with a long history of cultivation. The majority (98%) of the Project site is composed of grassland, primarily California Annual Grassland.
- The Project is sited in an area without substantial riparian habitats or other features known to attract large concentrations of resident or migrating birds or bats. Less than 1% of the Project site is composed of riparian or ephemeral wetland habitats.
- The Project is sited outside designated critical habitats, Audubon Important Bird Areas, and important migratory pathways or stopover sites.
- The Project is sited immediately adjacent to existing transmission infrastructure with additional capacity such that minimal transmission gen-tie and system upgrades will be required.
- The Project site does not currently host avian nests used by species listed under the federal or state endangered species acts or the BGEPA, nor does it contain designated critical habitat for these species.

California Flats has made efforts during initial site selection and continues to make efforts during project design to micro-site infrastructure such that impacts to birds and bats are minimized. The following risk reduction measures have been incorporated into the design of Project facilities and have been committed to as part of the Draft Environmental Impact Report (DEIR) developed by Monterey County Resource Management Agency (CMRMA, 2014).

- *Avoid and minimize impacts to wetlands (Mitigation Measure B-3(a) of the August 2014 DEIR).* Impacts to wetlands and other waters shall be avoided to the extent feasible. In consultation with a wetland ecologist, the project shall be designed, constructed and operated to avoid and minimize impacts to wetlands and other waters to the extent feasible, which may include minor changes to the panel layout and roadway configurations to avoid wetlands. General Project staging and laydown activities shall not occur within wetlands during construction. To avoid unnecessary egress into wetlands, all wetlands in the project impact area shall be clearly shown on Project plans and the limits marked with highly visible flagging, rope, or similar materials in the field. Access allowed within these features for the purposes of construction in and near such features (e.g., road crossings, pile placement, trenching) shall be clearly delimited on Project plan sets, and these allowed work limits shall also be staked in the field, to prevent construction personnel from causing impacts to areas outside of work limits. Where necessary, silt fencing or other measures may be used to protect adjacent wetlands from sediment transport or other indirect impacts that could result from adjacent construction. During the operation of the solar facility, maintenance activities shall not be staged within wetlands. Wetlands and other waters within construction areas that are to be avoided shall be fenced or flagged for avoidance prior to construction, and a biological monitor shall be present to ensure compliance with off-limits areas. All jurisdictional wetlands and waters shall be clearly shown on Project plan sets.

- *Avoid and minimize impacts wherever feasible by providing appropriate setbacks between Project improvements and avoided riparian and stream habitats (Mitigation Measure B-2(e) of the August 2014 DEIR).* As discussed above, some improvements near and within riparian habitats and streams would be necessary to construct road and fence crossings, stabilize banks, and construct other Project improvements. In other locations, where complete avoidance of reaches of perennial and intermittent streams is proposed, Project activities and Project work limits shall include an average 50-foot setback from the top of bank or the outer dripline of the riparian canopy of the avoided stream reaches. The 50-foot average shall apply to the avoided reach length. Although the average setback must be at least 50 feet over the length of the avoided reach, in some isolated locations it may be necessary to place structures within 50 feet of the avoided drainage. In these cases, a minimum 25-foot setback shall be observed from avoided perennial or intermittent riparian habitat in all locations (i.e., work limits may come no closer than 25 feet from the top of bank or the outer canopy dripline in any specific area along the avoided reach). Where existing roads occur parallel to and within 50 feet of avoided perennial or intermittent streams, it will be impossible to maintain a 50-foot average setback or even a 25-foot minimum setback, because even to realign the road, work near the avoided streams would be required. In these cases, Project activities and Project work limits shall be set back 10 feet from the top of bank. All work that must occur within the 50-foot setback shall be monitored by an authorized biologist to ensure direct impacts to sensitive habitat are minimized, and all impacts to special status species are avoided. Riparian setbacks and all riparian habitat to be avoided by the Project shall be fenced or flagged before construction occurs in adjacent areas. A biological monitor shall be present to ensure compliance with off-limits areas.

- *Avoid or minimize impacts on oak woodlands (Mitigation Measure B-2(d) of the August 2014 DEIR)).* If oak woodlands occur in or adjacent to (i.e., within 25 feet of) the Project impact area, an International Society of Arboriculture (ISA)-certified arborist shall establish a buffer of 25 feet from the driplines of native trees in the oak woodland habitat. No ground-based construction activities, including trimming of trees, shall be allowed within the buffer unless monitored by an ISA-certified arborist. All buffers shall be marked using highly visible flagging or fencing.

7.2 General Biological Measures Implemented During Construction and Operation

Construction of the Project will occur over a period of 12-24 months, with an expected operational life of 30 to 40 years. The following general biological measures will be implemented during construction and operation (as specified) to avoid or minimize risk to avian and bat species:

- *Prepare and Present a Worker Environmental Awareness Program (Mitigation Measure B-1(gg) of the August 2014 DEIR))*. California Flats shall retain a qualified biologist to prepare a Worker Environmental Awareness Program that shall be presented to all construction personnel and employees before any ground-disturbing activities commence at the Project site. This presentation shall explain to construction personnel how best to avoid the accidental take of special-status species during construction. The program shall consist of a brief presentation explaining endangered species concerns to all personnel involved in the Project. The program shall include a description of special-status species potentially on the Project site and their habitat needs; an explanation of the status of the species and their protection under the ESA, CESA, BGEPA, MBTA, and the California Fish and Game Code; specific mitigation measures applicable to special-status species; and the penalties for take.

  The program shall also explain to construction personnel how to avoid impacts to jurisdictional waters, including wetlands. The program shall include a description of jurisdictional waters on the site, specifically permitted impacts to jurisdictional waters, measures to protect waters to be avoided, and maps showing the location of jurisdictional waters and permitted impacts. The program shall be recorded electronically, and all future facility employees shall be required to review the recording before the initiation of work on the Project site.

  The Worker Environmental Awareness Program shall be implemented by California Flats before the start of ground disturbance and shall be continued through the construction phase for all construction personnel. A separate Worker Environmental Awareness Program shall be implemented by California Flats before project operation, for all permanent project employees. This program shall include all the information above, as applicable to project operations.

- *General Avoidance Measures and Construction Best Management Practices (Mitigation Measure B-1(ff) of the August 2014 DEIR).*

    - Prior to ground disturbance, all permanent and temporary disturbance areas shall be clearly delineated by stakes, flags, or another clearly identifiable system.

    1. To minimize disturbance of areas outside the project site, all construction and operation vehicle traffic shall be restricted to established roads, construction areas, and other designated areas. These areas shall be included in pre-construction surveys and, to the extent possible, shall be established in locations disturbed by previous activities to prevent further impacts.
    2. Construction and operation vehicles shall observe a 20 mile-per-hour (MPH) speed limit during daylight hours within Project areas, except on county roads and state and federal highways. During limited nighttime activities, all construction and operation vehicles shall observe a 10 MPH speed limit. Speed limit signs shall be installed at the project site entrance from the driveway, every one mile along the project site access road, and at the end points of the driveway upon initiation of site disturbance and/or construction. One electronic speed monitoring sign shall be placed in both directions, at the approximate midpoint of the driveway.

        a) Due to the length of the approximately 5.6-mile-long driveway, USFWS recommended 20 MPH speed limits would be prohibitively slow and would negatively impact construction duration. Therefore, vehicles utilizing the access road (or "driveway") will observe a 25 MPH speed limit during daylight hours (7 AM–5 PM between 1 October and 31 May; and 7 AM–7 PM between 1 June and 30 September) and will observe a 20 MPH speed limit during the hours of 5 AM–7 AM and 5 PM/7PM–9 PM. During limited nighttime activities (9 PM–5 AM) within the driveway, all construction and operation vehicles shall observe a 10 MPH speed limit.

    3. All construction pipes, culverts, or similar structures greater than four inches in diameter, or greater than 1.5 inches in diameter within areas where CTS or CRLF may be present, stored or stacked on the project site for one or more overnight periods shall be either securely capped before storage or thoroughly inspected for wildlife before the pipe is subsequently moved, buried, capped, or otherwise used.
    4. Materials that could provide shelter/nesting habitat for birds during the nesting season may be covered with netting or treated with other exclusion methods, where feasible and appropriate, to prevent birds from constructing nests. In addition, materials such as wooden pallets, wooden power poles, and metal tubing, providing nesting and shelter habitat for

birds during the nesting season and artificial refugia for other special-status species shall be thoroughly inspected before use.

5. If encountered, wildlife within the project site shall be allowed to escape unimpeded, removed by a qualified biologist and placed in a designated safe area away from construction activities, or left in place when required by regulations, policies, permits, and/or conditions of approval. If wildlife removal by a qualified biologist is required, the qualified biologist shall be approved or permitted by CDFW and USFWS, as and if required by law, prior to removing such species.
6. To prevent entrapment of special-status wildlife, all excavations (e.g., steep-walled holes, or trenches) more than 6 inches deep shall be covered with plywood or similar materials when not in use or fitted with at least one escape ramp constructed of earth dirt fill, wooden planks, or another material that wildlife could ascend. All excavations more than 6 inches deep shall be inspected daily for entrapped wildlife before construction activities begin and once immediately before being covered with plywood. Before excavations are filled, they shall be thoroughly inspected for entrapped wildlife. Any wildlife discovered shall be allowed to escape unimpeded before field activities resume or shall be removed from excavated areas by a qualified biologist and released at a safe nearby location.
7. Avoidance and minimization of impacts on sensitive biological resources within active construction areas shall be aided by flagging or fencing.
8. Dust suppression shall occur during construction activities when necessary to meet air quality standards and protect biological resources.
9. Disturbance of ponds and in-stream pools shall be avoided to the extent practicable. When feasible, and to the extent practicable, all in-stream work shall occur during the dry season.
10. To the extent practicable, existing mammal burrows shall be preserved in place.
11. All general trash, food-related trash items (wrappers, cans, bottles, food scraps, cigarettes, etc.), microtrash (nails, bits of metal and plastic, small construction debris, etc.), and other human-generated debris scheduled to be removed shall be stored in animal-proof containers and removed from the site on a regular basis (weekly during construction, and at least monthly during operations). No deliberate feeding of wildlife or domestic animals shall be allowed.
12. To minimize potential for attracting predators that could impact special status animal species, Project personnel shall monitor the project site for animal carcasses, including wild animals and livestock. Monitoring shall be conducted by California Flats on a weekly basis during construction and operation. During construction, any road kill within the project site or

Access Road shall be reported to designated onsite personnel. Any animal carcasses detected on the project site shall be removed and disposed of as quickly as possible to avoid attracting predators. The removal and disposal shall be conducted by an individual in possession of appropriate federal and state permits, if any are required.

