APPENDIX A

Biological Opinion for the Tule Wind Project

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
Carlsbad Fish and Wildlife Office
6010 Hidden Valley Road, Suite 101
Carlsbad, California 92011

In Reply Refer To:
FWS-SD-10B0136-11F0229

SEP 02 2011

Memorandum

To: District Manager, Bureau of Land Management, California Desert District Office
Moreno Valley, California

From: Field Supervisor, Carlsbad Fish and Wildlife Office
Carlsbad, California

Subject: Formal Section 7 Consultation for the Proposed Tule Wind Project
San Diego County, California

Attention: Teresa A. Raml

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion on the proposed issuance of a ROW grant by your agency, the Bureau of Land Management (BLM), to facilitate construction and operation of the Tule Wind Project. The project proponent, Tule Wind, LLC, also proposes to discharge fill material within Waters of the U.S., which will require authorization through the U.S. Army Corps of Engineers (Corps) in accordance with section 404 of the Clean Water Act ("CWA permit"). A part of the project will be constructed on Tribal trust lands, which will require approval by the Bureau of Indian Affairs (BIA) of right-of-way (ROW) leases. The BLM is the lead Federal agency and the Corps and BIA are identified as "Cooperating Agencies" for this project in accordance with the National Environmental Policy Act (NEPA).

The implementing regulations for section 7(a)(2) of the Act at 50 CFR § 402.07 allow for consultation responsibilities to be fulfilled through a lead Federal agency when an action involves more than one Federal agency. The BLM is the lead Federal action agency for the Tule Wind Project (CPUC/BLM 2010). This biological opinion fulfills the interagency consultation requirements of section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq.*), for the BLM, Corps, and BIA.

This biological opinion addresses the potential effects of the Tule Wind Project on the federally endangered Quino checkerspot butterfly (*Euphydryas editha quino*, "Quino"), in accordance with section 7 of the Act, and is based on information in our files, the biological assessment submitted by BLM, and coordination with the Corps and BIA. The proposed project does not affect designated Quino critical habitat. The complete project file addressing this consultation is maintained at our agency's Carlsbad Fish and Wildlife Office (CFWO).

TAKE PRIDE® IN AMERICA

The BLM has requested Service concurrence with a not likely to adversely affect (NLAA) determination for the federally endangered Peninsular bighorn sheep (*Ovis canadensis nelsoni*, "PBS"). We concur with your NLAA determination for the following reasons: 1) no potential escape terrain or permanent water sources for PBS exists within the project area; 2) PBS do not occur within the project area (the closest observation was 0.79 mile away); 3) none of the areas heavily used by PBS will be within line-of-sight of the wind turbines; and 4) prior to drilling or blasting activities, biological monitors will ensure that PBS are not within 0.33 mile.

CONSULTATION HISTORY

On December 10, 2009, we received a request for a species list from the BLM for the proposed project, and on February 1, 2010, we provided the requested species list for the proposed project. On February 25, 2010, we approved the methodology and authorized focused surveys for Quino for the Tule Wind Project site (R. Dossey, pers. comm. 2010), and in June 2010, we received the first Quino survey report for the project (HDR 2010a). In August 2010 we received a draft biological assessment (BA) for the project.

In a memorandum dated September 7, 2010, received by the Service on September 8, 2010, the BLM submitted the final BA (HDR 2010b) and requested formal section 7 consultation on the proposed project. Between September 2010 and June 2011, we received additional information regarding the distribution of Quino in the action area and some clarifications regarding the proposed action.

On June 29, 2011, via electronic mail (email), we provided a draft biological opinion for review and comment to the BLM. The BLM provided a copy of the draft biological opinion to the BIA, Corps, Tule Wind, LLC, and Ewiiaapaayp Tribe. In July 2011 we received the second Quino survey report for the project (HDR 2011). On August 5, 2011, we received comments on the draft biological opinion from the BLM, which incorporated comments from the Corps, BIA, and Tule Wind, LLC. Comments from the BLM, Corps, BIA, and Tule Wind, LLC were incorporated or addressed, as appropriate, into a revised draft biological opinion, which was provided to the BLM for additional review and comment on August 29, 2011. No further comments were received.

BIOLOGICAL OPINION

PROPOSED ACTION

The BLM proposes to issue a ROW grant to allow Tule Wind, LLC to construct part of the Tule Wind Project on BLM lands. To construct the project, Tule Wind LLC proposes to discharge fill material into Waters of the U.S., which will require a CWA permit from the Corps. A part of the project is also proposed for construction on Tribal trust lands, and BIA approval is needed for ROW leases on these lands.

The proposed project footprint includes 725.3 total acres of land, of which 535.8 acres are on BLM lands, 72.0 acres are on the Ewiiaapaayp Indian Reservation, 7.9 acres are on the Campo Indian Reservation, and 11.9 acres are on the Manzanita Indian Reservation. The remaining acreage

includes lands owned by the California State Lands Commission (35.5 acres) and private interests (62.2 acres). The project site is about 50 miles east of San Diego, 90 miles west of the Colorado River, and near the north side of rural community of Boulevard in San Diego County (Figure 1).

The proposed project will consist of up to 128 wind turbines, access roads between the turbines, overhead transmission lines, an overhead and underground electrical collector cable system, a 5-acre collector substation site, a 5-acre operation and maintenance site, a temporary 5-acre cement batch plant site, a temporary 10-acre parking area, 19 2-acre temporary laydown areas, three permanent meteorological towers, and one Sonic Detection and Ranging System unit or one light detecting and ranging unit. Each turbine will include a 200-foot radius that will be cleared and graded, with an approximately 60-foot diameter permanent foundation.

Project Activities Near or Within Occupied Quino Habitat

Construction

The proposed project components that will require construction activities near or within occupied Quino habitat include the installation of wind turbines and underground collectors, construction of new roads, and upgrading existing roads. Roads between turbine sites will be temporarily constructed at 36-foot widths to allow for a large crane. The temporary portions of these roadways will be restored after the completion of construction according to a habitat restoration plan to the standard 16- to 20-foot width (except for County roads, which will be restored to 24-foot widths). The ground disturbance within occupied Quino habitat is displayed on Figure 2. In addition, road improvements to the Crestwood access road occur over 1.1 acres within occupied Quino habitat.

