APPLICANT'S SUPPLEMENTAL RESPONSE TO DATA REQUEST 16 AND 26: ADDITIONAL INFORMATION REGARDING BIOLOGICAL RESOURCES

In this section of Applicant's Supplemental Response to CEC Staff Data Requests 16 and 26, Applicant describes the changes to the Biological Resources section that will result from the changes to the Project Description, relating to the removal of RMS 3 from the Project Description.~~.~~ Per staff's request, Applicant uses a strike-out/underline format to identify changes to the Biological Resources section of the Application for Certification that will result from the changes to the Project Description.

The Biological Resources sub-sections that have been modified are listed in the table of contents below. If there has been no change to a Biological Resources sub-section relating to Applicant's Supplemental Response to Data Request 16 and 26, the section is labeled "no changes" in the table of contents below.

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5.2 BIOLOGICAL RESOURCES

5.2.1 Introduction (see Section 2.1.1 for updated project description)

As referenced in this subsection, the project site includes ~~all three~~~~both~~the RMS 1 and 2 solar plants, the common area, and the gen-tie line. The Biological Study Area (BSA) for the Project consists of the main project site where ~~the three two~~the two currently proposed solar plants (RMS 1 and 2), the formerly proposed solar plant (RMS 3) and common area are proposed (plus a 500-foot buffer), the gen-tie line along existing transmission lines that extend to the proposed CRS (plus a 650-foot buffer), and access areas from State Route 78 via Bradshaw Trail and 34th Avenue (plus a 100-foot buffer). In addition, because most biological resources surveys occurred prior to the removal of ~~Rio Mesa~~RMS 3 from the proposed project, the BSA also includes this area (plus a 500-foot buffer) even though it is no longer part of the ~~proposed~~ project site (Figure 5.2-1 (rev)). However, the subsections where the Applicant discusses potential biological resources impacts have been updated to reflect the removal of RMS 3.

While removal of RMS 3 represents a significant loss in terms of the State's renewable energy, jobs and environmental goals (i.e., RMS 3 would have provided 250MW of clean, fast starting renewable energy), there are however certain environmental benefits to removing RMS 3 compared to the original project design. As discussed in this section, many of the biological resources impacts will be reduced. These reductions include: 2,108 acre reduction in total impacts to vegetation communities, 541acres in impacts to desert tortoise habitat, and 126 kit fox den complexes will be avoided.

The following subsection describes the environmental setting and the applicable laws, ordinances, regulations, and standards (LORS) related to Biological Resources. It provides an analysis of the Project impacts that could occur as a result of Project construction and operation. This subsection also presents protection and mitigation measures that will avoid or minimize adverse impacts, when required. A list of agency contacts and permits that will be required is included at the end of the subsection.

5.2.2 Laws, Ordinances, Regulations, and Standards

5.2.2.1 Federal

The following paragraphs discuss the federal LORS applicable to the Project.

National Environmental Policy Act of 1969: 42 United States Code (USC) §§4321 et seq., Title 40 Code of Federal Regulations (CFR) 1500-1508

NEPA establishes a public, interdisciplinary framework for Federal agencies reviewing projects under their jurisdiction to consider environmental impacts. NEPA's basic policy is to assure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment.

The BLM, as lead Federal agency for the Project, is responsible for preparation of an Environmental Impact Statement (EIS) in compliance with NEPA to evaluate the environmental impacts of the portions of the Rio Mesa SEGF on federal lands. ~~The Rio Mesa Solar III plant and~~ Portions of the Project gen-tie

line, 33kV construction/emergency backup power supply line, and upgraded Bradshaw Trail access road are located on public lands administered and managed by the BLM. NEPA compliance is required for thisese portions of the Project through preparation of a Draft and Final EIS. BLM is also responsible for Native American consultation, including government to government consultation regarding project facilities on BLM land.

Endangered Species Act of 1973: 16 USC §§ 1531 et seq.*; 50 CFR Parts 17 and 222 (no changes)*

USFWS Desert Tortoise Recovery Plan and Critical Habitat Designation (no changes)

Migratory Bird Treaty Act: 16 USC §§ 703-711; 16 USC §666b (no changes)

Clean Water Act, Section 404 of 1977: 33 USC §§ 1251-1376; 33 CFR § 330.5(a) (26) (no changes)

CWA, § 401, 33 USC § 1341 and 40 CFR § 121 (no changes)

California Desert Conservation Area Plan; 16 USC §§ 661-666 (no changes)

Northern and Eastern Colorado Desert Coordinated Management Plan (no changes)

Bald and Golden Eagle Protection Act: USC §§ 668-668c (no changes)

Wild and Free-Roaming Horses and Burros Act of 1971 (no changes)

5.2.2.2 State (no changes)

5.2.2.3 Local (no changes)

5.2.3 Affected Environment

The project site is located on the Palo Verde Mesa in Riverside County, California, solely on private land leased from the Metropolitan Water District of Southern California (MWD). Portions of the project gen-tie line, 33kV emergency and construction electrical power supply line, and upgraded Bradshaw Trail access road will be located on public land managed by the BLM. ~~Bureau of Land Management (BLM). .primarily on land owned by the Metropolitan Water District of Southern California. A portion of the project site and the gen-tie line are located on lands administered by the BLM, all within Riverside County.~~ The project site is approximately two miles west of the town of Palo Verde, California (closest town) and State Route 78. The site is currently mostly undeveloped and is surrounded primarily by undeveloped land to the north, south, and west with agricultural lands located to the east. The project site is comprised primarily of creosote desert scrub with areas of desert wash scrub within the on-site washes. Portions of the site are disturbed due to existing infrastructure (transmission lines, pipelines, past military training activities, etc.). The gen-tie line passes through BLM lands and other private lands and is mainly comprised of desert scrub habitat and disturbed lands associated with existing infrastructure.~~–~~ The project site has several utility lines with maintenance roads running through it and has been subject to disturbance

from illegal off-road vehicle use, dumping of trash, and historic use for military training during World War II including tank training.