13. New light sources shall be minimized, and lighting shall be designed (e.g., using shielding and/or downcast lights) to limit the lighted area to the minimum necessary.
14. Use of chemicals, fuels, lubricants, or biocides shall be in compliance with all local, state, and federal regulations. All uses of such compounds shall observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other state and federal legislation. Use of first- and second-generation rodenticides shall not be permitted except for the limited use of zinc phosphide, or a rodenticide approved by the County, and only after other means of pest control (e.g. rodent traps) have proven to be ineffective.
15. To prevent harassment and mortality of listed, special status, and common wildlife species and destruction of their habitats, no domesticated animals shall be permitted on the project site, with the exception of grazing animals prescribed for vegetation management and trained working animals used specifically for livestock management or species surveys (e.g., horses, livestock working dogs, scent tracking dogs).
16. No firearms shall be allowed on the project site, unless otherwise approved for security personnel.
17. During construction, an annual written report shall be prepared describing the status of Project construction, as well as the compliance and current implementation status of construction-related biological mitigation measures and general biological measures. The report shall be submitted to the County no later than 15 February the following year.

- *Implement measures to reduce risk of wildland fire (Mitigation Measure HAZ-4(a) of the August 2014 DEIR).* Prior to the issuance of any construction permit, California Flats shall submit a Final Fuel Management Plan to the County of Monterey RMA – Planning Department for review and approval. The Final Fuel Management Plan shall be prepared in consultation with the Fire Protection District and/or Cal Fire. The Final Fuel Management Plan shall identify emergency access routes, vegetation management measures (e.g. grazing, disking, mowing), road maintenance requirements, fuel modification zones and defensible spaces around structure, applicable emergency response procedures (e.g. notification requirements), and vehicle restrictions during the fire hazard season. Fuel protection zones, including defensible spaces and firebreaks, shall be established and maintained throughout the duration of the project in accordance with state and County minimum clearances and fuel modification standards.

- *Implement biological construction monitoring (Mitigation Measure B-1(ee) of the August 2014 DEIR).* Before the start of ground disturbance or site mobilization activities, qualified biologists shall be retained by California Flats. California Flats shall ensure that each qualified biologist(s) has demonstrated expertise with the listed and/or special-status plants, terrestrial mammals, birds, reptiles, and invertebrates of the region, such as San Joaquin kit fox (*Vulpes macrotis mutica*), California red-legged frog (*Rana draytonii*), and burrowing owl. Expertise must include the ability to recognize listed/special-status and common species of the region, as well as sign, including scat, pellets, tracks, hair, fur, feathers, dens, and burrows. The qualified biologists shall also, as necessary, have the ability to monitor, relocate, handle, and collect species, as authorized by CDFW and USFWS through the use of a Memorandum of Understanding (MOU), scientific collecting/incidental take permit, and/or federal take permit. The qualified biologist(s) shall be present during initial ground-disturbing activities immediately adjacent to or within habitat that supports populations of listed or special-status species.

  If a listed or special-status species is encountered during Project construction, the following protocol shall be implemented:

  1. All work that could result in death, direct injury, disturbance, or harassment of the individual animal shall immediately cease and the qualified biologist shall be contacted; and

  2. The qualified biologist shall remove the individual animal to an appropriate relocation site outside the Project impact areas, or the individual animal shall be allowed to leave unimpeded.

  Construction shall resume, as directed by the qualified biologist(s), as soon as the individual animal either leaves or is removed from the area.

- *Restore temporarily impacted habitats to prevent loss or degradation of sensitive communities and to preserve habitat functions and values for special-status wildlife species (Mitigation Measure B-2(b) of the August 2014 DEIR).* Areas where temporary, construction-related impacts have taken place shall be restored in accordance with a Habitat Restoration and Revegetation Plan (HRRP). The plan shall prescribe restoration actions needed to treat disturbed soils and vegetation, in order to restore disturbed areas. Only areas that were graded (i.e., where the soil resources were removed and replaced) shall be subject to active restoration; however, the vegetation in the temporarily disturbed areas on the Project site and in the areas Access Road shall be monitored to ensure success, maintenance, and/or establishment of target habitat. California Flats shall contract a qualified restoration biologist, knowledgeable in grassland and wetland habitat restoration to develop the HRRP.

  The HRRP shall set forth trigger points to identify where restoration shall be required in response to construction-related impacts. It shall also explicitly detail the process or processes required to restore habitats. The HRRP shall, at a minimum, include the following Project-specific information and sections:

  1. <u>Soils and Seed Bank Management</u>

a) A soil baseline study shall be conducted, by a qualified restoration ecologist with soils expertise, to inform soil requirements relative to habitat restoration for temporarily disturbed areas of the site. The results of this study shall be included in the HRRP and will be used to inform the development of a topsoil harvest and stockpiling plan outlined in the HRRP, and will outline methods for preserving the seed bank present in the removed topsoil.

b) The HRRP shall include details for topsoil salvage, if needed, and proper storage, and shall identify areas within the construction footprint where topsoil is present, supports native vegetation or common non-native grasses characteristic of the grasslands on the site, does not support dense weed infestations, and can be salvaged and stockpiled for later replacement following ground-disturbing activities. The soil baseline study shall characterize topsoil by its depth to impervious layer, nutrient levels, texture, organic matter, permeability, and water-holding capacity.

c) The HRRP shall also identify areas where topsoil stockpiling and replacement would not be warranted due to low development of the existing seed bank and organic material. The harvesting, stockpiling, and spreading of topsoil and seed bank shall also be monitored by a qualified restoration ecologist with a soils background.

d) The HRRP shall require that at least 6 inches of topsoil be salvaged from the areas identified in the plan. These stockpiles shall not be mixed with spoil material, trash, materials such as road base or aggregate, or topsoil containing heavy weed seed banks. The allowable duration for stockpiling and management of stockpiles that will maintain healthy soil conditions shall be stipulated in the HRRP. The HRRP shall stipulate BMPs to discourage erosion of the topsoil stockpiles, including planting cover crops, roughening the pile, using fiber rolls, employing temporary stabilization measures, or other measures, as determined by the potential for erosion of the pile from rain and wind.

e) All redistribution of stored topsoil shall be completed prior to final site inspection (for the close of Project construction work).

f) Soils temporarily disturbed by trenching activities shall be replaced immediately to the extent practicable following placement of cables, and the amount of time open trenches are left on site shall be minimized to the extent practical.

g) Areas where substantial soil compaction has occurred shall be treated with light ripping or other methods intended to rectify compaction, as recommended by the qualified restoration ecologist. The HRRP shall outline the methods for assessing whether substantial compaction requiring active restoration has occurred, based on information gathered in the soil baseline study.

h) No fertilization of disturbed soils shall be prescribed unless recommended by the qualified restoration ecologist. As appropriate, highly disturbed soils lacking topsoil replacement may be amended with certified weed-free mulch.

i) For wetlands and stream habitats where needs differ from the soil restoration needs in upland soils, the HRRP shall stipulate measures to completely restore fragile soils in wetlands and to maintain existing streambed substrate characteristics following restoration of these habitats after temporary disturbance.

2. Temporary Disturbance Mapping

a) The HRRP shall include detailed figures showing the areas proposed to be temporarily disturbed during Project construction. Such figures shall be updated as needed to reflect design changes and areas requiring active restoration actions.

3. Supplemental Restoration Actions

a) The HRRP will stipulate specific performance criteria that identify when areas require additional methods beyond topsoil replacement and soil restoration. In areas requiring active reseeding beyond topsoil replacement, the species composition proposed for reseeding shall be substantially similar to or improve on pre-construction vegetation community composition, excluding invasive non-native species and rare plant species. The latter may have very specific microhabitat requirements that may not be possible to replicate after disturbance. A range of seeding palettes will be stipulated in the HRRP, and these shall differ as needed between various habitat types. For example, native perennial grasses shall be required as a component of the palette for impacted areas of serpentine bunchgrass grasslands or Valley needlegrass grasslands. Non-native species that are dominant within and characteristic of disturbed habitats may be included, as long as they are not specifically prohibited by the project Vegetation and Invasive Species Management Plan (see measure B-2[c] below). The intent of the seeding palettes shall be to maintain or increase native species coverage, reduce establishment of damaging invasive species, and preserve current wetland vegetation types present on the site. A description of the preferred methods for planting (e.g., hydroseeding, drill seeding, aerial broadcast seeding, or others) within differing habitats or impact types shall be provided, as well as details regarding irrigation, if needed. If seed is to be collected for redistribution from onsite species, collection protocols and areas shall be outlined.

4. Monitoring

a) All areas subject to temporary disturbance and requiring restoration actions under the HRRP shall be monitored by a qualified restoration ecologist so that restoration success can be determined and relevant recommendations can be made for successful habitat establishment. Monitoring shall consist of both qualitative and quantitative assessment programs.

b) Both qualitative and quantitative monitoring shall be required in all restored areas for at least two years following construction. Failure to meet pre-defined success criteria after two years of at least average annual rainfall will trigger remedial actions; however, as vegetation growth is lower during below-average rainfall years failure to meet success criteria during years with lower than average rainfall will simply entail a longer monitoring duration until it can be determined that the restoration success requires remedial actions and the site is not simply being affected by below-average rainfall. Average rainfall is defined in this context as the 30-year average for the site (1981–2010), established by the Parameter-elevation Regressions on Independent Slopes Model (PRISM) Climate Group, or 13.12 inches per year (PRISM 2013). The actual annual rainfall must be measured using an onsite rain gauge, and if the actual measured precipitation does not meet this level by the end of the rainy season, these monitoring results will still be reported, but monitoring will continue until the monitoring data set includes at least two years in which this precipitation level is met or until success criteria are met in two monitoring years.

c) Qualitative survey results shall discuss species composition, growth and survivorship, germination success, invasive plant infestations, and areas where restoration was not successful in re-establishing adequate vegetation cover to prevent erosion and sedimentation-related impacts. Qualitative monitoring shall occur on a quarterly basis for the first year. This timing shall allow remedial actions to be identified and enacted as necessary following restoration to achieve success criteria in advance of the final success/failure determination. Monitoring reports shall be submitted to the County every six months (after two qualitative monitoring events) for the first year following restoration. Qualitative monitoring shall then occur once per year in conjunction with quantitative monitoring until two years of average rainfall have occurred or until successful restoration is achieved via attainment of the pre-defined success criteria.

d) Quantitative monitoring shall occur annually for years one and two, or longer until pre-defined success criteria are met in two years of monitoring as described above. As described above, failure to meet success criteria during below-average rainfall years will lengthen monitoring duration, but will not necessarily require the commencement of remedial actions until and unless it is determined in a year with normal precipitation these criteria are still not being met. In year one, quantitative monitoring shall take place in January, April, and July. In year two and in any subsequent years that this monitoring is required due to low rainfall and/or failure to meet success criteria, monitoring shall occur in May.

e) The HRRP will establish pre-defined success criteria for both qualitative and quantitative monitoring activities. A qualified restoration ecologist shall use baseline vegetation data from the impact areas or from reference areas to set comparative success criteria across the site. The success criteria will be defined separately for each habitat type. These criteria will: 1) identify the duration of monitoring sufficient to indicate that the restoration habitat is on a clear trajectory toward successful establishment if this differs from the minimum two years required (e.g., if a given habitat takes six years to reach full maturity, one might monitor it for three years to establish the restoration trajectory), 2) specify interim quantitative habitat performance criteria that can be used to track habitat development at intervals during the monitoring period-these may either be predetermined based on a vegetation survey of the impacted habitat or may be tied to reference sites, 3) specify final quantitative success criteria for each habitat that indicate that the habitat is likely to ultimately develop functions and values comparable to the impacted habitat, and 4) specify final qualitative and quantitative success criteria that demonstrate that the restoration areas exhibit minimal erosion and that invasive plant species cover does not exceed that of reference habitats.

f) Quantitative monitoring shall be conducted in one-square-meter quadrats and shall include the following data at a minimum:

   i. Species composition and cover data

   ii. Bare ground cover data

   iii. Canopy height

   iv. Hydric soil indicators (in wetlands)

g) These data shall be used to measure and report native species coverage, native and non-native species recruitment, and hydrology within restored wetlands, and to compare these to the pre-established success criteria. Based on these results, the restoration ecologist shall make specific recommendations for remedial actions, if required. Reports shall be submitted to the County twice annually for the first year of monitoring (by 31 January and by 31 July) and once annually by 31 January during all subsequent years of monitoring. Each HRRP monitoring report shall include the following information at a minimum:

i. The name, title, and company of all persons involved in restoration monitoring and report preparation

ii. Maps or aerials showing restoration areas, transect locations, and photo documentation locations

iii. An explanation of the methods used to perform the work

iv. An assessment of the treatment success

- *Manage Site Vegetation During Project Operations (Mitigation Measure B-2(c) of the August 2014 DEIR).* Before the construction permit is issued, California Flats shall retain a qualified restoration or plant ecologist with rangeland management experience to prepare a Project-specific Vegetation and Invasive Species Management Plan (PVIMP), to be administered during operation of the Project in the array fields and other applicable areas of the Project site. The comprehensive plan shall be intended to maintain acceptable fuel loads and prevent the introduction or spread of non-native invasive species associated with the disturbance resulting from the Project.

