

nest at the Santa Nella golf course; however, no other raptor nests were detected.¹⁷ This information is incorrect. The biologists detected at least three red-tailed hawk nests, two Swainson's hawk nests, two great horned owl nests, and a white-tailed kite nest. In addition, the biologists observed northern harrier behavior that suggested the species was nesting in the area.¹⁸

Swainson's Hawk

The Swainson's Hawk is listed as Threatened under the California Endangered Species Act. The DEA lists the Swainson's hawk as one of the raptor species that uses non-native grassland, trees, and shrubs in the O'Neill Forebay area.¹⁹ It subsequently indicates there is "no nesting potential on sites" and that occurrence of Swainson's hawks would be limited to "transient flyover and foraging potential only."²⁰ This information is incorrect. Swainson's hawks use trees, bushes, or utility poles for nesting.²¹ These features exist within the Project sites and proposed gen-tie corridor (Figures 1 and 2).

To meet recommendations for mitigation and protection of Swainson's hawks, the California Department of Fish and Wildlife ("CDFW") recommends: (a) protocol surveys be conducted within a 0.5-mile radius around all project activities, and (b) evaluation of all active, previously documented nest sites within 10 miles of a project site.²² Protocol surveys for Swainson's hawk nest sites within 0.5-mile of the Project sites have not been conducted. Furthermore, the BA and DEA provide no information on nest sites known to occur within 10 miles of the Project sites. These deficiencies preclude a thorough understanding of the Project's environmental setting and potential impacts.

I reviewed the California Natural Diversity Database ("CNDDB"), San Luis Transmission Project DEIS/DEIR, and Quinto Solar PV Project EIR to obtain information on active Swainson's hawk nest sites in the Project region.²³ According to those sources:

¹⁷ ESR, Inc. 2015. Biological Assessment, USDI Bureau of Reclamation San Luis Solar Project. p. 60.

¹⁸ EMC Planning Group Inc. 2012. Draft Environmental Impact Report for the Quinto Solar PV Project. Appendices C and D to Appendix E.

¹⁹ DEA, p. 53.

²⁰ DEA, Table A-1.

²¹ California Department of Fish and Game, California Interagency Wildlife Task Group. 2005 [update]. California Wildlife Habitat Relationships version 8.1 personal computer program. Sacramento, California.

²² California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California. See also CDFG. 2000 May 31. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. Swainson's Hawk Technical Advisory Committee.

²³ An active nest site is defined as one that has been used during one or more of the last 5 years. See California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California.

1. Biologists for the Quinto Solar PV Project detected Swainson's hawk nest sites 0.61 miles south and 0.70 miles north of the Quinto Solar PV Project site.²⁴ One of those nest sites is located approximately ½ mile west of Site 3 (Figure 3).
2. There are multiple CNDDB records of Swainson's hawk nest sites south (0.6 to 1.8 miles) of Site 2.²⁵ In addition, Swainson's hawks have nested in the interior live oak tree that is immediately adjacent to (approximately 150 feet south of) the proposed staging area for Site 1.²⁶
3. The San Luis Transmission Project DEIS/DEIR reported: "recent nest records near O'Neill Forebay and observed there during [2014] Project surveys. Potential to nest in multiple locations throughout Project area."²⁷

The proximity of Swainson's hawk nest sites has implications on the severity of Project impacts and the sufficiency of Reclamation's proposed mitigation. As a result, information on nest sites known to occur within 10 miles of the Project sites must be disclosed and analyzed in a revised NEPA document for the Project.

Golden Eagle

The golden eagle is fully protected under Fish and Game Code Section 3511 and it is afforded protection under the federal Bald and Golden Eagle Protection Act ("Eagle Act"). According to the DEA there are no large stick nests (e.g., golden eagle nests) within ½ mile of the Project sites.²⁸ However, the DEA fails to provide evidence to substantiate that conclusion. Golden eagles nest on cliffs, in the upper one third of deciduous and coniferous trees, and on artificial structures (e.g., transmission towers).²⁹ There are trees and numerous transmission towers within ½ mile of the Project sites. The DEA fails to provide evidence the Project biologists searched those features for the presence of golden eagle nests.

The U.S. Fish and Wildlife Service ("USFWS") has established *minimum* inventory and monitoring efforts that "are essential components" to avoiding and minimizing disturbance and other kinds of take of golden eagles.³⁰ The USFWS reports "[t]hese field efforts are the mutual responsibility of agencies authorizing activities and their

²⁴ EMC Planning Group Inc. 2012. Draft Environmental Impact Report for the Quinto Solar PV Project. Appendices C and D to Appendix E.

²⁵ California Natural Diversity Database. 2016 Jan 6. RareFind 5 [Internet]. California Department of Fish and Wildlife.

²⁶ *Ibid.* EO Index #91197.

²⁷ WAPA and SLDMWA. 2015. San Luis Transmission Project. Draft Environmental Impact Statement/Environmental Impact Report. Prepared for Western Area Power Administration and San Luis and Delta-Mendota Water Authority by Aspen Environmental Group. p. 3-31.

²⁸ DEA, Table A-1.

²⁹ Pagel JE, DM Whittington, GT Allen. 2010 Feb. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, United States Fish and Wildlife Service. p. 7.

³⁰ *Ibid.*, p. 2.

permittees.”³¹ Most notably, the USFWS has indicated that *at least two complete aerial surveys during a single breeding season* are required to establish nesting territories and habitat occupancy.³² In circumstances where ground observation occurs, at least 2 ground observation periods lasting at least 4 hours or more are necessary to designate an inventoried habitat or territory as unoccupied as long as all potential nest sites and alternate nests are visible and monitored.³³ According to the USFWS protocol, inventories for golden eagles should occur if nesting, roosting, and foraging habitat are contained within the project boundary and exist within 10 miles of the project boundary.³⁴

The proposed Project sites provide foraging habitat for golden eagles.³⁵ The loss of foraging habitat can lead to reproductive failure and the abandonment of nesting territories. For golden eagles, the USFWS considers the loss of foraging habitat within 10 miles of a golden eagle nest site to be a potentially significant impact.³⁶ ESR did not implement the survey protocol promulgated by the USFWS to determine the abundance and distribution of golden eagle nest sites within 10 miles of the Project sites. Indeed, the DEA provides no information regarding the abundance and distribution of golden eagle nest sites within 10 miles of the Project sites other than the statement that the species has not been documented “in the reviewed database on the sites.”³⁷ This precludes reliable impact analysis and mitigation.

Bald Eagle

The bald eagle is listed as Endangered under the California Endangered Species Act. It is also fully protected under Fish and Game Code Section 3511 and the Eagle Act. The DEA lists the bald eagle as one of the raptor species that uses non-native annual grassland habitat, trees, and shrubs in the O’Neill Forebay area.³⁸ It subsequently indicates occurrence of bald eagles would be limited to “transient flyover and foraging potential only.”³⁹ This information is misleading. There are numerous records of bald eagles occurring at the O’Neill Forebay during the winter.⁴⁰ The DEA fails to disclose or analyze the potential for the Project to affect important wintering habitat for bald eagles.

³¹ *Ibid.*, p. 2.

³² *Ibid.* pp. 11 through 14.

³³ *Ibid.*

³⁴ *Ibid.*, p. 11.

³⁵ DEA, Table A-1.

³⁶ Pagel JE, DM Whittington, GT Allen. 2010 Feb. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, United States Fish and Wildlife Service. p. 2.

³⁷ DEA, Table A-1.

³⁸ DEA, p. 53.

³⁹ DEA, Table A-1.

⁴⁰ eBird. 2015. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available at: <<http://www.ebird.org>>. (Accessed: 2016 Jan 6).

White-tailed Kite

The white-tailed kite is fully protected under Fish and Game Code Section 3511. The tress on and adjacent to the Project sites and gen-tie line corridor provide suitable nest sites for white-tailed kites.⁴¹ The Project sites and gen-tie line corridor also provide suitable foraging habitat for the species.⁴² A white-tailed kite nest was detected at the northwest tip of O'Neill Forebay during surveys for the Quinto Solar PV Project site.⁴³ The DEA fails to disclose or analyze potentially significant effects of the Project on the white-tailed kite.

Ferruginous Hawk

There are numerous records of ferruginous hawks occurring in the Project area.⁴⁴ Nevertheless, the DEA's discussion of the ferruginous hawk is limited to the following comments presented in Table A-1:

No nesting potential on sites. No LSN [large stick nests] within 1/2 mile of sites. Although no nests observed, potential nesting areas are within 1/2 mile radius of sites. Transient flyover and foraging potential only.⁴⁵

The potential for ferruginous hawks to nest at the Project sites is irrelevant because the species does not breed in California. Unlike most other special-status bird species, the special-status designation applied to the ferruginous hawk pertains to birds on their wintering grounds (i.e., this bird is considered a special-status species due to the loss of winter foraging habitat). The DEA does not analyze Project impacts to ferruginous hawks and their winter foraging habitat. Project impacts are potentially significant because ferruginous hawks appear to have a low threshold of tolerance to urban landscapes, and urbanization is a limiting factor in the abundance of the species.⁴⁶ Evidence suggests ferruginous hawks are intolerant of even small amounts of urban development, perhaps as little as 5% to 7%.⁴⁷

⁴¹ California Department of Fish and Game, California Interagency Wildlife Task Group. 2005 [update]. California Wildlife Habitat Relationships version 8.1 personal computer program. Sacramento, California.

⁴² *Ibid.*

⁴³ EMC Planning Group Inc. 2012. Draft Environmental Impact Report for the Quinto Solar PV Project. Appendix C to Appendix E, Figure 8.

⁴⁴ California Natural Diversity Database. 2016 Jan 6. RareFind 5 [Internet]. California Department of Fish and Wildlife. *See also* eBird. 2016. eBird: An online database of bird distribution and abundance [web application]. eBird, Ithaca, New York. Available at: <<http://www.ebird.org>>. (Accessed: 2016 Jan 7).

⁴⁵ DEA, Table A-1.

⁴⁶ Berry ME, CE Bock, SL Haire. 1998. Biodiversity of open space grasslands at a suburban/agricultural interface, Part III: Abundance of diurnal raptors on open space grasslands in an urbanized landscape. Final report to the Biological Resources Division, U.S. Geological Survey and Department of Open Space/Real Estate, City of Boulder. Contract No. 1445-CA09-96-0025.

⁴⁷ *Ibid.*

Northern Harrier

The BA states northern harrier nests have not been recorded within ½ mile of the Project sites.⁴⁸ It also states large stick nests were not observed during the Project surveys.⁴⁹ This information is presented as evidence that northern harriers are unlikely to nest at the sites.

The biologists that conducted the site surveys were apparently unfamiliar with the nesting ecology of the northern harrier. Northern harriers do not construct large stick nests, nor do they nest in trees. Northern harrier nests consist of a thin layer of small sticks and reeds, lined with grass.⁵⁰ Nests are constructed on the ground, usually in the shelter of taller shrubs or grasses. Therefore, the failure to detect large stick nests is not evidence that northern harrier nests were absent. Indeed, the biologists that conducted surveys for the San Luis Transmission Project detected a northern harrier nest approximately 0.15 mile south of Site 1.⁵¹ Surveys for that project were conducted during the same years as the Project surveys (i.e., 2014 and 2015). This provides evidence that either: (a) the Project biologists did not search for raptor nests within ½ mile of the Project sites, as suggested in the BA and DEA; or (b) the surveys did not produce accurate information on the presence of raptor nests within ½ mile of the Project sites.

Tricolored Blackbird

The tricolored blackbird is protected under the California Endangered Species Act. In 2003, approximately 1,000 tricolored blackbirds were observed at the Medeiros Use Area along the south shore of O'Neill Forebay. Approximately 200 tricolored blackbirds were nesting in emergent vegetation in a "large depression, possibly artificial, that is located adjacent to the forebay and just east of the overhead transmission lines."⁵² The site was described as "the only large area of emergent vegetation at Medeiros."⁵³ Based on that description, the site is located immediately adjacent to Site 1 (Figure 4). The presence of an emergent wetland and tricolored blackbird nesting colony in close proximity to Site 1 was not disclosed or analyzed in the DEA.

The DEA indicates no tricolored blackbird nest remnants were observed in any habitats assessed at "or in the area" during the Project surveys.⁵⁴ Because the emergent wetland

⁴⁸ ESR, Inc. 2015. Biological Assessment, USDI Bureau of Reclamation San Luis Solar Project. p. 57.

⁴⁹ *Ibid*, Table 1.

⁵⁰ Baicich PJ, CJO Harrison. 2005. Nests, Eggs, and Nestlings of North American Birds. Second Edition. Princeton University Press. Princeton, New Jersey. 347 pp.

⁵¹ WAPA and SLDMWA. 2015. San Luis Transmission Project. Draft Environmental Impact Statement/Environmental Impact Report. Prepared for Western Area Power Administration and San Luis and Delta-Mendota Water Authority by Aspen Environmental Group. Appendix C, Figure 3.

⁵² Bureau of Reclamation and California Department of Parks and Recreation. 2013. Final Resource Management Plan/General Plan and Final Environmental Impact Statement/Environmental Impact Report. Appendix B: Biological Survey Forms.

⁵³ *Ibid*.

⁵⁴ DEA, Table A-1.

described above was not mentioned in the BA or DEA, it appears that area was not searched for nest remnants. Nevertheless, the failure to detect nest remnants is not evidence that the site is unimportant to tricolored blackbirds because the species exhibits low site fidelity, and use of a particular site can be highly variable among years.⁵⁵

California Tiger Salamander, California Red-legged Frog, Western Spadefoot, and Western Pond Turtle

The DEA indicates there is no suitable habitat for the California red-legged frog, California tiger salamander, western spadefoot, or western pond turtle at the Project sites.⁵⁶ This information is incorrect. Whereas there is no aquatic habitat for these four species at the Project sites, the sites provide suitable terrestrial (upland) habitat. All four species spend a substantial amount of their life cycles in terrestrial (upland) habitats, which can be located a considerable distance from aquatic habitat. For example, California red-legged frog movements of up to two miles through upland habitat have been reported.⁵⁷ Western pond turtles, which are known to occur in O'Neill Forebay,⁵⁸ have been reported ranging as far as 500 meters (1,640 feet) from water to find suitable nesting habitat.⁵⁹

Site 1 is located immediately adjacent to an emergent wetland that appears to provide suitable aquatic habitat for the California red-legged frog, California tiger salamander, and western pond turtle (Figure 4). In addition, Site 2 is located near a pond and emergent wetland that could provide suitable aquatic habitat for the California red-legged frog, California tiger salamander, and western pond turtle (Figure 5). Consequently, these species could occur in the upland habitats at Sites 1 and 2. Site 3 does not appear to be located within the dispersal distance of aquatic habitat that could support the California red-legged frog, California tiger salamander, and western pond turtle. However, the drainage ditches adjacent to the site could provide suitable breeding habitat for the western spadefoot, and thus Site 3 could provide suitable habitat for aestivation (a state of torpor that occurs below ground).

⁵⁵ Beedy, E. C., and Hayworth, A. 1992. Tricolored Blackbird nesting failures in the Central Valley of California: General trends or isolated phenomena? *In* Endangered and sensitive species of the San Joaquin Valley, California (D.F. Williams, S. Byrne, and T.A. Rado, eds.), pp. 33–46. Calif. Energy Commission, Sacramento.

⁵⁶ DEA, Table A-1.

⁵⁷ Fellers GM. 2005. California red-legged frog species account, in Amphibian declines: the conservation status of United States species, Michael Lannoo, ed. University of California Press, Berkeley, CA. 1094 pages.

⁵⁸ Bureau of Reclamation and California Department of Parks and Recreation. 2013. Final Resource Management Plan/General Plan and Final Environmental Impact Statement/Environmental Impact Report. p. 2-100.

⁵⁹ Reese DA, HH Welsh Jr. 1998. Habitat use by western pond turtles in the Trinity River, California. *Journal of Wildlife Management* 62(3):842-853.