5.2.3.1 Regional Overview

The project site is located in the Colorado Desert in gently rolling open terrain dominated by desert scrub vegetation. The Colorado Desert is a part of the larger Sonoran Desert, which extends across the southwest U.S. and into Mexico. The climate is very hot and dry in the summer months, and cool and moist in the winter. Perennial and intermittent rivers and streams are rare, and most water flow occurs as flood flows within defined washes and less defined flood-flow paths during major winter and summer monsoon rain events. Habitats in the Colorado Desert region of the Sonoran Desert vary with the landscape and precipitation levels.

While no DCH–, special management areas, wilderness study areas, or ACEC are located within the project site or gen-tie line corridor, the Mule Mountains ACEC is 0.8 miles northwest and west, the Palo Verde Mountains Wilderness is3 miles south, the Chuckwalla Valley Dune Thicket ACEC is four miles northwest, the Chuckwalla DWMA is four miles west, the Palen/McCoy Wilderness is seven miles northwest, the Little Chuckwalla Mountains Wilderness is nine miles west, the Big Maria Mountains Wilderness is ~~16~~ 19 miles northeast, and the Palen Dry Lake ACEC is ~~18~~ 21 miles northwest of the project site (see Figure 5.2-1 (rev)). Desert tortoise DCH is located approximately five miles west of the project site.

Vegetation in the project area is composed of nine native vegetation alliances. The primary vegetation types are Colorado Desert creosote bush scrub, creosote bush/white burr sage scrub, and blue palo verde/ironwood woodland. Disturbed areas are associated with unpaved roads and trails, maintenance areas for existing transmission line poles, and rights-of-way (ROWs) along underground pipeline routes.

Invasive Asian mustard (*Brassica tournefortii)* and Mediterranean grasses (*Schismus arabicus* and *S. barbatus*) are scattered throughout the project site, while Asian mustard is particularly widespread in the northern section of the site along the gen-tie line.

The BSA supports a variety of common and endemic plants. Five CDFG (State)-ranked- species, (one also being a BLM sensitive species), were found within the BSA: ribbed crypthanta (*Crypthanta costata*), Harwood's milk-vetch (*Astragalus insularis var. harwoodii*), desert unicorn plant (*Proboscidea althaeifolia*), Harwood's eriastrum (*Eriastrum harwoodii*), and Utah vine milkweed *(Funastrum utahense*).

Special status animal species observed directly or by sign include the desert tortoise (*Gopherus agassizii*), Mojave fringe-toed lizard (*Uma scoparia*), American badger (*Taxidea taxus)*, Nelson's bighorn sheep (*Ovis Canadensis nelsoni)*, California leaf-nosed bat (*Macrotus californicus)*, burrowing owl *(Athene cunicularia)*, golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), prairie falcon (*Falco mexicanus)* northern harrier, (*Circus cyaneus*), American white pelican (*Pelecanus erythrorhynchos*), loggerhead shrike (*Lanius ludovicianus*), Le Conte's thrasher (*Toxostoma lecontei*), Crissal thrasher (*Toxostoma crissale*), Gila woodpecker (*Melanerpes uropygialis*), Lucy's warbler (*Oreothlypis luciae*) and Vaux's swift (*Chaetura vauxi*).

The BSA contains well-defined, ephemeral washes, which range from 1 to over 100 feet in width, with smaller, broad alluvial fan/plains intertwined with high topographic variation. These on-site drainage patterns follow the gradient from the mountains west of the project site towards lower elevations east and southeast across the project site, and ultimately flow to Hodges Drain (the man-made channel at the western edge of the agricultural area east of the site that collects water from the Palo Verde Mesa washes), the Palo Verde Outfall (the waterway created by the Palo Verde Dam north of Blythe that runs through Blythe and Palo Verde), and into the Colorado River south of the Cibola National Wildlife Refuge.

The active flow channels are devoid of vegetation and typically have a sandy, gravel substrate, although some washes also contained cobble and scattered larger rocks. Throughout the ~~study area~~BSA the majority of the washes are associated with blue palo verde / ironwood woodland.

Seasonal surface water flow events occur on site in most years. The majority of ephemeral washes, within the project site, frequently flow intermittently through a bed or channel having banks that support desert riparian vegetation. No lakes occur on site.

Generally, the project site is unrestricted for wildlife movement with uniform habitat composition throughout the area. The primary constraints to wildlife movement are agricultural fields and associated roads and canals situated to the east of the Project site and the Mule and Palo Verde Mountains to the west and southwest.

5.2.4 Biological Resources Evaluation Methods

The following sections provide an overview of the biological resources evaluation methods that were used in conducting the biological resources assessment for this AFC. Surveys were performed in 2011 on all portions of the BSA where Right-of-Entry (ROE) was granted. Mapping of vegetation and Waters of the United States (WUS) and Waters of the State of California (WSC) on lands with no ROE was achieved though aerial image interpretation and extrapolation from adjacent areas mapped in the field.