  The PVIMP shall be an adaptive management tool. Vegetation management strategies and weed control efficacy shall be evaluated over time. Modifications to the strategies used or to the techniques used to accomplish each strategy shall be implemented based on results, experience, and the latest research. If grazing is not feasible on the project site, comparable alternative methods of vegetation management (e.g., mowing) may be used.

  The PVIMP shall also describe BMPs to avoid the unintentional introduction of invasive species to and from the site, describe monitoring measures to ensure that any invasions are detected before they become substantial, and describe species-specific control measures that shall be implemented if invasions occur.

  The PVIMP shall be submitted to the County prior to the notice to proceed, and shall address the entire project site. This submittal shall further describe the process by which the PVIMP shall be implemented (e.g., the entity responsible for implementing it, funding mechanisms, and reporting procedures). The PVIMP shall include, but is not limited to, the following:

1. detailed measures to promote the persistence of native grassland species, including listed and rare plant species in the vicinity of, but not removed by, the Project;

2. a description of exclusion fencing, if warranted to protect avoided riparian habitats and jurisdictional waters within the arrays;
3. in areas subject to grazing management, development of an RDM monitoring plan that shall inform adaptive management and the rates, timing, and duration of livestock grazing actions planned from year to year, determined by annual climatic patterns and the response of herbaceous vegetation to impacts from the solar panels and plant operations (e.g., panel washing);
4. a plan for adaptive strategies to manage grazing or other vegetation management actions to benefit native wildlife and vegetation and avoid or minimize the establishment of invasive weeds, to the degree practicable;
5. a description of alternate acceptable vegetation control methods and triggers for their use, including weed whacking, mowing, herbicides, and others;
6. a description of annual monitoring stipulated for weeds within the Project site and measures for controlling weeds, both prior to ground disturbance and annually during operation of the Project;
7. a plan for the use and application of herbicides, which may be prescribed only by a licensed Pest Control Advisor and applied only by a licensed applicator; specific prohibitions on herbicide use and application (e.g., no application of herbicides when winds are in excess of 10 MPH or within 50 feet of wetlands) including prohibition near amphibian habitat shall be included;
8. a detailed plan for the washing of all ground-disturbing equipment before it is transported to the site or is used at another site, and for washing equipment within the site if it has worked in infested areas before being used elsewhere on the site;
9. a detailed plan for preventing the spread of New Zealand mud snails within the site; the plan shall include thorough washing of equipment and the footwear of construction personnel, or drying for two weeks following work in wetted stream channels that may support the species; and
10. details for placing and maintaining an onsite wash station for washing heavy equipment that has worked in infested areas before moving elsewhere on the site, and performance criteria for the control and disposal of wash water and collected sediment; and treatment and disposal requirements for weed-infested topsoil.

7.3 Conservation Measures Implemented During Pre-Construction and Construction

California Flats is committed to the following species-specific, as well as more general, avian and bat conservation measures to be implemented during the period immediately prior to construction and throughout the construction phase.

1. *Conduct Pre-construction Surveys for Nesting and Breeding Raptors and Other Birds (Mitigation Measure B-1(r) of the August 2014 DEIR).* Not less than 30 days prior to initiation of construction activities (incl. mobilization, staging and ESA fence installation) during the breeding season (1 February to 15 September), a qualified biologist shall conduct preconstruction surveys for raptors and MBTA/state regulated birds. The survey for the presence of nesting raptors, including golden eagles, shall cover all areas within of the disturbance footprint plus a 1-mile buffer where access can be secured. The survey area for all other nesting bird species shall include the disturbance footprint plus a 300-foot buffer. The surveys shall be repeated during the breeding season for each subsequent year of construction to ensure that ongoing construction activities avoid impacts to nesting birds.

   If active nests (nests with eggs or chicks) are located, the qualified biologist shall establish an appropriate avoidance buffer ranging from 50 to 300 feet based on the species biology and the current and anticipated disturbance levels occurring in vicinity of the nest. The objective of the buffer shall be to reduce disturbance of nesting birds. All buffers shall be marked using high-visibility flagging or fencing, and, unless approved by the qualified biologist, no construction activities shall be allowed within the buffers until the young have fledged from the nest or the nest fails.

   For golden eagle nests identified during the preconstruction surveys, an avoidance buffer of up to one mile shall be established on a case-by-case basis in consultation with the USFWS, and shall depend on the existing conditions and disturbance regime, relevant landscape characteristics, and the nature, timing, and duration of the expected development disturbance. The buffer shall be established between 1 February and 31 August; however, buffers may be relaxed earlier than 31 August if a qualified ornithologist determines that a given nest has failed or that all surviving chicks have fledged.

2. *Preconstruction Surveys for Burrowing Owl (Mitigation Measure B-1(l) of the August 2014 DEIR).* No more than 14 days before the start of initial ground disturbing activities, a qualified ornithologist(s) shall conduct focused, pre-construction, take-avoidance surveys for burrowing owls within all areas proposed for ground disturbance that contain suitable owl habitat (CDFG 2012). Preconstruction surveys shall be consistent with CDFW-recommended methods described in the Staff Report on Burrowing Owl Mitigation (CDFG 2012; Appendix B), and be conducted on foot such that 100% of the survey area is visible, and shall cover the entire limits of disturbances plus a 500-foot buffer. If the project is developed in phases, the preconstruction surveys shall be timed to coincide with the start of each phase, rather than the entire site being surveyed at one time. All observations of burrowing owl and sign of burrowing owl (including suitable burrows, pellets, whitewash) shall be mapped on a site-specific aerial image. A report of the survey finds shall be submitted to the County prior to initiation of construction activities.

   If suitable burrows for burrowing owls are identified during preconstruction surveys, mitigation measure B-1(m) shall be implemented.

Burrowing Owl Avoidance and Minimization Measures (Mitigation Measure B-1(m) of the August 2014 DEIR). If suitable burrows for burrowing owls are found during preconstruction surveys on the project site; burrowing owl occupancy shall be determined through up to three additional focused surveys on potential burrows during the morning and/or evening survey windows as defined in the Staff Report on Burrowing Owl Mitigation (CDFG 2012; Appendix B). If the burrows are determined to be unoccupied, they shall be hand excavated by a qualified biologist in the same manner as described under B-1(g).

If the presence of burrowing owls is confirmed, the following avoidance measures shall be implemented.

a) Occupied burrows shall not be disturbed during the nesting season (1 February through 31 August) unless a qualified biologist verifies, through noninvasive methods, that either (1) the birds have not begun egg-laying and incubation, (2) a previously active nest has failed and renesting is highly unlikely, or (3) all juveniles from the occupied burrow are foraging independently and capable of independent survival. Owls present after 1 February shall be assumed to be nesting unless evidence indicates otherwise. Nest-protection buffers described below shall remain in effect until 31 August or, based upon monitoring evidence, until the nest has failed or all juvenile owls are foraging independently as determined by a qualified biologist.

b) Site-specific, no-disturbance buffer zones shall be established and maintained between Project activities and occupied burrows, using the distances recommended in the CDFW guidelines (CDFG 2012; Appendix B):

Time of Year	Level of Disturbance		
	Low	Med	High
April 1 – Aug 15	200 meters	500 meters	500 meters
Aug 16 – Oct 15	200 meters	200 meters	500 meters
Oct 16 – Mar 31	50 meters	100 meters	500 meters

The appropriateness of using reduced buffer distances or burrow-specific buffer distances shall be established on a case-by-case basis by a qualified ornithologist who may consult with CDFW, and shall depend on existing conditions (e.g., vegetation/topographic screening and current disturbance regimes). If necessary, buffer distances shall be carefully reassessed and relaxed or modified, based on future development plans (e.g., increased or intensified construction activities), by a qualified biologist who may consult with CDFW. The buffer zones shall be clearly delineated by highly visible orange construction fencing, which shall be maintained in good condition through construction of project or until construction activities are no longer occurring in the vicinity of the burrow.

c) During the nonbreeding season (generally 1 September–31 January), a qualified ornithologist may passively relocate burrowing owls found within construction areas. Prior to passively relocating burrowing owls, a Burrowing Owl Exclusion Plan shall be prepared by a qualified biologist in accordance with Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012). The Burrowing Owl Exclusion Plan shall be submitted to the CDFW and County for review and approved by the County prior to implementation.

The biologist shall accomplish such relocations using one-way burrow doors installed and left in place for at least two nights; owls exiting their burrows will not be able to re-enter. Then, immediately before the start of construction activities, the biologists shall remove all doors and excavate the burrows to ensure that no animals are present the burrow. The excavated burrows shall then be backfilled. To prevent evicted owls from occupying other burrows in the impact area, the biologist shall, before eviction occurs, (1) install one-way doors and backfill all potentially suitable burrows within the impact area, and (2) install one-way doors in all suitable burrows located within approximately 50 feet of the active burrow, then remove them once the displaced owls have settled elsewhere. When temporary or permanent burrow-exclusion methods are implemented, the following steps shall be taken:

a) Prior to excavation, a qualified biologist shall verify that evicted owls have access to multiple, unoccupied, alternative burrows, located nearby (within 250 feet) and outside of the projected disturbance zone. If no suitable alternative natural burrows are available for the owls, then, for each owl that is evicted, at least two artificial burrows shall be installed in suitable nearby habitat areas. Installation of any required artificial burrows preferably shall occur at least two to three weeks before the relevant evictions occur, to give the owls time to become familiar with the new burrow locations before being evicted. The artificial burrow design and installation shall be described in the Burrowing Owl Exclusion Plan per Appendix E of the Staff Report on Burrowing Owl Mitigation (CDFW, 2012).

b) Passive relocation of burrowing owls shall be limited in areas adjacent to Project activities that have a sustained or low-level disturbance regime; this approach shall allow burrowing owls that are tolerant of Project activities to occupy quality, suitable nesting and refuge burrows. The use of passive relocation techniques in a given area shall be determined by a qualified biologist who may consult with CDFW, and shall depend on existing and future conditions (e.g., time of year, vegetation/topographic screening, and disturbance regimes). *Conduct Pre-construction Golden Eagle Surveys (MM BIO-18).* Beginning in 2013, and continuing each year during construction, a qualified ornithologist shall conduct surveys for nesting golden eagles and monitor all occupied territories/nests located within 2

miles of the Project site and access road. This monitoring shall support implementation of appropriate no-disturbance nest buffers. The ornithologist shall monitor the success and productivity of all proximate nesting territories. These surveys shall follow guidelines outlined by USFWS (Pagel et al. 2010) and Driscoll (2010), and shall be scheduled to (1) enable accurate mapping of all occupied territories within 2 miles of the Project site and (2) generate estimates of nesting success and productivity, according to standards reflected in Steenhof and Newton (2007) and in the above references.

