DUDEK

MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 760.942.5147 T 800.450.1818 F 760.632.0164

MEMORANDUM

To:	Tierra del Sol Solar Farm LLC; Rugged Solar LLC
From:	Brock Ortega, Principal, Senior Wildlife Biologist
Subject:	Response to Selected Comments (Biological Resources): Scott Cashen, January 14, 2015
Date:	February 3, 2015
Attachment:	Attachment A, Resumes

On January 14, 2015, Mr. Scott Cashen submitted comments to the County of San Diego (County) Department of Planning and Development Services on the Final Programmatic Environmental Impact Report (FPEIR) for Soitec Solar Development Project (Project), SCH No. 2012-121-018. This letter provides responses to select new or nuanced statements made by Mr. Cashen in his comment letter.

On page 1, Mr. Cashen states, "The DEIR and FEIR failed to disclose the precipitous status of San Diego County's golden eagle population. In addition, they failed to disclose information indicating the most important factor in the population's decline has been the loss and fragmentation of foraging habitat. This precluded the public and decision makers from understanding the potential severity of the Project on San Diego's remaining golden eagle population." (footnote omitted).

> Response: The FPEIR Biological Resources Report (BRR) (Appendix 2.3-2), and the Wildlife Research Institute (WRI) report identify that the Project will have a significant impact on golden eagle foraging habitat. Furthermore, the FPEIR applies M-BI-PP-1 to mitigate impacts to golden eagle foraging habitat below a level of significance by preserving in permanent open space an acreage of native habitats equivalent to or greater than the acreage of total project impacts. A focus solely on the loss or fragmentation of foraging habitat is also misleading. Mr. Cashen declines to indicate that deaths related to wind power and transmission and distribution lines that are not APLIC compliant are also leading causes of eagle mortality. To this end, the Project is dissimilar to wind projects and will include a gen-tie line that is APLIC compliant.

On page 3, Mr. Cashen states, "the data presented in the [WRI] report are primarily based on: (1) WRI's efforts to locate and monitor nest sites in the region; and (2) ground-based observations during surveys conducted for other projects. Although the data are useful, they are not a valid substitute for site-specific survey data, and thus they are insufficient to evaluate golden eagle use of the four Project sites."

Response: See FPEIR Response to Comment O10-37 and common response BIO1.

On page 3, Mr. Cashen states, "there are limitations to WRI's data that preclude the County from using those data to make conclusions about golden eagle use of the Project sites. For example, WRI's report states: "the complete boundary of the golden eagle foraging territory [in the vicinity of the TDS site] is *currently unknown*." (emphasis original)

Response: The County's significance criteria do not require an applicant to survey an entire golden eagle territory, but rather, require an applicant to determine whether the project will impact golden eagle habitat, or alter habitat within 4,000 feet of an active golden eagle nest. (FPEIR, 2.3-99.) The FPEIR, BRR, and WRI report go well beyond this requirement due to the extensive recent and historical information about golden eagle territories in San Diego County. Furthermore, Mr. Cashen conflates the FPEIR's statement that the boundary of six *breeding* territories not overlapping the Tierra del Sol project site, with golden *foraging* territory, which the FPEIR acknowledges encompasses the Tierra del Sol site. We disagree with Mr. Cashen to the extent that he asserts that the complete boundaries of golden eagle foraging habitat can be known, since the boundaries of golden eagle habitat will fluctuate year-to-year and season-to-season.

On page 3, Mr. Cashen states, "WRI acknowledged it has been unable to locate the active nest site associated with eagles in a second [redacted] territory. Neither the Applicant nor the County made an attempt to locate that nest site. Instead, both parties leaped to the conclusion that there are no nest sites within 4,000 feet of any of the Project sites." (footnote omitted)

Response: WRI did a complete survey of the Project area and confirmed that there are no golden eagle nests within 4,000 feet of the Project sites. Accordingly, we disagree with Mr. Cashen's conclusion that the applicant and the County erroneously "leaped to the conclusion that there are no nest sites within 4,000 feet of any of the Project sites."

On page 4, Mr. Cashen states, "WRI's report does not provide any information on the non-breeding segment of golden eagles that may use the Project area during the winter or migration."

Response: Common Response BIO1 explains that the golden eagle survey and analysis set forth in the FPEIR takes advantage of nearly three decades of golden eagle survey data, including recent focused surveys within and around the Project sites.

On page 4, Mr. Cashen states, "neither the Applicant nor the County made an effort to survey the Project sites to evaluate their potential function as core foraging areas."

Response: We disagree with Mr. Cashen's conclusion that no effort was made to survey the Project sites to evaluate their potential function as core foraging areas. To the contrary, the County Guideline of Significance G determines whether the "project would result in the loss of functional foraging habitat for raptors." (FPEIR, 2.3-99.)

On page 4, Mr. Cashen states, "Neither the Applicant nor the County attempted to assess the abundance and availability of golden eagle prey species on the Project sites."

Response: Appendix 2.3-2 identifies suitable foraging habitat types on the sites, and indicates that prey availability within the Project sites has been generally constrained throughout the range by ongoing drought. Furthermore, Mr. Cashen's comment is inherently contradictory because he relies on information included in the FPEIR to assert that the Project sites "appear to support abundant populations of lagomorphs (i.e., rabbits) and rodents", while at the same time accusing the FPEIR for inadequately analyzing prey availability.

On page 5 and 6, Mr. Cashen states: "The FEIR states:

> The Tierra Del Sol solar farm is located within the Pacific Flyway for migratory avian species; however, the project site is located east of the main coastal migration route and west of the primary route between the Gulf of California and the Salton Sea. Therefore, most species are not expected to fly over the project site.

The FEIR provides the same statement regarding the Rugged, LanWest, and LanEast Project sites. The FEIR's statement appears to be based purely on speculation because the Applicant did not conduct bird surveys to determine the abundance and diversity of bird species that use (or fly over) the Project sites during migration.

I agree many bird species fly through the Salton Sea; however, many others do not. For example, soaring birds (e.g., raptors) avoid large bodies of water during migration because water does not

provide the requisite thermals (updrafts). According to Phillip Unitt, author of the San Diego County Bird Atlas:

> Because of the comparatively low elevation of San Diego County's mountains (lower than the San Bernardino and San Jacinto mountains to the north), many birds migrating from a winter range in western mainland Mexico to a breeding range in northern California, the Pacific Northwest, or Alaska use San Diego County as a corridor for crossing from the desert to the coastal slope.

Indeed, the Applicant's consultant reported: "[m]igrating birds using this inland migration route of the Pacific Flyway may pass through the project area." This information highlights the flaws with the County's statements and subsequent analyses pertaining to bird migration through the Project sites."

Response: The FPEIR's conclusions regarding the potential impacts of the Project on migratory birds are not based on speculation. A literature review as well as field reconnaissance for biological resources were conducted for the Project in accordance with County *Guidelines for Determining Significance and Report Format and Contents Requirements* ("County Requirements") and the County's scoping letter, dated January 12, 2012. Field surveys were conducted where appropriate and included directed searches and habitat assessments for the County list of potential sensitive faunal species, including avian species. A focused survey was conducted on the Tierra del Sol site in 2012 for raptors, including Cooper's hawk, sharp-shinned hawk, golden eagle, turkey vulture, and red-shouldered hawk. The FPEIR's conclusions regarding the likelihood that migratory species will fly over the Project sites is based not on speculation, but on the characteristics of the Project sites, on their location vis-à-vis broad-based migratory routes that are well-established in the scientific literature, and on site-specific habitat assessments and focused surveys for avian species on adjacent sites (see page 2.3-21 of the FPEIR). The statements that Mr. Cashen quotes from the FPEIR do not misrepresent migratory bird patterns near the Project, nor are they contradictory, in providing that "most species are not expected to fly over the project site" but migratory birds utilizing a less common inland route "may pass through the project area." Based on evidence of the potential for migratory birds to pass over the site, the County analyzed whether any migratory birds passing over the Project sites would be affected by Project construction or operation. (FPEIR, section 2.3.3.) the County found that the short-term, temporary, or construction-related impacts to migratory birds and active migratory bird nest and/or eggs protected under the Migratory Bird Treaty Act would be significant. (FPEIR, Impacts

BI-TDS-27, BI-R-33, BI-LW-31.) In addition, artificial structures associated with the solar farms would have a potential long-term indirect significant impact to special status wildlife species. (FPEIR, Impacts BI-TDS-15 BI-R-15, BI-LW-13.) The County determined that there would otherwise be a less than significant impact to migratory birds during Project operations.