5.2.4.1 Vegetation Characterization Methods (no changes)

5.2.4.2 Special-Status Species Assessment and Survey Methods (no changes)

5.2.4.3 Special-Status Plant Protocol Survey Methods (no changes)

Reconnaissance Surveys and Reference Population Site Visits

A reconnaissance survey was conducted on January 12 and 13, 2011. The BSA was accessed by vehicle and on foot from existing roads. Habitat conditions within the BSA were assessed, and a preliminary classification of the vegetation types was developed. Information obtained during the literature review and reconnaissance field visit was used to create Table 5.2-2, which summarizes information on special-status plants with potential to occur within the BSA. Note that in Table 5.2-2 where the Status column changes from "Onsite" to "Within BSA" this means that the observation was within the former RMS 3 project site. As such, this represents a reduction in direct impact to that species.

Table 5.2-2
Special Status Plant Species with Potential to Occur Within the ~~Project Site~~Biological Study Area (BSA)

	Species			Sensitivity Status						
Family	Common Name	Scientific Name	Growth Habit	Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank	Habitat Associations	Potential To Occur ~~On Project Site~~Within BSA	Status ~~Onsite~~Within BSA	Plant Species Code
Asclepiadaceae	Utah vine milkweed	*Funastrum utahense (Cynanchum utahense)*	Perennial Herb/Vine	None	S3.2	Was 4.2	Sonoran and Mojave~~an~~ desert scrub. Creosote bush scrub, dry, sandy, gravelly, areas. Blooms April-June.	High	Observed within the BSA ~~on site~~.	CYUT
Asteraceae	Bitter hymenoxys	*Hymenoxys odorata*	Annual Forb/Herb	None	S2	2	Sonoran desert scrub, riparian scrub (sandy); blooms February-November	Moderate	Suitable habitat present ~~onsite~~. Known adjacent occurrences.	HYOD
Boraginaceae	Ribbed cryptantha, Ashen Forget me not	*Cryptantha costata*	Annual Forb/Herb	None	S3.3	4.3	Mojave~~an~~ and Sonoran desert scrub, Creosote Bush Scrub, Desert Dunes (sandy); blooms February-May	Moderate	Observed within the BSA ~~on site~~	CRCO15
Boraginaceae	Winged cryptantha, Rough stemmed Forget me not	*Cryptantha holoptera*	Annual Perennial Forb/Herb	None	S3?	4.3	Mojave~~an~~ and Sonoran desert scrub, Creosote Bush Scrub, Joshua Tree Woodland; blooms March-April	Moderate	Suitable habitat present ~~onsite~~.	CRHO3
Cactaceae	Saguaro	*Caegiea gigantea*	Perennial Tree	None	S1.2	2.2	Sonoran desert scrub (rocky); blooms May-June	Low - Moderate	Suitable habitat present ~~onsite~~. Historical reference for known location adjacent to project area.	CAGI10
Cactaceae	Munz's cholla	*Cylindropuntia munzii*	Perennial Shrub	BLM Sensitive	S1.3	1B.3	Sonoran desert scrub (sandy or gravelly);	Low - Moderate	Suitable habitat present ~~onsite~~.	CYMU12

Table 5.2-2
Special Status Plant Species with Potential to Occur Within the ~~Project Site~~Biological Study Area (BSA)

	Species			Sensitivity Status						
Family	Common Name	Scientific Name	Growth Habit	Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank	Habitat Associations	Potential To Occur ~~On Project Site~~Within BSA	Status ~~Onsite~~Within BSA	Plant Species Code
							blooms May			
Cactaceae	Wiggin's cholla	*Cylindropuntia echinocarpa (Opuntia wigginsii)*	Perennial Shrub	None	S1.?	3.3	Sonoran desert scrub (sandy); blooms March	High	Suitable habitat ~~,~~present ~~onsite~~. Known adjacent occurrences.	CYEC3
Cactaceae	Foxtail Cactus	*Escobaria alversonii (Coryphantha alversonii)*	Perennial Stem Succulent	None	S3.2	4.3	Sandy or rocky, usually granitic. Mojave~~an~~ desert scrub, Sonoran desert scrub.~~–~~ Blooms April-June	Moderate	Suitable habitat present ~~onsite~~. Historical reference for known location in vicinity to project area.	ESAL2
Euphorbiaceae	Abrams' sandmat, Abrams' prostrate spurge	*Chamaesyce abramsiana*	Annual Forb/Herb	None	S1.2	2.2	Mojave~~an~~ and Sonoran desert scrub Creosote Bush Scrub; blooms September-November	Moderate	Suitable habitat present ~~onsite~~. Known adjacent occurrences.	CHAB2
Euphorbiaceae	California silverbush	*Agrythamnia californica (Ditaxis serrata var. californica)*	Annual Perennial Subshrub Shrub Forb/Herb	None	S2	3.2	Sonoran desert scrub, Creosote Bush Scrub; blooms March-December	Moderate	Suitable habitat present. ~~onsite~~	ARCA19
Fabaceae	Harwood's milk-vetch	*Astragalus insularis* var. *harwoodii*	Annual Forb/Herb	None	S2~~.2?~~	2.2	Desert dunes (sandy or gravelly); blooms January-May.	High	Observed within the BSA~~on site~~	ASINH
Fabaceae	Borrego milkvetch, Borrego milk vetch	*Astragalus lentiginosus var. borreganus*	Annual Perennial Forb/Herb	None	S3.3	4.3	Mojave~~an~~ and Sonoran desert scrub, Creosote Bush Scrub (sandy); blooms February-May	Moderate	Suitable habitat present ~~onsite~~.	ASLEB