Operations and Maintenance

Operations and maintenance activities included with the proposed project are wind turbine maintenance, and road use and maintenance. Each turbine will be serviced periodically (e.g., twice a year), or as needed. Inoperative turbines will be repaired, replaced, or removed in a timely manner. Typical turbine servicing activities will include temporarily deploying a crane within the construction easement of each turbine, removing the turbine rotor, replacing generators and bearings, and deploying personnel to climb the towers to service parts within the turbine. All equipment associated with turbine maintenance will stay within the permanent project footprint.

Selected conservation measures for construction and operations and maintenance activities that are relevant to Quino are provided below. In addition, measures related to fire safety are attached as an Appendix.

Conservation Measures

1. Occupied Quino habitat[1] permanently impacted during construction will be offset at a 2:1 ratio by habitat acquisition and perpetual management. A plan detailing Tule Wind, LLC's

[1] Occupied Quino habitat is defined as any suitable Quino habitat within 0.6 mile (1 kilometer) of a Quino sighting.

conservation commitments ("conservation plan") will be submitted to the CFWO for approval prior to construction of the project. In addition to identifying the location of the conservation property and its value to Quino, the conservation plan will identify:

- The method for protecting the biological resource values in perpetuity (e.g., conservation easement);

- The entity or organization proposed as owner and land manager of the acquired property, and

- An endowment based on a Property Analysis Record (PAR; Center for Natural Lands Management © 1998) or similar estimation method to secure ongoing funding for the specific perpetual management, maintenance, and monitoring activities identified in the plan (e.g., access control, invasive species management, fencing and signage). The endowment will be managed as a long-term investment intended to 1) exist indefinitely and 2) fund necessary land management activities, to the extent practicable, solely from investment earnings and not from the initial endowment amount. To assure adequate funding for long-term implementation of the management activities as prescribed in the PAR, the endowment amount should be sufficient to generate the earnings necessary to periodically (i.e., annually) increase the endowment amount in accordance with a long-term inflation indicator (e.g., Consumer Price Index).

2. Dust suppression measures will be implemented during construction to minimize the creation of dust clouds. These measures include applying water at least once per day or as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction. In addition, watering frequency will be increased to 4 times per day if winds exceed 25 miles per hour. Finally, non-toxic soil stabilizers may be used to control fugitive dust.

3. Construction vehicle speeds will be restricted to 15 miles per hour on unpaved roads within occupied Quino habitat during the flight season.

4. Dust abatement techniques will be used on unpaved, unvegetated surfaces to minimize airborne dust. Erosion and fugitive dust control measures will be inspected and maintained regularly.

5. If construction within occupied Quino habitat has not started by May 2012, additional Service-protocol Quino surveys will be conducted in the flight season prior to construction.

6. All construction clearing and grubbing in occupied Quino habitat will be conducted in one continuous time period. Clearing and grubbing will not be conducted during the Quino flight season, which generally includes 4 to 6 weeks between January and May, depending on weather conditions (Service 2003). (for additional information on Quino monitoring see http://www.fws.gov/carlsbad/TEspecies/Quino_Monitor.htm)

7. Orange snow fencing will be installed to delimit construction boundaries and/or to identify exclusion areas within occupied Quino habitat. Quino exclusion areas are defined as areas within occupied habitat, as identified by the biological monitor, where Quino are observed or their host plants occur outside of the project footprint where it is simpler to exclude construction activities from those sensitive areas than to fence the entire construction boundary.

8. Newly constructed access roads to turbines in occupied Quino habitat will be gated to reduce off-highway vehicle (OHV) activity.

9. Native vegetation will be restored in the temporarily affected work areas after construction. Restoration will include planting or seeding native plants that were present prior to the work and/or are compatible with existing vegetation near the work area. In areas of occupied and potential Quino habitat, seeds of host plants will be included in the seed mix. A habitat restoration plan will be prepared for the project that specifies the limits of restoration, planting mix and densities, performance criteria for survival and growth, and maintenance and monitoring procedures. The habitat restoration plan will be submitted to the CFWO for approval prior to construction of the project.

10. A Worker Environmental Awareness Plan (WEAP) will be developed. The environmental training will cover the sensitive resources found on site, flagging/fencing of exclusion areas, permit requirements, and other environmental issues. All construction site personnel will be required to attend the environmental training in conjunction with hazard and safety training prior to working on site.

11. A biological monitor(s) will be on site during all phases of construction to regularly monitor construction activities, implement the WEAP, and ensure construction is proceeding in compliance with the conservation measures committed to by Tule Wind, LLC, as well as measures required by the regulatory agencies. The biological monitor will provide a report to the BLM, BIA, Ewiiaapaayp Tribe, and CFWO at least monthly identifying construction activities and the results of compliance monitoring related to implementation of the project's conservation measures. The biological monitor(s) responsible for areas within 0.6 mile (1 kilometer) of a Quino sighting will be approved by the CFWO and have knowledge of the biology and ecology of Quino.

12. All access roads constructed within the occupied Quino habitat will be maintained regularly, and no Quino host or nectar plants will be allowed to grow within the roadway.

13. Except when not feasible due to physical or safety constraints, all vehicle movement will be restricted to existing roads or new access roads constructed specifically for the Tule Wind Project. Access roads will be determined and marked by Tule Wind, LLC in advance of construction. Approval from a biological monitor and the BLM will be obtained prior to any travel off of existing or new access roads on BLM lands. On Tribal reservation lands, approval from a biological monitor, the BIA, and the appropriate tribe (i.e., the Ewiiaapaayp

Tribe, Campo Tribe, or Manzanita Tribe) will be obtained prior to any construction or travel off existing or new access roads.

14. A Weed Management Plan will be submitted to the BLM for approval prior to construction activities on BLM lands. On Tribal reservation lands, the Weed Management Plan will be submitted to the BIA and the appropriate tribe (i.e., the Ewiiaapaayp Tribe, Campo Tribe, or Manzanita Tribe) for approval prior to construction activities. The approved plan will be developed and finalized prior to the commencement of construction activities. The plan will address monitoring and educating personnel on weed identification and methods for avoiding and treating infestations. If mulch is used, it is required to be certified weed-free. Tule Wind, LLC will work with the BLM, State, and County to obtain seeding specifications to be compliant with this requirement.

15. When trucks and construction equipment arrive on site, a controlled inspection and cleaning area will be established at a suitable offsite location to visually inspect construction equipment and to wash tires and other equipment surfaces free from clinging mud and plant materials.

Action Area

According to 50 CFR § 402.02 pursuant to section 7 of the Act, the "action area" means all areas to be affected directly or indirectly by the Federal action. Subsequent analyses of the environmental baseline, effects of the action, and levels of incidental take are based upon the action area. For this consultation, the action area is considered to be the 725.3-acre project site subject to ground disturbance.