San Joaquin Kit Fox

Occurrences within the Project Region

The DEA suggests there are no verified records of the San Joaquin kit fox occurring in the Project region since 1986.⁶⁰ This information is incorrect:

1. The CNDDDB has an unprocessed (i.e., recent) record of the San Joaquin kit fox occurring within the San Luis Dam 7.5-minute topographic quadrangle.⁶¹
2. Constable et al. (2009) detected kit foxes south of O'Neill Forebay during surveys conducted between 2005 and 2007.⁶²
3. Biologists detected kit fox sign (scat and dens) approximately 3.7 miles southeast of Site 1 during surveys for the San Luis Transmission Project.⁶³ The biologists also detected a potential kit fox den approximately 1,000 feet south of Site 1.⁶⁴
4. As reported by Cypher et al. (2013), small populations of kit foxes are known to occur in the grasslands from the Panoche Valley region north to the San Luis Reservoir.⁶⁵

Habitat in the Action Area

The DEA states: “there is a low potential for San Joaquin kit fox to use the marginal habitat in the action area for movement, denning, foraging, or sheltering.”⁶⁶ This statement contradicts scientific evidence. According to Cypher et al. (2013):

Habitat attributes considered most important to kit foxes included land use/land cover, terrain ruggedness and vegetation density (Grinnell et al. 1937, White et al. 1995, USFWS 1998, Warrick and Cypher 1998, Cypher et al. 2000, Smith et al. 2005, Warrick et al. 2007). High suitability habitats include saltbush *Atriplex polycarpa* and *A. spinifera* scrublands and grasslands dominated by red brome *Bromus madritensis* whereas medium suitability habitats include alkali sink scrublands and grasslands dominated by wild oats *Avena spp.* Other habitat types and profoundly altered anthropogenic lands (e.g. agricultural lands, urban areas) are considered low suitability. High suitability areas generally are characterized by flat or gently rolling terrain (average slopes <5%), and suitability declines as

⁶⁰ DEA, p. 52 and Table A-1.

⁶¹ Available at: <<https://map.dfg.ca.gov/bios/?tool=cnddbQuick>>.

⁶² Constable JL, BL Cypher, SE Phillips, PA Kelly. 2009. Conservation of San Joaquin Kit Foxes in Western Merced County, California. Prepared for the U.S. Bureau of Reclamation, South-Central California Area Office. Fresno, California.

⁶³ WAPA and SLDMWA. 2015. San Luis Transmission Project. Draft Environmental Impact Statement/Environmental Impact Report. Prepared for Western Area Power Administration and San Luis and Delta-Mendota Water Authority by Aspen Environmental Group. Appendix C, Figure 3.

⁶⁴ *Ibid.*

⁶⁵ Cypher, B.L., Phillips, S.E. and Kelly, P.A. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. *Canid Biology & Conservation* 16(7): 25-31. Available at: <http://canids.org/CBC/16/San_Joaquin_kit_fox_habitat_suitability.pdf>.

⁶⁶ DEA, p. 52.

terrain ruggedness and average slope increase, largely due to an associated increase in predation risk for kit foxes (Warrick and Cypher 1998). Finally, kit foxes are optimally adapted to arid environments with sparse vegetation and a high proportion of bare ground (Grinnell et al. 1937, McGrew 1979). Thus, habitat suitability decreases as vegetation density increases.⁶⁷

The Project sites contain the attributes associated with medium or high habitat suitability (e.g., grasslands with flat terrain and sparse vegetation). This is consistent with the GIS-based habitat model created by Cypher et al. (2013).⁶⁸ Based on that model, both Sites 1 and 3 contain moderate to high suitability habitat for the San Joaquin kit fox (Figure 6).

Several scientists have demonstrated the potential for San Joaquin kit foxes to move through and reside in the Project area.⁶⁹ For example, to evaluate critical linkages for dispersal, Penrod et al. (2013) mapped potential “cores” and “patches” of breeding habitat for San Joaquin kit fox.⁷⁰ The Project area provides both cores (Site 1) and patches (Sites 2 and 3) of suitable breeding habitat, and it provides a critical linkage of protected lands for kit fox movement (Figure 7).⁷¹

In 2008 and 2009, biologists from the Endangered Species Recovery Program—in conjunction with staff from Reclamation—installed seven subterranean dens for kit foxes around the O’Neill Forebay.⁷² The objective of the den installation was to facilitate kit fox movement through the San Luis Reservoir SRA, which is an important “linkage” area. One of the dens was installed immediately adjacent to Site 1 (Figure 8). Two additional dens were installed further east between Gonzaga Road and the forebay. Presumably the biologists (and Reclamation staff) would not have installed subterranean dens in an area with “low potential for San Joaquin kit fox.” Indeed, according to the report prepared for Reclamation, subterranean dens were installed in “habitats that could potentially support kit foxes for extended periods of time.”⁷³

⁶⁷ Cypher, B.L., Phillips, S.E. and Kelly, P.A. 2013. Quantity and distribution of suitable habitat for endangered San Joaquin kit foxes: conservation implications. *Canid Biology & Conservation* 16(7): 25-31. Available at: <http://canids.org/CBC/16/San_Joaquin_kit_fox_habitat_suitability.pdf>.

⁶⁸ *Ibid.*

⁶⁹ Penrod, K., P. E. Garding, C. Paulman, P. Beier, S. Weiss, N. Schaefer, R. Branciforte and K. Gaffney. 2013. *Critical Linkages: Bay Area & Beyond*. Produced by Science & Collaboration for Connected Wildlands, Fair Oaks, CA. *See also* Constable JL, BL Cypher, SE Phillips, PA Kelly. 2009. *Conservation of San Joaquin Kit Foxes in Western Merced County, California*. Prepared for the U.S. Bureau of Reclamation, South-Central California Area Office. Fresno, California.

⁷⁰ *Ibid.*

⁷¹ Penrod K et al. 2013. *San Joaquin Kit Fox Connectivity Modeling for the California Bay Area Linkage Network* [ds862]. Calif. Dept. of Fish and Wildlife. Biogeographic Information and Observation System (BIOS). Retrieved Jan 6, 2016 from <<http://bios.dfg.ca.gov>>.

⁷² Harrison WR, BL Cypher, SE Phillips. 2011. *Enhancement of Satellite and Linkage Habitats to Promote Survival, Movement, and Colonization by San Joaquin Kit Foxes*. Report prepared for the U.S. Bureau of Reclamation. Available at: <http://esrp.csustan.edu/publications/pdf/esrp_2010_kitfox_linkageenhancement.pdf>.

⁷³ *Ibid.*, p. 3.

San Joaquin Pocket Mouse

The San Joaquin pocket mouse inhabits arid annual grasslands, savanna, and desert shrub associations throughout the San Joaquin Valley. San Joaquin pocket mice have been detected approximately five miles north of O'Neill Forebay, and approximately six miles south of the forebay.⁷⁴

The DEA indicates no San Joaquin pocket mice “were observed during field surveys of suitable habitat.”⁷⁵ The San Joaquin pocket mouse is a nocturnal species. Detection of this species generally requires implementation of box traps (i.e., live trapping). The BA and DEA provide no evidence that live trapping surveys were implemented at the Project sites, even though small mammal burrows were present at Site 1.⁷⁶ Therefore, the failure to observe San Joaquin pocket mice during the field surveys is not evidence that the species is absent from the sites, and thus that there would be no Project effects to the species.⁷⁷

PROJECT IMPACT ISSUES

Vegetation Communities / Habitat Types

The BE acknowledges the Project sites contain non-native grassland and “areas that had been fallow for extended periods of time.”⁷⁸ However, the impact analysis provided in the DEA suggests permanent direct effects would be limited to “disked, tilled, or otherwise managed vegetation.”⁷⁹ Reclamation’s impact analysis must be revised to accurately reflect the grassland habitat that exists at the Project sites and along the gen-tie route.

According to the DEA: “[a]lthough construction activities would temporarily disturb the marginal habitat, this impact is considered minimal due to the current disturbed nature of the solar PV system sites.”⁸⁰ Many of the special-status species addressed in the DEA are known to use “disturbed” habitats. Indeed, due to the loss of native habitat, some of the species now depend extensively on disturbed lands for breeding (e.g., burrowing owl and tricolored blackbird), foraging (e.g., Swainson’s hawk), and/or dispersal (e.g., San Joaquin kit fox).⁸¹

⁷⁴ California Natural Diversity Database. 2016 Jan 6. RareFind 5 [Internet]. California Department of Fish and Wildlife.

⁷⁵ DEA, Table A-1.

⁷⁶ DEA, p. 54.

⁷⁷ DEA, Table A-1.

⁷⁸ Bureau of Reclamation. 2015 Nov. Biological Evaluation, San Luis Solar Project. p. 28.

⁷⁹ DEA, p. 54.

⁸⁰ *Ibid.*

⁸¹ Wilkerson RL and RB Siegel. 2010. Assessing changes in the distribution and abundance of burrowing owls in California, 1993-2007. *Bird Populations* 10:1-36. *See also* Cook LF, CA Toft. 2005. Dynamics of extinction: population decline in the colonially nesting tricolored blackbird *Agelaius tricolor*. *Bird Conservation International* 15(1):73-88. *See also* Shuford WD, T Gardali, editors. 2008. *California Bird*

The DEA also states: “[s]hort-term increases in noise, light, and human presence may cause behavioral modifications such as changes in foraging and dispersal patterns. These changes would be temporary and would not prevent the species from using adjacent areas for similar activities.”⁸² This argument contradicts scientific information. Animals rely on hearing to avoid predators, obtain food, and communicate.⁸³ Noise and vibration during construction of the Project has the potential to disrupt these activities, and otherwise reduce fitness through injury (e.g., hearing loss), energy loss (from movement away from noise source), reduction in food intake, and habitat avoidance and abandonment.⁸⁴ Consequently, noise from the Project could indeed prevent animals from “using adjacent areas for similar activities.” Similarly, some species (e.g., golden eagle) are known to completely avoid fragmented habitats that contain human activity and disturbance. As a result, it is inconceivable that Reclamation could conclude adverse effects would be temporary and that there would be no permanent direct effects due to operation and maintenance of the facilities.

Sensitive Vegetation Communities

The DEA indicates: “[t]he proposed gen-tie alignment follows a similar route to a 70 kV transmission line between the existing San Luis and O’Neill Substations proposed as an alternative for the San Luis Transmission Project.”⁸⁵ Two sensitive natural communities occur within that route: (1) Great Valley Riparian Forest, and (2) Freshwater Marsh.⁸⁶ Both communities have a natural heritage rank of S2.1, which means they are imperiled and seriously threatened in the State of California. The DEA does not disclose the presence of sensitive natural communities within the Project’s proposed gen-tie line corridor, nor does it analyze Project impacts to those sensitive natural communities.

Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento. *See also* California Department of Fish and Game. 1993. Five-year Status Review: Swainson’s Hawk.

⁸² DEA, p. 54.

⁸³ Francis CD, JR Barber. 2013. A framework for understanding noise impacts on wildlife: an urgent conservation priority. *Frontiers in Ecology and the Environment* 11:305-313. *See also* Rabin LA, B McCowan, SL Hooper, DH Owings. 2003. Anthropogenic Noise and its effect on Animal Communication: An Interface Between Comparative Psychology and Conservation Biology. *International Journal of Comparative Psychology* Vol. 16(2/3):172-193.

⁸⁴ National Park Service, 1994. Report to Congress, Report on effects of aircraft overflights on the National Park System.

⁸⁵ DEA, p. 16.

⁸⁶ WAPA and SLDMWA. 2015. San Luis Transmission Project. Draft Environmental Impact Statement/Environmental Impact Report. Prepared for Western Area Power Administration and San Luis and Delta-Mendota Water Authority by Aspen Environmental Group. Appendix C, Figure 3.

Wildlife Habitat

The BA states:

From a perspective based solely on vegetation, the existing grassland community under the solar arrays should remain suitable for the wildlife species existing on-site including prey species for raptors and SJKF. The restored non-native annual grasslands under arrays will represent a suitable habitat for prey species for raptors and SJKF.⁸⁷

This inference is not supported by evidence. The Project includes clearing vegetation from the Project sites and compacting the underlying soil.⁸⁸ This will greatly diminish habitat suitability for prey species. Furthermore, most of the raptor species that occur in the Project area forage over vast open terrain; they are simply not adapted to foraging in the interstitial spaces between solar arrays. Therefore, even if prey species occupy the Project sites after construction, the configuration of the solar arrays would preclude most raptors from using the sites as foraging habitat.

Avian Resources

The DEA acknowledges several special-status bird species have potential to forage in the Project area.⁸⁹ However, it provides no analysis of Project impacts to foraging habitat, which could be essential to survival and reproductive success.

Although the DEA addresses impacts to nesting birds in general, it completely ignores species-specific behaviors, habitat requirements, and breeding patterns that can be significantly impacted in a variety of ways by Project activities. Because the DEA addresses bird nests only, and because it does not require the Applicant to provide compensation for the loss of foraging habitat for any birds (i.e., nesting *or* wintering), the Project would have an unmitigated, significant impact on special-status birds.

Golden Eagle

California law prohibits take of golden eagles, and the USFWS requires a permit to be issued for take of bald or golden eagles where the taking is associated with, but not the purpose of the activity, and cannot be practicably avoided. Take includes: (1) injury to an eagle; (2) causing a decrease in golden eagle 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.⁹⁰

⁸⁷ ESR, Inc. 2015. Biological Assessment, USDI Bureau of Reclamation San Luis Solar Project. p. 68.

⁸⁸ *Ibid*, pp. 27 and 28.

⁸⁹ DEA, p. 54.

⁹⁰ 50 CFR 22.3. *See also* U.S. Fish and Wildlife Service. 2009. Final Environmental Assessment: Proposal to Permit Take as Provided Under the Bald and Golden Eagle Protection Act. U.S. Fish and Wildlife Service, Washington, D.C. Table 1.

The DEA acknowledges the Project sites provide foraging habitat for golden eagles.⁹¹ Research indicates golden eagles selectively use available habitat, and that they concentrate their foraging activities in select “core” areas.⁹² In a study on spatial use and habitat selection of golden eagles in Idaho, Marzluff et al. (1997) concluded that there was substantial variation in home range size and habitat use among eagles, and that if such variation was ignored (by focusing on population averages), conservation strategies and biological descriptions will be inaccurate and rarely effective.⁹³ During the breeding season, eagles in Marzluff’s study had home ranges as small as 480 acres, with 95% of the activity concentrated in core areas as small as 74 acres.⁹⁴ Home range size and behavior were a function of the types and configuration of prey habitat in the vicinity of the nest, and perhaps individual eagles.⁹⁵

In the absence of more appropriate empirical data, one should conclude Marzluff’s results apply to the Project sites, and thus the Project could eliminate a substantial amount of core habitat used by at least one pair of breeding eagles. Loss of core foraging habitat could result in take, as defined the Eagle Act. Consequently, Reclamation must analyze the direct and indirect effects to golden eagle territories that occur within 10 miles of the Project sites. Reclamation also must conduct cumulative impacts analysis that adheres to the guidelines issued by the USFWS. Those guidelines state:

To ensure that impacts are not concentrated in particular localities to the detriment of locally-important eagle populations, cumulative effects need to be considered at the population management level—*Service Regions* for Bald Eagles and *Bird Conservation Regions* for Golden Eagles—and, especially for project-specific analyses, at local area population levels (the population within the average natal dispersal distance [140 miles] of the nest or nests under consideration).⁹⁶

Bald Eagle

Research has shown that human activity can adversely affect wintering bald eagle distribution and behavior.⁹⁷ For example, Stalmaster and Newman (1978) demonstrated that human activities resulted in many unsuccessful feeding attempts, displaced eagles to marginal habitat, and confined the birds to a smaller area.⁹⁸ Because the DEA does not

⁹¹ DEA, Table A-1.

⁹² Marzluff JM, ST Knick, MS Vekasy, LS Schueck, TJ Zarriello. 1997. Spatial use and habitat selection of golden eagles in southwestern Idaho. *The Auk* 114(4):673-687.

⁹³ *Ibid.*

⁹⁴ *Ibid.*

⁹⁵ *Ibid.*

⁹⁶ Pagel JE, DM Whittington, GT Allen. 2010 Feb. Interim Golden Eagle inventory and monitoring protocols; and other recommendations. Division of Migratory Birds, United States Fish and Wildlife Service, at 3. *See also* U.S. Fish and Wildlife Service, Division of Migratory Bird Management. 2009. Final Environmental Assessment, Proposal to Permit Take. Provided Under the Bald and Golden Eagle Protection Act. Washington: Dept. of Interior, at 30.

⁹⁷ Stalmaster MV, JR Newman. 1978. Behavioral Responses of Wintering Bald Eagles to Human Activity. *Journal of Wildlife Management* 42(3):506-513.

⁹⁸ *Ibid.*

incorporate mitigation for these adverse effects, Project impacts to bald eagles are potentially significant and unmitigated.