On pages 6 and 7, Mr. Cashen states:

"The southern grasshopper mouse (*Onychomys torridus ramona*) is listed as a California Species of Special Concern. There are only 26 occurrence records of this taxon in the California Natural Diversity Database ("CNDDB"). As described below, the Project sites provide suitable habitat for, and are within the geographic range of, the southern grasshopper mouse. However, neither the DEIR nor FEIR provided any mention of the taxon.

Historically, the southern grasshopper mouse inhabited mesas and valleys along the Pacific slope of the Peninsular and Transverse Ranges in southwestern California and extreme northwestern Baja California, Mexico. Recent records document the occurrence of this taxon on the desert slopes of the San Gabriel Mountains and the Peninsular Ranges, near Sage and Aguanga in Riverside County, and from the vicinity of Banner, Jacumba, Boulevard and Oak Grove in San Diego County. The Project area is within this narrow region, and several of the Project sites are located in close proximity to documented occurrences of the species (Figure 1).

The southern grasshopper mouse is believed to inhabit a variety of low, open and semiopen scrub habitats including coastal sage scrub, mixed chaparral, low sagebrush, riparian scrub, and annual grassland with scattered shrubs. As a result, the Project sites provide suitable habitat for the southern grasshopper mouse. The Applicant's consultant concluded there is a "low" potential for the taxon to occur on the TDS Project site. The "factual basis for [the] determination" was reported to be: "[n]o suitable grassland habitat found within the project area." The taxon is not limited to grassland habitat, and thus the consultant's determination is unfounded. The consultant correctly concluded that there is a "moderate" potential for the taxon to occur on the Rugged Project site based on the presence of suitable habitat and documented occurrence (albeit old) less than one mile from the Project area. The consultant did not provide any information on the potential for the taxon to occur on the LanWest or LanEast Project sites, or on the parcels being considered for mitigation.

As the FEIR acknowledges, detection of small mammals usually requires trapping surveys. Trapping surveys were not conducted at any of the Project sites. This has made it impossible for

the public and decision makers to understand the Project's environmental setting and potential impacts, and the adequacy of the County's proposed mitigation measures.

Due to its low fecundity, low population density, and large home range size, the southern grasshopper mouse is more susceptible to small- and large-scale habitat loss and fragmentation than other rodents. As a result, any impacts to a subpopulation occurring on one of the Project sites would have relatively severe impacts to overall species viability and diversity. The FEIR failed to provide measures that ensure this potentially severe impact is mitigated."

In addition, on page 8, Mr. Cashen states:

"Several other mammal species that are listed as California Species of Special Concern have the potential to occur on the Project sites. They include the Dulzura pocket mouse, northwestern San Diego pocket mouse, and pallid San Diego pocket mouse. As discussed previously, trapping surveys were never conducted to determine whether any of these species occur on the Project sites. This has made it impossible for the public and decision makers to understand the Project's environmental setting and potential impacts, and the adequacy of the County's proposed mitigation measures."

> Response: Mr. Cashen states that neither the DEIR nor FEIR provided any mention of the Southern Grasshopper Mouse. To the contrary, however, FPEIR Appendices 2.3-1 and 2.3-2 discuss the Southern Grasshopper Mouse. The County Requirements state that a biological resources report must address all sensitive wildlife species that occur or have a high probability of occurring on the site or on land immediately adjacent to the site. (County Requirements, § 1.4.6.) In the BRR for the Tierra del Sol site, Dudek determined that the Southern Grasshopper Mouse had low potential to occur on site, based on the fact that the species was not detected onsite, the lack of habitat found within the project area, and the areas where the species has been recorded. (FPEIR, Appendix 2.3-1, Appendix F.) The BRR for the Rugged site determined that the Southern Grasshopper Mouse had a moderate potential to occur on site based on no direct or indirect evidence that the species was present onsite, minimal quality of available suitable habitat, and record of previous documentation of the species in the vicinity of the site. (FPEIR, Appendix 2.3-2, Appendix H.) Based on this evidence and in accordance with the County Requirements, no further analysis of the Southern Grasshopper Mouse was necessary.
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> As to whether trapping surveys were necessary for the Southern Grasshopper Mouse or other mammal species, the County Requirements outline the methods for investigation

and analysis of the potential impacts to biological resources. In accordance with the County Requirements, a review of relevant literature and field reconnaissance were utilized to investigate the presence and potential presence of special status biological resources such as the Southern Grasshopper Mouse and other small mammals. Field reconnaissance included vegetation mapping and field surveys, including directed searches and habitat assessments. The County Requirements do not require trapping surveys in order to determine the presence or potential presence of the species noted by Mr. Cashen, or any other wildlife species. The investigative methods utilized were adequate to determine the potential impacts to all special status wildlife species that occurred or had the potential to occur on the Project sites for which project-level approvals are being sought by Soitec, the Tierra del Sol and Rugged sites.

While Mr. Cashen calls for additional surveys for the Dulzura pocket mouse, the northwestern San Diego pocket mouse, and the pallid San Diego pocket mouse "to determine whether any of these species occur on the Project sites," he ignores the data and analysis that was provided in the PEIR and the BRRs for these species. Mr. Cashen does not explain why additional investigation would be warranted. The Rugged and Tierra del Sol BRRs provide that none of these three species was detected onsite. Based on data such as available habitat on site and documented occurrences of the species in the vicinity, the BRRs provide that (1) the Dulzura pocket mouse has a low potential to occur on the Tierra del Sol site and high potential to occur on the Rugged site, (2) the northwestern San Diego pocket mouse is not expected to occur on the Tierra del Sol site and has a high potential to occur on the Rugged site, and (3) the pallid San Diego pocket mouse has a moderate potential to occur on both the Tierra del Sol and Rugged sites. (FPEIR Appendix 2.3-1, Appendix E; Appendix 2.3-2, Appendix H.) The FPEIR found that there was a potential significant impact to the Dulzura pocket mouse and the northwestern San Diego pocket mouse associated with the Rugged solar farm, based on the species' high potential to occur on site (BI-R-4, BI-R-6). Sufficient mitigation has been provided for these potential impacts (M-BI-PP-1, M-BI-PP-2, M-BI-PP-3, M-BI-P-4, M-BI-PP-11).

On page 9, Mr. Cashen states: "The County failed to disclose or analyze potentially significant impacts to two special status plant species that were detected during surveys of the Project sites:

- Southern jewelflower (*Streptanthus campestris*) (Rugged, LanWest, and LanEast).
- Cuyamaca cypress (*Hesperocyparis stephensonii*) (LanWest)

Neither of these species was even mentioned in the DEIR or FEIR, although both species are listed in one or more of the floral compendiums provided in the Applicant's biological resources reports.

Southern jewelflower has a Rare Plant Rank of 1B.3 and a Heritage Rank of G2/S2.3, which indicates it has a high risk of extinction at both the global and statewide levels. Cuyamaca cypress has a Rare Plant Rank of Rank 1B.1 and a Heritage Rank of G1/S1, which indicates it has a very high risk of extinction at both the global and statewide levels. By definition, plants with a Rare Plan Rank of 1 are considered rare or endangered under CEQA §15380(b) and (d). As a result, the County is obligated to disclose and analyze impacts to southern jewelflower and Cuyamaca cypress before a decision is made on the Project."

Response: Contrary to Mr. Cashen's statements, the County did disclose and analyze potential significant impacts to the southern jewelflower, a County Group 1 special status plant species. The FPEIR, including the biological resources appendices address the potential presence of the southern jewelflower on the LanWest, LanEast, and Rugged sites.

The FPEIR provides that the southern jewelflower has a high potential to occur within the LanWest project site. (FPEIR, 2.3-109.) The LanWest Biological Resources Report (BRR) states that the southern jewelflower was "documented from a nearby location." (FPEIR Appendix 2.3-4, Appendix E, p. E-9.) In addition, the LanWest BRR Appendix D "Floral Compendium" lists the southern jewelflower. This Compendium provides a list of plant species documented both within and adjacent to the LanWest site, as well as across the LanEast and Rugged sites as this data was collected before the larger survey area was separated into the three different solar farm project sites. (FPEIR Appendix 2.3-2, Appendix D, pp. D-2, D-7.) While the Floral Compendium is not specific to the LanWest site, geographical information system (GIS) data from these surveys on the LanEast, LanWest, and Rugged sites shows that the southern jewelflower was found on the LanEast site only, and was not detected on the LanWest or Rugged sites. (Attachment 1.)

The FPEIR further provides that a specific site plan has not been determined for the LanWest solar farm and it may be possible to avoid permanent impacts to special status plant species. Nevertheless, potential direct impacts to special-status plant species are considered significant (BI-LW-2). Mitigation measure M-BI-PP-1, habitat preservation, provides mitigation for this potential significant impact, rendering it less than significant after mitigation. In addition, temporary direct impacts to special status plant species on

the LanWest site during construction would also be potentially significant (BI-LW-1). The FPEIR further provides that M-BI-PP-2, M-BI-PP-3, and M-BI-PP-4 serve as mitigation to render this potential impact less than significant.