STATUS OF THE SPECIES

Listing Status

Quino was listed as endangered on January 16, 1997 (62 FR 2313). The Service approved the recovery plan for the Quino ("Quino recovery plan") on August 11, 2003 (Service 2003), and completed a 5-year review on August 18, 2009 ("Quino 5-year review") (Service 2009).

Species Description

Quino is a recognized subspecies of Edith's checkerspot (*Euphydryas editha*) and is a member of the Nymphalidae family, the brush-footed butterflies, and the Melitaeinae subfamily, checkerspots and fritillaries. Quino differs from the other Edith's checkerspot subspecies in size, wing coloration, and larval and pupal phenotypes (Mattoni et al. 1997). Among the other subspecies of Edith's checkerspot, Quino is moderate in size with a wingspan of approximately 1.5 inches. The dorsal (top) side of its wings is covered with a red, black, and cream-colored checkered pattern, the ventral (bottom) side is mottled with tan and gold. Its abdomen generally has bright red stripes across the top. Quino larvae are black and have a row of nine, orange-colored tubercles (fleshy/hairy extensions) on their back. Pupae are extremely cryptic and are mottled black and blue-gray.

Status and Distribution

Multiple observations of Quino have been reported across a wide elevation range, from approximately 500 feet in elevation to over 5,000 feet (Service 2003). Quino was historically distributed throughout the coastal slope of southern California, including Los Angeles, Orange, Riverside, San Diego, and San Bernardino counties, and northern Baja California, Mexico (Mattoni et al. 1997, Service database). That distribution included the westernmost slopes of the Santa Monica Mountains, the Los Angeles plain and Transverse Ranges to the edge of the upper Anza-Borrego desert, and south to El Rosario in Baja California, Mexico (Emmel and Emmel 1973, Mattoni et al. 1997, Service database).

Quino may have once been one of the most abundant butterflies in coastal southern California, but by the 1970s, most of the coastal bluff and mesa habitats in southern California had been urbanized or otherwise disturbed. However, Quino still occupied locations inland and at higher elevations including Dictionary Hill, Otay Lakes, and San Miguel Mountain in San Diego County; and the Gavilan Hills in Riverside County. By the middle 1980s the species was thought to have disappeared from the known locations; the petition to list the species in 1988 suggested that it might be extinct. Current information suggests that Quino has been extirpated from Los Angeles, Orange, and San Bernardino counties and most northern locations in San Diego County. Nonetheless, new populations have been discovered in portions of Riverside County and south San Diego County, and the species continues to survive in northern Baja California, Mexico.

Overall, more than 75 percent of the historical range of the Quino has been lost (Brown 1991, Service database), and more than 90 percent of the subspecies' coastal mesa and bluff habitat, where most historical records are located, has been destroyed by habitat fragmentation, degradation, and development (Service database). At listing, Quino populations were reduced in number and size from historical conditions by more than 95 percent range-wide. For a detailed discussion of the current distribution of Quino, please refer to the Quino recovery plan (Service 2003). The Quino recovery plan identifies six recovery units throughout Riverside and San Diego counties and describes the known extant occurrence complexes (or metapopulations) throughout the range of the subspecies.

Habitat Affinity

In southwestern San Diego County, the primary host plants for the Quino are dot-seed plantain, thread-leaved bird's beak, and white snapdragon. Larval Quino may also use other species of plantain (*Plantago* spp.) and annual owl's-clover as primary or secondary host plants and will diapause in or near the base of native shrubs, such as California buckwheat (*Eriogonum fasciculatum*) (73 FR 3327). In 2008, Chinese houses (*Collinsia concolor*) was reported as a new Quino host plant (Pratt 2010).

In its adult stage, Quino use a number of flowering plants as nectar sources. These nectar sources include lomatium (*Lomatium* spp.), goldfields (*Lasthenia* spp.), popcorn flowers (*Plagyobothrys* and *Cryptantha* spp.), gilia (*Gilia* spp.), ground pink (*Linanthus dianthiflorus*), chia (*Salvia*

columbariae), annual lotus (*Lotus* spp.), onion (*Allium* spp.), yerba santa (*Eriodictyon* spp.), and California buckwheat (67 FR 18359, Mattoni et al. 1997).

Quino are generally found in open areas and ecotone situations that may occur in a number of plant communities, including grasslands, coastal sage scrub, and native woodlands with an open canopy cover. Open areas within a given vegetation community seem to be critical landscape features for Quino populations. Optimal habitat appears to contain little or no invasive nonnative vegetation, and especially, a well-developed cryptogamic crust. Densely vegetated areas are not known to support Quino (Mattoni et al. 1997). Habitat patch suitability is determined primarily by larval host plant density, topographic diversity, nectar resources availability, and climatic conditions (Service 2003).

Threats and Conservation Needs

Quino is threatened by urban and agricultural development, invasion by nonnative species, off-road vehicle use, grazing, fire management practices (Service 2003), and habitat fragmentation that limits metapopulation dynamics. Other factors that could contribute to population declines include enhanced nitrogen deposition and elevated atmospheric carbon dioxide concentrations. In addition, climate change has been identified as a potential threat to Quino, which is supported by observations in western Riverside County of ongoing range shift for this subspecies upslope in elevation, and extirpation of many populations in lower elevations, where drier habitats are likely to occur (Service 2009). Conversion to nonnative annual grassland will be the greatest threat to Quino reserves (Service 2003).

Significant areas of remaining Quino habitat have been protected through inclusion in Natural Community Conservation Planning/Habitat Conservation Planning reserve areas, the San Diego National Wildlife Refuge, and other habitat acquisition initiatives. Future conservation needs include protecting additional habitat supporting known populations (occurrence complexes) and landscape connectivity between them; conducting research necessary to refine recovery criteria; management of Quino habitat including enhancement of host plant populations, diversification of nectar sources and pollinators, and control of nonnative plants; establishing and maintaining a captive propagation program; targeted reintroduction if determined to be necessary; and establishing a cooperative outreach program.

The status of Quino was described in detail in the recently completed Quino 5-year review (Service 2009). Please refer to this document for more detailed information on local distribution of Quino populations, abundance, biology and life history, and habitat and ecosystem requirements, as well as a full discussion on potential threats to the species as a result of climate change.

ENVIRONMENTAL BASELINE

Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present effects of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated effects of all proposed Federal

projects in the action area that have undergone section 7 consultation and the effects of State and private actions that are contemporaneous with the consultation in progress.