Tricolored Blackbird

The DEA does not provide any specific analysis of Project effects to the tricolored blackbird. However, it suggests pre-construction surveys and a buffer around any tricolored blackbird nests would reduce impacts to an insignificant level. It also indicates *all impacts* to tricolored blackbirds “would likely be avoided” if construction activities occur outside of the nesting season.⁹⁹ These conclusions contradict scientific information on the species. As the DEA acknowledges:

The tricolored blackbird’s basic requirements for breeding sites are open accessible water, a secure substrate in which to place their nests, and suitable nearby foraging areas that provide adequate food sources (CDFW 2015a). *If any one of these required elements is missing, the species will not select that location for breeding and will move to another location that is suitable.* Due to the highly degraded nature of the Project area, this species is not expected to occur.¹⁰⁰

Construction of Site 1 would affect foraging habitat adjacent to an emergent wetland that has supported a nesting colony. This could result in a significant indirect impact to the species, especially because habitat loss is one of the primary reasons for its rapid decline (i.e., the colony cannot simply move to another suitable location).

San Joaquin Kit Fox

The Project sites are located within: (1) a “least-cost” corridor for kit fox movement between the Panoche Valley and the Simon Newman Ranch;¹⁰¹ and (2) the only known corridor between San Joaquin kit fox satellite populations in the northern range and the core populations listed in the USFWS Recovery Plan for the species.¹⁰² This narrow corridor is considered critical to the continued existence and genetic diversity of the northern San Joaquin kit fox population, and it has already been severely compromised by several recent projects approved by the County of Merced (e.g., Quinto and Wright solar projects).¹⁰³ The proposed Project, in conjunction with other past and present

⁹⁹ DEA, p. 38.

¹⁰⁰ DEA, p. 53.

¹⁰¹ Constable JL, BL Cypher, SE Phillips, PA Kelly. 2009. Conservation of San Joaquin Kit Foxes in Western Merced County, California. Prepared for the U.S. Bureau of Reclamation, South-Central California Area Office. Fresno, California.

¹⁰² U.S. Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California . Region 1, Portland, OR. 319 pp. *See also* Final Revised Environmental Impact Report for the Quinto Solar PV Project, comment letter #11 from the California Department of Fish and Wildlife. Available at: <<http://www.co.merced.ca.us/index.aspx?NID=414>>. *See also* California Department of Fish and Wildlife. 2012 Feb 22. Early Consultation, Use Permit Application 2011-11, Beltran Ranch Solar Facility, SCH No. 2011112013. Letter from J. Single, CDFW to R. Wyse, Stanislaus County Planning and Community Development, p. 3.

¹⁰³ Final Revised Environmental Impact Report for the Quinto Solar PV Project, comment letter #11 from the California Department of Fish and Wildlife.

projects, threaten to completely block kit fox movement through this critical linkage corridor. Conserving the linkage corridor is one of the recovery tasks identified in the *Recovery Plan for Upland Species in the San Joaquin Valley, California*.

The DEA improperly discards the potential for significant impacts to kit fox (and other wildlife) movement. Indeed, the DEA's analysis is limited to the following statements:

All fencing will leave a 4 to 8 inch opening between the fence mesh and the ground to allow San Joaquin kit fox and their prey and other wildlife to move in and out of the facility (Measure BIO-1 in Section 2.2.5). The cables/lines associated with the gen-tie would be aerial and would not hinder species movement. As a result, the Project would not hinder small size wildlife movement through the solar PV system sites and adjacent areas... The localized increase in lighting would be limited in area and would not prevent nocturnal animals, such as the San Joaquin kit fox, from moving through the solar PV system sites and adjacent areas.¹⁰⁴

The DEA fails to provide substantial evidence that maintaining an opening below the fencing would eliminate the Project's impact on kit fox movement. Instead, it simply assumes providing a space below the Project fence would maintain a viable corridor for the species. This is not necessarily a valid assumption. Several research studies have demonstrated that just because an organism *can* move from one location to another, doesn't mean that it *will*.¹⁰⁵ Bremner-Harrison et al. (2007) hypothesized that kit foxes may have avoided the highway crossing structures the authors examined because kit foxes associate increased predation risk with the relatively confined space within the structures.¹⁰⁶ This hypothesis is consistent with the San Joaquin kit fox's strong preference for open habitats that provide unobstructed views of the landscape (for predator detection). Consequently, even if Project fencing does not create an absolute barrier to kit fox movement, kit foxes may be deterred by the solar arrays because the arrays impair predator detection. This could adversely affect the viability of the movement corridor connecting core populations and satellite populations in the northern range, and thus recovery of the species.

Avian Collision Hazard

Transmission Lines

The DEA's analysis of the avian collision hazard associated with the Project is limited to collision with the solar panels.¹⁰⁷ The DEA fails to analyze the collision hazard associated with the Project's transmission lines.

¹⁰⁴ DEA, p. 55.

¹⁰⁵ See studies cited in Lidicker WZ Jr, WD Koenig. 1996. Responses of Terrestrial Vertebrates to Habitat Edges and Corridors. Pages 85-109 in DR McCullough, editor. *Metapopulations and Wildlife Conservation*. Island Press, Washington (DC).

¹⁰⁶ Bremner-Harrison S, BL Cypher, CM Fiehler, AP Clevenger, D Hacker. 2007. Use of Highway Crossing Structures by Kit Foxes. Report prepared for the California Department of Transportation.

¹⁰⁷ DEA, p. 56.

Several studies have demonstrated that power lines near lakes and shorelines can pose a high collision risk to birds.¹⁰⁸ Implementation of the 2006 Avian Power Line Interaction Committee (“APLIC”) guidelines (i.e., Protection Measure BIO-5) reduces the *electrocution* hazard to birds; however, it does not mitigate the *collision* hazard.

O’Neill Forebay supports a diverse assemblage of waterbird species. Because the Project entails 6.2 miles of new transmission lines in close proximity to O’Neill Forebay (and other wetland habitats), avian mortality is likely to occur. Reclamation must analyze the site-specific factors that influence the avian collision hazard at the Project site. These include the surrounding topography and habitat types, local climatic conditions (e.g., fog and wind direction), and the clustering of lines.¹⁰⁹ It then must estimate mortality levels and the biological significance of anticipated mortality (i.e., how the mortality could affect bird populations). For example, even a small number of mortalities could be excessive for a species of conservation concern.¹¹⁰ Finally, Reclamation must incorporate mitigation and monitoring measures that ensure the Project’s transmission lines do not have adverse effects on sensitive wildlife resources.

Solar Arrays

Whereas the extent of the threat remains unknown, the presence of dead and injured birds at solar facilities operating (or under construction) in California demonstrates that solar arrays present a collision hazard to birds.¹¹¹ At PV facilities, birds appear to mistake the broad reflective surfaces of the solar arrays for water, trees, and other attractive habitat.¹¹² When this occurs, the birds become susceptible to mortality by: (a) colliding with the solar arrays; or (b) becoming stranded (often injured) on a substrate from which they cannot take flight, thereby becoming susceptible to predation and starvation.¹¹³

There is also recent evidence that PV solar panels produce polarized light pollution that attracts insects, which in turn attract insect-eating birds.¹¹⁴ Those birds then become susceptible to injury or death because they cannot distinguish insects on a PV panel that reflects attractive habitat from insects that really are on (or in) attractive habitat. Dead

¹⁰⁸ 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. *See also* Avery ML, editor. 1978. Impacts of Transmission Lines on Birds in Flight: Proceedings of a Workshop. U.S. Fish and Wildlife Service Biological Services Program, FWS/OBS 78/48. Available at: <http://pubs.er.usgs.gov/publication/fwsobs78_48#>.

¹⁰⁹ Avery ML, editor. 1978. Impacts of Transmission Lines on Birds in Flight: Proceedings of a Workshop. U.S. Fish and Wildlife Service Biological Services Program, FWS/OBS 78/48. Available at: <http://pubs.er.usgs.gov/publication/fwsobs78_48#>.

¹¹⁰ Ventana Wildlife Society. 2009. Evaluating Diverter Effectiveness in Reducing Avian Collisions With Distribution Lines at San Luis National Wildlife Refuge Complex, Merced County, California. California Energy Commission, Public Interest Energy Research (PIER) Program. CEC-500-2009-078.

¹¹¹ Kagan RA, TC Viner, PW Trail, EO Espinoza. 2014. Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis. National Fish and Wildlife Forensics Laboratory. 28 pp.

¹¹² *Ibid.*

¹¹³ *Ibid.*

¹¹⁴ *Ibid.*

and injured insectivores then attract avian predators and scavengers, which too become susceptible to collision with the PV panels and other project features. As Kagan et al. (2014) reported, this creates an entire food chain vulnerable to injury and death.¹¹⁵

The DEA provides the following analysis of avian collision with the Project's solar facilities:

The Project design includes the use of anti-reflective glass, which is less reflective than standard residential and commercial glass. As a result, the Project's solar PV panels would contribute minimally to potential lake effects and resulting bird mortality. The presence of San Luis Reservoir, O'Neill Forebay, canals, ditches, and other water conveyance systems in the Project vicinity are also expected to reduce the potential for lake effect impacts from the solar PV panels.¹¹⁶

This information is misleading and does not constitute evidence that impacts to birds at the Project sites would be insignificant. First, the DEA provides no evidence that the solar PV panels at the Project site would be any less hazardous than the PV panels at other sites that have experienced avian mortality. As the DEA acknowledges, the PV panels are *less reflective* than standard residential and commercial glass.¹¹⁷ Anti-reflective technology does not eliminate *all* light reflection; high reflectance can still occur, especially early and late in the day when the angle of the sun is low with respect to the plane of the solar array.¹¹⁸ This is demonstrated in DEA Figure 2 (reproduced below as Figure 9).

Second, the dark surface of PV panels can produce high levels of polarized light pollution ("PLP").¹¹⁹ Anthropogenic products that produce PLP can appear to be water bodies to wildlife and can become ecological traps for insects and, to a lesser degree, avian species.¹²⁰

Third, Reclamation fails to justify its conclusion that "the presence of San Luis Reservoir, O'Neill Forebay, canals, ditches, and other water conveyance systems" would reduce the potential for avian mortality. To the contrary, there is evidence that solar facilities sited in close proximity to open water (or agricultural fields) may cause high levels of avian mortality.¹²¹

¹¹⁵ *Ibid.*

¹¹⁶ DEA, p. 56.

¹¹⁷ DEA, p. 7.

¹¹⁸ See: <<http://www.suniva.com/documents/Suniva%20Reflection%20and%20Glare%20Report%20-%20Marketing%20-%20August%202012.pdf>>.

¹¹⁹ Lovich JE, JR Ennen. 2011. Wildlife Conservation and Solar Energy Development in the Desert Southwest, United States. *BioScience* 61(12): 982-992.

¹²⁰ *Ibid.*

¹²¹ McCrary MD, RT McKernan, RW Schreiber, WD Wagner, TC Sciarrotta. 1986. Avian Mortality at a Solar Energy Power Plant. *Journal of Field Ornithology* 57(2):135-141.

Substantial evidence shows that impacts from PLP are potentially significant and must be mitigated. Consequently, Reclamation must analyze the avian collision hazard as a potentially significant impact, and it must provide adequate mitigation. Klem (2009) and Kagan et al. (2014) discussed several techniques (e.g., UV-reflective or solid, contrasting bands spaced no further than 28 cm from each other on arrays) that enable birds to avoid collisions with windows, and presumably solar panels.¹²² The techniques described by Klem (2009) and Kagan et al. (2014) are feasible, and they should be incorporated as mitigation. Reclamation should also be required to implement a mortality monitoring, reporting, and adaptive management plan during Project construction and during at least the first three years of operation.¹²³ The plan should be approved by the USFWS prior to implementation, and the public should have the opportunity to review the subsequent monitoring reports.

Compliance with Management Direction

The Project sites are located on land covered by the San Luis Reservoir SRA Resource Management Plan/General Plan (“RMP/GP”).¹²⁴ The DEA does not provide evidence that Reclamation has adhered with the provisions of RMP/GP, including implementation of focused surveys using USFWS protocol.¹²⁵

Cumulative Impacts

The DEA’s analysis of cumulative impacts is limited to the following statements:

Effects to special-status wildlife species from Project construction and operation would be minor. Other nearby projects in the same geographical area also have, or had, the potential to affect special-status wildlife species, such as the Villages of Laguna San Luis Community Plan (Merced County Planning and Community Development Department 2008), Santa Nella Community Specific Plan (Santa Nella 2000), Quinto Solar PV Project (Merced County Planning and Community Development Department 2012; to be completed in 2015), Wright Solar Park (Merced County Community and Economic Development Department 2014; construction estimated for 2015 to 2016), and San Luis Transmission Project (WAPA and SLDMWA 2015; construction estimated for 2018 to 2021). As part of the biological permitting processes for those projects, the sponsor agencies must demonstrate, through mitigation and other measures, that the projects would not have major adverse impacts on San Joaquin kit fox and other special-status

¹²² Klem D Jr. 2009. Preventing Bird-Window Collisions. *The Wilson Journal of Ornithology* 121(2):314–321. *See also* Kagan RA, TC Viner, PW Trail, EO Espinoza. 2014. Avian Mortality at Solar Energy Facilities in Southern California: A Preliminary Analysis. National Fish and Wildlife Forensics Laboratory. 28 pp.

¹²³ U.S. Fish and Wildlife Service, Pacific Southwest Region. 2010 Sep. Region 8 Interim Guidelines for the Development of a Project-Specific Avian and Bat Protection Plan for Solar Energy Plants and Related Transmission Facilities. p. 10.

¹²⁴ DEA, p. 3.

¹²⁵ Bureau of Reclamation and California Department of Parks and Recreation. 2013. Final Resource Management Plan/General Plan and Final Environmental Impact Statement/Environmental Impact Report. p. 4-12.

species. The proposed San Luis Solar Project includes design measures and avoidance and minimization measures that would reduce potential effects to special-status species to minor levels. Combined, the projects would not result in cumulatively considerable effects to San Joaquin kit fox or other special-status species.

The DEA's analysis is grossly insufficient. First, the DEA does not identify the methods that were used for the cumulative impacts analysis. Specifically, the DEA does not identify or justify the geographic scope of analysis. Furthermore, Reclamation's analysis is inappropriately limited to recently approved "past" projects; it completely ignores all other past projects that contribute to cumulative impacts (e.g., San Luis Reservoir and O'Neill Forebay, Delta-Mendota Canal, Interstate 5, etc.).

Second, the DEA provides no data on the projects considered in the cumulative impacts analysis. The DEA does not identify the size of the projects, their geographic locations, or the sensitive biological resources that would (or could) be affected by each project. In addition, the DEA does not provide a map of the projects, thus precluding the ability to assess the Project's contribution to landscape-level impacts (e.g., linkages for wildlife movement).

Third, the argument that other sponsor agencies must demonstrate that their individual projects would not have major adverse impacts on San Joaquin kit fox and other special-status species circumvents the intent of cumulative impacts analysis, which is to analyze the combined effects of all actions.

Finally, the DEA does not present any actual analysis to support the argument that adverse effects would not be cumulatively considerable. For example, the DEA does not provide any quantitative analysis of how much grassland habitat would be impacted under the cumulative impacts scenario. Some of the special-status species known to occur in the Project area (e.g., golden eagle, San Joaquin kit fox) require a considerable amount of habitat to persist. If the combined effect of multiple projects causes the amount of functional habitat to drop below a certain size threshold, the organism no longer has the resources necessary for survival. Reclamation has no basis to conclude the Project's contribution to cumulative impacts would be insignificant until it attempts some actual analysis. In my professional opinion, the incremental effect of the proposed Project, combined with the effects of other projects, would result in "cumulatively considerable" impacts to several sensitive biological resources.

MITIGATION ISSUES

The DEA Omits Conservation Measures Incorporated into the BE and BA

Reclamation's determination that the Proposed Action may affect, but is not likely to adversely affect the San Joaquin kit fox and blunt-nosed leopard lizard was based in part on the conservation measures incorporated into the BE and BA.¹²⁶ However, several of

¹²⁶ BE, p. 2.

the conservation measures incorporated into the BE and BA were inexplicably omitted from the DEA.¹²⁷ The DEA does not justify removing those measures, which include, but are not limited to:

- installing escape dens in areas between and along the solar arrays to facilitate movement of kit foxes through the project sites.¹²⁸
- submitting pre-construction survey reports to the USFWS and Reclamation for review and approval.¹²⁹
- prohibiting ground-disturbing maintenance activities in or adjacent to areas where blunt-nosed leopard lizard has been detected until a USFWS-approved avoidance and monitoring plan is in place.¹³⁰
- prohibiting monofilament plastic or soil strengthening agents, geo fabrics, and dust suppression products.¹³¹

The measures listed in the BA and BE are feasible and they would reduce Project impacts to sensitive biological resources. As a result, they should be incorporated as required mitigation for the Project.