Table 5.2-2
Special Status Plant Species with Potential to Occur Within the ~~Project Site~~Biological Study Area (BSA)

	Species			Sensitivity Status						
Family	Common Name	Scientific Name	Growth Habit	Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank	Habitat Associations	Potential To Occur ~~On Project Site~~Within BSA	Status ~~Onsite~~Within BSA	Plant Species Code
Fabaceae	Pink fairy-duster	*Calliandra eriophylla*	Perennial Subshrub Shrub	None	S2S3	2.3	Sonoran desert scrub (sandy or rocky); blooms January-March.	Moderate	Suitable habitat present ~~onsite~~. Known adjacent occurrences.	CAER
Lamiaceae	Dwarf germander	*Teucrium cubense ssp. depressum*	Annual Perennial Forb/Herb	None	S2	2.2	Sandy soils, washes, fields; blooms March-May.	Moderate	Suitable habitat present ~~onsite~~. Known adjacent occurrences.	TECUD2
Loasaceae	Darlington's blazing star	*Mentzelia oreophilia (Mentzelia puberula)*	Biennial Perennial Forb/Herb Subshrub	None	S2	2.2	Mojave~~an~~ and Sonoran desert scrub (rocky or sandy); blooms March-May.	Moderate	Suitable habitat present ~~onsite~~. Known adjacent occurrences.	MEOR3
Loasceae	Spinyhair blazing star	*Mentzelia tricuspis*	Annual Herb	None	S1?	2.1	Mojave~~an~~ desert scrub, Creosote Bush Scrub, sandy, gravelly, slopes and washes. Blooms March-May.	Low	Moderate habitat. No known ~~occurances~~occurrences adjacent or close to site.	METR2
Nyctaginaceae	Desert sand verbena	*Abronia villosa var. aurita*	Annual Herb	BLM Sensitive	S2	1B.1	Sandy Chaparral, Coastal scrub, Desert dunes.– Blooms January-September	Low-Moderate	Suitable habitat present.– No known adjacent occurrences.	ABVIA
Nyctaginaceae	Angel trumpets	*Acleisanthes longiflora*	Perennial Herb	None	S1	2.3	Sonoran desert scrub (carbonate), Creosote Bush Scrub, Blooms May	Low-Moderate	One known occurrence in Maria Mountains.	ACOL2
Onagraceae	Sand evening	*Camissonia*	Annual	None	S2	2.2	Sonoran desert scrub	Moderate	Suitable habitat	CAAR20

Table 5.2-2
Special Status Plant Species with Potential to Occur Within the ~~Project Site~~Biological Study Area (BSA)

	Species			Sensitivity Status						
Family	Common Name	Scientific Name	Growth Habit	Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank	Habitat Associations	Potential To Occur ~~On Project Site~~Within BSA	Status ~~Onsite~~Within BSA	Plant Species Code
	primrose	*arenaria*	Perennial Forb/Herb				(sandy or rocky); blooms March-May		present ~~onsite~~.	
Pedaliaceae	Desert unicorn plant, desert devil's claw	*Proboscidea althaeifolia*	Perennial Forb/Herb	None	S3.3	4.3	Sonoran desert scrub, Creosote Bush Scrub (sandy; blooms May-August	Moderate	Observed within the BSA ~~on site~~	PRAL4
Poaceae	California satintail	*Imperata brevifolia*	Perennial Rhizomatus Herb	None	S2.1	2.1	Mesic. Chaparral, Coastal scrub, Mojave~~an~~ desert scrub. Meadows and seeps often alkali. Riparian scrub. Blooms September-May.	Low	Habitat within the BSA ~~on site~~ has low to no occurrences of mesic areas.	IMBR2
Polemoniaceae	Harwood's eriastrum	*Eriastrum harwoodii*	Perennial Forb/Herb	BLM Sensitive	S2	1B.2	Desert dunes; blooms March-June	Moderate	Observed within the BSA~~on site~~	ERHA
Rhamnaceae	Las Animas columbrina	*Colubrina californica*	Perennial Deciduous Shrub	None	S3.3	2.3	Sonoran desert scrub, Creosote Bush Scrub. Blooms April-June	Moderate	Suitable habitat present ~~onsite~~. Recorded occurrences in vicinity.	COBA18
Rhamnaceae	Spiny crucillo, bitter snakewood, spiny abrojo	*Condalia globosa var. pubescens*	Perennial Tree Shrub	None	S3.2	4.2	Creosote Bush Scrub (sandy); blooms May-August	Moderate	Suitable habitat present ~~onsite~~.	COGLP
Simaroubaceae	Emory's crucifixion thorn	*Castela emoryi*	Perennial Shrub Tree	None	S2S3	2.3	Dry, rocky desert washes, slopes and plains; blooms June-July.	Moderate	Suitable habitat present ~~onsite~~.	CAEM4
Themidaceae	Small-flowered	*Androstephium*	Perennial	None	S2S3	2.2	Desert dunes,	Low-	Suitable habitat	ANBR4

Table 5.2-2
Special Status Plant Species with Potential to Occur Within the ~~Project Site~~Biological Study Area (BSA)

	Species			Sensitivity Status						
Family	Common Name	Scientific Name	Growth Habit	Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank	Habitat Associations	Potential To Occur ~~On Project Site~~Within BSA	Status ~~Onsite~~Within BSA	Plant Species Code
	androstephium	*breviflorum*	bulbiferous (corm) herb				Mojave~~an~~ desert scrub (bajadas). Blooms March-April	Moderate	~~onsite~~present.	