3. *Bat Preconstruction Surveys and Avoidance (Mitigation Measure B-1(q) of the August 2014 DEIR).* A qualified biologist shall conduct an acoustic survey during the maternity season (1 March to 31 July) before any grading or removal of trees, particularly trees 12 inches in diameter or greater at 4.5 feet above grade with loose bark or other cavities. An additional survey for non-maternity roosts shall be conducted not less than 30 days prior to the start of construction. If no active roosts are found, no further action shall be required.

   If active maternity roosts or hibernacula are found, the structure or tree occupied by the roost shall be fully avoided and not removed or otherwise impacted by Project activities during the maternity season. A minimum 100-foot ESA avoidance buffer shall be demarcated by highly visible orange construction fencing around active maternity roosts. No construction equipment, vehicles or personnel shall enter the ESA without clear permission from the qualified biologist. ESA fencing shall be maintained in good condition for the duration of the maternity season. The roost shall be removed only after the maternity season has ended, and shall be removed under the direction of a qualified biologist.

   If active non-maternity bat roosts (e.g., bachelor colonies, hibernacula) are found in trees scheduled to be removed or in rocky crevices within the grading footprint, the individuals shall be safely evicted (e.g., through installation of one-way doors) under the direction of a qualified bat biologist in consultation with the CDFW. In situations requiring one-way doors, a minimum of one week shall pass after doors are installed to allow all bats to leave the roost. Temperatures need to be sufficiently warm for bats to exit the roost, because bats do not typically leave their roost daily during winter months in coastal California. Eviction shall be scheduled to allow bats to leave during nighttime hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight.

7.4 Conservation Measures Implemented During Construction and Operations

California Flats is committed to the following conservation measures to be implemented during the construction phase and remain in place throughout the duration of the Project, per Mitigation Measure B-1(s) of the August 2014 DEIR.

1. Cap Vertical Pipes and Piles. To prevent cavity-dwelling and -nesting birds from entering open vertical pipes and piles, all open vertical pipes and piles shall be capped or otherwise modified to prevent use by birds. Caps or other modifications shall be put in place before or immediately after pipe or pile installation. All caps or other exclusionary modifications

shall be maintained for the duration of construction and operation. A qualified biologist shall periodically monitor the site to ensure that all pipes or piles are appropriately capped.

2. Avian/Power Line Collision Avoidance and Minimization. Install bird flight diverters in accordance with the Avian Power Line Interaction Committee (APLIC) guidelines for reducing avian collisions with power lines. California Flats shall construct the 230-kV transmission line in accordance with the applicable measures for installing bird flight diverters, of the most recent APLIC guidelines for minimizing avian collisions (Reducing Avian Collisions with Power Lines; APLIC 2012). Details of design components shall be indicated on all construction plans. California Flats shall monitor for new versions of the APLIC collision guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures. All bird flight diverters shall be maintained for the duration of construction and operation.

3. Avian Electrocution Avoidance and Minimization. Implement Project-specific design measures in accordance with the APLIC guidelines for minimizing avian electrocutions. California Flats shall construct and maintain all transmission facilities, towers, poles, and lines in accordance with applicable policies set forth in the most recent APLIC guidelines for minimizing avian electrocutions (Avian Protection Plan Guidelines; APLIC 2006). Specific APLIC guidelines to be incorporated into the design of the transmission lines to minimize avian electrocutions shall include the following:

    1. Design the tops of structures to be safe for perching raptors.
    2. Provide 60 inches separation between energized conductors and:
        i. energized conductors,
        ii. grounded or neutral conductors,
        iii. pole line hardware that could provide a perch or nesting place, and
        iv. overhead shield wires, including optical ground wire shield wire.
    3. Ensure that all exposed jumper cables are completely covered with a cover of a qualified insulation rating.
    4. Ensure insulation of all energized arresters with covers and insulated cables.

    Details of design components shall be indicated on all construction plans. California Flats shall monitor for new versions of the APLIC guidelines and update designs or implement new measures as needed during Project construction, provided these actions do not require the purchase of previously ordered transmission line structures.

In addition to Mitigation Measure B-1(s) as described above, California Flats will implement an avian fatality monitoring program at the start of operation and will continue for at least two years (see Section 8.0), will follow nest management practices for new bird nests discovered during operations (see Section 9.0), and will develop a Wildlife Incident Reporting System (WIRS) to be implemented for the life of the Project (see Section 10).

7.5 Compensatory Habitat Mitigation

7.5.1 San Joaquin Kit Fox and Other Grassland Species

To mitigate the permanent loss of potential San Joaquin kit fox habitat, California Flats shall provide compensatory mitigation acreage, adjusted to reflect the final Project footprint. For purposes of the compensatory mitigation strategy, the San Joaquin kit fox has been identified as an "umbrella species," as its habitat requirements overlap with many other species potentially affected by the Project. Through the compensatory mitigation described below for both the general nested compensatory measures and the kit fox mitigation measures, California Flats shall provide mitigation habitat of equal or greater habitat value for kit fox and the following grassland-dependent species: American badger (*Taxidea taxus*), raptors and other special-status birds, golden eagle, San Joaquin coachwhip (*Coluber flagellum ruddocki*), coast horned lizard (*Phrynosoma blainvillii*), western spadefoot toad (*Spea hammondii*) upland habitat, and pronghorn. Therefore, discussion of this mitigation is included in the BBCS due to the overlapping benefits to grassland-dependent avian and bat species.

Nested Compensatory Mitigation (Mitigation Measure B-1(a) in August 2014 DEIR). California Flats shall provide conservation easements or funds for acquisition of conservation easements as compensatory mitigation to offset impacts to vegetative communities and listed or special status plants and wildlife. The compensatory mitigation shall incorporate the conditions specified in incidental take permits that could be issued by CDFW and USFWS for this project, but shall meet the minimum standards specified in this measure. Compensatory mitigation shall be provided at a ratio of not less than those specified in mitigation measures B-1(e), B-1(j), B-1(n), B-1(v), B-1(z), and B-1(cc). Compensatory mitigation for multiple species may be combined to mitigate for impacts to multiple species simultaneously (i.e. nested compensatory mitigation). Areas proposed for preservation and serving as compensatory mitigation for special status species impacts must contain verified extant populations of the special status species that would be impacted by the project. Compensatory mitigation areas shall have a restrictive covenant prohibiting future development/disturbance and shall be managed in perpetuity to encourage persistence and enhancement of the preserved target species. Compensatory mitigation lands cannot be located on land that is currently held publicly for resource protection. The compensatory mitigation areas shall be managed by a conservation lands management entity or other qualified easement holder.

California Flats shall either provide conservation easements or provide funds for the acquisition of such easements to a qualified easement holder as defined below. The CDFW and organizations approved by CDFW that meet the criteria below may be considered qualified easement holders for those species for which the CDFW has regulatory authority. To qualify as a "qualified easement holder" a private land trust must at a minimum have:

1. Substantial experience managing conservation easements that are created to meet mitigation requirements for impacts to special-status species;

2. Adopted the Land Trust Alliance's Standards and Practices; and

3. A stewardship endowment fund to pay for its perpetual stewardship obligations.

Other specific conditions for qualified easement holders may be outlined in incidental take permits that could be issued by CDFW and USFWS for this project.

The County shall determine whether a proposed easement holder meets these requirements. California Flats shall also be responsible for donating to the conservation easement holder fees sufficient to cover administrative costs incurred in the creation of the conservation easement (appraisal, documenting baseline conditions, etc.) and funds in the form of a non-wasting endowment to cover the cost of monitoring and enforcing the terms of the conservation easement in perpetuity. The amount of these administrative and stewardship fees shall be determined by the conservation easement holder in consultation with the County.

The primary purpose of the conservation easement(s) shall be conservation of impacted species and habitats, but the conservation easement(s) shall also allow livestock grazing when and where it is deemed beneficial for the habitat needs of impacted species. Conservation easement(s) shall be held in perpetuity by a qualified easement holder (as defined above), be subject to the management requirements outlined in the Habitat Mitigation and Monitoring Plan (HMMP; see measure B-1[b]), and be subject to a legally binding agreement that shall: (1) Be recorded with the County Recorder(s); and (2) Contain a succession clause for a qualified easement holder if the original holder is dissolved.

Land Acquisition Requirements. The following factors shall be considered in assessing the quality of potential mitigation habitat: (1) current land use, (2) location (e.g., habitat corridor, part of a large block of existing habitat, adjacency to source populations, proximity to potential sources of disturbance), (3) vegetation composition and structure, (4) slope, (5) soil composition and drainage, and (6) level of occupancy or use by all relevant species.

To meet the requirement that the mitigation habitat is of value equal to, or greater than, the Project site, the mitigation habitat must be either “suitable habitat” or “enhanced habitat”:

Suitable Habitat. To meet the requirements for suitable habitat that provides equal or greater habitat value for special status animal species than the impacted habitat, the habitat must:

1. provide habitat for special status animal species, such that special status animal species populations can regenerate naturally when disturbances are removed;
2. not be characterized by (or adjacent to areas characterized by) high densities of invasive species, such as yellow star-thistle, or species that might jeopardize habitat recovery and restoration;
3. not contain hazardous wastes that cannot be removed to the extent that the site could not provide suitable habitat; and
4. not be located on land that is currently publicly held for resource protection.

Enhanced Habitat. If suitable habitat is unavailable, or in lieu of acquiring already suitable special status animal species habitat, California Flats may enhance potential habitat that:

1. is within an area with potential to contribute to habitat connectivity and build linkages between known San Joaquin kit fox populations;
2. consists of actively farmed land or other land containing degraded habitat that will support enhancement;
3. supports suitable soils, slope, and drainage patterns consistent with special status animal species requirements;
4. cannot be located on land that is currently held publicly for resource protection; and
5. does not contain hazardous wastes or structures that cannot be removed to the extent that the site could not provide suitable habitat.