The DEA Does Not Mitigate Impacts to Habitat

Ultimately the DEA concludes: “[w]ith the implementation of Measures BIO-1, BIO-2, BIO-3, BIO-8, and BIO-9 in Section 2.2.5, effects to blunt-nosed leopard lizard, San Joaquin kit fox, and burrowing owls from Project construction would be minor.”¹³² This conclusion is not justified because none of the proposed measures mitigate habitat loss, which is the greatest threat to the species addressed in DEA.¹³³ Because the proposed Project would eliminate, degrade, and fragment habitat even if all the avoidance and minimization measures listed in the DEA are implemented successfully, Reclamation must provide habitat compensation before concluding effects to blunt-nosed leopard lizard, San Joaquin kit fox, burrowing owl, and other special-status species would be “minor.”

Protection Measure BIO-3 (Burrowing Owl)

The DEA requires a pre-construction survey for burrowing owls according to the

¹²⁷ See BE, pp. 21 through 26 and BA, pp. 78 through 82.

¹²⁸ BA, p. 79.

¹²⁹ BE, pp. 24 and 26.

¹³⁰ BE, p. 26.

¹³¹ *Ibid.*

¹³² DEA, p. 54.

¹³³ U.S. Fish and Wildlife Service. 1998. Recovery plan for upland species of the San Joaquin Valley, California . Region 1, Portland, OR. 319 pp. See also California Department of Fish and Game. 2012. Staff Report on Burrowing Owl Mitigation. p. 8. Available at: <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>>. See also California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson’s hawks (*Buteo swainsoni*) in the Central Valley of California.

standards established in CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). However, the DEA fails to identify what would occur if burrowing owls are detected during the survey (e.g., passive relocation of owls). Moreover, the DEA does not require compensatory mitigation for Project impacts to burrowing owls and their foraging habitat, even if owls are detected during the pre-construction surveys. CDFW's *Staff Report on Burrowing Owl Mitigation* states:

“the current scientific literature supports the conclusion that mitigation for permanent habitat loss necessitates replacement with an equivalent or greater habitat area for breeding, foraging, wintering, dispersal, presence of burrows, burrow surrogates, presence of fossorial mammal dens, well drained soils, and abundant and available prey within close proximity to the burrow.”¹³⁴

I concur with the CDFW in this regard, especially given the continued decline of the species throughout most of the state.¹³⁵

Protection Measure BIO-4 (Swainson's Hawk)

BIO-4 requires pre-construction surveys for Swainson's hawk and other raptor nests no more than 10 days before ground disturbance. The DEA indicates the surveys should follow the Swainson's Hawk Technical Advisory Committee (“SHTAC”) protocol, and if new, active nests are found and located within a 0.5 mile of proposed heavy equipment operations or construction activities, the Applicant shall consult with the CDFW to develop the appropriate course of action, based on the guidance provided in the *Staff Report Regarding Mitigation for Impacts to Swainson's Hawks in the Central Valley of California* (CDFW 1994). The proposed protection measure has three main flaws:

First, it is not possible to adhere to the SHTAC protocol while also conducting the surveys “no more than 10 days before ground disturbance.” Specifically, the TAC concludes that to meet *the minimum level* of protection for the species, surveys should be completed during at least two of the four survey periods (defined in the protocol) immediately prior to a project's initiation.¹³⁶ The TAC further concludes that surveys should not be conducted in Period IV (April 21 to June 4) because nests are extremely difficult to locate during that time of year, and even the most experienced surveyor will miss them.¹³⁷

Second, the SHTAC protocol cannot be used to detect all raptor nests, as implied in the DEA. Specifically, the SHTAC protocol requires searching trees for Swainson's hawk nests. Therefore, it is not an effective means for detecting nests of ground-nesting raptors

¹³⁴ California Department of Fish and Game. 2012. *Staff Report on Burrowing Owl Mitigation*. p. 8. Available at: <<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843>>.

¹³⁵ *Ibid.* See also Wilkerson RL and RB Siegel. 2010. Assessing changes in the distribution and abundance of burrowing owls in California, 1993-2007. *Bird Populations* 10: 1-36.

¹³⁶ Swainson's Hawk Technical Advisory Committee. 2000. Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley. Available at: www.dfg.ca.gov/wildlife/nongame/docs/swain_proto.pdf.

¹³⁷ *Ibid.*

such as the northern harrier.

Third, habitat loss due to residential and commercial development is currently the most significant threat to the remaining population of Swainson's hawks in California.¹³⁸ As a result, the CDFW has determined that compensatory mitigation is required for projects that impact foraging habitat within 10 miles of an active nest site (an active nest site is defined as one that has been used during one or more of the last 5 years).¹³⁹ The Project sites provide foraging habitat for Swainson's hawks. In addition, there are active Swainson's hawk nest sites within 10 miles of the Project sites.¹⁴⁰ As a result, compensatory mitigation is required to reduce Project impacts to an insignificant level. Because the DEA does not require compensatory mitigation, Reclamation has not reduced Project impacts to an insignificant level.

BIO-7 (Loggerhead Shrike, Grasshopper Sparrow, and Tricolored Blackbird)

Pre-construction Surveys

BIO-7 requires pre-construction surveys for nesting loggerhead shrikes, grasshopper sparrows, and tricolored blackbirds if construction is planned between April 1 and August 31. The proposed protection measure has three principal flaws:

First, the measure does not account for the entire breeding season of the three species. The loggerhead shrike begins breeding as early as January or February, and the grasshopper sparrow begins breeding in mid-March.¹⁴¹ Tricolored blackbird breeding extends from mid-March through early August and autumnal breeding (September through November) has been documented at several sites in the Central Valley.¹⁴²

Second, the DEA does not establish minimum standards for the survey effort, including the need to adhere to scientific standards for nest site detection. This is important because many species (including loggerhead shrikes and grasshopper sparrows) construct well-concealed or camouflaged nests that are extremely difficult to detect unless the surveyor implements a variety of labor-intensive search techniques.¹⁴³

¹³⁸ California Department of Fish and Game. 1994. Staff report regarding mitigation for impacts to Swainson's hawks (*Buteo swainsoni*) in the Central Valley of California.

¹³⁹ *Ibid.*

¹⁴⁰ EMC Planning Group Inc. 2012. Draft Environmental Impact Report for the Quinto Solar PV Project. Appendix E, p. 3-21. *See also* California Natural Diversity Database. 2016 Jan 6. RareFind 5 [Internet]. California Department of Fish and Wildlife.

¹⁴¹ Shuford WD, T Gardali, editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

¹⁴² *Ibid.*

¹⁴³ Martin TE, GR Geupel. 1993. Nest-Monitoring Plots: Methods for Locating Nests and Monitoring Success. *J. Field Ornithol.* 64(4):507-519. *See also* DeSante DF, GR Geupel. 1987. Landbird productivity in central coastal California: the relationship to annual rainfall and a reproductive failure in 1986. *Condor.* 89:636-653.

Third, the measure does not address the other bird species that may nest in the Project area and that are afforded protection under the Migratory Bird Treaty Act.

Nest Buffers

BIO-7 states the following regarding protection of nest sites:

If an active nest is found sufficiently close to work areas to be disturbed by these activities, the biologist shall determine the extent of a construction-free buffer zone to be established around the nest (typically 50–100 feet), to ensure that no loggerhead shrike, grasshopper sparrow or tricolored blackbird nests would be disturbed during Project implementation. The buffer zone shall be clearly delineated, demarked, or fenced to avoid any construction activity taking place near any nest areas.

According to the DEA, construction noise would range from 75 to 85 dBA at a distance of 50 feet.¹⁴⁴ Noise at that level is deleterious to most breeding birds.¹⁴⁵ Consequently, a 50 or 100-foot buffer would be insufficient to avoid adverse effects to nesting birds. This issue is compounded because the DEA does not require monitoring that ensures the established buffer is effective. The CDFW recommends a minimum no-disturbance buffer of 250 feet around active nests of non-listed bird species and a 500-foot buffer around the nests of unlisted raptors.¹⁴⁶ It further recommends surveys to establish the behavioral baseline prior to construction, accompanied by continuous monitoring of nests after construction commences to detect any behavioral changes.¹⁴⁷

BIO-8 (Blunt-nosed Leopard Lizard)

According to the DEA:

If at any time blunt-nosed leopard lizard or San Joaquin kit fox occupancy is identified in the Proposed Action Area, the biological monitor will immediately notify the Applicant. The Applicant will halt localized work activities with potential to affect the species, and the Applicant or the biological monitor will contact the USFWS and Reclamation. These work activities would not resume until after directed by Reclamation.

Contacting the USFWS and Reclamation does not ensure Project effects to the blunt-nosed leopard lizard (and San Joaquin kit fox) would be insignificant. Reclamation must identify the specific measures that would be triggered if blunt-nosed leopard lizards or San Joaquin kit foxes occupy the Action Area, and it must establish an enforcement mechanism that ensures appropriate actions are implemented. In addition, because the

¹⁴⁴ DEA, Table 11.

¹⁴⁵ Reijnen R, R Foppen, G Veenbaas. 1997. Disturbance by traffic of breeding birds: evaluation of the effect and planning and managing road corridors. *Biodiversity and Conservation* 6:567-581.

¹⁴⁶ California Department of Fish and Wildlife. 2015 Jan 13. Letter to Merced County Planning and Community Development Department regarding the Final Environmental Impact Report (FEIR) for Wright Solar Project. p. 3.

¹⁴⁷ *Ibid.*

blunt-nosed leopard lizard is a federally *and* state listed species that is fully protected under California Fish and Game Code, CDFW also must be notified if the species is detected in the Action Area.

Other Special-Status Species

The DEA acknowledges the San Joaquin whipsnake (=coachwhip) and San Joaquin pocket mouse could occur at the Project sites.¹⁴⁸ As described above, the California tiger salamander, California red-legged frog, western pond turtle, and western spadefoot also could occur at the Project sites. The DEA does not contain any measures to mitigate potentially significant effects to these species. Feasible mitigation includes clearance surveys (e.g., trapping), installation of a barrier fence, biological monitoring during construction, and the acquisition of compensatory mitigation.

Decommissioning

Burrowing owls, nesting birds, San Joaquin kit fox and other sensitive resources may colonize or re-colonize the Project sites prior to decommissioning. Decommissioning activities have the potential to impact these species by collapsing burrows and/or disturbing nest sites. The DEA does not analyze impacts associated with decommissioning, nor does it require any mitigation for significant impacts that may occur during the decommissioning process. As a result, Reclamation has not established a mechanism for ensuring Project decommissioning activities would have insignificant effects to sensitive biological resources.

Weed Management

It is well established that construction and other ground disturbance activities promote the establishment and/or spread of non-native plants (i.e., weeds), both on and off-site. The introduction and spread of non-native plants as a result of the Project has the potential to result in numerous adverse environmental effects. For example, non-native plants can displace native (and perhaps sensitive) plant species, and they can degrade wildlife habitat by eliminating food sources, cover, and breeding sites. Incredibly, the DEA does not disclose, analyze, or provide mitigation for these potentially significant impacts. As a result, potentially significant effects due to the establishment and/or spread of non-native plants remain unmitigated.

CONCLUSION

Due to the issues identified in this letter, it is my professional opinion that the DEA does not support Reclamation's Finding of No Significant Impact. The DEA does not accurately portray existing conditions pertaining to sensitive biological resources, nor does it disclose all potentially significant Project impacts to those resources. Furthermore, the DEA does not provide the mitigation necessary to reduce Project

¹⁴⁸ DEA, Table A-1.

impacts to a discountable or insignificant level. As result, an environmental impact report should be prepared for the Project.

Sincerely,

A handwritten signature in black ink, appearing to read "Scott Cashen", with a stylized, flowing script.

Scott Cashen, M.S.
Senior Biologist

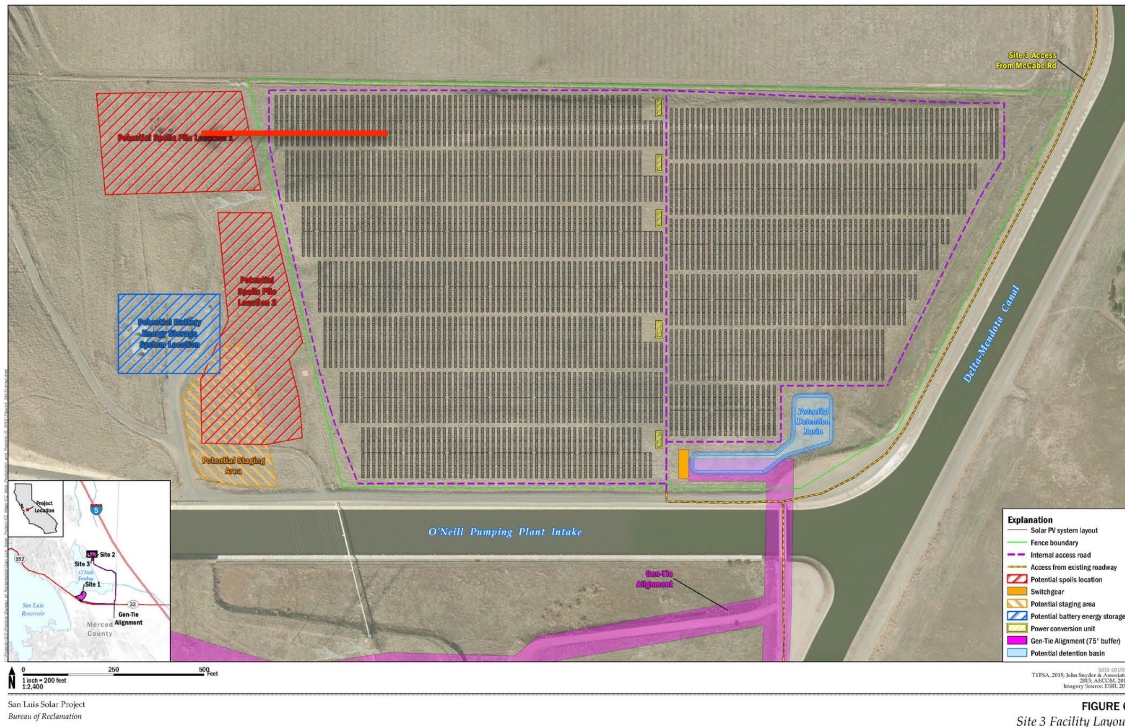


Figure 1a. Location of trees at Site 3. Red arrows point to trees within the proposed spoils pile relocation areas.



Figure 1b. Trees (red circles) within the proposed spoils pile relocation areas.



Figure 2. Trees located along the proposed gen-tie line corridor. Red arrow in top picture depicts location of Google Earth image in bottom picture.