Status:
FE = Federal Endangered
FT = Federal Threatened
FC = Federal Candidate
FSC = Federal Species of Concern
SE = State Endangered
ST = State Threatened
SSC = State Species of Special Concern
SFP = State Fully Protected
CRPR = California Rare Plant Rank

State Rank:
S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 = Secure—Common, widespread, and abundant in the state.
.1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 = Fairly endangered in California (20-80% occurrences threatened)
.3 = Not very endangered in California (<20% of occurrences threatened)
Ranks with a range of values: e.g., S2S3 means the rank is somewhere between S2 and S3. Adding a "?" to the rank: e.g., S2.2?, represents more certainty than S2S3, but less certainty than S2.2.

California Rare Plant Rank
List 1A = Plants Presumed Extinct in California
List 1B = Plants Rare, Threatened or Endangered in California and Elsewhere
List 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
List 3 = Plants About Which We Need More Information, A Review List
List 4 = Plants of Limited Distribution, A Watch List State Rank and CRPR is followed by threat code (e.g. State Rank S2.2 or CRPR 1B.2)

Information on flowering time, status, habitat preferences, geographic distribution, elevation range, and known locations in the BSA was researched prior to the initiation of the field protocol surveys conducted in March, April, and May 2011.

Based on habitat conditions and vegetation observed within the BSA during reconnaissance surveys, known ranges, and habitat preferences of potentially occurring special-status plants determined from the literature review, a sub-group of species from Table 5.2-2 was selected that was deemed most likely to occur in the BSA. These species include: Utah vine milkweed, Harwood's milk-vetch, Harwood's eriastrum, as well as species listed under the California Desert Native Plant Act that the CEC requested be mapped and censused, including but not limited to ocotillo or candlewood (*Fouquieria splendens*), mesquite, palo verde, catclaw acacia, desert-holly (*Atriplex hymenelytra*), desert ironwood; and all species of Cactaceae, including but not limited to California barrel cactus (*Ferocactus cylindraceus*) and Wiggin's cholla (*Cylindropuntia echinocarpa* [*Opuntia wigginsii*]). Special focus was directed to learning the habitat preferences and field identification features of these species, including characters that could be used in a dry year.

In preparation for the field surveys, specimens for potentially occurring special-status plants were observed at the San Diego Natural History Museum herbarium on March 2, 2011. Additionally, several reference populations were searched for on March 7, 22, and 28, 2011. The reference sites visited and descriptions of what species were searched for are summarized below (CDFG 2011).

- Harwood's milk-vetch (State Rank S2~~.2?~~). This species was searched for at CNDDB occurrences 14, 15, 19, 20, 49, 44, 94, and 95 but was not found at the time of the visit. Occurrences 94 and 95 are located northwest of the Project near Interstate 10 (I-10), occurrence 49 is located north of the Project near I-10, and occurrences 19, 20, 14, and 15 are located along the proposed gen-tie line north of the Project. Many plants were previously reported here as recently as April 2010; however, the species may not have been detectable in these areas, possibly due to the lack of rain in January 2011, human disturbance, or other undetermined environmental factors.
- Harwood's eriastrum (BLM Sensitive, State Rank S2). This species was searched for at CNDDB occurrences 24, 27, 28, and 30, but was not found. All occurrences are located north of the Project near I-10. Many plants were previously reported here as recent as April 2010; however, the species may not have been detectable possibly due to the lack of rain in January 2011, human disturbance, or by other undetermined environmental factors.
- Dwarf germander (*Teucrium cubense* ssp. *depressum*; State Rank S2). This species was searched for at CNDDB occurrence 4, but was not found. The occurrence is located northwest of the Project near I-10. The last time this plant was observed was in March 1979, which is the likely reason why it was not detected during the reference site visit.

Because these reference populations did not have the target special-status plants present, local experts were consulted to find other populations to visit. A population of Hardwood's milk-vetch was identified along the south side of Hobson Way, north of I-10, between Keim Road and State Route 78. This population was searched for and viewed on March 28 and April 25, 2011. In addition, when a special-status plant was observed ~~on~~ within the BSA~~site~~, such as in the case of ribbed cryptantha (State Rank

S3.3) and Harwood's eriastrum, all surveyors confirmed and documented the populations on the same day or following day.

Special-Status Plant Protocol Survey Methods

Protocol-level surveys for special-status plants were floristic in nature and followed, to the degree feasible, the USFWS's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants* (USFWS, 1996a). Surveys conducted for this Project also followed, to the degree feasible, the recommendations of the botanical survey guidelines of the CDFG (CDFG 2009), those of the CNPS (CNPS 2001), and the BLM (BLM 2010). The goal of the protocol-level special-status plant surveys was to census, map, photograph, and record habitat data for every special-status plant encountered. For those plants species listed exclusively in the California Desert Native Plant Act (see Table 5.2-3), e.g., mesquite or catclaw acacia, and mapped at the request of the CEC, only a census and mapping occurred. Protocol-level surveys were conducted throughout the BSA. Special-status plant surveys were conducted in the field at the time of year when species were both evident and identifiable. Usually, this occurred when the plants were flowering or fruiting. Visits were spaced throughout the growing season to accurately determine what plants exist ~~on site~~within the BSA. Note that with respect to Table 5.2-3, the column titled "Status Within BSA" has been updated to reflect the fact that some species are within the BSA but may no longer be present on the project site.