Enhanced Habitat Standards. For enhanced habitat conditions to equal or exceed habitat conditions on the project site, the enhanced habitat shall meet the following habitat criteria. After five years, these sites must consist of annual grasslands, other grassland vegetation, suitable aquatic habitat, suitable foraging habitat (e.g. habitat is within 10 miles of known nesting golden eagles) or other habitat characteristics (e.g. suitable burrows for burrowing owls, small mammal burrows in upland habitat for CTS, etc.) that are consistent with the known ecology of the special status animal species to which compensatory mitigation is being applied.

Compensatory Habitat Mitigation for San Joaquin Kit Fox (Mitigation Measure B-1(j) in August 2014 DEIR). To mitigate for the loss of potential San Joaquin kit fox habitat from the installation of all new facilities, except the SDAs, California Flats shall provide compensatory mitigation acreage, adjusted to reflect the final Project footprint, at a 3:1 ratio (preserved habitat: affected habitat). The compensatory mitigation must provide equal or greater habitat value than the Project site.

To mitigate for the impacts to potential San Joaquin kit fox habitat within the SDAs, California Flats shall provide compensatory mitigation acreage, adjusted to reflect the final footprint of the SDAs in consultation with CDFW, but at a minimum of 2:1 ratio. All compensatory mitigation must comprise habitat of value equal to, or greater than, the Project site.

Compensatory mitigation areas for San Joaquin kit fox can be combined with mitigation for multiple species as outlined in measure B-1(a) for nesting mitigation. Compensatory mitigation for San Joaquin kit fox shall be consistent with the conditions outlined in the above measure B-1(a), and managed and monitored under the HMMP as outlined in mitigation measure B-1(b) (Section 7.5.5).

7.5.2 Streams and Riparian Habitat (Mitigation Measure B-2(j) in August 2014 DEIR)

Discussion of mitigation measures that will be utilized to offset impacts to stream and riparian habitat are included in the BBCS due to the overlapping benefit to avian and bat species that will utilize the preserved and enhanced habitat.

Perennial stream/channel wetlands and associated riparian habitat shall be preserved and enhanced to compensate for permanent impacts to riparian and stream habitats, in a manner that achieves no net loss in acreage or function, and should be consistent with the USFWS Recovery Plan for Upland Species of the San Joaquin Valley (USFWS 1998) if possible. Enhancement of the preserved habitat shall be site-specific, according to opportunities available at the preservation site and may include riparian vegetation plantings, weed removal, and alteration in grazing management such as changes in stocking, timing, or installation of riparian exclusion fencing.

Permanent impacts to perennial streams and the associated riparian habitat shall be mitigated at a 3:1 ratio (linear feet of stream and associated riparian corridor preserved and enhanced: linear feet of perennial stream and associated riparian corridor impacted); impacts to intermittent streams shall be mitigated at a 2:1 ratio (linear feet preserved and enhanced: linear feet impacted); and impacts to ephemeral streams shall be mitigated at a 1:1 ratio (linear feet preserved: linear feet impacted). The design, monitoring schedule, and success criteria for the mitigation site shall be described in a Project Wetland Mitigation and Monitoring Plan (described in detail in mitigation measure B-3(d) [Section 7.5.3], below) that demonstrates no net loss in acreage or function. Preserved riparian corridors, and any surrounding uplands above the top of bank within the area to be preserved, shall be placed in a conservation easement or similar legal mechanism and managed in perpetuity.

7.5.3 Wetlands (Mitigation Measure B-3(d) in August 2014 DEIR)

Discussion of mitigation measures that will be utilized to offset impacts to wetlands are included in the BBCS due to the overlapping benefit to avian and bat species that will utilize the created, preserved and enhanced habitat.

To compensate for permanent impacts to wetlands on site, offsite wetlands shall be created, preserved, and managed in perpetuity at a 2:1 mitigation ratio (acres created and preserved: acre impacted). Permanent loss includes all wetlands affected by permanent fill placement (which may occur, for example, from mass grading or new road or structure placement, including panel footing placement). In the areas of seasonal wetlands under solar panels (i.e., not the area affected by fill placement but the remainder of the wetland area under the array), some degradation of the wetland is expected; however, it is also anticipated that these areas would continue to provide residual wetland functions and values in at least a portion of the affected wetland. As such, these areas shall be mitigated through creation of offsite wetlands at a 1.5:1 ratio (acres created and preserved: acre impacted). Permanent impacts to wetlands within streams that will be affected by construction of road crossings (see Impact B-2 in the DEIR) shall be mitigated by creating off-site wetlands at a 1:1 ratio; these areas shall also be mitigated through preservation and management of riparian and stream habitat (see mitigation measure B-2[i] in the DEIR). By concurrently

providing 1:1 wetland creation mitigation for such impacts, no net loss of wetlands will occur, and lost values and functions will be compensated (Table 4).

Temporary impacts to wetlands and other waters shall be mitigated through onsite restoration as described in mitigation measure B-2(b) (HRRP), if impacts are restored within a single year, with most restoration expected to occur at the onset of the rainy season to enhance germination success (i.e., areas impacted in a given year must be restored prior to 1 March of the following year to be considered temporary and require no additional mitigation). Areas of construction access-related temporary impacts that cannot be restored prior to 1 March the following year and would remain exposed during the dry season shall be restored the following fall. Compensatory mitigation for such long-term temporarily impacted areas shall be provided at the offsite location at a ratio of 0.5:1 of wetland creation (acres created and preserved off site: acres temporarily impacted for more than one rainy season). Impact areas left unrestored for two rainy seasons shall be compensated off site at a 1:1 ratio, and additionally shall be restored on site. Temporary impacts to groundwater-fed wetlands due to hydrological interruption from a new well(s) shall be determined per mitigation measure B-3(c) of the DEIR and shall be mitigated off site at a ratio of 1:1 if success criteria are met and the wetlands are restored to pre-Project function within three years of the date of well construction. If functions and values are lost for more than three years, the impacts shall be considered permanent, and compensatory mitigation shall be provided at a 2:1 ratio (Table 4). Permanent impacts to any streams fed by such wetlands shall be mitigated as per mitigation measure B-2(i). Table 4 below provides a summary of the various mitigation ratio requirements for each impact type. The permanent protection and management of the constructed mitigation wetlands shall be ensured through an appropriate mechanism, such as a conservation easement granted to a public or private entity authorized by Section 815.3 of the California Civil Code to acquire and hold conservation easements, deed restriction, or fee title purchase.

Table 4. Mitigation Ratios for Wetland Impacts (Ratios to Be Applied to Actual Impacts Determined from Construction Plans and Well Monitoring)

Impact Type	Wetland Type and Action	Mitigation Ratio (Acres Created and Preserved to Acres Impacted)
Permanent fill	Seasonal wetland and perennial marsh impacts due to fill placement and loss (including panel footing areas)	2:1
Permanent shading	Seasonal wetland impacts from solar panel shading and placement (not including panel footing areas)	1.5:1
Permanent fill for road crossings	In-stream wetland impacts from road crossing construction	1:1
Temporary access (unrestored for longer than one rainy season)	Seasonal wetland and perennial marsh impacts from construction access not restored before 1 March of year following impact (but restored before two rainy seasons)	0.5:1
Temporary access (unrestored for more than two rainy seasons)	Seasonal wetland and perennial marsh impacts from construction access restored after two rainy seasons	1:1
Temporary dewatering (less than three years)	Groundwater-fed wetlands temporarily dewatered by new construction wells for three years or less	1:1
Permanent dewatering (greater than three years)	Groundwater-fed wetlands temporarily dewatered by new construction wells for more than three years, or failure to meet success criteria after three years following construction of well	2:1

A Project Wetland Mitigation and Monitoring Plan (WMMP) shall be prepared by a qualified restoration ecologist and shall include, at a minimum, the following information:

1. wetlands and waters impacts summary (as described by MM B-48 and this measure) and habitat mitigation actions;
2. goals of the restoration to achieve no net loss;
3. a map depicting the location of the mitigation site(s) and a detailed description of existing site conditions; and
4. a detailed description of the mitigation design, including:
5. location of the new wetlands;
6. proposed site construction schedule;
7. description of existing and proposed soils, hydrology, geomorphology, and geotechnical stability, as well as results of applicable soils testing conducted at the mitigation site;

8. a detailed description of the steps required for site preparation and a conceptual grading plan—a formal package for plan sets, specs, and estimates for the grading and mitigation construction work shall be prepared based on the concepts set forth in the WMMP no fewer than fifteen days prior to starting work at the mitigation site;
9. a description of recommended soil amendments and other site preparation;
10. development of a planting plan including details on plant procurement, if necessary, propagation, allowable species for seeding and relative pounds/acre, and application;
11. maintenance plan for the created wetlands and riparian plantings;
12. a description of specific monitoring metrics, and objective performance and success criteria, such as delineation of created area as jurisdictional wetland per USACE methods within five years of construction, minimum riparian tree and canopy cover measures in the enhanced stream reaches within ten years of restoration, and others;
13. monitoring methods for vegetation and soils, and measures stipulating quantitative monitoring to occur once per year for at least five years following construction of the wetlands or until success criteria are met;
14. a list of reporting requirements and reporting schedule; and
15. a contingency plan for mitigation elements that do not meet performance or final success criteria within five years for created wetlands and ten years for riparian enhancement; this plan shall include specific triggers for remediation if performance criteria are not being met and a description of the process by which remediation of problems with the mitigation site (e.g., presence of noxious weeds) shall occur.

7.5.4 Native Oak and Riparian Trees (Mitigation Measure B-5(b) in August 2014 DEIR)

Discussion of mitigation measures that will be utilized to offset impacts to native trees are included in the BBCS due to the overlapping benefit to avian and bat species that would utilize the replacement plantings.

Native tree loss is not anticipated to occur. However, if the project results in unavoidable or inadvertent loss of protected trees, as identified by the ISA-certified arborist during monitoring of work within any Tree Protection Zones (see also mitigation measure B-5[a] of the DEIR), California Flats shall replace the lost protected trees (native trees 6 inches or more in diameter at breast height) at a 3:1 ratio (replacement trees: removed trees). Mitigation plantings may be integrated with the mitigation of impacts to riparian woodlands and oak woodlands on the project site. Replacement trees shall be chosen to correspond to the habitat impacted by the tree removal; for example, valley oaks and blue oaks may be planted to replace trees removed from mixed oak woodlands or riparian oak woodlands, and cottonwood or willow may be planted to replace trees removed from willow-cottonwood riparian woodland. Individual planting locations shall be predetermined and mapped by a qualified restoration ecologist. Oak, cottonwood, and willow replanting stock shall be grown from native seed stock gathered within 25 miles of the project site. The removal of oak trees shall be further mitigated by preserving existing mature oak woodland at a 2:1 ratio (canopy preservation area: canopy removal area).