Related to the LanEast site, the FPEIR provides that this project is analyzed only on a programmatic level because the project design is still conceptual, all project-level data, including site-specific surveys, have not been completed, and no Major Use Permit application has been submitted. Accordingly, no significance determination regarding potential impacts to special-status plant species, including for southern jewelflower, is provided for the LanEast site at this time. (FPEIR, p. 2.3-108.) Early survey data showing the potential for the southern jewelflower on the LanEast site was disclosed in the DPEIR and is provided in the FPEIR (Appendix 2.3-3, Appendix D) and is also provided here in more detail (Attachment 1). Nevertheless, as the FPEIR states, surveys would be conducted to locate special-status species on-site and determine potential impacts during processing of a use permit for the LanEast project. (FPEIR, p. 2.3-108.)

For the Rugged solar farm site, the Rugged BRR provides that the southern jewelflower has a low potential to occur on site. (FPEIR Appendix 2.3-2, Appendix F, Table 1.) The County does not require analysis or direct mitigation for species with a low potential to occur on site. (County Requirements § 1.4.5.) Documentation from the early surveys noted above, conducted over the LanEast, LanWest, and Rugged sites, is also included in the Rugged BRR at Appendix D (Potential Nectaring Sources and Host Plant Species Detected During Quino Surveys) of Appendix B to the BRR, a 2011 Rugged Solar Energy Project Quino Checkerspot Butterfly 45-day Summary Report, as cited by Mr. Cashen. This list provides the plants detected across all three sites during Quino Checkerspot Butterfly surveys and the presence of a particular plant species on a particular site cannot be verified. A field data sheet, included in the Rugged BRR, shows that the southern jewelflower was detected during this Quino Checkerspot Butterfly survey, but is also not site specific. All GIS data that was collected on the southern jewelflower during the Quino Checkerspot Butterfly surveys, as well as focused rare plant surveys that took place over the same survey area, are reflected in Attachment 1, which shows occurrences for the southern jewelflower only on the LanEast site. Accordingly, the FPEIR correctly identified that the southern jewelflower was not verified as present on the Rugged site and had a low potential to occur.

As Mr. Cashen notes, the Cuyamaca cypress is included in the Floral Compendium for the LanWest site (FPEIR Appendix 2.3-4, Appendix D. It is important to note that this Appendix comprises a list of "plant species documented within and *adjacent to* proposed

> LanWest solar farm project area" (emphasis added). Appendix E, "Sensitive Plant Species Known *or Potentially Occurring*," (emphasis added) is consistent in stating that the species is "known from project vicinity. However, it is found naturally occurring on the west slope of Cuyamaca Peak in gabbro soils." Cuyamaca Peak is located in Cuyamaca Rancho State Park, approximately 38 miles from the Boulevard area. Based on the nearest natural occurrence of the species, its primary habitat associations, and elevation range, Dudek concluded that the presence of Cuyamaca cypress in the vicinity of the project site was not naturally occurring (similar to the presence of Tecate Cypress on the Tierra Del Sol site). Therefore, Dudek concluded that the potential for occurrence of the Cuyamaca cypress is low and it was not further analyzed. This is in accordance with the County Requirements, which state that a biological resources report must address all sensitive plant species that occur or have a high probability of occurring on the site or on land immediately adjacent to the site. (County Requirements, § 1.4.5.) Species with a low potential to occur need not be addressed.

On page 10, Mr. Cashen states, "the FEIR provided no scientific evidence to support the claim that 'foraging habitat impacted by the Proposed Project is not of the highest quality due to the amount of brush.'" Mr. Cashen also notes, "quality of habitat is more important than quantity, and the County has no basis to suggest impacts to a 'small percentage of the potential foraging habitat' would be inconsequential to the golden eagle pairs that occur in the vicinity of the Project sites."

> Response: See Appendix 2.3-2 regarding suitability of foraging habitat types. Furthermore, the FPEIR applies M-BI-PP-1 to mitigate impacts to golden eagle foraging habitat below a level of significance by preserving in permanent open space an acreage of native habitats equivalent to or greater than the acreage of total project impacts, which is designed to alleviate fragmentation of habitat.

On page 10, Mr. Cashen states, "Not only did it fail to examine effects at the local area population level (i.e., 140 miles), but it excluded the projects east of the Project sites: 'because they would affect more arid vegetation communities than those present on-site, and therefore, the Proposed Project would not cumulatively contribute to impacts to natural vegetation communities in this region or to impacts to species that are associated with these habitat types.' The County's rationale is scientifically indefensible for species such as the golden eagle, whose habitat extends east to the desert floor." (footnote omitted) Mr. Cashen further states, "the County has no basis to argue golden eagle territories are 20 to 30 square miles, and therefore the Project 'is not expected to have any resulting impacts to breeding pairs in the vicinity'—*if has*

not analyzed cumulative effects within each eagle pair's territory (i.e., 20 to 30 square miles)." (footnote omitted)

> Response: Performing a project-level habitat and species assessment throughout the cumulative study area is not required under CEQA. Instead, CEQA requires a reasonable analysis of cumulative impacts. As discussed in the FPEIR, the cumulative study area for biological resources was established as the Pennisular Ranges of the California Floristic Project, as defined in the Jepson Flora Project. (FPEIR, 2.3-179; Fig. 2.3-27.) The Pennisular Ranges extend from the western foothills of San Diego County to the crest of the San Diego mountains. As explained in the FPEIR, the Penninsular Ranges were identified as the cumulative study area because it includes features of natural landscapes and biota similar to the Project area. (FPEIR, 2.3-179.) The golden eagle foraging habitat impacted by the Project has the most in common with habitat affected by cumulative projects in the Penninsular Range. If, as Mr. Cashen suggests, the cumulative impact area had extended to encompass all golden eagle territories (20-30 square miles), the cumulative impact analysis would have encompassed a massive area. Using such a large area to analyze cumulative impacts would cause two problems: first, assessment of cumulative impacts to golden eagle foraging habitat would lose granularity by including habitat types that differ substantially from the Project area. Not all habitat has the same foraging value, as Mr. Cashen's comments recognize, and including substantially different habitat could lead to underestimation of potential cumulative impacts. Second, encompassing such a large area wouldrequire the County to attempt to identify all the cumulative projects within that large area, which itself would be extremely difficult, if not impossible

On page 11 and 12, Mr. Cashen states: "I agree with the USFWS and others that commented the DEIR provided misleading analysis of cumulative impacts within the vicinity of the Project sites. In particular, the USFWS noted that the County established an inappropriately large study area (approximately 466,564 acres) for many of the taxa that would (or could) be affected by the Project. This inherently resulted in the Project's contribution to cumulative effects to appear minor.

The Applicant's consultant prepared a habitat model to determine the potential for cumulative impacts to special-status plant and animal species. The habitat model included: (1) suitable vegetation communities that are being impacted within the biological cumulative analysis study area, and (2) suitable elevation ranges for each species. The consultant then compared the acreage of habitat impacted by several projects in the study area against the acreage output by the model. For example, the model indicated 333,436 acres of habitat are available for the southern

grasshopper mouse in the study area, of which 2,436.9 acres (0.73%) could be cumulatively impacted. This resulted in the consultant's conclusion that: "[t]he additional loss of less than 1% of suitable habitat within the study area would not result in significant impacts to species or their habitat." The consultant made a comparable conclusion for every other species that it analyzed.

The consultant's methods do not constitute a valid approach to cumulative effect analyses. First, the model relied on the assumption that each species occurs throughout all portions of the study area that satisfied the two basic input criteria (i.e., vegetation community and elevation). This assumption is not supported by data. For example, the model led the consultant to conclude desert beauty (*Linanthus bellus*) occurs within 221,591 acres of the study area, and thus impacts to up to 1,134 acres of occupied habitat would not significantly impact the plant's habitat. However, database records make it clear that desert beauty does not occur within 221,591 acres of the study area (Figure 2).

Second, limiting the model to two basic input criteria overinflated the estimate of habitat available for each species. Habitat availability is dictated by numerous biotic and abiotic factors beyond vegetation community and elevation. These include soil type, aspect, patch size, and canopy cover, among many others. For example, desert beauty is limited to sandy soils in chaparral habitat (even though the consultant inexplicitly included Great Basin Scrub and Upper Sonoran Subshrub Scrub habitats in the model). Including soil type as an input criterion would have greatly reduced the model's estimate of habitat available for most of the species analyzed.