On November 10, 2010, the Service issued a no jeopardy and no adverse modification biological and conference opinion addressing construction and long-term operations and maintenance of the Sunrise Powerlink (SRPL) Project (Service 2010). The SRPL Project includes construction of a high-voltage 117-mile transmission line and related facilities from south of El Centro in Imperial County to the northeast edge of the Marine Corps Air Station Miramar in San Diego County. Some of the impacts to Quino from the SRPL Project occur within the Jacumba Occurrence Complex and the Southeast San Diego Recovery Unit. Within 14 acres of land, the SRPL Project overlaps a portion of the Tule Wind Project's action area, but not in the area occupied by Quino (Figure 3). Impacts to Quino and its designated critical habitat as a result of the SRPL Project were fully offset through acquisition and provision of long-term management of Occupied Quino habitat at the Long Potrero site.

On September 1, 2011, the Service issued a no jeopardy biological opinion for San Diego Gas and Electric's (SDG&E) East County ("ECO") Substation Project, which addressed impacts to Quino from construction of a new substation, rebuilding of the existing Boulevard Substation, looping in of the existing 500 kilovolt (kV) Southwest Powerlink transmission line into the new ECO Substation, and construction of a new approximately 13.5- mile-long 138 kV transmission line. Within 1.6 acres of land, the ECO Substation Project overlaps a portion of the action area for the Tule Wind Project, but not in the area occupied by Quino (Figure 3). Impacts to Quino as a result of the ECO Substation project are being offset through the acquisition and long-term management of occupied Quino habitat at a 2:1 ratio.

One Quino individual was located within the action area north and outside the Southeast San Diego Recovery Unit for this species (Service 2003) (Figure 1). No host plants for Quino were found in 2009. However, in 2010, the host plant, Chinese houses, was found within 200 feet of the Quino observation, and nectar sources such as popcorn flowers, goldfields, and chia were found in the general vicinity. In addition, based on the use of 0.6 mile (1 kilometer) buffers around Quino observations to estimate occupied Quino habitat (Service 2003), the Crestwood access road also overlaps occupied habitat (Figure 1). As a result, the area of potential ground disturbance includes 31.9 acres of occupied Quino habitat (R. Dossey, pers. comm. 2011).

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Interrelated actions are those that are part of a larger action and depend on the proposed action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. Indirect effects are those that are caused by the proposed action and, are later in time, but are still reasonably certain to occur.

According to the final BA (HDR 2010), the BLM and California Public Utilities Commission (CPUC) consider Energia Sierra Juarez (ESJ) Gen-Tie Project and the ECO Substation Project "connected actions" to the Tule Wind Project under the California Environmental Quality Act. The Department of Energy (DOE) is the lead Federal agency for the ESJ Gen-Tie Project, which involves construction of a new high voltage transmission line that will provide a generation-tie to transmit renewable energy from a wind farm in northern Baja California, Mexico to the ECO Substation (Figure 1) (DOE 2010). The DOE has determined that the ESJ Gen-Tie Project will not affect Quino or other federally listed species (DOE 2011). The BLM is the lead Federal agency for the ECO Substation Project, described above in the *Environmental Baseline* section of this biological opinion, and BLM has determined that the ECO Substation project will affect Quino.

The Service has determined that the ESJ Gen-Tie Project and the ECO Substation Project are not actions interrelated or interdependent to the Tule Wind Project. Specifically, the ESJ Gen-Tie Project and the ECO Substation Project are activities that would occur regardless of construction of the Tule Wind Project. The ESJ Gen-Tie Project is being built primarily to transmit renewable energy from Mexico, not from the Tule Wind Project (DOE 2010). The ECO Substation Project will occur regardless of the Tule Wind Project because the proposed ECO Substation or Boulevard Substation will provide an "interconnection hub" for all future renewable generation projects along SDG&E's SWPL transmission line, not just the Tule Wind Project (CPUC/BLM 2010). The ECO Substation Project is also being built to increase the reliability of the regional transmission system. Moreover, as indicated above, the DOE has made a "no effect" determination for the ESJ Gen-Tie Project, and the ECO Substation Project has been addressed in a separate section 7 consultation with the BLM, Corps, and SDG&E.

Construction and road use and maintenance activities proposed as part of the Tule Wind Project may result in adverse effects to Quino due to direct mortality, habitat loss, and potentially increased threats from nonnative plants, dust, fire, and recreation, as described below. Other operations and maintenance activities are not expected to result in adverse effects to this species since these activities will be restricted to the permanently disturbed habitat around each wind turbine.

The following analysis of direct, indirect, and cumulative effects and the overall project's effect on recovery is inclusive of all impacts to Quino from the Tule Wind Energy Project. Because the overall project could not be constructed as proposed without approval or issuance of the proposed BLM ROW grant, BIA lease, or Corps CWA permit, no difference exists among these three Federal actions.

Direct Effects

Construction of wind turbines and new access roads and the expansion of existing access roads within Quino habitat have the potential to kill or injure Quino eggs, larvae, or pupae during the removal or crushing of occupied host plants. This impact will occur within about 31.9 acres of occupied Quino habitat. In addition, crushing or trampling of eggs, larvae, or pupae could occur if people walk through occupied host plants outside of the direct impact area. However, in occupied Quino habitat, snow fencing will be used to delimit construction areas and/or to identify Quino exclusion areas, and biological monitors will be present to oversee vegetation clearing activities.

These measures should reduce the risk of Quino mortality from human foot traffic to a discountable level (i.e., one that is highly unlikely to occur).

Clearing and grubbing of occupied Quino habitat will be conducted outside the Quino flight season to reduce direct mortality of adult Quino; however, since other construction activities will be ongoing, adult Quino could be struck by vehicles moving through the project area during the Quino flight season, which generally includes 4 to 6 weeks between January and May, depending on weather conditions (Service 2003). Available survey data indicate the density of Quino in the general project vicinity is low; thus, the likelihood of a vehicle striking an adult Quino is low, though not discountable, since during construction an estimated 396 project-related vehicle trips will occur along access roads within occupied Quino habitat (R. Dossey, pers. comm. 2011). To reduce the risk of these impacts to a discountable level, a 15 mile per hour speed limit will be adhered to by construction vehicles on all unpaved access roads within occupied Quino habitat during the Quino flight season.