7.5.5 Habitat Mitigation and Monitoring Plan (Mitigation Measure B-1(b) in August 2014 DEIR)

To ensure the success of compensatory mitigation sites required for compensation of permanent impacts to vegetative communities and listed or special status plants and wildlife, California Flats shall retain a qualified biologist to prepare a Habitat Mitigation and Monitoring Plan (HMMP). The HMMP shall be submitted to the County within 12 months after the issuance of the grading permit. The HMMP shall include, at a minimum, the following information:

1. a summary of habitat and species impacts and the proposed mitigation for each element;
2. a description of the location and boundaries of the mitigation site(s) and description of existing site conditions;
3. a description of any measures to be undertaken to enhance (e.g., through focused management) the mitigation site for special status species;
4. identification of an adequate funding mechanism for long-term management and identification of a conservation lands management entity to manage the conservation easement lands;
5. a description of management and maintenance measures intended to maintain and enhance habitat for the target species (e.g., weed control, fencing maintenance);
6. in areas subject to grazing management, compilation of a dedicated, site-specific managed grazing plan, prepared by a Certified Rangeland Manager, for grassland habitats within the mitigation site(s), employing Residual Dry Matter (RDM) monitoring, and a description of the adaptive management scheme for this plan;
7. a description of habitat and species monitoring measures on the mitigation site, including specific, objective performance criteria, monitoring methods, data analysis, reporting requirements, monitoring schedule, etc.; monitoring shall document compliance with each element requiring habitat compensation or management;
8. a contingency plan for mitigation elements that do not meet performance or final success criteria within described periods; the plan shall include specific triggers for remediation if performance criteria are not met and a description of the process by which remediation of problems with the mitigation site (e.g., presence of noxious weeds) shall occur;
9. a requirement that California Flats shall be responsible for monitoring, as specified in the HMMP, for at least three years post-construction; during this period, regular reporting shall be provided to the County;
10. reporting shall include:
    a) an annual monitoring report to be submitted to the County; and
    b) for any species listed under the ESA or CESA, demonstration that the compensatory mitigation and management (1) will fully mitigate for any take of a CESA-listed species as defined by CESA, (2) minimize and mitigate any take of an FESA-listed species to the maximum extent practicable as defined by ESA, and

(3) ensure that impacts from the project are not likely to jeopardize the listed species continued existence as defined by ESA.

8 POST-CONSTRUCTION MONITORING

Appendix F provides details of the avian and bat fatality study to be conducted during the post-construction period of the project. This study will be implemented for two years post-construction by an avian survey team. Data and results of the study will be used to inform adaptive management decisions, if necessary, and serve as a basis for fatality comparisons across other regional renewable energy projects.

9 NEST MANAGEMENT

9.1 General Nest Management

Documentation of active nests located on Project structures will occur opportunistically by operations staff and during fatality or nest monitoring (see Section 8.0). Any discovered active nests whose presence does not compromise facility operations or personnel safety (e.g., such as a nest that creates a fire hazard or potential for a short-circuit when near/on exposed and energized equipment), will be allowed to proceed undisturbed until an approved biologist confirms that all young have fledged or the nest has failed. Provisions for minimizing disturbance of such nests (e.g., no disturbance spatial buffers) will necessarily depend on the species, nest location, and proximity to essential facility operations and activities, and will be developed in consultation with a qualified biologist. Typically, these buffers will be 50 to 300 feet based on the species biology; raptor nest buffers could be up to 1,640 to 5,280 feet depending on the species (e.g., as described in Section 9.2, golden eagles could require buffers up to 5,280 feet).

If necessary, procedures for removing problematic active nests (e.g., such as a nest that creates a fire hazard or potential for a short-circuit when near/on exposed and energized equipment) during the breeding season or inactive nests outside of the breeding season will follow existing state and federal regulations and be done in accordance with standard practices outlined in APLIC guidance (APLIC 2006). For ongoing nesting issues, it may be appropriate to 1) encourage birds to nest in desired areas through the installation of nesting platforms, boxes, or tubes, or 2) discourage nest construction in undesired locations through the installation of plastic piping, triangles, model owls, and/or small spikes on Project facilities (see APLIC 2006).

9.2 Golden Eagle Nest Management

Golden eagles are known to nest in the general vicinity of the Project and may continue to do so in the future. Presumably if eagles continue to nest in the vicinity of the Project, they would be expected to be tolerant to the presence of the Project facilities and routine O&M activities. Nevertheless, eagle nest surveys will be completed for the first two nesting seasons after operations of the Project has begun to better inform future golden eagle nest management. At the beginning of the golden eagle nesting season (February-March), these surveys will be conducted from the ground to identify any active eagle nests within one mile of Project facilities.

The ground surveys to identify and assess eagle nests within one mile of Project facilities will follow the recommendations included in the USFWS's Interim Golden Eagle Inventory and Monitoring Protocols; and Other Recommendations (Pagel et al. 2010). These surveys will be completed by a qualified biologist from the fence line of the Project that will allow for a good view of potential nesting habitat (and historic nest sites) that fall within one mile of the Project facilities. Surveys will be conducted during February and/or early March. Nests and nesting territories will only be designated as unoccupied after two ground observation periods have been completed that are separated by at least 30 days (e.g., the first period in early February, followed by a second period 30 days later in early March). Each of these observation periods will include a minimum of 4 hours of monitoring of eagle nests to confirm territory occupancy and/or nest activity. The qualified biologists conducting these surveys will have the equivalent of two season of intensive experience conducting survey and monitoring of golden eagles.

9.2.1 Routine Operations and Maintaince Activities

Routine O&M activities occur as needed and include module inspection, testing, maintenance, repair and replacement, equipment inspection, testing, maintenance, repair, and replacement, electrical production and facilities inspection and reporting, fence and security systems inspection, and module cleaning, as necessary. Typically, an annual thorough preventative maintenance inspection is done on most components of the power plant. In the event that this annual inspection will require work within one mile of any active on-site golden eagle nest, the annual inspection will be scheduled to be performed outside of the nesting season. Other routine O&M activities at the power plant will occur throughout the year (e.g., once per month checks of major electrical equipment, repairs, etc.), and are typically completed with 2-4 workers in pickup trucks or "buggies." Such routine O&M activities will not require additional nest protections during the operational life of the Project.

Routine general site maintenance activities may also include vegetation management including mowing and grazing, and the limited use of herbicides, biological surveys, fence and security systems maintenance, and repair, road inspection and maintenance including re-grading and erosion repair, if necessary, and general upkeep of the O&M facility. Except as needed to comply with regulatory requirements, road re-grading will be scheduled to be performed outside of the nesting season within one mile of any active onsite golden eagle nests. In the event road re-grading must be completed during the nesting season within one mile of an active onsite golden eagle nest, the Project will consult with USFWS biologists and ensure that a biological monitor is present.

Like routine O&M activities, other routine general site maintenance activities generally utilize one to two vehicles or pieces of equipment with a minimum number of associated workers. Except as noted above, routine general site maintenance activities would not require additional nest protections during the operational life of the Project,

9.2.2 Non-Routine Operations and Maintainance Ativities

Non-routine O&M activities may periodically be required at the Project that involves more extended work activities and/or heavier equipment (see Section 2.0). Occasional non-routine repair or replacement of Project components (e.g., transformers, invertors, combiner boxes, etc.) may be needed. These non-routine repair or replacements – called "Corrective Maintenance" – may require larger machinery, such as cranes, boom trucks, tracker trailers, excavators, or heavy-haul transport. All of these activities would be scheduled to avoid the active golden eagle nesting season whenever practicable.

If these non-routine O&M activities must occur within the viewshed and within the one-mile radius of an historic or newly identified eagle nest in the area, a survey to confirm current nesting status will be completed. If an active nest is identified, a qualified biologist will monitor the nest during the non-routine O&M activity to ensure the eagle(s) are not agitated. In addition, consultation with USFWS will be conducted for non-routine O&M activities within one-mile of an active golden eagle nest. Finally, a biological monitor will be present during all non-routine O&M activities that are within one mile and within the line of site of an active eagle nest during the first two years of operations.

The biological monitor will have the authority to call for a Stop Work should the activity appear to be agitating the eagles or their nesting activities. If the golden eagles at the nest site appear to be habituated to or otherwise not disturbed by the activity, the nest monitor will document the eagle nest phenology, behavior of the eagles prior to and during the activities performed, and may determine that nest monitoring for this activity may no longer be necessary. In general, the biological monitor will also note the surrounding landscape topography, screening by topography or site infrastructure, and level of activity that result in a response from the eagles.

Any future modifications to this eagle nest management protocol during non-routine O&M activities will closely consider the level and type of activity, nest location and viewshed, and the stage of the nesting chronology. For example, on-site monitoring may lead to reducing the 1-mile restrictive buffer to 0.5-mile during the later stages of nesting (e.g., post-brooding, and post-fledging dependency periods).

9.2.3 Emergency Repairs

Emergency repairs needed to keep the Project connected to the electrical grid and producing electricity as a result of major equipment malfunction, electrical grid malfunction, or a natural disaster (e.g., earthquake, fire, storm) will be conducted in an expedient manner with consideration of nesting eagles in the Project vicinity to the maximum extent practicable depending on the emergency.

10 ADAPTIVE MANAGEMENT STRATEGY

The Department of the Interior defines adaptive management as "an iterative decision process that promotes flexible decision-making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood" (Williams and

Brown, 2012). California Flats has implemented adaptive management at the Project throughout pre-construction baseline data collection efforts and during project planning, siting, and design. Adaptive management measures will be implemented during construction and post-construction, as necessary. This adaptive management approach will include the following six key concepts described by Williams and Brown (2012):

1. problem assessment
2. design
3. implementation
4. monitoring
5. evaluation
6. adjustment

To facilitate meeting the BBCS objectives, California Flats will review the technical procedures of the monitoring studies, assess the scientific data and findings, and adjust various practices or measures, as necessary. California Flats will coordinate with the USFWS, CDFW and the County regarding the results of monitoring surveys and any proposed response action. This procedure does not replace regulatory authority or responsibility of these agencies.

The Project will submit survey results to the agencies in accordance with the post-construction monitoring program (see Appendix F). Based on results of post-construction monitoring, adaptive management measures could be considered based on an evaluation of certain relevant criteria:

1. take of an individual of a bird or bat species listed as endangered/threatened under the federal or state Endangered Species Act;
2. take of bald or golden eagles within the meaning of the BGEPA or
3. significant levels of mortality of unlisted species of birds or bats. Significance will be determined in coordination with wildlife agencies and will be based on the latest information available, including the most recent data on species' population sizes and trends. For example, even relatively high levels of mortality of common species may not be significant. Conversely, lower levels of mortalities of less common species may be of more concern, particularly if these species appear to be at risk (e.g., USFWS's Birds of Conservation Concern, California Species of Special Concern).

If impacts are determined to be at an unacceptable level, an assessment of why impacts are occurring will be conducted to aid in developing appropriate actions to further avoid, minimize or mitigate the impacts. If causation for impacts is unknown, California Flats will coordinate with wildlife agencies to determine the appropriate measures to implement in order to better assess causation. Potential adaptive management responses include but are not limited to:

1. additional monitoring to assess if impacts represents ongoing and significant risk;

2. modify prey-base or habitat to reduce ongoing risk (e.g., additional on-site carcass removal, increased frequency of vegetation management), as appropriate;
3. installation of bird deterrent devices that have been scientifically proven to be effective within solar arrays and/or along fence lines; or
4. additional anti-perching, anti-nesting, anti-electrocution, or flight diverter devices to transmission/collector lines or within substations/switchyard, as appropriate.