Third, the consultant failed to consider all of the reasonably foreseeable projects in the study area. For example, the Sol Orchard Ramona Solar and Sol Orchard Valley Center Solar projects have been approved by the County. However, neither project was considered in the cumulative effects analysis."

> Response: As noted above, CEQA does not require the County to perform a project-level habitat and species assessment throughout the cumulative study area. Instead, CEQA requires a reasonable analysis of cumulative impacts. The habitat model is a valid method to determine the potential cumulative impacts to species within the cumulative study area. The cumulative impact area for biological resources need not be defined according to the extent of each individual faunal or floral species. Rather, the suite of vegetation communities and wildlife species that have the potential to be present on the Project sites was taken together and a geographic area that is representative of this suite of conditions was chosen as the appropriate cumulative impacts study area. As discussed in the FPEIR, the limits of the cumulative impacts area were then scaled, as shown in Figure 2.3-27, in order to limit overestimation. The cumulative impacts analysis,

including the habitat model, cumulative impacts study area, and cumulative projects considered, is supported by substantial evidence. With regard to the referenced Sol Orchard projects, they represent projects situated outside of the cumulative impacts study area – approximately 43 and 47 miles northwest of the subject sites – and were therefore not applicable to the cumulative impacts analysis.

On page 16, Mr. Cashen states, "[t]he project does not require any compensatory mitigation for the habitat that would be functionally lost due to fragmentation, degradation, and ongoing human presence at the facilities. At a minimum, all areas within each Project site's perimeter would no longer function as foraging habitat for golden eagles (and several other raptors) after the sites are developed. This would include the land deemed 'impact neutral' and the small patches of habitat that would remain among the four subareas at the Rugged site. The sum total of this acreage needs to serve as the starting point for calculating compensatory mitigation."

Response: We disagree with Mr. Cashen's assumption that areas not directly impacted by the Project must be included in the calculation for compensatory mitigation because they will be "functionally lost." The Project sites will be unmanned, and directly impacted areas will be occupied by humans only during routine maintenance and panel washing activities, which will be intermittent. Furthermore, the areas of the Project site not directly impacted will not be degraded or regularly impacted by human presence. This is dissimilar to residential development projects which do have the potential to cause significant fragmentation and degradation due to pets, weeds, and other anthropogenic factors. It is also worth noting that the Rugged site is a currently occupied by ranching activities. We also disagree with Mr. Cashen's assumption that the County was required to prepare a "habitat equivalency analysis".

On page 17, Mr. Cashen states, "[t]he construction and operation of the Projects has the potential to facilitate the colonization and/or spread of non-native "weed" species. The FEIR described the adverse effects weeds can have on native species and habitats, and it accurately characterized those effects as being potentially significant. The FEIR then concluded that impacts associated with weeds "would be reduced to less than significant with the implementation of mitigation requiring avoidance, minimization, and best management practices during construction and operation." However, the only mitigation measures imposed by the County that address weeds are the measures that: (1) prohibit the planting and seeding of invasive plant species; and (2) the requirement for weed control treatments to follow regulations set by the San Diego County agriculture commissioner.

The FEIR does not require the Applicant to prepare and implement a weed control plan, or monitor the Project sites (including transmission line routes) for new weed infestations. Similarly, the FEIR does not establish performance standards or an enforcement mechanism that ensures potentially significant impacts associated with the colonization and/or spread of weeds are successfully mitigated. As a result, potentially significant impacts remain unmitigated."

> Response: Dudek disagrees that the potentially significant impacts associated with non-native "weed" species are unmitigated in the FPEIR. The FPEIR discusses the potential impacts of non-native invasive plant species on special status plants, special status wildlife, foraging habitat, jurisdictional wetlands, and special status upland vegetation communities. The FPEIR requires various mitigation to bring potential significant impacts to less than significant, including M-BI-PP-3 (no planting or seeding of invasive plant species), M-BI-PP-6 (biological review of landscape plans), and M-BI-PP-9 (weed control treatments). Dudek concurs with the County's determination that these mitigation measures are sufficient to mitigate potential significant impacts associated with non-native "weed" species. In particular, M-BI-PP-9 requires that the County agricultural commissioner authorize the application of permitted weed control treatments, which may include chemical, manual, and mechanical methods. In addition, the timing of weed control treatments is to be determined for each plant species in consultation with the County agricultural commissioner, the California Invasive Plant Council, and pest control advisor. The timing of each treatment under the mitigation measure would be determined according to the standard that populations are to be controlled before they start producing seeds.
>
> In addition, vegetation will be controlled on the Project sites in accordance with the draft Fire Protection Plans for the Project. (FEIR Appendices 3.1.4-5 and 3.1.4-6.) The Fire Protection Plans provide for fuel modification areas, special fuel management areas, and vegetation management, all of which will also help to control the proliferation of weeds on the Project sites. There are no significant, unmitigated impacts associated with the potential colonization or spread of weeds resulting from the Project.

On page 17 and 18, Mr. Cashen states: "The FEIR acknowledges a variety of special-status bat species have the potential to roost at or adjacent to the Project sites. However, the FEIR lacks any mitigation to ensure bat roosts are not significantly impacted by the Project.

Bats are relatively long-lived and have low reproductive rates compared to many other mammals. In addition, most bat species are susceptible to noise and other types of anthropogenic disturbance. This makes them vulnerable to mass displacement. Maternity colonies and

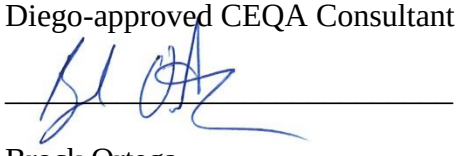
hibernating bats are especially susceptible to disturbance. One poorly timed disturbance event can cause complete abandonment of the maternity colony, resulting in mass mortality of the pups. These traits may seriously limit a bat species' ability to recover from persistent disturbance or fatality events."

Response: The County found that some special status bat species have the potential to roost at or adjacent to the Project sites based on the types of vegetation and habitat and other features present on the Project sites, rather than the presence of specific roosting sites. Habitat that will be impacted by the Project will be mitigated under M-BI-PP-1 with the preservation in open space of equivalent habitat. The land proposed for preservation under M-BI-PP-1, because of vegetation types present and other features of the land, is expected to offer equal or better roosting opportunities for special status bat species that have the potential roost at or adjacent to the Project sites. In addition, many of the areas within the Project sites that offer the most suitable roosting sites, such as the Tule Creek corridor, will remain as open space based on the proposed tracker layout.

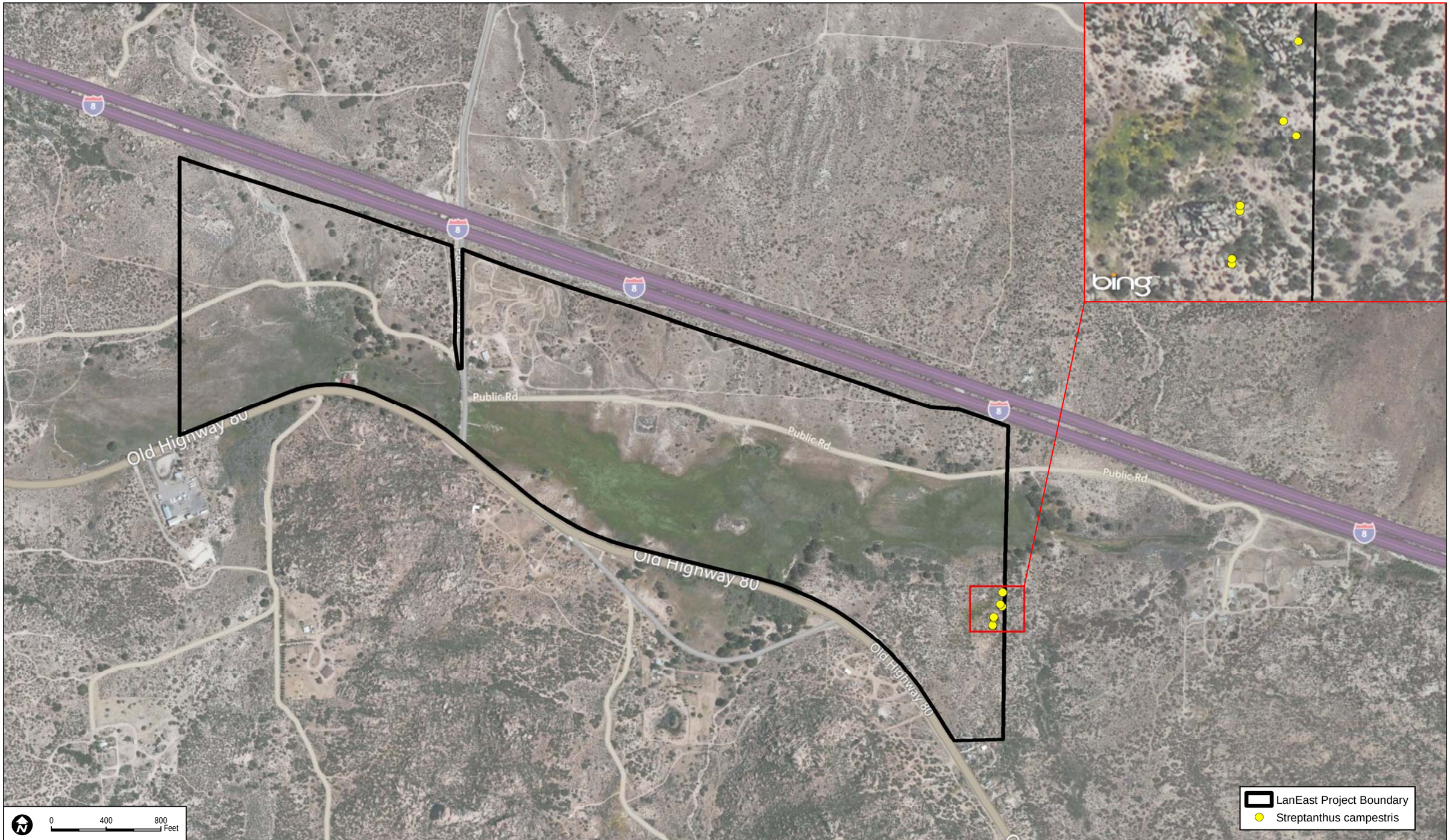
The commenter provides information, generally, on potential impacts to bat species from anthropogenic disturbance, but does not allege, or provide any support for the proposition, that the Project is likely to result in any of these impacts. The biological resources assessments found that no maternity colonies are present on the Project sites where site-specific studies were conducted and the commenter does not provide evidence to the contrary. In addition, related to the potential for mass displacement of bats from anthropogenic disturbance, it is important to note that the special status bat species that have the potential to roost at or adjacent to the Project sites are likely to roost individually or in small numbers, not in large colonies as some other bat species might.