Following construction, impacts to Quino individuals associated with road use and maintenance could occur over 5.46 acres of roads; however, the potential for this impact will be reduced to a discountable level because of the limited staffing needed to operate and maintain the wind turbines (12 full-time staff) and because roads will be regularly maintained to prevent host and nectar plants from growing on them and attracting Quino that could be subject to crushing or vehicle strikes. Likewise, we believe, based on our best professional judgment, that the potential for Quino to be struck by wind turbines is discountable because Quino typically fly pretty low to the ground and probably too low to get hit by wind turbines. Also, when the wind is strong enough to drive the wind turbines, Quino likely would try to stay low and protected from the wind as much as possible (E. Porter, pers. comm. 2011).

In addition to loss of individual Quino larvae, eggs, and pupae, the permanent removal of up to 24.7 acres and the temporary loss of up to 7.2 acres of occupied Quino habitat due to construction (R. Dossey, pers. comm. 2011) will reduce the availability of oviposition sites, larval food sources, pupal sheltering sites and adult nectar sources within the action area. However, using the 0.6 mile (1 kilometer) buffer surrounding each Quino observation (Figure 2), approximately 4,135 acres of occupied habitat occurs in the vicinity of the project area. Thus, the project will impact only a small proportion of the occupied habitat available to the species and should not affect the long-term viability of any Quino occurrence.

Habitat loss can result in habitat fragmentation, making it more difficult for individuals to move between areas of higher quality habitat and exchange genetic material (Service 2003). However, the relatively small amount of habitat removed within the action area when viewed in context of the broader general project area (i.e., 0.6-mile buffer surrounding each Quino observation) is not expected to fragment Quino habitat to an extent that prevents movement of Quino individuals. The area subject to temporary ground disturbance will be restored in accordance with a CFWO-approved restoration plan and the permanent loss of habitat will be offset at a 2:1 ratio by preservation and long-term management of similar Quino habitat.

No additional loss of occupied Quino habitat is expected due to road use and maintenance activities. Roads will be regularly maintained after the initial construction impacts to prevent host and nectar plants of this species from growing on them.

Indirect Effects

Nonnative Plant Introduction

Construction activities have the potential to introduce nonnative plants to the action area by carrying seeds on vehicles, people, or equipment and through ground disturbance. Ground disturbance can promote the establishment and spread of nonnative plants (Merriam et al. 2006); nonnative plants could degrade habitat quality for Quino by competing with and replacing host and nectar plants (Service 2003). Conversion of habitat to nonnative grasslands is the greatest threat to Quino reserves (Service 2003). However, several conservation measures are proposed that should effectively minimize the potential for the spread of nonnative species, including the identification and avoidance of weed infestations, washing of off-road equipment prior to entering the construction area, implementation of a CFWO-approved restoration plan, and removal of weeds.

Similar to construction¸ nonnative plants can be introduced during road use and maintenance activities. The project includes 1.43 miles of new roads and 0.69 mile of existing roads in occupied Quino habitat. This results in 5.46 acres of roads within this habitat. However, the potential for the spread of nonnative plants during road use and maintenance activities should be minimized because there will be no new ground disturbance associated with maintenance activities, and the maintenance activities will be intermittent and low intensity in nature.

Dust

Fugitive dust from construction activities can negatively affect photosynthesis and decrease water-use efficiency of plants (Sharifi et al. 1997, Talley et al. 2006), including Quino host and nectar plants. However, the potential for such impacts from dust should be low. The construction activities occur within occupied Quino habitat over a short duration, outside host plant growing season, and conservation measures are proposed to minimize dust during construction, including applying water.

Dust from road use and maintenance activities can impact Quino as described above for construction. However, due to the intermittent and low intensity nature of road use and maintenance activities, the potential for impacts from dust should be minimal. In a study of the impacts of access road and recreational trail dust on the federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) and its host plant, blue elderberry (*Sambucus mexicana*), Talley et al. (2006) indicated that dust control measures are not likely to be necessary for low-use roads and trails. Talley et al. (2006) concluded that dust from low-use dirt and paved access roads and trails did not affect beetle presence through changed elderberry condition.

Recreation

New access roads can lead to increased recreational activities (including OHV use) that can disturb host and nectar plants, kill individual Quino, and introduce and promote nonnative plant species. The project includes 1.43 miles of new roads and 0.69 mile of existing roads in occupied Quino habitat, which would result in 5.46 acres of roads in Quino habitat. To reduce the potential for increased recreation, gates will be installed at the new access roads to reduce the potential for the public to enter and disturb the area.

Fire

Transmission lines can cause fires via sparks, debris contact with transformers and conductors, wooden poles being blown down by wind, conductor-to-conductor contact, dirt buildup on powerline hardware, or wildlife contact with powerlines. Small and medium voltage powerlines and high winds were responsible for four of the largest California fires from 1923 to 2007. Wind turbines without fire suppression systems can also be the source of wildfires due to turbine malfunction and lightning (CPUC/BLM 2010). Tule Wind, LLC has prepared a detailed Fire Protection Plan (FPP) (RC Biological Consulting, Inc. 2010). The FPP was approved by the San Diego Rural Fire Protection District in November 2010 and accepted by the San Diego County Fire Authority on February 28, 2011.

Quino adults, larvae, and eggs could be burned in wildfires. In addition, habitat is susceptible to conversion of shrubland to nonnative grasslands with short fire return intervals (Service 2003). Nonnative plants resulting from this conversion likely would compete with Quino host and nectar plants (Service 2003). However, periodic infrequent fire also can play a role in creating and maintaining suitable habitat conditions for Quino (Mattoni et al. 1997), like open areas. The impact of fire on Quino depends upon the intensity, frequency, and season of fire occurrence and size of the nonnative seedbank (Service 2003).

Regardless, numerous project design features are proposed in the Fire Protection Plan to minimize the potential for wildfire including the use of steel poles, insulators, minimum clearance distances from the ground, gravel around facilities, and avoiding switching devices with moving parts on poles (to avoid arcing) (see Appendix for FPP proposed mitigation measures) (RC Consulting 2010). In addition, an area around each turbine will be permanently cleared of vegetation during construction. With implementation of these measures, the potential for wildfire-induced impacts to the Quino due to project construction, operations, and maintenance should be effectively avoided or minimized to a discountable level.

Impact on Recovery

The proposed project does not conflict with the recovery actions or goals described in the Quino recovery plan (Service 2003). Approximately 212 acres of project impacts represents a loss of only 0.2 percent of the 96,767 total acres within the southeast San Diego recovery unit for Quino (Figure 3). Moreover, the occupied habitat for Quino that will be impacted by the project does not occur in this recovery unit or any potential future recovery unit mentioned in the recovery plan. The

relatively small loss of Quino habitat from construction and operation of the Tule Wind Project is not expected to affect the long-term viability of any existing or future recovery unit or to fragment habitat to an extent that prevents Quino movement within the action area or across the broader landscape. Habitat temporarily affected will be restored and habitat loss will be offset at a 2:1 ratio by long-term preservation and management of similar habitat. This conservation action will offset project impacts and support recovery of the species.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. We are unaware of any non-Federal actions affecting listed species that are reasonably certain to occur in the action area considered by this opinion.