Multiple visits to the same site were conducted (i.e., during early and late spring, and a future late-season survey for flowering plants) to capture the floristic diversity at a level necessary to determine if special-status plants were present. The timing and number of visits were determined by geographic location, the natural communities present, and the weather patterns of the year in which the surveys were conducted.

Table 5.2-3
California Desert Native Plants List

Family	Common Name	Scientific Name	Growth Habit	CFA Code	CRPR	Habitat Associations	Potential To Occur ~~On Project Site~~Within BSA	Status ~~Onsite~~Within BSA	Plant Species Code
California Food and Agriculture (CFA) Code § 80072 Species List									
Burseraceae	Elephant Tree	*Bursera microphylla*	Perennial Tree, Shrub	80072	2.3	Blooms Early Summer	Low	Not observed ~~on site~~ during initial review.~~-~~ Localized populations not mapped on site or within vicinity of the site.	BUMI
Cactaceae	California Barrel Cactus	*Ferocactus cylindraceus (Ferocactus acanthoides)*	Perennial Shrub	80072	-	Sonoran desert scrub, Creosote Bush Scrub Blooms April-May	High	Observed ~~on site~~ during initial review.	FECY
Crassulaceae	Panamint liveforever	*Dudleya saxosa, Dudleya saxosa ssp. saxosa (1B.3)*	Perennial Forb/Herb	80072	1B.3	Blooms April-June	Moderate	Rocky desert slopes present ~~on site~~	DUSA
Pinaceae	Bristlecone Pine	*Pinus longaeva*	Perennial Tree	80072	4.3	Unknown	Low	~~Localized populations not mapped on site.~~ Not observed ~~on site~~within the BSA during initial review	PILO
Arecaceae	California Fan Palm	*Washingtonia filifera*	Perennial Tree	80072	-	Blooms June	Low	~~Localized populations not mapped on site.~~ Not observed within the BSA ~~on site~~ during initial review.	WAFI
Agavaceae	Century Plants, Yuccas, Nolinas	*All Species*	Perennial Shrub, Tree	80073	-	Sonoran desert scrub, Creosote Bush Scrub	Moderate	Not observed within the BSA ~~on site~~ during initial review.	-

Table 5.2-3
California Desert Native Plants List

Family	Common Name	Scientific Name	Growth Habit	CFA Code	CRPR	Habitat Associations	Potential To Occur ~~On Project Site~~Within BSA	Status ~~Onsite~~Within BSA	Plant Species Code
CFA § 80073 Species List									
Cactaceae		*All Species*	Perennial Shrub, Tree	80073	-	Sonoran desert scrub, Creosote Bush Scrub	High	Observed within the BSA ~~on site~~: *Cylindropuntia echinocarpa* *Cylindropuntia ramosissima* *Ferocactus cylindraceus* *Mammillaria tetrancistra* *Mammillaria grahamii* *Opunita basilaris* *Echinocactus polycephalus*	 CYEC CYRA FECY MATE MAGR OPBA ECPO
Fouquieriaceae	Ocotillo, candlewood	*Fouquieria splendens*	Perennial Shrub	80073	-	Sonoran desert scrub, Creosote Bush Scrub Blooms March-July	High	Observed within the BSA ~~on site~~	FOSP2
Fabaceae	Mesquite	*Prosopis sp.* *All Species*	Perennial Tree, Shrub	80073	-	Sonoran desert scrub, Creosote Bush Scrub Blooms April-Sept	High	Observed within the BSA ~~on site~~	PRGL
Fabaceae	Palo Verde	*Parkinsonia sp./ All Species*	Perennial Tree, Shrub	80073	-	Sonoran desert scrub, Blooms April-May	High	Observed within the BSA ~~on site~~	PAFL
Fabaceae	Catclaw Acacia	*Acacia greggii*	Perennial Shrub	80073	-	Sonoran desert scrub, Creosote Bush Scrub Blooms April-June	High	Observed within the BSA ~~on site~~	ACGR

Table 5.2-3
California Desert Native Plants List

Family	Common Name	Scientific Name	Growth Habit	CFA Code	CRPR	Habitat Associations	Potential To Occur ~~On Project Site~~Within BSA	Status ~~Onsite~~Within BSA	Plant Species Code
Chenopodiaceae	Desert-Holly	*Atriplex hymenelytra*	Perennial Shrub	80073	-	Sonoran desert scrub, Creosote Bush Scrub Blooms Jan-April	High	Observed within the BSA ~~on site~~	ATHY
Fabaceae	Desert Ironwood	*Olneya tesota*	including both dead and live desert ironwood	80073	-	Sonoran desert scrub,~~–~~ Blooms April-May	High	Observed within the BSA ~~on site~~	OLTE

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The dates on which focused botanical surveys were conducted is presented in the Rio Mesa SEGF Biological Technical Report (BTR) (Appendix 5.2A). All surveyors conducting botanical surveys possessed the following qualifications:

- experience conducting floristic field surveys;
- knowledge of plant taxonomy and plant community ecology and classification;
- familiarity with the plants of the area, including special status and locally significant plants;
- familiarity with the appropriate state and federal statutes related to plants and plant collecting; and
- experience with analyzing impacts of a project on native plants and communities.