CERTIFICATION

This memorandum has been prepared by Mr. Brock Ortega. Mr. Ortega is a County of San Diego-approved CEQA Consultant for Biological Resources.



Brock Ortega
Principal, Senior Wildlife Biologist



DUDEK

7345

SOURCE: Soitec 2015; Bing Maps

Figure 1

Streptanthus campestris data points from the Soitec Project Area (LanEast Site)

Soitec Solar Development

ATTACHMENT A

Resume

ATTACHMENT A
Resumes

Brock Ortega – Principal, Senior Wildlife Biologist

Brock Ortega has over 22 years' experience as a wildlife biologist. He brings extensive expertise to his project teams in many areas, including mitigation monitoring, permitting issues related to wetland resources and threatened or endangered species, wildlife biology and management, ecological assessment, environmental impact assessment and mitigation, habitat remediation, endangered species management plan authorship, and project management. Mr. Ortega has conducted over 30,000 hours of focused and general wildlife surveys during his professional career.

Mr. Ortega has pioneered several applied wildlife study techniques at Dudek, including acquisition of 6 passive and active bat detection devices and software, implementation of a training program for staff, and acquisition of thermal imaging equipment for bat study. He has also pioneered wildlife movement and corridor studies, reptile trapping arrays, wildlife modeling, and helicopter mapping of vernal pools for Dudek.

Mr. Ortega is a recognized qualified surveyor for a number of listed and rare amphibian and mammal species and has federal permits for several species. He is U.S. Fish and Wildlife Service (USFWS)–authorized as an arroyo toad (*Bufo californicus*) emergency handler; USFWS and California Department of Fish and Game (CDFG)–qualified to survey San Joaquin kit fox (*Vulpes macrotis mutica*) throughout its range; and USFWS and U.S. Forest Service (USFS)–qualified to survey arroyo toad, California red-legged frog (*Rana draytonii*), mountain yellow-legged frog (*Rana muscosa*), and Coachella Valley fringe-toed lizard (*Uma inornata*) throughout their ranges.

EDUCATION

Humboldt State University
BS, Wildlife Biology and Management, 1991

CERTIFICATIONS

USFWS Federal 10a Survey Permit No. TE-813545-5 (exp. 03/15/2016):

- California gnatcatcher surveys
- Least Bell's vireo surveys/nest monitoring
- Southwestern willow flycatcher surveys
- Quino checkerspot butterfly surveys
- Fairy shrimp surveys

Mohave Ground Squirrel Chief Survey Permit

PROFESSIONAL AFFILIATIONS

American Ornithologists' Union
Association of Field Ornithologists
Cooper Ornithological Society
Wilson Ornithological Society
The Wildlife Society

PROFESSIONAL REPRESENTATION

Board member of the Southern California Chapter of The Wildlife Society

Board member of the Humboldt State University Wildlife Department Alumni Association

PROJECT EXPERIENCE

Development

Tejon Mountain Village, Tejon Mountain Village LLC, Kern County, California. Lead biologist and phase manager for wildlife corridor, ringtail cat (*Bassariscus astutus*), sensitive reptile and amphibian, and small mammal studies. Designed and implemented study design for wildlife corridor and ringtail cat studies.

For the wildlife corridor study, reviewed 20 crossing locations under and in the vicinity of Interstate 5 along a 10-mile stretch of highway; directed review and analysis of over 16,000 camera station photographs from undercrossings; directed game trail field work; directed implementation of a project-wide geographic information systems (GIS)-based permeability modeling effort to determine preferred wildlife usage and movement across the site and estimate post-project wildlife usage and movement across the site.

For the ringtail cat study, designed, sited, and directed implementation of a baited-station camera study that used a rotating group of 20 digital infrared/motion-sensing game cameras to determine the presence/absence of ringtail cat. Over 200 stations were run across the project area for a period of 16 days each. These camera stations were successful at capturing a variety of large, medium, and small mammals, along with a variety of avian species. Performed habitat assessments for sensitive amphibian and reptile species. Was responsible for designing and implementing both studies. Performed as a project biologist for this project, conducting focused surveys for arroyo toad, California red-legged frog, southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), yellow-billed cuckoo (*Coccyzus americanus*), sensitive butterflies, raptors, and general wildlife.

Master-Planned Community, Santa Barbara County, California. Supervisory biologist for environmental surveys. Conducted initial habitat assessments for vernal pools and special-status wildlife species, including California red-legged frog and tiger salamander (*Ambystoma tigrinum)*. Developed strategy for conducting vegetation mapping, jurisdictional wetland delineation, and focused surveys for special-status plants and animals on approximately 4,000 acres of land. The master-planned community project consists of a large development with several thousand homes with associated schools, professional offices, shopping areas, and safety facilities. Dudek is assisting with multiple environmental planning services to prepare an environmentally sensitive development.

Landmark Village Project, Newhall Land and Farming Company, Los Angeles County, California. Supervisory biologist for habitat assessments and focused surveys in 2007 for California gnatcatcher (*Polioptila californica*) and vernal pool surveys on 145 acres of land. Assisted in study design, focused surveys, and analysis.

Mission Village Project, Newhall Land and Farming Company, Los Angeles County, California. Supervisory biologist for habitat assessments and focused surveys in 2007 for vernal pool species and California gnatcatcher on 520 acres of land. Assisted in study design, focused surveys, and analysis.

High Country Project, Newhall Land and Farming Company, Los Angeles and Ventura Counties, California. Lead biologist for habitat assessments and focused wildlife surveys in 2005 for vernal pool species, large mammal usage, California gnatcatcher, southwestern pond turtle (*Actinemys marmorata*), arroyo toad, owls, and special-status birds and reptiles on 23,000 acres of land. Determined species survey methods and biologist coverage areas, and performed analysis on the data collected.

4S Kelwood/4S Ranch, Newland Communities, San Diego County, California. Served as primary wildlife biologist for this project. Conducted habitat assessments and surveys for least Bell's vireo, California gnatcatcher, clapper rail (*Rallus longirostris*), southwestern pond turtle, and Quino checkerspot butterfly (*Euphydryas editha quino*). In addition, conducted a wildlife movement analysis across the property and monitored construction and removal of vegetation.

Trabuco Canyon, The Planning Center, Orange County, California. Lead wildlife biologist for preparation of biological technical reports for California Environmental Quality Act (CEQA) documentation for the Trabuco Canyon Project, which encompasses over 1,110 acres. Managing and conducting a 2.5-year wildlife corridor study program, focused surveys for least Bell's vireo and southwestern willow flycatcher, focused surveys for arroyo toad, habitat assessments and focused surveys for burrowing owl (*Athene cunicularia*), focused California gnatcatcher surveys, nesting raptor surveys, California red-legged frog surveys, and fairy shrimp surveys.