CONCLUSION

After reviewing the current status of the species, the environmental baseline for the action area, effects of the proposed action, and the cumulative effects, it is our biological opinion that the proposed action is not likely to jeopardize the continued existence of Quino. Our conclusions are based on the following:

1. The project affects a relatively small amount of habitat across the overall range of the Quino and within the vicinity of the project;

2. The project includes measures to minimize direct mortality of Quino eggs, larvae, pupae, and adults and to avoid and minimize indirect effects.

3. Impacts due to operations and maintenance activities should be restricted to intermittent, low intensity road use and maintenance.

4. Temporarily impacted areas of occupied habitat will be restored to ensure that these areas regain ecological function for this species.

5. The proposed project does not conflict with the recovery actions or goals described in the Quino recovery plan (Service 2003). The occupied Quino habitat that will be impacted does not occur in any recovery unit identified in this plan. In addition, the habitat loss will be offset by preservation and management of occupied habitat at a 2:1 ratio.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any

such conduct. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavior patterns, including breeding, feeding, or sheltering. Harass is defined as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary and must be undertaken by the BLM, Corps, and/or BIA, as Federal action agencies, so that they become binding conditions of any grant or permit issued to Tule Wind, LLC, as appropriate, for the exemption in section 7(o)(2) to apply. The BLM, Corps, and BIA have a continuing duty to regulate the activity covered by this Incidental Take Statement. If the BLM, Corps, and/or BIA: 1) fail to assume and implement the terms and conditions; or 2) fail to require the Tule Wind, LLC to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the BLM, Corps, BIA or Tule Wind, LLC must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement.

AMOUNT OR EXTENT OF TAKE

Quantifying the precise number of Quino individuals that may be incidentally taken is not possible because the butterfly's small body size and diapause life stage make the observance or detection of mortality highly unlikely. In addition, numbers will fluctuate on a seasonal and annual basis at any occupied site. As reflected in our effects analysis above, impacts to Quino have been quantified and evaluated based on loss of occupied habitat. The loss of occupied habitat provides a method to quantify the impact to the species when we cannot identify or predict the number of individuals impacted and provides a method to assess the overall impact on recovery. Consistent with our effects analysis and because we cannot reasonably identify or predict the number of Quino individuals likely to be taken, we have established a habitat-based anticipated level of incidental take that, if exceeded, will trigger reinitiation of formal consultation.

Incidental take of Quino is exempted for the BLM, Corps, BIA and Tule Wind, LLC as follows:

- Death or injury of eggs, larvae, and pupae from crushing, trampling, or removal of host plants during construction within up to 31.9 acres of occupied Quino habitat, defined as any suitable habitat within 0.6 mile (1 kilometer) of a Quino sighting. The amount or extent of incidental take will be exceeded if more than 31.9 acres of occupied Quino habitat, as generally depicted on Figure 2, is impacted during construction.

No take of Quino is anticipated or exempted due to operations and maintenance activities, including along and/or within the 5.46 acres of existing and newly constructed roads, or due to project-related or operations and maintenance-induced fires.

EFFECT OF THE TAKE

In this biological opinion, we determined that the level of anticipated take is not likely to result in jeopardy to Quino.

REASONABLE AND PRUDENT MEASURE

Tule Wind, LLC will implement numerous conservation measures as part of the proposed action to minimize the incidental take of Quino. Our evaluation of the proposed action is based on the assumption that the actions as set forth in the "Conservation Measures" section of this biological opinion will be implemented. Any changes to the conservation measures proposed by BLM and Tule Wind, LLC or in the conditions under which project activities were evaluated may constitute a modification of the proposed action. If this modification causes an effect to Quino that was not considered in the biological opinion, reinitiation of formal consultation pursuant to the implementing regulations of section 7(a)(2) of the Act (50 CFR § 402.16) may be warranted. The reasonable and prudent measure outlined below is nondiscretionary. Failure to comply may cause the protective coverage of section 7(o)(2) to lapse. The following reasonable and prudent measure is necessary and appropriate to monitor and report incidental take.

Tule Wind, LLC shall monitor and report the impacts of project construction on Quino eggs, larvae, and pupae.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, Tule Wind, LLC must comply with the following term and condition, which implements the reasonable and prudent measure described above and outlines reporting and monitoring requirements. Terms and conditions are non-discretionary.

1.1 Tule Wind, LLC shall provide the BLM, Corps, BIA, and CFWO with a report within 30 days of project clearing and grubbing activities in occupied Quino habitat that includes: a) the acreage of Quino habitat removed due to project activities; and b) any incidental observations of Quino larvae (caterpillars) by the biological monitor in areas of occupied Quino habitat affected by construction. The biological monitor must be approved by the CFWO and have knowledge of the biology and ecology of Quino.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid

adverse effects of a proposed action on listed species or critical habitat, help implement recovery plans, or to develop information. We recommend the following actions be conducted by the BLM:

1. Continue to survey for Quino and map host and nonnative plant occurrences on BLM lands.

2. Implement and evaluate measures to remove nonnative grasses and restore areas of Quino habitat on BLM lands.

REINITIATION NOTICE

This concludes formal consultation on the proposed actions outlined in the initiation request. As provided in 50 CFR § 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: 1) the amount or extent of incidental take is exceeded; 2) new information reveals effects of the proposed action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; 3) the agency action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion; or 4) a species is listed or critical habitat is designated that may be affected by the proposed action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation. With regard to 2 above, the CFWO should be notified immediately if project-related or operations and maintenance-induced fires impact occupied Quino habitat in the action area.

If you have any questions regarding this biological opinion, please contact Jesse Bennett of this office at 760-431-9440, extension 305.

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APPENDIX

Fire Safety Measures

1. Steel power poles will be used instead of wooden poles.

2. Transmission and collector line designs will include long insulators to support the wires. The long insulators assure adequate conductor separation to prevent arcing during high-wind conditions and contact with raptors with wide wingspans.