Five teams of two surveyors walked transects spaced at 30-meter intervals or smaller, depending on vegetation density. This narrow spacing was selected to permit detection of small, cryptically colored special-status plants, which were expected to be scarce and patchily distributed. Survey team leaders carried paper maps, detailing the survey grid. For most survey sections, the transect lines were oriented in a north-south direction, approximately perpendicular to the drainage features. The survey sections shown on the maps corresponded to images in files on the GPS units that were used to navigate and take data in the field. GPS units used during the survey were a Garmin 60CSx, Rino530, or similar model having a 3-5 meter accuracy.

Surveyors searched for special-status plants by scanning the ground 15 meters to either side of their meandering transect line while also frequently turning to look behind them to search for special-status plants tucked into the bases of shrubs (as many cacti were). Survey team members stayed more or less together while walking each transect. Each time a living special-status plant was encountered a census per unit area was taken of the individual or the population, the special-status plant was then mapped with the GPS unit, mapped by hand on the high-resolution aerial map (VTN 2011), photographed, and habitat data was recorded on CNDDB field survey forms (Appendix 5.2A) or in the field notes of the survey team leader. Habitat data included: scientific name, number of individuals, phenology (vegetative, in bud, in flower, old flowers, in fruit), substrate, vegetation type, associated species, and disturbance condition.

Voucher specimens were collected to provide verifiable documentation of species' presence and identification, as well as to provide a public record of conditions. This information is vital to all conservation efforts. Collection of the voucher specimens was conducted in a manner that was consistent with conservation ethics, and in accordance with applicable state and federal permit requirements (e.g. incidental take permit, scientific collection permit). Voucher collections of special-status species (or suspected special-status species) were only made when such actions would not jeopardize the continued existence of the population or species. Voucher specimens were deposited with an indexed regional herbarium no later than 60 days after the collections were made. All relevant permit names and permit numbers were recorded on the specimen labels.

Special-Status Plant Survey Limitations (no changes)

5.2.4.4 Special-Status Animal Protocol Survey Methods

Special-status species are defined as those species that are protected under the provisions of the ESA, CESA, MBTA, BGPA or considered sensitive by the BLM (S) or CDFG (Species of Special Conern [SSC] and Fully Protected [FP] Species). Databases from sources including the USFWS and CNDDB (CDFG 2011) were queried to provide the recent and historical distribution of special-status species in the project area, and serve as a guideline for focused biological survey planning. A list of special-status animal species that URS identified as having the potential to occur within the boundaries of the project site is provided in Table 5.2-4.

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Table 5.2-4
Special Status Animals with the Potential to Occur within the BSA

Species		Status		Habitat Associations	Potential To Occur ~~Onsite~~Within BSA	Status ~~Onsite~~Within BSA
Common Name	Scientific Name	Federal	State			
Reptiles						
Desert tortoise	*Gopherus agassizii*	Federal Threatened (FT)	State Threatened (ST)	River washes, rocky hillsides, and flat desert having sandy or gravelly soil with creosote bush, burro bush, saltbush, Joshua tree, Mojave yucca, cacti, other shrubs, grasses, and wildflowers.	Moderate	Present
Gila monster	*Heloderma suspectum*	Bureau of Land Management (BLM): Sensitive (S)	California Department of Fish and Game State (CDFG): Species of Special Concern (SSC)	Found in desert scrubland and oak woodland, seeking shelter under rocks and in burrows.	Low-Moderate	Not present
Mojave fringe-toed lizard	*Uma scoparia*	BLM: S	CDFG: SSC	Areas of aeolian sands including dunes, flats with sandy hummocks, washes and banks of rivers.	High potential along gen-tie line	Present
Birds						
American white pelican	*Pelecanus erythrorhynchos*	None	CDFG: SSC	Occurs in marshes, lakes, bays.	Low	Detected as flyover
Arizona Bell's vireo	*Vireo bellii arizonae*	BLM: S	State Endangered (SE)	Occurs in dense riparian vegetation, associated with the Colorado River corridor.	Low	Not present

Table 5.2-4
Special Status Animals with the Potential to Occur within the BSA

Species		Status		Habitat Associations	Potential To Occur ~~Onsite~~Within BSA	Status ~~Onsite~~Within BSA
Common Name	Scientific Name	Federal	State			
Burrowing owl	*Athene cunicularia*	BLM: S United States Fish and Wildlife Service (USFWS): Birds of Conservation Concern (BCC)	CDFG: SSC	Found in open grasslands and agricultural areas with suitable fossorial mammal burrows for nesting.	Moderate-High	Present, Known to occur in adjacent agricultural lands.
Crissal thrasher	*Toxostoma crissale*	None	CDFG: SSC	Occurs in dense riparian and mesquite scrub, microphyll woodland, and riparian washes with a dense understory of shrubs	Moderate	Present
Gila woodpecker	*Melanerpes uropygialis*	BLM: S USFWS: BCC	SE	Requires live tree-size cactus or dead trees (Winkler et al. 1995).	Moderate	Present
Golden eagle	*Aquila chrysaetos*	BLM: S USFWS: BCC Bald and Golden Eagle Protection Act (BGEPA)	CDFG: Fully Protected (FP), WL	Desert scrub near cliff nest sites.	Moderate	Present, two transient individuals detected in early March. Focused active nest survey was negative.
Harris hawk	*Parabuteo unicinctus*	None	CDFG: WL	Semiarid regions in scrub with mesquite, cacti, and yucca.	Moderate-High	Detected off-site