Retrofit Project, Palm Springs Aerial Tramway, Riverside County, California. Managed the biological resources portion of this project, which proposed to install new larger trams. The new tram cars required rock and tree removal adjacent to the tram alignment to ensure safe usage. Initial tasks included conducting focused surveys for mountain yellow-legged frog and golden eagle (*Aquila chrysaetos*), vegetation mapping, reporting, and coordination with the resource agencies. Was later responsible for determining the best way to convey peninsular bighorn sheep (*Ovis canadensis cremnobates*) across the Tram Road and onto the adjacent alluvial fan. This required interviewing numerous state, federal, academic, and field bighorn sheep biologists, devising alternative methods to avoid impacts to sheep, determining likely sheep crossing points, determining potential habitat bridge locations, and submitting a synopsis report.

Yokohl Ranch, Yokohl Ranch LLC, Tulare County, California. Served as a lead wildlife biologist for the project to perform initial habitat assessments for pond turtles, ringtail cats, wildlife movement, and mammals. Dudek is preparing biological resources reports and an environmental impact report (EIR) for an approximately 4,800-acre site that will be developed within the 36,000-acre Yokohl Ranch located in Tulare County. The planned development area lies within valley, foothill, and Sierra Nevada mountain habitats.

Energy

Hazard Tree Removal Project, Southern California Edison (SCE), San Bernardino and San Jacinto Mountains, Riverside and San Bernardino Counties, California. Project manager responsible for SCE's Hazard Tree Removal Project in the San Bernardino National Forest and surroundings. Responsible for conducting biological surveys along all SCE circuits within the San Bernardino and San Jacinto Mountains prior to removal of bark beetle–infested trees, drought-stressed trees, and other damaged trees from the vicinity of its poles, lines, and other facilities. The project area encompasses 106 square miles, an estimated 62,000 acres of tree removal, 22,000+ power poles, and 538 linear miles of utility lines. Responsibilities include serving as project manager, obtaining weekly survey priorities, devising work schedules, coordinating with SCE personnel and USFS biologists regarding site-specific sensitivities, conducting biological surveys of all lines within San Bernardino National Forest, and writing biological assessments for the USFS.

Pole and Utilities Replacement Project, SCE, Riverside and San Bernardino Counties, California. Served as project manager and primary wildlife biologist. Responsibilities included conducting habitat assessments for sensitive wildlife species at multiple locations in Riverside and San Bernardino counties. These locations range from the Santa Ana Mountains and western valleys of Riverside County to San Jacinto Mountain, Palm Springs, Coachella Valley, the southern slopes of San Bernardino County, San Bernardino Mountains, and Apple Valley region of San Bernardino County.

Daggett Ridge Wind Farm EIR/EIS, AES Wind Generation (Daggett Ridge Wind Farm LLC), San Bernardino, California. Served as the lead biologist for the Daggett Ridge Wind Farm project responsible for coordination with the Bureau of Land Management (BLM) and survey design and reporting. Dudek was contracted by Daggett Ridge Wind Farm LLC, a subsidiary company of AES Wind Generation, to prepare required CEQA and National Environmental Policy Act (NEPA) documentation associated with the proposed Daggett Ridge Wind Farm located on public (BLM) and private land in San Bernardino County, California. Dudek initially worked with the County of San Bernardino (California lead agency) staff and the BLM (federal lead agency) to prepare a project management plan to produce a detailed project task schedule, detailed outline of the draft environmental impact report/environmental impact statement (EIR/EIS), a public outreach plan, and a mechanism for regular project updates. Dudek then prepared a combined Environmental Assessment/Initial Study (EA/IS) to focus the environmental analysis required for the EIR/EIS to critical resource areas.

Desert Renewables Energy Conservation Plan, California Energy Commission, Southern California. Served as a project biologist, providing analysis and coordination with species experts. Dudek was selected by the California Energy Commission and the California Natural Resources Agency (California Department of Fish and Game) to prepare the Natural Community Conservation Plan (NCCP) for the Desert Renewables Energy Conservation Plan (DRECP).

The DRECP was established by Governor Schwarzenegger's Executive Order S-14-08, which identifies targets for increasing California's renewable energy portfolio. The DRECP, when completed, is expected to further these objectives and accelerate the processing of renewable projects in the California desert (Mojave and Colorado deserts), encompassing parts of six counties.

The DRECP is an NCCP that will help provide for effective protection and conservation of desert ecosystems while allowing for the appropriate development of renewable energy projects. It will provide long-term endangered species permit assurances to renewable energy developers and provide a process for conservation funding to implement the DRECP. It will also serve as the basis for one or more habitat conservation plans under the federal Endangered Species Act.

San Diego Gas & Electric Cleveland National Forest Electric Safety and Reliability Project, California Public Utilities Commission, San Diego County, California. Serves as the lead biologist for the project. Responsible for coordination with the USFS, determination of species impacts, study design, and monitor management. Dudek was contracted by the California Public Utilities Commission (CPUC) to prepare environmental documents pursuant to CEQA and NEPA for the San Diego Gas & Electric (SDG&E) Cleveland National Forest Electric Safety and Reliability Project. SDG&E proposed to submit an application to the USFS for a Master Special Use Permit, which combined approximately 70 special-use permits and other approvals for various electric transmission and distribution facilities located throughout the Cleveland National Forest (CNF) into one master permit under one 20-year authorization. The project also proposed activities on non-CNF lands, including private lands that are near the CNF and fall under the jurisdiction of the CPUC and other federal lands not under the jurisdiction of the USFS. For activities on private lands, SDG&E submitted an application for a Permit to Construct in accordance with CPUC General Order 131-D.

The project will also include maintenance, replacement or relocation, and operation of existing, active 69-kilovolt (kV) transmission and 12 kV distribution lines; installation or removal of 12 kV distribution lines; maintenance, relocation, or construction of access roads; and maintenance or widening of existing rights-of-way (ROWs) or acquisition of ROWs. The power lines included in the project traverse CNF land, BLM land, California State Parks land, County of San Diego land, tribal land, and private land holdings.

Mountain View IV Wind Energy EIR/EIS Project, City of Palm Springs/Bureau of Land Management, Riverside, California. Served as lead project biologist for the project. Dudek prepared a joint EIR/EIS for the City of Palm Springs and the BLM. The project consists of two development options for a 1,659-acre site. The first development option consists of 49 1,000-kilowatt (kW) turbines. The second includes 58 850 kW turbines. Both alternatives involve the installation of support facilities, including gravel-surfaced access roads, an electrical substation, and an electrical transmission line to connect the turbines to the substation. The project also included a compatibility analysis with the recently adopted Coachella Valley Multi-Species Conservation Plan.

The project site is within the City of Palm Springs corporate boundaries; however, the western half of the project site is composed of BLM land, and the eastern half is private land under the management of the Coachella Valley Water District (CVWD). Consultation and coordination with both lead agencies (City of Palm Springs and BLM) and CVWD played a vital role in the planning process and ultimate certification of the EIR/EIS. The Final EIR/EIS was ultimately certified and adopted by the lead agencies in December 2008.

Borrego Solar Project Characterization Study, Confidential Client, San Diego, California. Served as lead project biologist for analysis. Dudek was contracted to provide environmental services for the 187-acre Borrego Springs Solar Project in San Diego County, California. Located on former agricultural lands, the project would include an interconnection to a 69 kV Borrego Substation located 1.3 miles away, along Borrego Valley Road.

The characterization study will be used to determine site constraints, affecting schedule and possible delays associated with development and environmental permitting. The study was presented showing methods used to determine site constraints, findings that discuss both engineering and environmental constraints, and a site constraints map using geographic information systems (GIS) mapping.

Solar Siting Studies and As-Needed Extension of Staff Services, Confidential Client, San Diego County, California. Lead project biologist for analysis. A solar developer contracted with Dudek to provide as-needed environmental services to assist in identifying sites for solar energy development throughout Southern California. An interactive process with the solar developer staff, the goal was to ensure that all potential environmental constraints were identified when selecting potential development sites based on siting parameters developed by the solar developer. Dudek's studies targeted identifying sites that met the selection criteria to secure options for solar development.

Solar Farm Initial Site Constraints and Fatal Flaw Analysis, Concentrix Solar Inc., San Diego County, California. Serves as lead project biologist for analysis. Dudek was contracted by Concentrix Solar Inc. to conduct an initial site constraints analysis for a proposed solar renewable energy development within the County of San Diego, near the unincorporated community of Boulevard. In addition to conducting a regulatory/environmental constraints survey for this project, Dudek's environmental scientists provided a comprehensive "fatal-flaw" environmental analysis that will allow Concentrix Solar to better make key decisions about developing other solar energy sites within the County of San Diego. To date, these projects include nearly 1,000 acres in San Diego County and involve a variety of resource issues.