3. No switching devices with moving parts (i.e., fused cutouts, switches, reclosers) will be located on the poles.

4. The transmission line will be designed so under all load conditions, the line will be no closer to the ground than 25 feet. In areas where a distribution circuit is also placed on the pole at a lower elevation, the minimum clearance for the distribution circuit to the ground is also 25 feet.

5. In areas with the potential for wildfire, self-supporting poles will generally be used at locations where the line changes direction rather than guy wires and anchors. If guys and anchors are used, they will be rated for a minimum of 150 percent of expected loading. This design approach eliminates the most likely cause of pole collapse (i.e., failure of a guy wire and/or anchor).

6. To provide separation of installed equipment from combustible vegetation, gravel will be placed in and around substations, wind turbines, and transformers.

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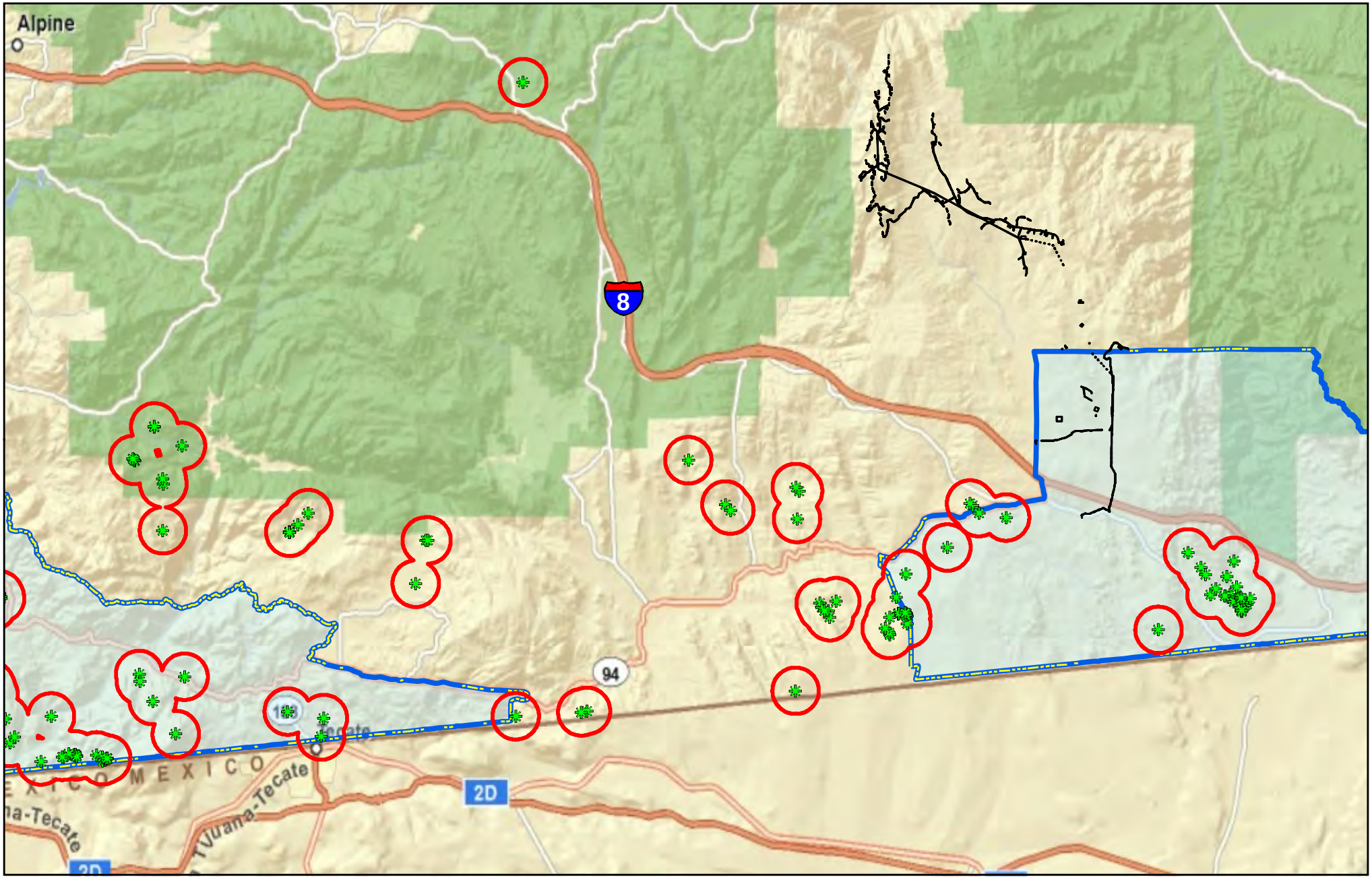
Figure 1. Tule Wind Project Quino Locations



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CARLSBAD FIELD OFFICE
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BIOLOGY CONTACT: JESSE BENNETT
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- Quino Locations
- Tule Project
- Tule Quino with 1 Km Buffer
- Quino with 1 Km Buffer
- Quino Final Recovery Units

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Figure 2. Tule Wind Project Quino Habitat Impacts