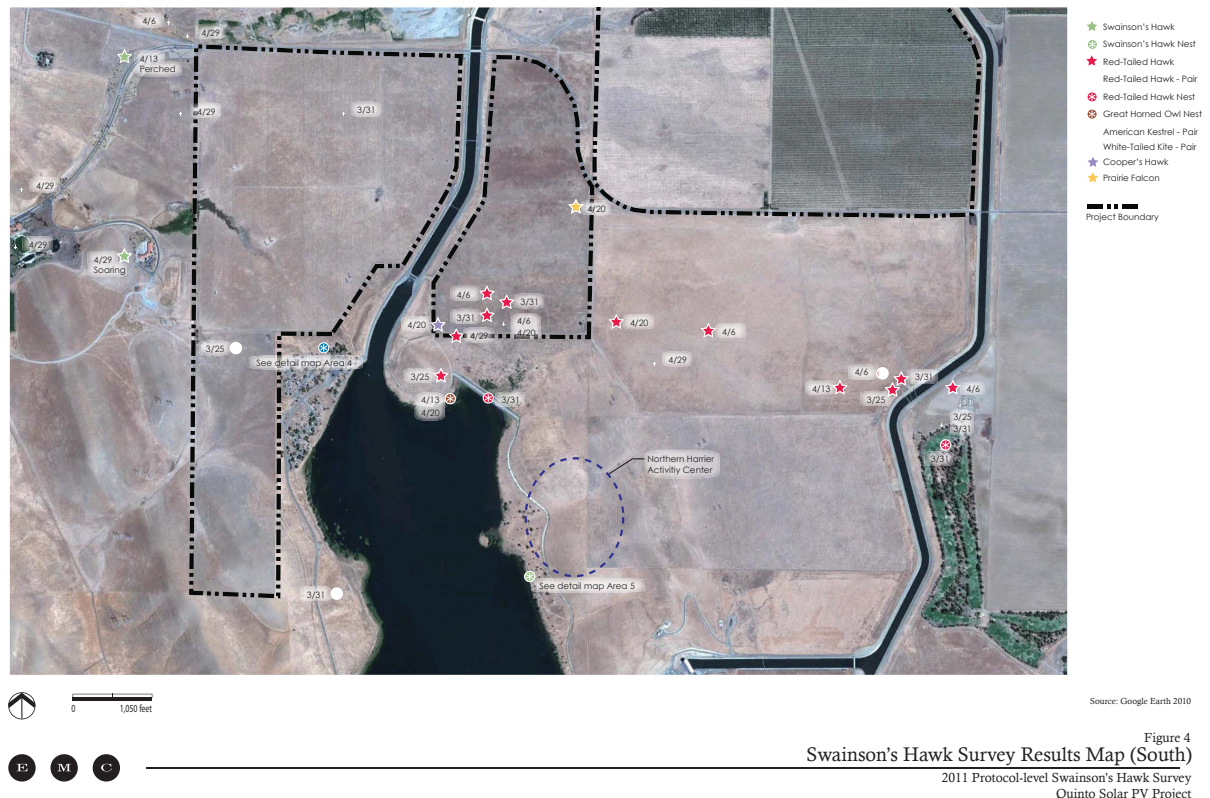


Figure 3. Swainson's hawk nest detected approximately ½ mile west of Site 3 during surveys for the Quinto Solar Project.



Figure 4. Emergent wetland immediately northeast of Site 1.



Figure 5. Pond and emergent wetland located near Site 2.

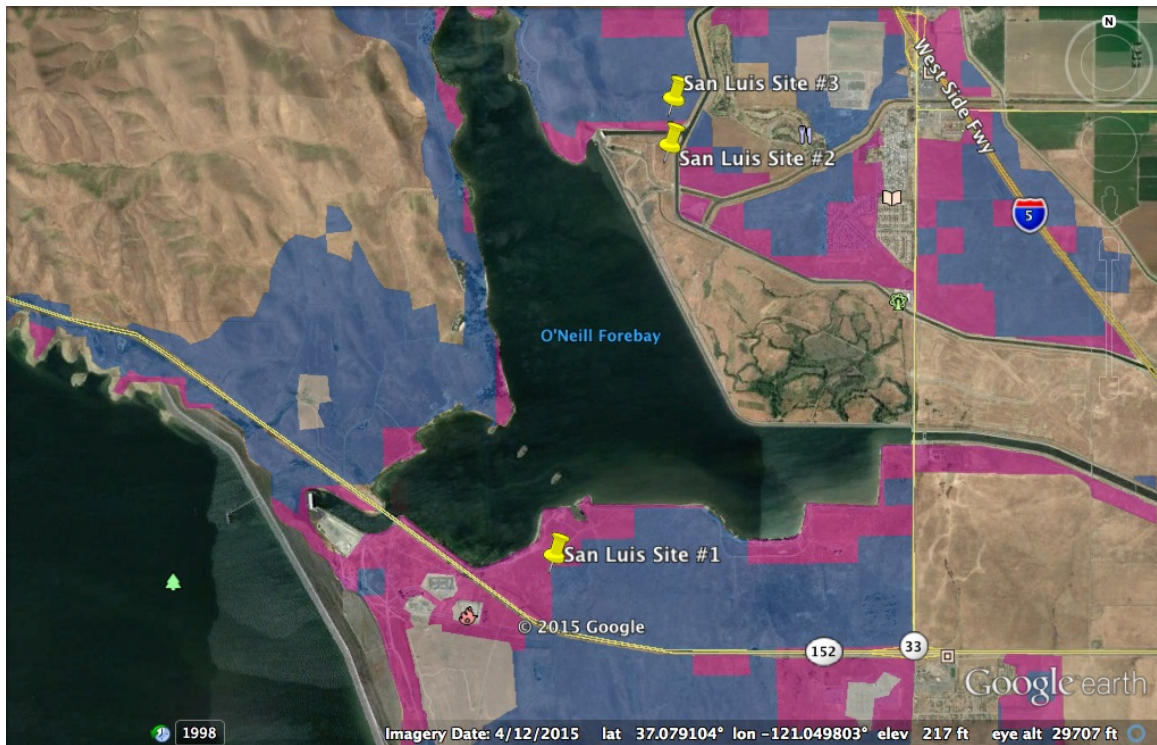


Figure 6. San Joaquin kit fox habitat model created by Cypher et al. (2013). Magenta = high suitability habitat; blue = moderate suitability habitat.

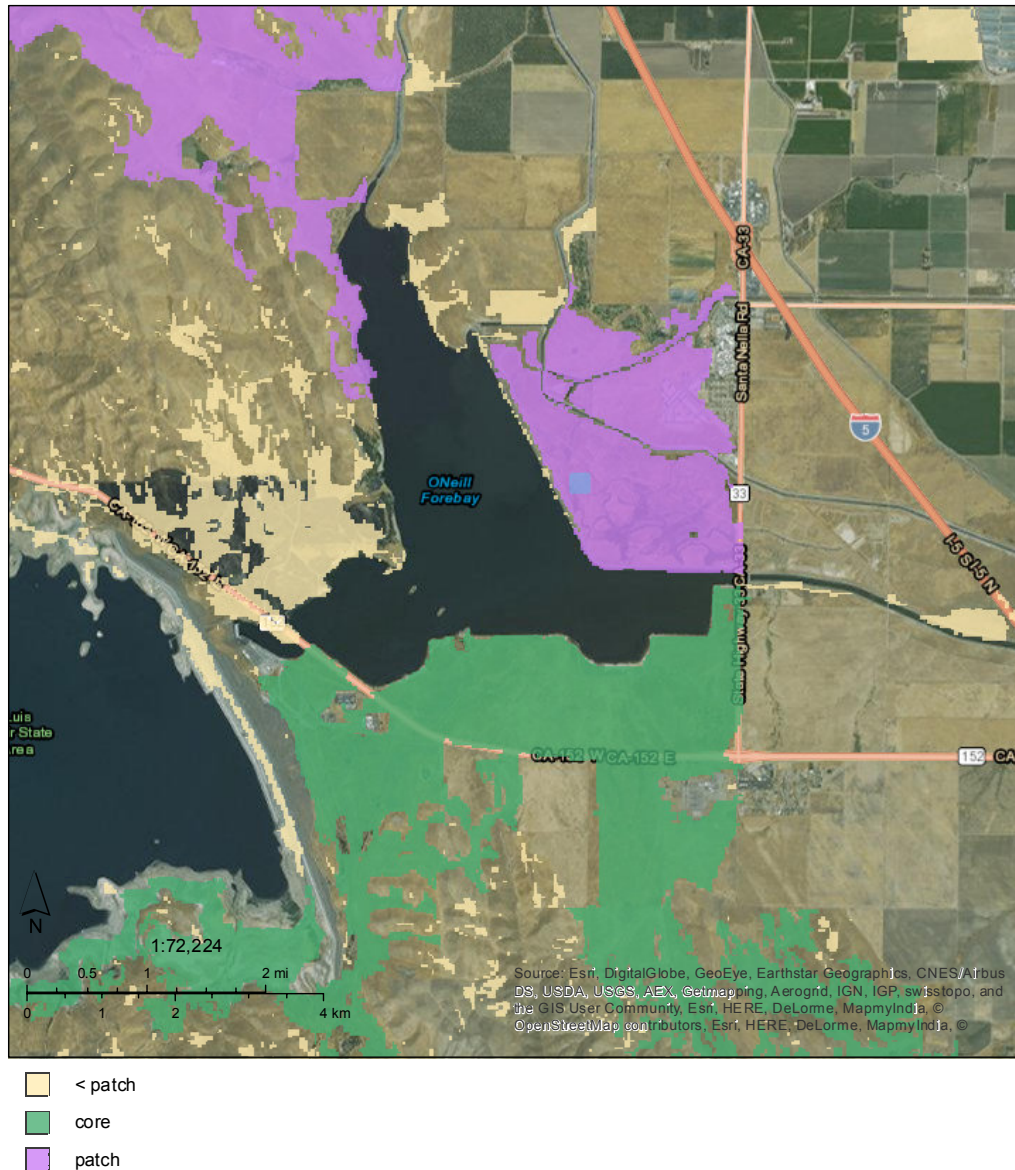


Figure 7. “Cores” and “patches” of breeding habitat for San Joaquin kit fox based on habitat connectivity model generated by Penrod et al. (2013).



Figure 8. Subterranean den (yellow pin to the east) installed for kit foxes by Endangered Species Recovery Program and Reclamation staff. Red line depicts approximate boundary of Site 1.



Figure 9. Photo of PV solar array. The DEA provided this photo as an example of the PV system that would be installed at the Project sites. Reflection of the blue sky can be seen in the top left corner of the picture.

Scott Cashen, M.S.

Senior Biologist / Forest Ecologist

3264 Hudson Avenue, Walnut Creek, CA 94597. (925) 256-9185. scottcashen@gmail.com

Scott Cashen has 20 years of professional experience in natural resources management. During that time he has worked as a field biologist, forester, environmental consultant, and instructor of Wildlife Management. Mr. Cashen currently operates an independent consulting business that focuses on CEQA/NEPA compliance issues, endangered species, scientific field studies, and other topics that require a high level of scientific expertise.

Mr. Cashen has knowledge and experience with many taxa, biological resource issues, and environmental regulations. This knowledge and experience has made him a highly sought after biological resources expert. To date, he has been retained as a biological resources expert for over 40 projects. Mr. Cashen's role in this capacity has encompassed all stages of the environmental review process, from initial document review through litigation support and expert witness testimony.

Mr. Cashen is a recognized expert on the environmental impacts of renewable energy development. He has been involved in the environmental review process for 28 renewable energy projects, and he has been a biological resources expert for more of California's solar energy projects than any other private consultant. In 2010, Mr. Cashen testified on 5 of the Department of the Interior's "Top 6 Fast-tracked Solar Projects" and his testimony influenced the outcome of each of these projects.

Mr. Cashen is a versatile scientist capable of addressing numerous aspects of natural resource management simultaneously. Because of Mr. Cashen's expertise in both forestry and biology, Calfire had him prepare the biological resource assessments for all of its fuels treatment projects in Riverside and San Diego Counties following the 2003 Cedar Fire. Mr. Cashen has led field studies on several special-status species, including plants, fish, reptiles, amphibians, birds, and mammals. Mr. Cashen has been the technical editor of several resource management documents, and his strong scientific writing skills have enabled him to secure grant funding for several clients.

AREAS OF EXPERTISE

- CEQA, NEPA, and Endangered Species Act compliance issues
- Comprehensive biological resource assessments
- Endangered species management
- Renewable energy
- Forest fuels reduction and timber harvesting
- Scientific field studies, grant writing and technical editing

EDUCATION

M.S. Wildlife and Fisheries Science - The Pennsylvania State University (1998)

B.S. Resource Management - The University of California, Berkeley (1992)

PROFESSIONAL EXPERIENCE

Litigation Support / Expert Witness

As a biological resources expert, Mr. Cashen reviews CEQA/NEPA documents and provides his client(s) with an assessment of biological resource issues. He then prepares written comments on the scientific and legal adequacy of the project's environmental documents (e.g., EIR). For projects requiring California Energy Commission (CEC) approval, Mr. Cashen has submitted written testimony (opening and rebuttal) in conjunction with oral testimony before the CEC.

Mr. Cashen can lead field studies to generate evidence for legal testimony, and he can incorporate testimony from his deep network of species-specific experts. Mr. Cashen's clients have included law firms, non-profit organizations, and citizen groups.

REPRESENTATIVE EXPERIENCE

Solar Energy Facilities

- Abengoa Mojave Solar Project
- Avenal Energy Power Plant
- Beacon Solar Energy Project
- Blythe Solar Power Project
- Calico Solar Project
- Calipatria Solar Farm II
- Carrizo Energy Solar Farm
- Catalina Renewable Energy Project
- Fink Road Solar Farm
- Genesis Solar Energy Project
- Heber Solar Energy Facility
- Imperial Valley Solar Project
- Ivanpah Solar Electric Generating
- Maricopa Sun Solar Complex
- Mt. Signal and Calxico Solar
- San Joaquin Solar I & II
- Solar Gen II Projects
- SR Solis Oro Loma
- Vestal Solar Facilities
- Victorville 2 Power Project

Geothermal Energy Facilities

- East Brawley Geothermal
- Mammoth Pacific 1 Replacement
- Western GeoPower Plant and

Wind Energy Facilities

- Catalina Renewable Energy Project
- Ocotillo Express Wind Energy
- San Diego County Wind Ordinance
- Tres Vaqueros Repowering Project
- Vasco Winds Relicensing Project

Biomass Facilities

- Tracy Green Energy Project

Development Projects

- Alves Ranch
- Aviano
- Chula Vista Bayfront Master Plan
- Columbus Salame
- Concord Naval Weapons Station
- Faria Annexation
- Live Oak Master Plan
- Napa Pipe
- Roddy Ranch
- Rollingwood
- Sprint-Nextel Tower

Project Management

Mr. Cashen has managed several large-scale wildlife, forestry, and natural resource management projects. Many of these projects have required hiring and training field crews, coordinating with other professionals, and communicating with project stakeholders. Mr. Cashen's experience in study design, data collection, and scientific writing make him an effective project manager, and his background in several different natural resource disciplines enable him to address the many facets of contemporary land management in a cost-effective manner.

REPRESENTATIVE EXPERIENCE

Wildlife Studies

- Peninsular Bighorn Sheep Resource Use and Behavior Study: (*CA State Parks*)
- "KV" Spotted Owl and Northern Goshawk Inventory: (*USFS, Plumas NF*)
- Amphibian Inventory Project: (*USFS, Plumas NF*)
- San Mateo Creek Steelhead Restoration Project: (*Trout Unlimited and CA Coastal Conservancy, Orange County*)
- Delta Meadows State Park Special-status Species Inventory: (*CA State Parks, Locke*)

Natural Resources Management

- Mather Lake Resource Management Study and Plan – (*Sacramento County*)
- Placer County Vernal Pool Study – (*Placer County*)
- Weidemann Ranch Mitigation Project – (*Toll Brothers, Inc., San Ramon*)
- Ion Communities Biological Resource Assessments – (*Ion Communities, Riverside and San Bernardino Counties*)
- Del Rio Hills Biological Resource Assessment – (*The Wyro Company, Rio Vista*)

Forestry

- Forest Health Improvement Projects – (*CalFire, SD and Riverside Counties*)
- San Diego Bark Beetle Tree Removal Project – (*SDG&E, San Diego Co.*)
- San Diego Bark Beetle Tree Removal Project – (*San Diego County/NRCS*)
- Hillslope Monitoring Project – (*CalFire, throughout California*)

Biological Resources

Mr. Cashen has a diverse background with biological resources. He has conducted comprehensive biological resource assessments, habitat evaluations, species inventories, and scientific peer review. Mr. Cashen has led investigations on several special-status species, including ones focusing on the foothill yellow-legged frog, mountain yellow-legged frog, desert tortoise, steelhead, burrowing owl, California spotted owl, northern goshawk, willow flycatcher, Peninsular bighorn sheep, red panda, and forest carnivores.