Post-construction Project-related impact assessment is highly complex, particularly with regard to relatively new technologies such as utility-scale solar PV projects. It is therefore critical for stakeholders and resource managers to incorporate statistically sound modeling into any iterative feedback cycle prior to implementation of additional or modified control measures (Williams and Brown 2012).

11 WILDLIFE INCIDENT AND HANDLING SYSTEM

In addition to the post-construction fatality monitoring study described in Section 8.0, California Flats will implement a Wildlife Incident Reporting System (WIRS) at the start of operations, and it will remain active for the life of the Project. The purpose of the WIRS is to standardize the actions taken by site personnel in response to wildlife incidents encountered at the Project and to fulfill the obligations for reporting wildlife incidents. The WIRS will be utilized by site operations and maintenance personnel who encounter dead or injured wildlife incidentally while conducting general facility maintenance activities. The WIRS is designed to provide a means of recording and collecting (but only if the appropriate permits such as a Special Purpose Utility (SPUT) permit have been previously obtained) fatalities at the Project to increase the understanding of solar panel and wildlife interactions. During the standardized post-construction monitoring studies, any carcass found incidentally by site operations and maintenance personnel will be reported to the contractor conducting the post-construction monitoring studies so that the contractor can process the carcass (see Appendix F). Additionally, injured wildlife found within the Project may be taken to the nearest appropriate wildlife rehabilitation facility (see Section 12). Any incident (i.e., mortality or injury) involving a federally listed threatened or endangered species or a bald or golden eagle must be reported to the USFWS within 24 hours of identification. California Flats maintains an ongoing commitment to investigate wildlife incidents involving company facilities and to work cooperatively with federal and state agencies in an effort to prevent and mitigate future bird and wildlife fatalities. It will be the responsibility of California Flats employees and subcontractors to report all avian incidents to their immediate supervisor.

After the formal monitoring program has concluded, operations and maintenance personnel will complete a wildlife incidental reporting form for all injured or dead wildlife that are found near Project facilities. This incident form will include, but not be limited to, the following information: date, time, weather, observer, location, habitat description, photographic documentation (including scale), and description of fatality (i.e., condition, any/all observations). Incident reports will be entered into a spreadsheet or searchable database. All incident reports will be reviewed for quality control issues by the site supervisor and periodically by California Flats' environmental

manager. Upon request, California will also periodically provide summary reports of all incidental finds to the USFWS.

12 WILDLIFE REHABILITATION

If during operations, injured wildlife is found within the Project facility, a qualified biologist will be contacted to confirm the species and coordinate for the disposition of the injured animal. Common species may be left in place. However, any injured raptor or state or federal endangered or threatened species will be taken to the nearest appropriate wildlife rehabilitation facility. The wildlife facilities potentially contacted include, but are not limited to:

- Wild Rescue: Moss Landing, Monterey County; telephone (866) WILD-911
- SPCA of Monterey County: Monterey, Monterey County; telephone 831(373-2631 ext. 227
- Pacific Wildlife Care: Morro Bay, San Luis Obispo County; (805) 543-9453

Other potential wildlife rehabilitation facilities potentially contacted include those approved by the CDFW and include those listed at:
https://www.wildlife.ca.gov/Conservation/Laboratories/Wildlife-Investigations/Rehab/Facilities

Handling or transportation of injured wildlife will only be completed under the direction of a qualified biologist and with the appropriate permits and/or agency approvals. The transportation of migratory birds to a wildlife rehabilitation center is authorized under a Good Samaritan clause of the MBTA.

13 REFERENCES

Althouse and Meade, Inc. 2014. Topaz Solar Farms 2013 Fourth Quarter/Second Annual Report for Avian and Bat Protection Plan and Bird Monitoring and Avoidance Plan. Prepared for Topaz Solar Farms LLC, Santa Margarita, California. Prepared by Althouse and Meade, Inc., Paso Robles, California. March 2014.

Avian Power Line Interaction Committee (APLIC). 2012. Reducing Avian Collisions with Power Lines: The State of the Art in 2012. Edison Electric Institute and APLIC, Washington D.C.

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006. Public Interest Energy Research Program (PIER) Final Project Report CEC-500-2006-022. Edison Electric Institute, APLIC, and the California Energy Commission. Washington D.C. and Sacramento, California.

Bald and Golden Eagle Protection Act (BGEPA). 1940. 16 United States Code (USC) § 668-668d. Bald Eagle Protection Act of 1940, June 8, 1940, Chapter 278, § 2, 54 Statute (Stat.) 251; Expanded to include the related species of the golden eagle October 24, 1962, Public Law (P.L.) 87-884, 76 Stat. 1246. As amended: October 23, 1972, P.L. 92-535, § 2, 86 Stat. 1065; Nov. 8, 1978, P.L. 95-616, § 9, 92 Stat. 3114.

Best, T. L., W. M. Kiser, and P. W. Freeman. 1996. Eumops perotis. American Society of Mammalogists, Mammalian Species 534:1–8

Boal, C. W., M. D. Giovanni, B. N. Beall, 2006. Successful nesting by a bald eagle pair in prairie grasslands of the Texas panhandle. Western North American Naturalist 66:246-250.

California Department of Fish and Game (CDFG). 2012. Staff Report on Burrowing Owl Mitigation. http://www.dfg.ca.gov/wildlife/nongame/docs/BUOWStaffReport.pdf

California Endangered Species Act (CESA). 1984. Fish and Game Code § 2050 - 2115.5.

Calvert, A. M., C. A. Bishop, R. D. Elliot, E. A. Krebs, T. M. Kydd, C. S. Machtans, and G. J. Robertson. 2013. A Synthesis of Human-Related Avian Mortality in Canada. Avian Conservation and Ecology 8(2): 11; http://dx.doi.org/10.5751/ACE-00581-080211.

Carrete, M., and J. L. Tella. 2010. Individual consistency in flight initiation distances in burrowing owls: a new hypothesis on disturbance-induced habitat selection. Biology Letters 6(2):167-170.

Condor Wind Energy Work Group. 2011. California Condor Wind Energy Work Group-outreach presentation. Online: http: //www.fws.gov/ventura/species_information/CA_condor_wind_energy/docs/CACO-wind%20Work%20Group%20Outreach%20Presentation_7_13_2011.pdf.

Corben, C. 2011. Analook for Windows. http://users.lmi.net/corben/anabat.htm#Anabat%20Contents

County of Monteray Resource Management Agency (CMRMA). 2014. California Flats Draft Environmental Impact Report. Available online at http://www.co.monterey.ca.us/planning/major/California%20Flats%20Solar/California_Flats_Solar.htm

Driscoll, D. E. 2010. Protocol for Golden Eagle Occupancy, Reporduction, and Prey Population Assessment. Apache Junction, AZ: American Eagle Research Institute.

Endangered Species Act (ESA). 1973. 16 United States Code (USC) § 1531-1544, Public Law (PL) 93-205, December 28, 1973, as amended, PL 100-478 [16 USC 1531 et seq.]; 50 Code of Federal Regulations (CFR) 402

Fletcher, Q.E., R. Fisher, C. Willis and R. Brigham. 2004. Free-ranging Common Nighthawks Use Topor. Journal of Thermal Biology. 29: 9-14.

Gauthreaux, S.A. Jr. and C. G. Belser. 2006. Effects of Artificial Night Lighting on Migratory Birds. Pp. 67-93. In: Ecological Consequences of Artificial Night Lighting. C. Rich and T. Longcore, eds. Island Press, Washington, D.C.

Gauthreaux, S.A. Jr., C. G. Belser, and D. van Blaricom. 2003. Using a Network of Wsr 88-D Weather Surveillance Radars to Define Patterns of Bird Migration at Large Spatial Scales. Pp. 335-346. In: Avian Migration. P. Berthold, E. Gwinner, and E. Sonnenschein, eds. Berlin: Springer.

Gehring, J., P. Kerlinger, and A.M. Manville, II. 2009. Communication Towers, Lights, and Birds: Successful Methods of Reducing the Frequency of Avian Collisions. Ecological Applications 19(2): 505-514.

Gehring, J., P. Kerlinger, and A.M. Manville, II. 2011. The Role of Tower Height and Guy Wires on Avian Collisions with Communication Towers. Journal of Wildlife Management 75: 848-855.

H. T. Harvey & Associates. 2013a. California Flats Solar Project, Monterey County, California, Biotic Report. Prepared for California Flats Solar, LLC.

H. T. Harvey & Associates. 2013b. Baseline Raptor Nest Surveys for the California Flats Solar Project, Monterey County, California. Prepared for California Flats Solar, LLC.

H. T. Harvey & Associates. 2013c. California Flats Solar Project Bat Habitat Assessment and Acoustic Surveys. Prepared for California Flats Solar, LLC.

H. T. Harvey & Associates. 2013. California Valley Solar Ranch 2012 Annual Bat Report, July through December 2012. Prepared for California Flats Solar, LLC.

H. T. Harvey & Associates. 2014a. Baseline Avian Activity Surveys for the Proposed California Flats Solar Project in Monterey County, California, March 2013 – March 2014. Prepared for California Flats Solar, LLC.

H. T. Harvey & Associates. 2014b. California Valley Solar Ranch, San Luis Obispo County, California, Avian Activity Surveys Report: October 2011–October 2013. San Luis Obispo, California. Prepared for HPR II, LLC, Santa Margarita, California.

H.T. Harvey and Associates. 2014c. California Valley Solar Ranch Project Avian and Bat Protection Plan Annual Postconstruction Fatality Report: 16 August 2012 – 15 August 2013. Project # 3326-03. Prepared for HPR II, LLC, California Valley Solar Ranch, Santa Margarita, California. Prepared by H.T. Harvey and Associates, San Luis Obispo, California. March 28, 2014.

Heckert, J.R. 1994. The effects of habitat fragmentation on midwestern grassland bird communities. Ecol. Applications 4:461-471.

Hunt, W. G. 2002. Golden eagles in a perilous landscape: predicting the effects of mitigation for energy-related mortality. Report P500-02-043F. California Energy Commission, Wacramento, CA.

Hunt, W.G., and T. Hunt. 2006. The trend of golden eagle territory occupancy in the vicinity of the Altamont Pass Wind Resource Area: 2005 survey. Final project report CEC-500-2006-056. California Energy Commission, Sacramento, CA.

Hunt, W. G, R.E. Jackman, T. L. Brown, J. G. Gilardi, D. E. Driscoll, and L. Culp. 1995. A pilot golden eagle population study in the Altamont Pass Wind Resource Area, California. Predatory Bird Research Group, University of California, Santa Cruz, CA.

Jantzen, M. K., and M. B. Fenton. 2013. The depth of edge influence among insectivorous bats at forest-field interfaces. Canadian Journal of Zoology 91:287-292.

Johnston, D. S., and M. B. Fenton. 2001. Individual and population-level variability in diets of pallid bats (Antrozous pallidus). Journal of Mammalogy 82(2). [online]: http://www.jstor.org/pss/1383717.

Kerlinger, P., J. L. Gehring, W. P. Erickson, R. Curry, A. Jain, and J. Guarnaccia. 2010. Night Migrant Fatalities and Obstruction Lighting at Wind Turbines in North America. Wilson Journal of Ornithology 122(4): 744-754.