Southern California Edison Demolition of Mohave Generating Station, Destrier Inc., Laughlin, Nevada. Served as project manager and lead biologist for project. Dudek subcontracted to Destrier Inc., of Irvine, California, to assist in the demolition process (i.e., providing quality assurance and technical support) for the demolition of Southern California Edison's (SCE's) Mohave Generating Station, located in Laughlin, Nevada, near the Colorado River. Dudek initially assisted Destrier Inc. in the Demolition Bid Review process, reviewing contractor bids regarding responsiveness, completeness, and technical approach. The review included bid compliance with state, federal, and local permits and regulations related to asbestos abatement, hazardous materials waste transportation and disposal, soil and samplings. Later, Dudek provided biological coordination regarding a variety of federally listed threatened and endangered species and other special-status species issues including desert tortoise (*Goperus agassizii*), Yuma clapper rail, bald eagle (*Haliaeetus leucocephalus*), golden eagle, burrowing owl, relict leopard frog (*Lithobates onca)*, gila monster (*Heloderma suspectum)*, razorback sucker (*Xyrauchen texanus)*, and bonytail chub (*Gila elegans)*. Dudek was requested to provide recommendations to avoid attractive nuisance habitat on site, to identify potential nesting issues related to the structure, and to coordinate with the USFWS regarding listed species – obtaining a Section 10 concurrence letter from the local USFWS office in less than 2 months.

Tule Wind Project As-Needed Environmental Services, Iberdrola Renewables Inc; San Diego County, California. Serves as lead biologist and task manager. Dudek was initially contracted to conduct a habitat assessment for Quino checkerspot butterfly at the Tule project site in McCain Valley, in southeastern San Diego County. According to USFWS guidelines, habitat assessments are required to identify suitable vegetation structure and determine the presence/absence of suitable host and nectar plant species used by the Quino. Areas identified as suitable habitat then required focused surveys, according to USFWS protocol, by Dudek's USFWS-permitted biologists. Dudek conducted Quino surveys within the Cuyapaipe, BLM, and state lands along approximately a 10-mile, 1,000-foot-wide corridor of proposed wind turbines and access roads, as well as two, 10-acre substation sites and a 100-foot-wide corridor for 10 miles in McCain Valley, proposed for overhead transmission lines. The survey results mapped and characterized the vegetation communities using GIS technology, and all suitable Quino habitat was mapped, identified, and described in a project report. The Quino survey work was later expanded to include approximately 400 additional acres located on Rough Acres Ranch north of McCain Road, and an additional 1,000-foot-wide corridor designated as an anticipated "action area" for wind turbine projects.

Tierra del Sol Project Biological Surveys, Invenergy Wind Development LLC, San Diego County, California. Serves as lead biologist and task manager. Dudek was contracted to conduct a biological constraints-level survey of the 150-acre Tierra del Sol parcel located in San Diego County. Vegetation communities were mapped in accordance to Holland nomenclature and County of San Diego requirements. A general inventory of plant and animal species was compiled as well as a determination of potential special-status species that could occur on the site. All data were compiled in GIS digital format and added to a Biological Resources Map. Also, specifically, a Quino checkerspot butterfly survey was conducted on the site, and Dudek biologists assessed the suitability of the site as habitat for this protected species. In general, Dudek's initial work on the project identified potential biological issues before the client submits any applications to proceed on the project to the County of San Diego.

Solar Power at Santee Lakes Recreational Preserve, Padre Dam Municipal Water District, San Diego County, California. Served as lead project biologist. The Padre Dam Municipal Water District (District) used an innovative approach to incorporate solar paneling into their Santee Lakes Recreational Preserve park. The District proposed to construct recreation vehicle (RV) ports over three RV parking areas to support solar paneling.

A feasibility study was conducted that indicated that solar panels would be cost effective through a "Power Purchase Agreement" and would benefit the District, park users, and the surrounding community by providing clean energy to the power grid. Dudek prepared an IS that determined that a negative declaration would be the appropriate environmental document for this project. A key factor of the project was that it would provide the District with renewable, clean energy into the power grid, which would help reduce the District's overall carbon emissions at the preserve. A key issue analyzed and determined to be less than significant was the visual charter and light and glare for the neighboring residences from the structures and solar paneling.

Municipal

As-Needed Biological and Cultural Resources Surveys and Monitoring, Department of Parks and Recreation, County of San Diego, California. Served as project manager, providing as-needed consulting services for biological and cultural resources. Services included conducting Phase I cultural resources surveys; baseline biological surveys; habitat, wildlife corridor, and sensitive plant and animal species monitoring; and habitat restoration. Prepared technical reports, developed vegetation management plans, and developed public access plans providing analysis and recommendations for potential multiple-use trails and staging areas. Responsible for oversight, wildlife survey design, and staffing for the following projects:

- Baseline Biodiversity and Cultural Survey for the Pascoe, Helix-Lambron, and Cielo Azul Parcel Additions to the Del Dios Highlands Preserve. This project included preparation of a vegetation management plan for the approximately 313-acre area in Escondido, California.

- Baseline Biodiversity and Cultural Survey for the Escondido Creek Preserve. This project included preparation of a vegetation management plan for the approximately 346-acre site in the Elfin Forest.
- Baseline Biodiversity and Cultural Survey for the San Luis Rey River Park. This project included preparation of a trails assessment and vegetation management plan for the approximately 460-acre site in the northern San Diego County area.
- Tijuana River Valley Regional Park Habitat Restoration Project. This 33-acre site is located in southern San Diego County.
- Lusardi Creek Perennial Invasive Vegetation Control and Coastal Sage Scrub Seed Imprinting Project. This project included preconstruction surveys for nesting birds. This approximately 2-acre site is located in the San Dieguito River Valley.
- Santa Ysabel West Perennial Invasive Vegetation Control Project. This approximately 0.26-acre area is a mitigation site in eastern San Diego County.
- Baseline Biodiversity and Cultural Survey for the Sycamore South and Hagey Portions of the Sycamore Canyon and Goodan Ranch Preserves. This project included preparation of a vegetation management plan for the entire preserve (2,300 acres) and an access plan. The survey site encompasses approximately 263 acres in the Santee/Poway area. This work is still in progress.
- Baseline Biodiversity and Cultural Survey for the Stoneridge Preserve. This project included preparation of a vegetation management plan and was conducted over an approximately 244-acre area in the South San Diego County area. This work is still in progress.
- Baseline Biodiversity and Cultural Survey for the Potrero/Mason Properties. This project included preparation of a vegetation management plan and access plan. The survey was conducted over an approximately 505-acre area in the Barratt Junction area. This work is still in progress.

Resource Management

LaBorde Canyon Off-Highway Vehicle Park Study, Riverside County, California. Served as the project manager and lead biologist for the 2,600-acre study. Was responsible for scheduling ten biologists and one subconsultant to conduct habitat mapping, sensitive plant surveys, Stephens' kangaroo rat (*Dipodomys stephensi*) and San Bernardino kangaroo rat (*Dipodomys merriami parvus*) habitat assessments and trapping, installation and implementation of 20 reptile trap arrays, raptor nest surveys, and general wildlife surveys.

San Luis Rey Bike Path, City of Oceanside, San Diego County, California. Served as project manager and primary wildlife biologist. This project was located at the western end of the San Luis Rey River, near Interstate 5. Conducted vegetation mapping and focused surveys for California gnatcatcher and a variety of sensitive plant species. Processed environmental studies in support of the City of Oceanside's Mitigated Negative Declaration and wrote the habitat restoration plans for the project.

Annual Gnatcatcher Surveys, Trump National Golf Club, City of Rancho Palos Verdes, California. Conducted gnatcatcher surveys over approximately 100 acres of restored coastal sage scrub and coastal bluff scrub habitat within and surrounding the golf course on the Palos Verdes Peninsula. The goal of the surveys was to determine the breeding status of paired birds, territory number, size and location, breeding success, and cowbird predation in accordance

with the Ocean Trails Habitat Conservation Plan. Prepared annual monitoring reports that summarized population dynamics and identified threats to gnatcatchers.

Western Riverside County Multiple Species Habitat Conservation Plan (MSCHP), Riverside County Transportation and Land Management Agency, Riverside County, California. Served as one of the primary biologists for the Western Riverside MSHCP. Responsible for writing species accounts and coverage assessments for all of the covered reptiles, amphibians, insects, and crustaceans within the planning area. Also responsible for analyzing various wildlife crossing and corridor issues and determining potential methods for safely conveying wildlife across planned roadways. This involved extensive review of current state-of-the-art wildlife underpasses and overpasses within California, nationally, and globally. This also included visiting various sites, such as the Interstate 80 underpasses east of Sacramento. Also participated in implementation of the MSHCP, reviewing proposed projects for consistency with the MSHCP.