REPRESENTATIVE EXPERIENCE

Avian

- Study design and Lead Investigator - Delta Meadows State Park Special-Status Species Inventory (*CA State Parks: Locke*)
- Study design and lead bird surveyor - Placer County Vernal Pool Study (*Placer County: throughout Placer County*)
- Surveyor - Willow flycatcher habitat mapping (*USFS: Plumas NF*)
- Independent surveyor - Tolay Creek, Cullinan Ranch, and Guadacanal Village restoration projects (*Ducks Unlimited/USGS: San Pablo Bay*)
- Study design and Lead Investigator - Bird use of restored wetlands research (*Pennsylvania Game Commission: throughout Pennsylvania*)
- Study design and surveyor - Baseline inventory of bird species at a 400-acre site in Napa County (*HCV Associates: Napa*)
- Surveyor - Baseline inventory of bird abundance following diesel spill (*LFR Levine-Fricke: Suisun Bay*)
- Study design and lead bird surveyor - Green Valley Creek Riparian Restoration Site (*City of Fairfield: Fairfield, CA*)
- Surveyor - Burrowing owl relocation and monitoring (*US Navy: Dixon, CA*)
- Surveyor - Pre-construction raptor and burrowing owl surveys (*various clients and locations*)
- Surveyor - Backcountry bird inventory (*National Park Service: Eagle, Alaska*)
- Lead surveyor - Tidal salt marsh bird surveys (*Point Reyes Bird Observatory: throughout Bay Area*)
- Surveyor - Pre-construction surveys for nesting birds (*various clients and locations*)

Amphibian

- Crew Leader - Red-legged frog, foothill yellow-legged frog, and mountain yellow-legged frog surveys (*USFS: Plumas NF*)

- Surveyor - Foothill yellow-legged frog surveys (*PG&E: North Fork Feather River*)
- Surveyor - Mountain yellow-legged frog surveys (*El Dorado Irrigation District: Desolation Wilderness*)
- Crew Leader - Bullfrog eradication (*Trout Unlimited: Cleveland NF*)

Fish and Aquatic Resources

- Surveyor - Hardhead minnow and other fish surveys (*USFS: Plumas NF*)
- Surveyor - Weber Creek aquatic habitat mapping (*El Dorado Irrigation District: Placerville, CA*)
- Surveyor - Green Valley Creek aquatic habitat mapping (*City of Fairfield: Fairfield, CA*)
- GPS Specialist - Salmonid spawning habitat mapping (*CDFG: Sacramento River*)
- Surveyor - Fish composition and abundance study (*PG&E: Upper North Fork Feather River and Lake Almanor*)
- Crew Leader - Surveys of steelhead abundance and habitat use (*CA Coastal Conservancy: Gualala River estuary*)
- Crew Leader - Exotic species identification and eradication (*Trout Unlimited: Cleveland NF*)

Mammals

- Principal Investigator – Peninsular bighorn sheep resource use and behavior study (*California State Parks: Freeman Properties*)
- Scientific Advisor – Study on red panda occupancy and abundance in eastern Nepal (*The Red Panda Network: CA and Nepal*)
- Surveyor - Forest carnivore surveys (*University of CA: Tahoe NF*)
- Surveyor - Relocation and monitoring of salt marsh harvest mice and other small mammals (*US Navy: Skagg's Island, CA*)
- Surveyor – Surveys for Monterey dusky-footed woodrat. Relocation of woodrat houses (*Touré Associates: Prunedale*)

Natural Resource Investigations / Multiple Species Studies

- Scientific Review Team Member – Member of the science review team assessing the effectiveness of the US Forest Service's implementation of the Herger-Feinstein Quincy Library Group Act.
- Lead Consultant - Baseline biological resource assessments and habitat mapping for CDF management units (*CDF: San Diego, San Bernardino, and Riverside Counties*)

- Biological Resources Expert – Peer review of CEQA/NEPA documents (*Adams Broadwell Joseph & Cardoza: California*)
- Lead Consultant - Pre- and post-harvest biological resource assessments of tree removal sites (*SDG&E: San Diego County*)
- Crew Leader - T&E species habitat evaluations for Biological Assessment in support of a steelhead restoration plan (*Trout Unlimited: Cleveland NF*)
- Lead Investigator - Resource Management Study and Plan for Mather Lake Regional Park (*County of Sacramento: Sacramento, CA*)
- Lead Investigator - Biological Resources Assessment for 1,070-acre Alfaro Ranch property (*Yuba County, CA*)
- Lead Investigator - Wildlife Strike Hazard Management Plan (*HCV Associates: Napa*)
- Lead Investigator - Del Rio Hills Biological Resource Assessment (*The Wyro Company: Rio Vista, CA*)
- Lead Investigator – Ion Communities project sites (*Ion Communities: Riverside and San Bernardino Counties*)
- Surveyor – Tahoe Pilot Project: Validation of California’s Wildlife Habitat Relationships (CWHR) Model (*University of California: Tahoe NF*)

Forestry

Mr. Cashen has five years of experience working as a consulting forester on projects throughout California. Mr. Cashen has consulted with landowners and timber operators on forest management practices; and he has worked on a variety of forestry tasks including selective tree marking, forest inventory, harvest layout, erosion control, and supervision of logging operations. Mr. Cashen’s experience with many different natural resources enable him to provide a holistic approach to forest management, rather than just management of timber resources.

REPRESENTATIVE EXPERIENCE

- Lead Consultant - CalFire fuels treatment projects (*SD and Riverside Counties*)
- Lead Consultant and supervisor of harvest activities – San Diego Gas and Electric Bark Beetle Tree Removal Project (*San Diego*)
- Crew Leader - Hillslope Monitoring Program (*CalFire: throughout California*)
- Consulting Forester – Forest inventories and timber harvest projects (*various clients throughout California*)

Grant Writing and Technical Editing

Mr. Cashen has prepared and submitted over 50 proposals and grant applications. Many of the projects listed herein were acquired through proposals he wrote. Mr. Cashen's clients and colleagues have recognized his strong scientific writing skills and ability to generate technically superior proposal packages. Consequently, he routinely prepares funding applications and conducts technical editing for various clients.

PERMITS

U.S. Fish and Wildlife Service Section 10(a)(1)(A) Recovery Permit for the Peninsular bighorn sheep

CA Department of Fish and Game Scientific Collecting Permit

PROFESSIONAL ORGANIZATIONS / ASSOCIATIONS

The Wildlife Society (Conservation Affairs Committee member)

Cal Alumni Foresters

Mt. Diablo Audubon Society

OTHER AFFILIATIONS

Scientific Advisor and Grant Writer – *The Red Panda Network*

Scientific Advisor – *Mt. Diablo Audubon Society*

Grant Writer – *American Conservation Experience*

Scientific Advisor and Land Committee Member – *Save Mt. Diablo*

TEACHING EXPERIENCE

Instructor: Wildlife Management - The Pennsylvania State University, 1998

Teaching Assistant: Ornithology - The Pennsylvania State University, 1996-1997

Response to Merced County Residents for Responsible Development and California Unions for Reliable Energy Letter, January 15, 2016

Coalition-1 This is a general introductory comment with specific comments provided in the rest of the letter. Responses to the specific comments are addressed below.

Coalition-2 The comment asserts that the Proposed Action is a “major federal action requiring preparation of an EIS” and that the “Project will have significant adverse impacts that the Draft EA and Draft FONSI failed to discuss, analyze, and mitigate.”

Environmental Assessment (EA)-14-059 and its scope of analysis were developed consistent with National Environmental Policy Act (NEPA) regulations, guidance from the Council on Environmental Quality (CEQ), and the Department of the Interior’s NEPA regulations. In accordance with NEPA, an EA is initially prepared to determine if there are significant impacts on the human environment from carrying out the Proposed Action.

Reclamation has followed applicable procedures in the preparation of EA-14-059, which includes the required components of an EA as described in the CEQ’s NEPA regulations (40 CFR 1508.9): discussion of the need for the proposal, alternatives as required, environmental impacts of the Proposed Action and alternatives, and listing of agencies and persons consulted.

In EA-14-059, Reclamation analyzed the direct, indirect, and cumulative air quality, biological resources, cultural resources, hazardous waste and materials, land use, noise, recreation, topography, geology and soils, traffic and circulation, utilities and emergency services, visual and aesthetics, and water resources. Environmental protection measures (Table 6 in EA-14-059) were included in the Proposed Action to avoid and/or reduce potential environmental consequences associated with the Proposed Action.

The commenter states that similar projects have been considered major federal actions, such as *Natural Resources Defense Council, Inc. v. Hodel*, based on “[t]he construction of transmission facilities will require that vast acreages of land be converted from their present agricultural, recreational, and other uses, with accompanying disruption of fish and wildlife habitats. The increasing use of hydroelectric generators to meet peak load will cause large, rapid fluctuations of water levels affecting recreational activities, commerce, and aquatic life.”¹ However, the project described in *Natural Resources Defense Council, Inc. v. Hodel* proposed to convert thousands of acres for a hydro-thermal power program to support the forecasted electrical power needs of the Pacific Northwest with a capacity of 7.56 million kilowatts. In contrast, the Proposed Action would span 237 acres, with less than 14 acres permanently lost, and would provide less than 30 megawatts of energy.

¹ *Natural Resources Defense Council, Inc. v. Hodel* (NRDC v. Hodel), 435 F.Supp. 590 (D.Or. 1977).

Therefore, based on the above analysis, Reclamation does not agree with the determination of the commenter. The Proposed Action will not be a “major federal action” as defined by National Environmental Policy Act (NEPA), and an environmental impact statement is not required.

Coalition-3 This is a general introductory comment that “an EIS is required” with specific comments provided in the rest of the letter. Responses to the specific comments are addressed below.

Coalition-4 The comment asserts that “there is substantial evidence demonstrating that the Project will have significant impacts on air quality from construction emissions” and that “the Project will create significant NO_x emissions during Project construction that exceed applicable air district thresholds.” Specific comments addressed the project size, construction schedule, usage hours for off-road equipment, construction equipment, and trip length estimates.

Based on comments received during the public comment period and additional review, modeling assumptions were revised where appropriate, estimated air pollutant emissions remodeled, and the revised data included in Section 3.7 and Appendix E of Final EA-14-059. The revised modeling output does not change the conclusions of the analysis contained within the Draft EA as the construction emissions, calculated with standard minimization measures, are not projected to exceed any San Joaquin Valley Air Pollution Control District thresholds, including those for nitrogen oxides (NO_x).

Generally, assuming that total hours of equipment operation occur in a single day for purposes of the California Emissions Estimator Model (CalEEMod) will provide the same result as estimating emissions based on a specific construction schedule. For example, two concrete mixers are expected to operate for a total of 2 months as part of Project construction. Assuming an 8-hour workday and 22 working days per month, each concrete mixer would operate for a total of 352 hours, which is consistent with the hours entered in the model for one day. This modeling approach does not underestimate emissions because all construction-related emissions for the Proposed Action would occur within one year and are compared to an annual threshold.

The construction equipment list used to produce the model data provided in the comment (from Draft EA-14-059 Table 11; Table 12 in the Final EA) was not a Project-specific list of construction equipment. Rather, the list in Draft EA-14-059 Table 11 was intended to identify noise levels from the general types of equipment used for solar project construction, based on Federal Highway Administration construction equipment noise data. This was clarified in the Final EA-14-059 in Section 3.13, Noise. The estimated numbers of off-road equipment and usage durations employed in the revised CalEEMod model (Appendix E in Final EA-14-059) have been confirmed by the Applicant based on experience with similar solar projects.

The comment also states that the Draft EA “failed entirely to mention or analyze the Project’s toxic air contaminant emissions.” California Air Resources Board guidance² recommends a 500-foot buffer distance between sensitive land uses and typical land uses that generate toxic air contaminant emissions, such as high-volume freeways, urban roads, or distribution centers. This recommendation is based on studies that show a 70 percent decrease in particulate matter (PM) emissions at 500 feet from freeways, which are continuous emission sources, and an 80 percent decrease at 1,000 feet from distribution centers (CARB 2005). Studies also indicate that diesel PM emissions and the relative health risk can decrease substantially within 300 feet (CARB 2005; Zhu et al. 2002³).

As described in the Draft EA-14-059 in Section 3.13, the nearest residential receptors are approximately 0.8 mile (over 4,200 feet) to the east of Site 2. Site 1 and its perimeter fence would be adjacent to approximately 18 existing campsites on the western side of Medeiros, at distances ranging from approximately 75 feet to 220 feet, depending on the campsite (Draft EA-14-059, Section 3.9.2.2).

Toxic air contaminant emissions are not expected to be an issue of concern during construction because emissions would occur intermittently throughout the construction period, emissions would not occur as a constant plume from the construction areas, and the nearest residential receptors are well over 500 feet from construction areas. Campers and day-use visitors at the campsites directly adjacent to Site 1 would be exposed to construction-related traffic, personnel, and activities and could experience a high level of disruption during construction, as noted in EA-14-059 in Section 3.9.2.2. In accordance with Protection Measure NOI-4 (Section 2.2.5, Table 6), signs and other public information will be distributed to advise visitors of potential temporary construction-related noise at Medeiros and alternative camping and day use options in the San Luis Reservoir State Recreation Area. The Proposed Action also includes environmental protection measures such as Measures REC-1 (dust suppression) and NOI-3 (location of fixed construction equipment as far as feasibly possible from visitor uses at Site 1) that would help to reduce visitor exposure to potential emissions of toxic air contaminants. As a result, toxic air contaminant emissions are not expected to be an issue of concern for campers and day-use visitors. After construction, Project operation would not be a substantial source of emissions, as emissions would be limited to maintenance activities.

Coalition-5 The comment states that the Project would have significant adverse impacts to air quality due to NO_x emissions during construction, and therefore will have a

² California Air Resources Board (CARB). 2005. Air Quality and Land Use Handbook: A Community Health Perspective. California Environmental Protection Agency. April 2005. URL: <https://www.arb.ca.gov/ch/handbook.pdf>.

³ Zhu, Hinds, Kim, Shen, and Sioutas. 2002. Study of ultrafine particles near a major highway with heavy-duty diesel traffic. In *Atmospheric Environment* 36 (2002) 4323–4335. Received 6 March 2002; accepted 20 May 2002. URL: <http://mail.ictf-jpa.org/publiccomment/Documents/Zhu%202002%20710Fwy.pdf>.

significant incremental contribution to cumulative air pollution impacts. As described in the Response to Coalition-4, the Proposed Action's construction emissions, calculated with standard minimization measures, are not projected to exceed San Joaquin Valley Air Pollution Control District thresholds for NO_x. As a result, the Proposed Action would not have a significant incremental contribution to cumulative air pollution impacts.

Coalition-6 This is a general introductory comment regarding concerns "that the Project may significantly affect public health and safety" with specific comments provided in the rest of the letter. Responses to the specific comments are addressed below.

Coalition-7 The comment asserts that "Although the BESS facility would not be directly accessible to the public, it poses a substantial public safety and health risk to the public from a possible battery fire at the BESS site, which could spread beyond the boundaries of Site 3." The comment also asserts that "The Draft EA fails to include any of its proposed hazardous materials plans, spill and response plans, or emergency response plans in the Draft EA" and that without those plans "Reclamation lacks substantial evidence to support its conclusion that the impacts of a battery fire will be mitigated to less than significant levels." Finally, the comment states that by failing to disclose the specific battery constituents and fire-suppressant chemicals that would be used for the battery energy storage system (BESS), the Draft EA fails to adequately inform the public about the extent of the Project's health and safety risks.

Section 2.2.1.3 of EA-14-059 acknowledges that lithium-ion batteries are capable of spontaneous ignition due to overheating *if not protected* (emphasis added). As stated in Section 2.2.1.3, the Project would contain the battery modules in individual cabinets equipped with fire suppression systems and place them on a concrete pad surrounded by a concrete berm or geo membrane containment. As stated in Table 6 of EA-14-059 (Protection Measure WQ-1), the volume provided by the secondary containment will be sufficient to contain any leaks or spills from individual or multiple battery units. Tables 3 and 4 include the chemical types associated with the BESS (electrolyte, refrigerant, and coolant). Typical chemicals in batteries include alkyl carbonate (an electrolyte), ethylene glycol (a coolant)/water, and 1,1,1,1-Tetrafluoroethane (a refrigerant).

No chemicals associated with the batteries or fire suppression system would corrode the containment and enter into the subsurface soil or flow into O'Neill Forebay or waterways. Therefore, the underlying subsurface soils will be protected against leaks from the BESS. The BESS will be inspected daily, and any detected battery leaks will be cleaned up locally and the battery replaced or repaired.

In case of a storm event during a battery leak, it is estimated that the impacted rainwater will remain within the secondary containment area and not overflow into surface water or groundwater, even during a significant rain event. All storm

water collected in the bermed area will be inspected and removed in accordance with the Hazardous Materials Management Plan, as noted in Table 6 of EA-14-059 (Protection Measure WQ-1).