Kerlinger, P., R. Curry, L. Culp, A. Hasch, and A. Jain. 2009. Post-Construction Avian Monitoring Study for the Shiloh I Wind Power Project, Solano County, California. Final Report: August 2009. Prepared for Iberdrola Renewables, Inc. (IRI). Prepared by Curry and Kilinger, LLC. MAY NOT BE PUBLIC. Revised February 2010 for submittal to Solano County

Klem, D. Jr. 2009. Avian Mortality at Windows: The Second Largest Human Source of Bird Mortality on Earth. Pp. 244-251. In: Proceedings of the 4th International Partners in Flight Conference: Tundra to Tropics. T. D. Rich, C. Arizmendi, D. Demarest, and C. Thompson, eds. McAllen, Texas.

Longcore, T., C. Rich, P. Mineau, B. MacDonald, D. G. Bert, L. M. Sullivan, E. Mutrie, S.A. Gauthreaux, Jr., M. L. Avery, R. L. Crawford, A.M. Manville, II, E. R. Travis, and D. Drake. 2012. An Estimate of Avian Mortality at Communication Towers in the United States and Canada. PLoS ONE 7(4): e34025. doi: 10.1371/journal.pone.0034025.

Longcore, T., C. Rich, P. Mineau, B. MacDonald, D. G. Bert, L. M. Sullivan, E. Mutrie, S.A. Gauthreaux, Jr., M. L. Avery, R. L. Crawford, A.M. Manville, II, E. R. Travis, and D. Drake. 2013. Avian Mortality at Communication Towers in the United States and Canada: Which Species, How Many, and Where? USDA National Wildlife Research Center - Staff Publications. Paper 1162. http://digitalcommons.unl.edu/icwdm_usdanwrc/1162

Kochert, M.N., K. Steenhof, C.L. McIntyre, and E.H. Craig. 2002. Golden Eagle (Aquila chrysaetos). No. 684 in A. Poole and F. Gill (Editors), The Birds of North America. The Birds of North America, In.c, Philadelphia, PA.

Manville, A. 2000. Avian Mortality at Communication Towers: Background and Overview. Pp. W. R. Evans and A. M. Manville, II, eds. Proceedings of the Workshop on Avian Mortality at Communication Towers; 1-5. I

Marzluff, J. M., S. T. Knick, M. S. Vekasy, L. S. Schueck, and T. J. Zarriello. 1997. Spatial use and habitat selection of golden eagles in southwestern Idaho. Auk 114:6673-687.

Migratory Bird Treaty Act (MBTA). 1918. 16 United States Code (USC) § 703-712. July 13, 1918.

Morris, A. D., D. A. Miller, M. C. Kalcounis-Rueppell. 2010. Use of forest edges by bats in a managed pine forest landscape. Journal of Wildlife Management 74(1):26–34.

National Environmental Policy Act (NEPA). 1970. 42 United States Code § 4321-4347. January 1, 1970.

Pagel, J. E., D. M. Whittington, and G. T. Allen. 2010. Interim Golden Eagle Technical Guidance: Inventory and Monitoring Protocols; and Other Recommendations in Support of Golden Eagle Management and Permit Issuance. US Fish and Wildlife Service, Division of Migratory Birds, Arlington, Virginia.

Parameter-elevation Regressions on Independent Slopes Model (PRISM) Climate Group. 2013. PRIMS Products Matrix. http://prism.oregonstate.edu.

Patterson, J.W. Jr. 2012. Evaluation of New Obstruction Lighting Techniques to Reduce Avian Fatalities. DOT/FAA/TC-TN12/9. May 2012. Available online from the Federal Aviation Administration William J. Hughes Technical Center at: http://www.faa.gov/about/office_org/headquarters_offices/ang/offices/tc/library/

Poulin, R., L. D. Todd, E. A. Haug, B. A. Millsap, and M. S. Martell. 2011. Burrowng owl (Athene cunicularia). No. 061 in A. Poole (Editor), The Birds of North America Online. Ithaca, NY: Cornell Lab of Ornithology. http://bna.birds.cornell.edu.bnaproxy.birds.cornell.edu/bna/species/061.

Richardson, C. T., and C. K. Miller. 1997. Recommendations for protecting raptors from human disturbance: a review. Wildlife Society Bulletin 25:634-638.

Romin, L. A., and J. A. Muck. 2002. Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances. Salt Lake City, UT: Us. S. Fish and Wildlife Service, Utah Field Office.

Shire, G. G., K. Brown, and G. Winegrad. 2000. Communication Towers: A Deadly Hazard to Birds. A Report Compiled by American Bird Conservancy Documenting the Killing of 230 Bird Species. American Bird Conservancy, Washington, DC.

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Conern: A ranked assessment of species, subspecies and distinct populations of birds of immediate conservation concern in California. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

Suter, G. W., II, and J. L. Joneds. 1981. Criteria for golden eagle, ferruginous hawk, and prairie falcon nest site protection. Raptor Research 15:12-18.

U.S. Fish and Wildlife Service (USFWS). February 2010. Available online at: http://steinadlerschutz.lbv.de/fileadmin/www.steinadlerschutz.de/terimGoldenEagleTechnicalGuidanceProtocols25March2010_1_.pdf

U.S. Fish and Wildlife Service (USFWS). 2013. Eagle Conservation Plan Guidance. Module 1 - Land-Based Wind Energy. Version 2. Division of Migratory Bird Management, USFWS. April 2013. Available online at: http://www.fws.gov/migratorybirds/Eagle_Conservation_Plan_Guidance-Module%201.pdf

U.S. Fish and Wildlife Service (USFWS). 2011. Condor tracking data 2003-2011. Data and maps provided by the U.S. Fish and Wildlife Service, Ventura, CA.

Verboom, B., and H. Huitema. 1997. The importance of linear landscape elements for the pipistrelle Pipistrellus pipistrellus and the serotine bat Eptesicus serotinus. Landscape Ecology 12(2):117–125. doi:10.1007/BF02698211.

Vickery, P.D., Hunter, M. L., Jr. and Melvin, S. M. 1994. Effect of habitat area on the distribution of grassland birds in Maine. Conserv. Biol. 8:1087-1097.

Walston, L.J., K.E. Rollins, K.P. Smith, K.E. LaGory, K. Sinclair, C. Turchi, T. Wendelin, and H. Souder. 2015. A review of avian monitoring and mitigation information at existing utility-scale solar facilities. ANL/EVS-15/2. Report prepared by Argonne National Laboratory and the National Renewable Energy Laboratory prepared for U.S. Department of Energy, April 2015.

Walston, L.J., K.E. Rollins, K.E. LaGory, K.P. Smith, and S.A. Meyers. 2016. A preliminary assessment of avian mortality at utility-scale solar energy facilities in the United States. Renewable Energy 92: 405-414.

Western EcoSystems Technology, Inc. (WEST). 2014. Sources of Avian Mortality and Risk Factors Based on Empirical Data from Three Photovoltaic Solar Facilities. Unpublished review paper.

Western Ecosystems Technology, Inc. (WEST). 2015. 2014 Golden Eagle Studies at the California Flats Solar Project, Monterey County, California. Final Report. Prepared for California Flats Solar, LLC, Prepared by Western Ecosystems Technology, Inc. (WEST), Cheyenne, Wyoming.

Western Ecosystems Technology, Inc. (WEST). 2016. Avian and Bat Monitoring at the Desert Sunlight Solar Farm Project Riverside County, California, 2015 – 2016 Annual Report. Prepared for Desert Sunlight 250, LLC and Desert Sunlight 300, LLC, Juno Beach, Florida. Prepared by Western EcoSystems Technology, Inc. (WEST), Cheyenne Wyoming.

Williams, B. K., and E. D. Brown. 2012. Adaptive management: the U.S. Department of the Interior applications guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.

Zarn, M. 1974. Burrowing owl, report no. 11. Habitat Management Series for Unique or Endangered Species. Denver, CO: U.S. Department of the Interior, Bureau of Land Management.

Attachment 2: Shiloh IV Eagle Take Permit ESA, Section 7 Concurrence Memo

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
08EVEN00-2014-I-0257

May 5, 2014

Memorandum

To: Chief of Migratory Birds and State Programs, Pacific Southwest Regional Office, Sacramento, California

From: Deputy Assistant Field Supervisor, Ventura Fish and Wildlife Office, Ventura, California

Subject: Request for Concurrence on Utility Pole Retrofits for Shiloh IV Eagle Take Permit Compensatory Mitigation, Monterey County, California

We have reviewed your request, dated April 1, 2014, and received by our office on April 7, 2014, for our concurrence that the subject plan may affect but is not likely to adversely affect the federally endangered San Joaquin kit fox (*Vulpes macrotis mutica*), and the federally threatened California red-legged frog (*Rana draytonii*) and purple amole (*Chlorogalum purpureum* var. *purpureum*). Your request and our response are in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

The Regional Migratory Bird Program proposes to issue a programmatic eagle take permit (permit) pursuant to the Bald and Golden Eagle Protection Act (Eagle Act) to the Shiloh IV Wind Project, LLC (applicant). To meet permit issuance standards, the applicant is providing compensatory mitigation for eagles by retrofitting 133 electric utility poles. The proposed retrofitting would involve repairing or replacing aerial equipment on the utility poles to reduce or eliminate the risk of electrocution to bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*). The mitigation will occur within Pacific Gas and Electric's Oilfields 1103 circuit, near Lake San Antonio, Monterey County, California. To avoid impacts to listed species, the following conservation measures will be required under the permit:

1. Public and private roads will be used for access to the utility poles. In areas without road access, the work crew will walk to the utility poles. No new roads will be created.

2. The proposed work will be conducted during the dry season (July 1 through October 31, or until the first significant rainfall). In the event of unseasonal rainfall, work will not occur for 10 days after a rainfall event of 0.5 inch or more precipitation.

3. Retrofit activities will not occur on poles located in or adjacent to wetlands, vernal pools, ponds, or riparian areas.

4. Retrofit activities will not involve ground disturbing activities.

5. Vehicles will maintain a speed limit of 10 miles-per-hour in the work area.

San Joaquin kit fox, California red-legged frog, and purple amole are known to occur in the vicinity of the proposed project (CNDDB 2014). Suitable potential habitat occurs within vicinity of area with the utility poles designated for retrofitting; however, avoiding ground disturbing activities and restricting vehicles and equipment to existing roadways will avoid affects to listed species and their potential habitat.

We concur with your determination that the proposed action is not likely to adversely affect San Joaquin kit fox, California red-legged frog, or purple amole. This concurrence is based on the expected effects of the activities proposed and the proposed avoidance measures. Therefore, further consultation, pursuant to section 7 of the Act is not necessary. If the proposed action changes in any manner that may affect a listed species, you must contact us immediately to determine whether additional consultation is required.

If you have any questions, please contact Christopher Diel of my staff at (805) 644-1766, extension 305.

LITERATURE CITED

[CNDDB] California Natural Diversity Data Base. 2014. Rarefind: A database application for the California Department of Fish and Wildlife, Natural Heritage Division, California Natural Diversity Data Base, Sacramento, California.