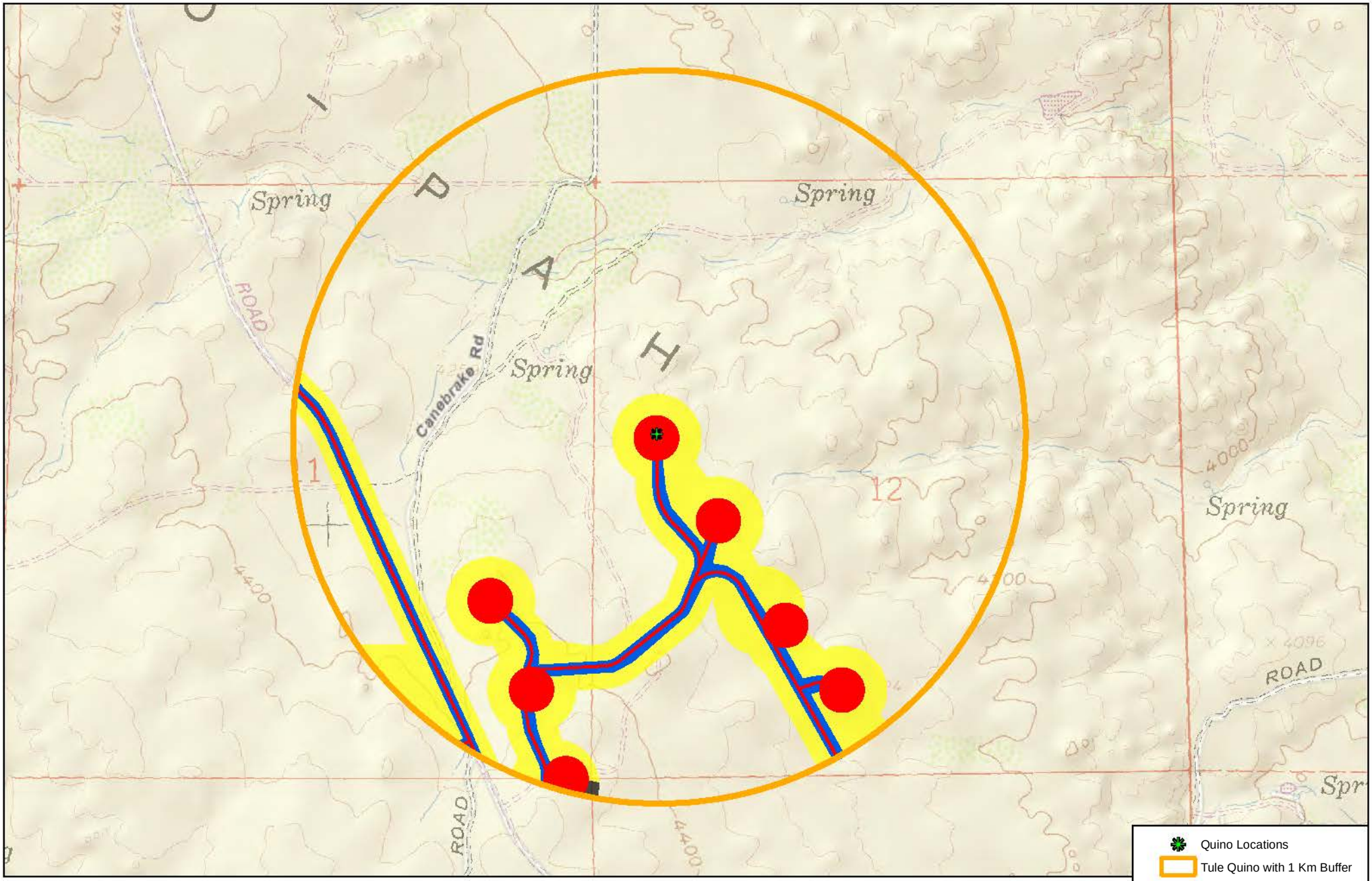

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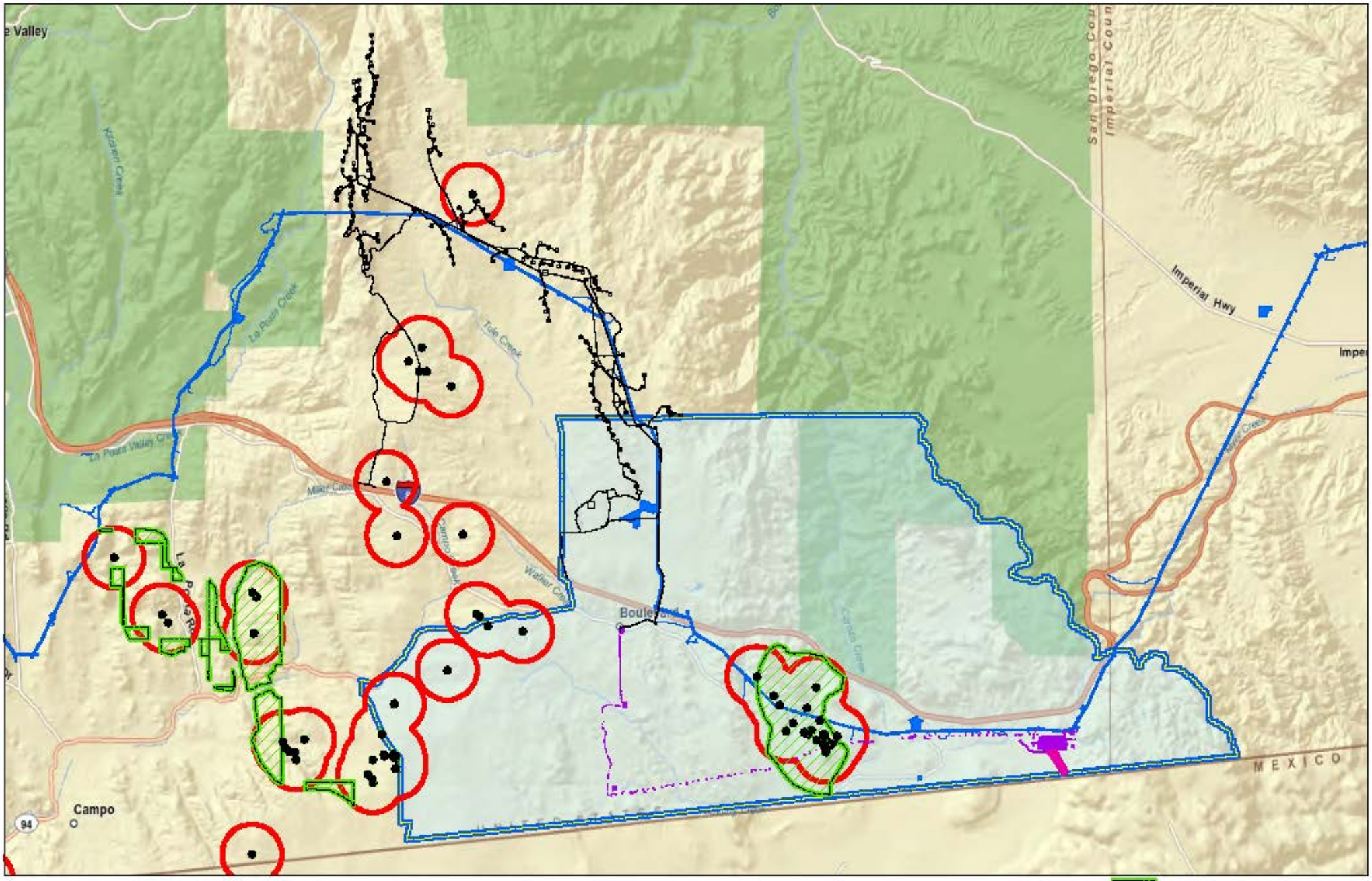
Figure 3. Tule, ECO, and Sunrise Powerlink Projects



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Quino Cherckerspot Butterfly Final Critical Habitat
ESJ Project
Tule Project
ECO Project
Sunrise Powerlink
QCB Locations
Quino with 1 Km Buffer
Quino Final Recovery Units