A battery fire at the Project's BESS could possibly result in release of flammable electrolytes, which could affect surface water or groundwater quality. However, each battery container will contain a fire suppression system that is designed to contain any fire within the container itself. The Proposed Action will use a fire protection system with the suppression by cooling, isolation and containment strategy for fire containment. The fire suppression system would include a gaseous fire suppressant agent (e.g., FM-200TM, FE-25TM) and an automatic fire extinguishing system with sound and light alarms. As stated in Section 2.2.1.3 of EA-14-059, the system will be designed according to National Fire Protection Association (NFPA) safety standards, further preventing any spill that would impact the surface streams. The bermed secondary containment will hold the fire suppression liquid, once released within the containment area, thus preventing it from being released in to subsurface soil or surface water or groundwater. The fire suppression liquid will then be tested and disposed properly.

The discussion under the subheading "Safe Handling", in Section 2.2.1.3 of EA-14-059, lists a number of safety and prevention protocols and equipment that would be included in the Project design and construction specifications that would protect against battery fire risk.

The specific design and chemicals (such as fire suppressants) used will depend on the manufacture and model of the BESS, which will be determined during detailed Project design. The EA identifies the categories of chemicals that could potentially be used. The effects of the categories of chemicals that would be used are addressed in Sections 3.2.2.2 and 3.12.2.2,⁴ and environmental protection measures are listed in Section 2.2.5, Table 6 of EA-14-059.

The comment suggests that emergency planning documents cited in the Draft EA had not been prepared at the time the EA was released. The Hazardous Materials Management Plan, which incorporates the Spill Prevention and Response Plan, and the Emergency Action Plan were developed during the preparation of the Draft EA and will be updated as necessary during detailed Project design. The Hazardous Materials Business Plan will be prepared once final design is complete and the final chemical inventory has been prepared. To update and finalize these other plans during detailed design does not defer mitigation.

Contrary to the comment, battery storage at the utility scale is not a new undertaking. Battery storage at power plants has been in use since the early 2000s. Protection Measure WQ-1 in Table 6 and the protective measures listed in Section 2.2.1.3 of EA-14-059 under "Safe Handling" are at least equivalent to

⁴ Per *Robertson v Methow Valley Citizens Council* (490 US 332 [1989]), NEPA does not mandate that uncertainty in predicting environmental harms be addressed exclusively by a worst case analysis.

those used for other approved battery storage facilities in California, including at power plants directly adjacent to water bodies.

Coalition-8 The comment states that the Draft EA “fails to discuss the need for battery replacement and disposal during the life of the Project and when the Project is decommissioned.” The Waste Management Plan and Hazardous Materials Management Plan for the Proposed Action address characterization and proper handling of all Project-related waste, including batteries. All Project-related wastes would be disposed of in accordance with local, State, and Federal regulations. The number of batteries that would be used will depend on the manufacture and model of the BESS, which will be determined during detailed project design. See the Response to Coalition-25 in regard to Project decommissioning.

Coalition-9 The comment states that “Reclamation failed to prepare a traffic analysis for the Project, and instead relied on a 2011 traffic study prepared for the Quinto Solar PV Project.” The traffic study for the Quinto Solar PV Project (Merced County Planning and Community Development Department 2012a, b) was one source of information that was utilized. It was used because it was completed in 2012, and no new developments have occurred in the local area that would substantially change the conditions reported. The study provided relatively recent and useful information for McCabe Road, which was affected by the Quinto Solar PV Project and considered for effects from construction and operation of Sites 2 and 3 of the proposed Project.

Traffic volumes on McCabe Road were reported at 36 vehicles in the AM peak hour and 43 vehicles in the PM peak hour, which are low, even for a two-lane road. Following construction, the Quinto Solar PV Project would contribute only 10 vehicle trips to the Santa Nella area. The Quinto Solar PV Project study is therefore a valid basis for use for the Proposed Action’s traffic study because it was completed in the last 5 years (relatively recent), no major changes in local or regional development have occurred that would substantially affect traffic conditions, and the Quinto Solar PV Project is completed and no longer contributing any construction traffic to local or regional roads. The Quinto Solar PV Project estimated volumes that were almost double the level of construction traffic estimated for the Proposed Action, and no significant impacts were identified for the Quinto Solar PV Project.

The other sources of data used were the most recent traffic counts available on State Routes 33 and 152, as reported by California Department of Transportation (Caltrans) in 2013 and 2014 in their annual traffic count data base. These volumes were used to evaluate conditions along these routes where construction traffic would enter and exit Site 1. The Quinto Solar PV Project analysis does not apply to this site, and was not used or relied upon for the evaluation of the Proposed Action’s traffic impacts at Site 1.

The comment also states that the Draft EA failed to address impacts to the McCabe Bridge. EA-14-059 includes a discussion of the McCabe Road Bridge over the Delta Mendota Canal in Section 3.10.2.2, and Measure TR-1 that restricts drivers from sharing or passing on the bridge is listed in Table 6 in Section 2.2.5. The relevant details from the Quinto Solar PV Project traffic study that relate to this comment are that the bridge has a legal weight limit of 80,000 pounds. The maximum load that can be carried by any single truck is defined by the California Vehicle Code by the number of axels, weight per axel, and the distance between axels, but no single vehicle can exceed 80,000 pounds on a California highway. Therefore, no mitigation is necessary to define or limit the trucks, regardless of size or axel configuration, to 80,000 pounds as this is existing State law. Measure TR-1 therefore focuses on limiting the number of trucks at any one time using the McCabe Road Bridge so as not to exceed the bridge's weight limit, similar to the Quinto Solar PV Project EIR findings. To address the commenter's concern, Measure TR-1 has been revised from "should" to "shall include the requirement..." The Proposed Action may have up to 4 trucks in a peak period using the 105-foot-long bridge. Requiring restriction in the contract that delivery trucks cannot pass on the bridge, as included in Measure TR-1, is therefore considered an effective means to avoid a potential weight overload at this bridge.

The EA identified that the access to and from McCabe Road and the unpaved access road paralleling the Delta-Mendota Canal would require truck drivers to slow and make a right or left turn (Section 3.10.2.2). No unusual risks were identified at this intersection, other than that trucks would have to slow to make the left or right turn. There is nothing unusual about its configuration. There are no structures or vegetation interfering with site distance, and opposing traffic will be visible to drivers entering or exiting the intersection. As noted above, the number of trucks using this intersection at the peak of construction was estimated at 4 per hour, or on average approximately one per 15 minutes. Existing traffic is 30 to 50 vehicles per hour on McCabe Road (level of service [LOS] A⁵), and therefore backups are not anticipated; this volume is considered a functionally high LOS roadway. Traffic following a Project-related construction truck would have to slow as the truck approaches the intersection, but this is not an unusual event on a rural road, and was not identified as a significant condition given the good visibility conditions, low existing traffic volumes, and relatively low volume of trucks per hour that would be associated with Project construction.

Finally, the comment states that "the Draft EA also fails to mention the bridge over the O'Neill Pumping Plant intake channel towards the O'Neill Forebay." The bridge over the O'Neill Pumping Plant intake channel would also be used by construction vehicles to access Site 2 during construction. The bridge is rated as HS20-44, which has a maximum weight limit of 72,000 pounds. Measure TR-1 has been modified to state that drivers cannot pass on, or have two vehicles share, the bridge over the O'Neill Pumping-Generating Plant intake channel; and that

⁵ Level of service (LOS) is a metric used to characterize traffic operating conditions (rated from A to F, with A being no delays and F being considerable delays).

the construction contracts shall include the requirement that no construction vehicle using the bridge over the O'Neill Pumping-Generating Plant intake channel will exceed the weight limit for that bridge.

Coalition-10 The comment states that the “area around the Project site contains unique characteristics that may be significantly impacted by the project.” This is an introductory comment that is addressed in the responses to more specific comments below. However, as stated in Section 1.1 of EA-14-059, the Proposed Action will be on Federal lands, and is not State Park’s land.

Coalition-11 The comment states that the “Draft EA failed to adequately survey relevant species and failed to adequately discuss impacts to species.” Contrary to the comment, extensive surveys over 12 days were completed by ESR, Inc. to identify vegetation communities, soil types, and potential habitat that may support special-status species; assess the presence of special-status species; and evaluate drainage patterns and migratory corridors. Responses to comments about specific species are below.

Based on comments received during the public comment period and additional review, supplemental information was added to the Final EA-14-059 to support the Finding of No Significant Impacts (FONSI). In addition, see the following comment responses regarding biological resource issues:

- DFW-2 and DFW-5 – San Joaquin kit fox
- DFW-2 – special-status species
- DFW-2 and DFW-6 – blunt-nosed leopard lizard
- DFW-7 – California tiger salamander
- DFW-8 – burrowing owls
- DFW-9 – Swainson’s hawk
- DFW-11 – White-tailed kite, ferruginous hawk, and northern harrier
- DFW-10 – tricolored blackbird
- DFW-11 and DFW-12 – raptors and migratory birds
- DFW-13 – bird strikes

Coalition-12 The comment states that the Draft EA and Draft FONSI “conclude, based on the incomplete information ... that the Project will not have any significant adverse effects on kit fox.” As stated in EA-14-059, a search of the California Natural Diversity Database (CNDDB) program for the Project area was used to determine what species may be present. The CNDDB is the primary program used by the U. S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (DFW) to record where species have been logged by field surveyors. The most current CNDDB version was used at the time of report preparation, and while there were 23 sightings listed within a 10-mile buffer including and surrounding the site, only the 1975 listing was recorded for the Project site, as mentioned in EA-14-059. Also, there are several barriers, including freeways and

tall vegetation, which limit San Joaquin kit fox movement through the Project area. See DFW-2 regarding San Joaquin kit fox corridors and habitat suitability.

Reclamation completed formal consultation with the USFWS, which issued a biological opinion (BO) on July 10, 2017 (included in Appendix B of EA-14-059). The BO states the following in regard to the San Joaquin kit fox: “Due to the presence of habitat consistent with the needs of the species within the action area, and known populations of the species surrounding the action area, the Service has determined that the action area contains habitat for the San Joaquin kit fox, and considers the action area to be used by the species for feeding, movement, and dispersal. While not observed, it is possible that portions of the action area are usable by the species for denning.” In the BO (page 23), the USFWS determined that the Proposed Action is not likely to jeopardize the continued existence of the San Joaquin kit fox based on the Project design features to minimize habitat fragmentation and the conservation measures to minimize the potential for incidental take (including the fencing described in the comment and in Conservation Measure 2 on page 13 of the BO). As noted in EA-14-059 Section 2.2.5, the Applicant shall implement the terms and conditions of the BO. Therefore, the Proposed Action is not expected to have substantial adverse effects on kit fox.

Coalition-13 The comment states that mitigation measures for blunt-nosed leopard lizard were “inexplicably omitted from the Draft EA” and without those measures, “Reclamation has no basis on which to conclude that ... the impacts will be less than significant.” See DFW-2 and DFW-6 regarding impacts to and mitigation for blunt-nosed leopard lizard.

Coalition-14 through Coalition 20 The comment states the EA fails to disclose or analyze potential impacts to golden eagle, bald eagle, Red-tailed hawk, Swainson’s hawk, white-tail kite, ferruginous hawk, and northern harrier. Based on comments received during the public comment period and additional review, the Final EA-14-059 states that habitat in the Project site may be used for foraging by raptors. In addition, see Responses DFW-11 and DFW-12. Surveys will include all raptors and migratory birds based on the CDFW recommended distances, whether they build terrestrial or arboreal nests.

Coalition-21 The comment states that the tricolored blackbird is near the Project site and the conclusions in the Draft EA-14-059 “fail to take into account the impacts”. See DFW-10 regarding tricolored blackbirds.

Coalition-22 The comment states the Project sites provide suitable terrestrial habitat for California red-legged frog, California tiger salamander, western spadefoot, and western pond turtle. See DFW-7 regarding California tiger salamander. The discussion also applies to California red-legged frog and Western spadefoot toad. The western pond turtle is not a Federally-listed species, and therefore is not discussed in EA-14-059.

Coalition-23 The comment states the “Draft EA fails to mention the presence of two sensitive vegetation communities that occur along the Project’s proposed gen-tie line ...” The solar PV system site locations and gen-tie corridor will not cross or impact any Great Valley Riparian Forest or Freshwater Marsh. The closest Great Valley Cottonwood Riparian Forest listed in the CNDDDB is over 6.25 miles to the northwest of the Project area. No special-status vegetation community will be affected by the Proposed Action.

Coalition-24 The comment suggests that “construction traffic at Project Sites 2 and 3 is likely to interfere significantly with the operations of the adjacent San Joaquin Valley National Cemetery,” specifically funeral-related traffic. It is possible that these events could overlap, but only occasionally, and if it did occur would not be considered a major adverse impact to traffic for the following reasons.

EA-14-059 identified that construction workers would arrive at the site between 8 and 9 AM, and leave between 4:15 and 5:15 PM. Some workers might drive into Santa Nella for lunch, but the majority would stay on site throughout the work day. The San Joaquin Valley National Cemetery hours are from 8 AM to 5 PM daily. Services throughout the majority of the day (9 AM to approximately 4 PM) would therefore not conflict with the Project’s peak construction workforce travel, except for services that might occur before 9 AM and after 4 PM. Traffic from services at the cemetery and construction could overlap early or late in the day. However, morning peak conditions on McCabe Road are at LOS A,⁶ and combined traffic from a funeral event with peak construction traffic would not change traffic operations by more than one LOS, if at all. The operating conditions along McCabe Road would continue well within acceptable levels, considered LOS D or better.

Truck delivery vehicles, estimated at up to four per hour, would use McCabe Road during the day when a service might take place. A funeral procession could conceivably overlap with one or two trucks. The levels of service on McCabe Road are high (LOS A, with traffic at 30 to 50 vehicles per hour) and would not be affected by a temporary event of a funeral service and one or two trucks on the road at the same time.

The commenter also states that “during the period of construction at Project Site 1, the commute traffic and truck traffic through the Madeiros Campground Area will render this area very unattractive and unsuitable for use as a recreational campsite.” Construction impacts to recreation, including truck traffic, are addressed in the following sections:

- Section 3.8.2.2, under Construction;
- Section 3.9.2.2, under Construction;
- Section 3.13.2.2, under Construction/ Potential Effects to SRA Visitors.

⁶ See response Coalition-9 for a footnote defining levels of service.

Construction of Site 1 will result in disturbance to some recreationists at Medeiros Use Area, as described in Section 3.9.2.2 of EA-14-059. The Applicant will coordinate with State Parks, as described in Measure NOI-4 (Table 6 of EA-14-059), to develop signs and other public information to advise visitors of potential temporary construction-related noise at Medeiros and alternative camping and day use options in the SRA.

- Coalition-25** The comment states that Draft EA’s discussion of decommissioning fails to comply with NEPA and raises questions about unknown risks. Decommissioning of the Proposed Action is anticipated to take place approximately 30 years after operation begins. Development of a detailed decommissioning plan and environmental evaluation would involve making a number of assumptions that would be inherently speculative. The specific steps that would be required to decommission the facility if that process were undertaken now, and the regulatory requirements to which these actions would be subject, are unlikely to be the same as those required in 30 years. NEPA does not require analysis based on speculation. In addition, California environmental analysis requirements for solar projects by other regulatory agencies, such as the California Energy Commission, are not applicable to the Proposed Action.

However, based on comments received during the public comment period and additional review, the last paragraph of Section 2.2.2.12 has been modified to clarify what decommissioning might involve and that it will take place according to applicable regulations at that time. Environmental analysis of decommissioning will be conducted at that time, as applicable.

- Coalition-26** The comment states that “There is substantial evidence that the Project will have potentially significant cumulative impacts that the Draft EA failed to analyze”. This is an introductory comment that is addressed in the responses to more specific comments below.

- Coalition-27** The comment states that the Project will have significant impacts on air quality from construction emissions. See Responses to Coalition-4 and Coalition-5 in regard to construction emissions and cumulative air quality emissions from the Proposed Action.

The Project’s construction emissions have been quantified and provided in Section 3.7 and Appendix E of Final EA-14-059. The Proposed Action would not result in a substantial effect to air quality, nor would it contribute to cumulative air quality impacts.

- Coalition-28** The comment states that the Draft EA failed to analyze the cumulative biological impacts in relation to other development projects. Based on comments received during the public comment period and additional review, Section 3.4.2.3 has been revised to include additional discussion of potential cumulative effects to

biological resources. Also, with implementation of Measures BIO-1 through BIO-10, the Proposed Action would not result in a substantial effect to biological resources, nor would it contribute to cumulative impacts to biological resources.