West Coyote Hills Field Closure and Development Project, Chevron USA Production Company and Chevron Pacific Coast Homes, City of Fullerton, Orange County, California. Assisted Chevron in obtaining a federal Section 4(d) permit to allow closure of the approximately 600-acre oil field. This field was home to over 46 pairs of California gnatcatchers. Managed environmental compliance regarding endangered species issues and included regular coordination with the USFWS, CDFG, U.S. Army Corps of Engineers, and California Division of Oil and Gas. Served as long-term 4(d) compliance monitor and coordinator for the field closure. Managed and conducted construction worker training seminars, and provided other training materials to educate workers regarding biological resources. Obtained regulatory agency approval of several project changes, including extension of work seasons and impact variances. Prepared and managed implementation of habitat restoration activities benefiting the California gnatcatcher. Prepared, and regularly coordinated with the regulatory agencies regarding, a federal Section 7 Biological Assessment to be included within the USFWS Biological Opinion regarding development of approximately half of the site. Acceptance of this assessment was reliant upon defensible analysis that through project modifications, project configuration, habitat restoration, and long-term management regimes, no net loss of California gnatcatchers would occur.

Stephens' Kangaroo Rat Habitat and Fire Management Plan, Riverside County Habitat Conservation Agency, Riverside County, California. Project manager responsible for preparing a Stephens' kangaroo rat Habitat and Fire Management Plan for the Riverside County Habitat Conservation Agency reserves in Lake Mathews and Steele Peak. Conducted interviews of habitat managers, species experts, and wildlife agency personnel. Coordinated expected fire behavior modeling for the reserve in order to develop a fire protection strategy and brush management plan. Established a suite of monitoring protocols and measures to track population levels and contributed habitat statistics to use for future management decisions. Conducted

live-trapping in eleven 90-meter by 90-meter grids that included 49 traps per grid. Established a series of stratified grids across the reserve and field-verified the sites. Tested surrogate burrow count methodologies and sampled vegetation using a modified relevé method.

Baseline Biological Surveys of the Otay Ranch Preserve – Salt Creek and San Ysidro Mountain Parcels, County of San Diego, California. Serving as project manager, staffed the project and attended preserve owner/manager meetings as needed. Provided direction on wildlife survey design and directed staff with regard to survey locations and various wildlife studies, including butterfly surveys, avian point-count stations, herp arrays, game camera locations, and small-mammal trapping, within an approximately 1,350-acre area located in Chula Vista, California.

Environmental Surveys of Simon and Mount Gower Preserves, County of San Diego, California. Served as senior wildlife biologist. Provided direction on wildlife survey design and directed staff with regard to survey locations and various wildlife studies, including avian point-count stations, herp arrays, game camera locations, and small mammal trapping, within the 617-acre Simon Preserve and the 1,522-acre Mount Gower Preserve located in Ramona, California.

Transportation

Stormwater Best Management Practice (BMP) Pilot Study and Statewide Wet Basin Projects, California Department of Transportation (Caltrans), Statewide, California. Served as project manager for this BMP pilot study that began in 1999 to account for potential endangered species issues related to implementation of BMPs in San Diego and Los Angeles counties. Initially evaluated all proposed structures to determine which had the potential to become attractive nuisances to sensitive wildlife species. Potentially sensitive BMPs were then monitored over a 2-year period to determine their true impact on sensitive species. During this timeframe, Worked with Caltrans, project engineers, scientists, regulatory agencies, and local conservation groups to modify maintenance and facility management regimes to avoid impacts to a wide variety of sensitive species. As a result of this project, it was determined that one type of BMP was at greater risk of becoming an attractive nuisance to threatened and endangered species. At Caltrans' request, formulated a project strategy and initiated discussions with the regulatory agencies to determine a strategy to permit installation of the BMPs on a statewide level. It was determined that the best method would be to employ the Safe Harbors Act or possibly pursue a habitat conservation plan under Section 7 or 10 of the Endangered Species Act. Currently studying potential BMP sites throughout the entire state and is in contact with the pertinent regulatory agencies and field offices toward devising an effective permitting strategy.

Oceanside to Escondido Rail Project, North County Transit District (NCTD), Cities of Oceanside, Vista, San Marcos, and Escondido and County of San Diego, California. Served as the primary wildlife biologist for the project, conducting habitat assessments and focused surveys for California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, and arroyo toad along the entire project alignment. Wrote the least Bell's vireo and brown-headed cowbird (*Molothrus ater*) management plans for the project. Additionally, implemented and managed the brown-headed cowbird trapping program.

Mid-County Parkway, Riverside County Integrated Project, Riverside County, California. Lead biologist responsible for managing and conducting focused sensitive plant, burrowing owl, least Bell's vireo, southwestern willow flycatcher, and fairy shrimp surveys within the Mid-County Parkway study area, which includes a number of alternatives and ranges from approximately 1.7 kilometer (1.1 mile) to 6.5 kilometers (4 miles) in width and is approximately 52 kilometers (32 miles) in length. In addition, was responsible for devising a cost-effective helicopter survey method for potential fairy-shrimp-occupied pools after rain events, reducing potential survey time from days to 3 hours. Was also responsible for siting and design of at least 15 major and minor wildlife undercrossings and 3 wildlife overcrossings to accommodate reserves in western Riverside County.

Rancho Santa Fe Road Widening and Bridge Replacement Project, City of Carlsbad Public Works Department, San Diego County, California. Served as a primary wildlife biologist for the project and conducted focused surveys for California gnatcatcher.

Water/Wastewater

As-Needed Contract, City of San Diego Engineering and Capital Projects Department and Water Utilities Department, San Diego County, California. Completed environmental impact studies for several sewer and storm drain projects under the City of San Diego as-needed contract. Wrote several mitigation monitoring plans and processed documentation for CEQA compliance. Personally managed approximately 8 of the 80 projects.

As-Needed Biological Services 2000–2005, San Diego Metropolitan Wastewater Department, City of San Diego, California. Served as primary biologist. Responsibilities included conducting habitat assessments and focused surveys for arroyo toad, California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, fairy shrimp, and other species.

San Diego Pipeline No. 6, Metropolitan Water District (MWD) of Southern California, Riverside and San Diego Counties, California. The project consisted of a 30-mile-long, 9-foot-diameter water conveyance pipeline. Began work on this project as a project monitor, with responsibilities including conducting habitat assessments for at least 10 federally and state-listed plant and wildlife species, conducting biological studies, coordinating monitoring activities, and

monitoring site investigations for the early project activities. Transitioned into project manager for the approximately $1.5-million contract, and was responsible for providing environmental support services to the MWD necessary to support revised environmental documents for the pipeline. All tasks for this contract met aggressive scheduling requirements and were within budget.

Tributary Areas 3 and 8 Environmental Monitoring, U.S. Marine Corps Base Camp Pendleton, San Diego County, California. Served as project manager and primary biologist. Implemented categorical exclusion permit requirements supporting installation of an upgraded sewer system over a portion of the base. This required writing a monitoring and compliance plan; initiating habitat assessments over portions of the system which had the potential to affect least Bell's vireo, California gnatcatcher, and arroyo toad; and monitoring activities on a regular basis in accordance with the monitoring plan.

Non-Potable Water Distribution System, Yucaipa Valley Water District, San Bernardino and Riverside Counties, California. Served as lead biologist for wildlife studies within San Timoteo Canyon. Responsibilities included scheduling personnel and conducting focused surveys for arroyo toad, least Bell's vireo, and southwestern willow flycatcher. Overall, 39 person-days were required to complete these focused surveys along the approximately 7-mile alignment.

As-Needed Contract, Eastern Municipal Water District, Riverside County, California. Served as monitoring biologist and primary biologist. These projects required Stephens' kangaroo rat, Quino checkerspot, and California gnatcatcher surveys and monitoring. These projects were situated throughout western Riverside County.

Multiple Projects, Riverside County Flood Control and Water Conservation District, Riverside County, California. Served as project manager for multiple projects. The projects ranged from multiple-acre detention basins to long and linear conveyance projects. Responsible for conducting biological studies, reporting, mitigation and monitoring plan writing, and wetland permitting. Recently completed two projects that involved widening existing channels in the Salt Creek and Perris Valley areas: 4- and 2-mile-long study areas, respectively. These projects involved conducting biological studies (i.e., vegetation mapping, wetland delineations, and focused surveys for California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, arroyo toad, Quino checkerspot, and sensitive plants), relocating burrowing owls, reporting, and assisting with resource agency permitting as required. Many of the projects required coordination with resource agencies.

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