The comment also states that the project will have significant impacts to numerous biological resources. See the Response to Coalition-11 regarding the species identified in the comment. In compliance with section 7 of the Endangered Species Act (ESA), Reclamation made a determination of potential impacts to special-status species from the Proposed Action. As per regulations in 50 CFR 402.14, Reclamation initiated consultation with the USFWS. USFWS issued a BO for potential impacts to kit fox and concurred with Reclamation's determination that the Proposed Action is not likely to adversely affect blunt-nosed leopard lizard. See Appendix B of EA-14-059. Reclamation and the Applicant would comply with the reasonable and prudent measures and implement all terms and conditions in the USFWS' incidental take statement.

- Coalition-29** The comment reiterates that the Project will have significant impacts on air quality from construction emissions, and will violate the Clear Air Act. See the Responses to Coalition-4 and Coalition-5 regarding air quality.
- Coalition-30** The comment suggests that the Project may have adverse impacts and potentially take listed species under the Federal or State ESA. See the Response to Coalition-28 regarding consultation under section 7 of the ESA. As described in the Response to DFW-3, as a Federal agency, Reclamation is not required to comply with California Environmental Quality Agency or California Endangered Species Act or consult with DFW.
- Coalition-31** The comment states that the "Draft EA fails to describe the disposal methods planned for expended batteries used for the BESS" and "an EIS must be prepared to include a battery disposal plan that complies with State law." See the Response to Coalition-7 regarding hazardous materials. The disposal method would be documented in the Hazardous Materials Business Plan, which as noted in that response, and will be prepared once final design is complete and the final chemical inventory has been prepared.
- Coalition-32** The comment states that the "Draft EA fails to provide evidence that Reclamation has adhered to key provisions of RMP/GP, including implementation of focused surveys for special-status species using USFWS protocol." The RMP/GP is the guiding document for the Project area. However, one of the RMP/GP's purposes is to "[p]ropose uses that are compatible with Reclamation's core mission of delivering water and generating power," and one of the goals is to "[a]llow for consideration and development of renewable energy projects within the Plan Area." The statement in the comment that the RMP/GP requires "implementation of focused surveys for special-status species using USFWS protocol," is a rewording of a guideline listed in RMP/GP Section 4.2.1.6 rather than a mitigation measure. The RMP/GP guideline states: "Where necessary, evaluate

special-status species in the Plan Area through focused surveys using USFWS protocol to manage for species protection and the development of a future protection program.”

- Coalition-33** The comment states that “Reclamation improperly segmented its environmental review of the Project ... from the San Luis Transmission Project.” Based on comments received during the public comment period and additional review, Reclamation modified the language in the Final EA-14-059 to clarify that transmission via the Western Area Power Administration line is an option, as is transmission via the California Independent System Operator. The Proposed Action is independent of the San Luis Transmission Project and would not require construction of that project, or any elements thereof, to satisfy the purpose of the San Luis Solar Project.
- Coalition-34** The commenter states that “Reclamation failed to take a hard look at the project’s potentially significant impacts.” See Response to Coalition-2.
- Coalition-35** The comment states that the “Draft EA provides an incomplete analysis of the risks to birds associated with collision with solar panels and transmission lines at the Project site” and “impacts from avian collisions are potentially significant and must be mitigated.” Refer to the Response to DFW-13 regarding bird strikes.
- Coalition-36** The comment suggests that the Draft EA “failed to take a hard look at the Project’s traffic impacts.” Refer to the Response to Coalition-9, which explains how the Quinto Solar PV Project traffic study was used, and its applicability to Sites 2 and 3. The latest California Department of Transportation traffic counts available during preparation of the Draft EA were used for evaluation of traffic at Site 1. The questions about bridge passage are addressed in the Response to Coalition-9.
- Coalition-37** The commenter states that the mitigation measures proposed in the EA are insufficient to support the FONSI. The comment states that the measures fail to meet the basic legal standards required by NEPA and many are “non-binding, incomplete, deferred, or generally ineffective.” The examples provided in the subsequent comments do not support this assertion.

Regarding air quality mitigation, see the Responses to Coalition-4 and Coalition-5.

The efficacy of the biological mitigation measures are discussed in the responses to specific comments.

The statements about non-binding mitigation measures are speculative. As required by NEPA, Reclamation implements, tracks, and evaluates environmental commitments associated with a project. Reclamation verifies, in accordance with

the terms and conditions of the approval, that the environmental commitments have been implemented to insure we are in compliance with all applicable laws.

Refer to the Response to Coalition-2 in regard to the comment that the Draft EA and FONSI fail to follow the Department of the Interior mitigation policy because they do not entirely avoid sensitive resources and fail to include mitigation measures for some significant impacts.

- Coalition-38** The comment states that the “Draft EA did not disclose NO_x emissions as a significant impact” and an “EIS must be prepared that incorporates mitigation measure to reduce the Project's NO_x emissions to less than significant levels.” Refer to the Responses to Coalition-4 and Coaliton-5.
- Coalition-39** The comment suggests that the Draft EA fails to properly “mitigate the loss of habitat to San Joaquin kit fox, blunt-nosed leopard lizard, burrowing owls and other species that will be caused by the Project.” Refer to the Responses to Coalition-2 and Coalition-28. Also, as mentioned in the USFWS’ BO (Appendix B of EA-14-059), the effects of habitat fragmentation to San Joaquin kit fox would be minimized through the incorporation of minimization measures into the Project design, and would not appreciably reduce the north-south movement corridor to connect the Santa Nella satellite population with the northern satellite population in San Joaquin and Contra Costa counties.
- Coalition-40** The comment states that there are “several flaws in the Draft EA’s proposed biological mitigation measures that render the measures uncertain and therefore ineffective.” The environmental protection measures and commitments for biological resources listed in Table 6 of EA-14-059 were initially developed by the Project’s biological team, and further augmented and refined based on input from the USFWS and DFW to reduce the likelihood of adverse impacts and to protect species of interest.
- See the Responses to DFW-8 regarding burrowing owl, DFW-9 regarding Swainson’s hawk and raptors, DFW-11 and DFW-12 regarding migratory birds and raptors, and DFW-13 regarding an Avian Avoidance Plan.
- Coalition-41** The comment states that “mitigation measures for fire suppression and containment are vague and lack evidence of efficacy.” Refer to the Response to Coalition-7 regarding the measures for the BESS.
- Coalition-42** The comment states that no plans or drawings of the proposed BESS containment system were provided, and that the plans to “safeguard the Project site and the public from battery storage risks” were not “included in the Draft EA, and apparently had not even been drafted at the time the Draft EA was released.” Refer to the Response to Coalition-7 regarding the containment system and the Hazardous Materials Management Plan, Hazardous Materials Business Plan, Spill Prevention and Response Plan, and Emergency Action Plan.

Coalition-43 The comment indicates that the wording of the mitigation measures in the Draft EA does “not require any mandatory or meaningful action by the Applicant.” As stated in Section 2.2.5 of EA-14-059, the Applicant shall implement the following environmental protection measures to reduce environmental consequences associated with the Proposed Action (Table 6). That statement applies to each individual measure listed in Table 6.

Measure NOI-4 in EA-14-059 has been revised to clarify that signs will be posted.

Coalition-44 The comment states that if the Proposed Action “is likely to adversely affect” a threatened or a threatened or endangered species or adversely modify its designated critical habitat, the Applicant or Reclamation must engage in “formal consultation” with the USFWS to obtain its biological opinion. As described in the Response to Coalition-12, Reclamation engaged in formal consultation with the USFWS, and the biological opinion is provided in Appendix B of EA-14-059.

Coalition-45 The comment states that the Biological Assessment for the Project “fails to satisfy ESA requirements.” See Response to Coalition-28. Section 3.4 of EA-14-059 described baseline habitat conditions and potential impacts to special-status species. Section 4.3 of Draft EA-14-059 stated that Reclamation had determined that the Proposed Action may affect blunt-nosed leopard lizard and San Joaquin kit fox, and were in consultation with the USFWS, as required under section 7 of the ESA. A FONSI was not signed until after a Biological Opinion was issued, and incorporated into the Final EA.

We believe the commenter made a typographical error when mentioning that the Draft EA failed to address the impacts to desert tortoise. The closest CNDDB records for desert tortoise are over 150 miles from the Project site.

Coalition-46 The comment states that “the Draft EA fails to disclose the details of Reclamation’s ... consultation under the ESA with the USFWS.” See the Responses to Coalition-28 and Coalition-45. In reference for the adequacy of an EA, see the Response to Coalition-2.

Coalition-47 The commenter’s request is noted.



Lewis, Jennifer <jllewis@usbr.gov>

FONSI-14-059 San Luis Solar Project

1 message

David Goddard <draddogdj@gmail.com>

Wed, Jan 13, 2016 at 1:25 PM

To: jllewis@usbr.gov

Dear Jennifer,

SLSSP-1 I am the president of the San Luis Sailboard Safety Patrol (SLSSP), I am writing to you to voice my concerns with the proposed San Luis Solar Project. I applaud the use of alternative energy and I think this project is a good use of the land involved. However my main concern is the closeness of the boundary fence of the site 1 facility. The fence removes a great deal of land that could potentially be used in the future for recreational camping , it squeezes the existing campground in between the fence and shoreline. The road was always a secondary access to the " fishing spot " near the dam at the western end of the Medeiros area, with the proposed plan the road now becomes the primary access with increased traffic right up against the camp spaces. The traffic moves very fast at that point, the road is "wash boarded " ,consequently cars tend to speed up to skip the wash board. This will create a dangerous situation for campers in that area. Maybe if the project was put on the south side of the existing access road there would be less impact on the camping area.

Hopefully this project will not have a negative impact on the fishing and water sports in that area.

Thank you for your consideration in this matter.

Respectfully

David J Goddard

SLSSP President

831-594-5472

Sent from my iPad

Response to San Luis Sailboat Safety Patrol Letter, January 13, 2016

SLSSP-1 The comment states that the “main concern is the closeness of the boundary fence of the site 1 facility.” Reclamation, California State Parks, and the Applicant have collaborated to develop a mutually acceptable recreation buffer at Site 1, which is shown in Figure 4 and described in Section 2.2.1.1 of Final EA-14-059. The buffer will accommodate additional future camping development.” As stated in Section 2.2.2.9 of EA-14-059, prior to construction, unpaved site access roads would be stabilized with crushed rock or other road stabilization material. Roads would be 20 feet wide and treated with 6 inches of crushed rock. The improvement of this road would benefit anglers, campers, and other recreation users near Site 1.



Lewis, Jennifer <jllewis@usbr.gov>

O'Neil Forebay Solar Project

1 message

David Beaudry <davidjbeaudry@gmail.com>

Tue, Jan 12, 2016 at 8:17 AM

To: jllewis@usbr.gov

Hi,

I am a windsurfer that uses the Forebay where this project(Site 1) will be built.

It would preferable to have as little power lines or towers or any substations close to the windsurfing area.

David

Response to David Beaudry Letter, January 12, 2016

Beaudry-1 The comment states that “it would preferable to have as little power lines or towers or any substations close to the windsurfing area.” The Proposed Action would not introduce any overhead power lines, power towers, or substations close to the windsurfing areas. The proposed gen-tie line and substation would be a minimum of approximately 0.4 mile from the San Luis Sailboard Safety Patrol shade ramada.



Lewis, Jennifer <jllewis@usbr.gov>

San Luis Solar Project

1 message

Campbell Scott <campbellscott@earthlink.net>

Tue, Jan 12, 2016 at 11:52 PM

Reply-To: Campbell Scott <campbellscott@earthlink.net>

To: jllewis@usbr.gov

Cc: Jim Mulvaney <ohmyeye@pacbell.net>, Rich Bailey <RBskis4lvn@aol.com>, Robert Barney Elsensohn <RKelsensohn@gmail.com>, Mike Gamero <cskemp01@comcast.net>, John Chappell <johnchappelldesign@yahoo.com>, undisclosed recipients <campbellscott@earthlink.net>, Nathan Eslinger <nathan.eslinger@yahoo.com>, Peter McEneaney <thewalldoctor@att.net>, Shannon Goddard <shannongoddard@sbcglobal.net>, Bruce Hochuli <bhochuli@yahoo.com>, Ruth & Vern Masse <vernandruth@sbcglobal.net>, Larry Smith <lsmith2190@me.com>, Mike Saint <m6e3saint@gmail.com>, Damon Anderson <dapt89@gmail.com>, David Beaudry <davidjbeaudry@gmail.com>, John Green <windsup2011@hotmail.com>, Dave Goddard <draddogdj@gmail.com>

Dear Ms. Lewis:

As a developer and proponent of clean-energy, as a windsurfer who has been visiting the Medeiros Campground since 1985, and now as a member of the San Luis Safety Patrol, I applaud the proposal to build solar farms on the unused areas of the State Park. (Now that the goats are gone.) One of the reasons that I am a windsurfer is that the sport uses no carbon-based fuel to propel one across the water.

However, I believe that the proposed plan (EA-14-059, and in particular the map on page 9 showing Site 1) will have a significant impact on the recreational use of the Park. Not only windsurfers, but also fishermen will be affected by the fencing which cuts the road linking the park entrance on Santa Nella Blvd. and the outlet from the San Luis dam. This will prevent access to camping in much of the area sheltered from the wind by trees along the shoreline, and to the favored fishing areas close to the dam outlet. Fishing access could be restored if the gate on Basalt Road was open to the public, but that would still not allow windsurfers access sheltered camping.

It appears from the map (p9) that the reason that the existing road is blocked, is to allow construction of a detention basin. Although I have not read the guidelines regarding runoff mitigation, it seems to me that water has been draining from the Site-1 area directly into the Forebay ever since the San Luis water project was built. Indeed there are at least two drainage ditches leading from the hillside, across or near the camping area, into the Forebay.

I therefore respectfully suggest that the design of the solar farm be modified to allow continued access from the Santa Nella entrance all the way to the dam outlet.

Sincerely,

Campbell Scott

Response to Scott Campbell Letter, January 12, 2016

Campbell-1 The comment expresses concerns that Site 1 and its potential detention basin locations will affect recreational access for windsurfing, camping, and fishing. Reclamation, State Parks, and the Applicant have collaborated to develop a mutually acceptable recreation buffer at Site 1, which is shown in Figure 4 and described in Section 2.2.1.1 of Final EA-14-059. The buffer will accommodate additional future camping development. Native shade trees will be planted along Site 1 between the perimeter fence and O'Neill Forebay, as stated in Section 2.2.1.7. Also, as stated in Section 3.9.2.2 of EA-14-059, the proposed project would realign the main entry road around the northern tip of Site 1. The new section of road would connect to the existing road along the western shoreline of Medeiros. Before project construction, the unpaved road would be stabilized with crushed rock or other road stabilization material. The road would continue to provide access to recreation uses along the western shoreline of O'Neill Forebay, including to the area near the outlet of San Luis Dam. In addition, the improvement of this road would benefit anglers, campers, and other recreation users near Site 1.



Lewis, Jennifer <jllewis@usbr.gov>

San Luis Solar Project comments

1 message

david milam <d-milam@sbcglobal.net>

Fri, Jan 15, 2016 at 6:14 PM

Reply-To: david milam <d-milam@sbcglobal.net>

To: "jllewis@usbr.gov" <jllewis@usbr.gov>

Milam-1 As a life-long resident of Los Banos I am very aware of the locations proposed for the San Luis Solar Project. I have no problem with putting solar panels in sites 2 and 3. My problem is with site 1 along the eastern shore of Mederios Area. This area is often heavily used by recreationalists. I believe that the installation of solar panels would not be appropriate here. This area is also **very visible** from Highway 152 and can be seen from the Basalt Campground. I think that it would be more appropriate to install the panels on the CSFWS area next to the other two sites.

Sincerely,

David Milam
1120 Arizona Avenue
Los Banos, CA 93635

Response to David Milam Letter, January 15, 2016

Milam-1 The comment suggests that Site 1 is not an appropriate location for a solar facility due to its recreational use and visibility from State Route 152 and other areas. As described in Section 2.2.1.1 of Final EA-14-059, Site 1 has been modified to provide a 10-acre recreation buffer that consists of a 50-foot setback from the western fenceline of Site 1 shown in the Draft EA, along with additional area on the northern side of Site 1. Native shade trees will be planted along Site 1 between the perimeter fence and O'Neill Forebay, as stated in Section 2.2.1.7.

The comment also states that “it would be more appropriate to install the panels on the CSFWS area next to the other two sites.” The area referenced in the comment, the O'Neill Forebay Wildlife Area, was established by Reclamation for wildlife preservation and mitigation and is managed by the California Department of Fish and Wildlife (DFW). Solar development would not be compatible with the intent and use of this designated DFW wildlife area.