Table 5.2-4
Special Status Animals with the Potential to Occur within the BSA

Species		Status		Habitat Associations	Potential To Occur ~~Onsite~~Within BSA	Status ~~Onsite~~Within BSA
Common Name	Scientific Name	Federal	State			
Horned lark	*Eremophila alpestris*	None	CDFG: WL	Desert residents associated with nearby agricultural fields.	Moderate	Present
Le Conte's thrasher	*Toxostoma lecontei*	BLM: S USFWS: BCC	CDFG: SSC	Desert washes where large shrubs occur for nesting.	Moderate	Present
Loggerhead shrike	*Lanius ludovicianus*	USFWS: BCC	CDFG: SSC	Desert, farmland; nests in cholla and thorny bushes	Moderate-High	Present
Lucy's warbler	*Oreothlypis luciae*	USFWS: BCC	CDFG: SSC	Occurs in mesquite scrub or riparian vegetation associated with desert washes.	Moderate-High	Present
Northern harrier	*Circus cyaneus*	None	CDFG: SSC	Occurs in marsh or open grassland and is associated with nearby agricultural fields.	Low- Moderate	Present
Peregrine falcon	*Falco peregrinus*	USFWS: BCC	CDFG: FP	Found in desert scrub near cliff nest sites. Occur in wide variety of habitats including open country, along rivers, coast, and in cities.	Moderate- High	Detected off-site
Prairie falcon	*Falco mexicanus*	USFWS: BCC	CDFG: WL	Found in desert scrub near cliff nest sites. Associated with mountains, prairie, and grassland.	High	Present
Rufous-crowned sparrow	*Aimophyla ruficeps*	None	CDFG: WL	Occurs in rocky outcrops, near dry uplands or open oak woodlands.	Moderate	Present
Vaux's swift	*Chaetura vauxi*	None	CDFG: SSC	Forest and woodland, usually near lakes, rivers.	Moderate	Present
Vermilion flycatcher	*Pyrocephalus rubinus*	None	CDFG: SSC	Found in dry desert scrub, savanna, near wooded streams.	Moderate	Not present
Western yellow-	*Coccyzus americanus*	Federal Species of Concern (FSC),	SE	Associated with farmlands, willows, thickets.	Low	Not present

Table 5.2-4
Special Status Animals with the Potential to Occur within the BSA

Species		Status		Habitat Associations	Potential To Occur ~~Onsite~~Within BSA	Status ~~Onsite~~Within BSA
Common Name	Scientific Name	Federal	State			
billed cuckoo	*occidentalis*	BLM: S				
Yellow-breasted chat	*Icteria virens*	None	CDFG: SSC	Found in dense brush often along streams and on hillsides.	Low	Not present
Yellow-headed blackbird	*Xanthocephalus xanthocephalus*	None	CDFG: SSC	Associated with agricultural fields with freshwater marshes.	Low	Detected off site
Yuma clapper rail	*Rallus longirostris yumanensis*	FE	ST, FP	Found in fresh-water marshes.	Low	Not present
Mammals						
American badger	*Taxidea taxus*	None	CDFG: SSC	Grasslands, savannas, and mountain meadows near timberline are preferred, but also occur in desert scrub areas.	Moderate	Present
Arizona myotis	*Myotis occultus*	None	CDFG: SSC	Typically found near buildings, mines, and beneath bridges; colonial.	Moderate	Undetermined
California leaf-nosed bat	*Macrotus californicus*	BLM: S	CDFG: SSC	Found in caves or mines; colonial.	Moderate	Known to roost in mines near project
Cave myotis	*Myotis velifer*	BLM: S	CDFG: SSC	Found most often in caves, mines, near buildings; colonial.	Moderate	Known to roost in mines near project
Colorado River cotton rat	*Sigmodon arizonae plenus*	None	CDFG: SSC	Found near river or on immediate flood plain; avoid arid desert regions	Low	Undetermined
Nelson's bighorn sheep	*Ovis Canadensis nelsoni*	BLM: S	None	Dry, relatively barren desert mountain ranges.	Moderate	Sign present
Pallid San Diego	*Chaetodipus fallax*	None	CDFG:	Found in arid, open, sandy areas.	Moderate	Undetermined

Table 5.2-4
Special Status Animals with the Potential to Occur within the BSA

Species		Status		Habitat Associations	Potential To Occur ~~Onsite~~Within BSA	Status ~~Onsite~~Within BSA
Common Name	Scientific Name	Federal	State			
pocket mouse	*pallidus*		SSC			
Spotted bat	*Euderma maculata*	BLM: S	CDFG: SSC	Found in arid regions, sometimes in caves; roost in rock crevices.	Moderate	Undetermined
Townsend's big-eared bat	*Corynorhinus townsendii*	BLM: S	CDFG: SSC	Uses caves, buildings, and mines to roost; may roost singly for part of year.	Moderate	Undetermined
Yuma myotis	*Myotis yumanensis*	BLM: S	None	Found in mines, caves, and tunnels, occasionally buildings; colonial.	Moderate	Undetermined
Western mastiff bat	*Eumops perotis*	BLM: S	CDFG: SSC	Roosts on buildings, cliff crevices, trees, tunnels; emerges at late dusk.	Moderate	Undetermined

BCC = Birds of Conservation Concern
BGEPA = Bald and Golden Eagle Protection Act
BLM = Bureau of Land Management
CDFG = California Department of Fish and Game
FE = Federal Endangered
FP = Fully Protected
FSC = Federal Species of Concern
FT = Federal Threatened
MBTA = Migratory Bird Treaty Act
SE = State Endangered
SSC = Species of Special Concern
ST = State Threatened
USFWS = United States Fish and Wildlife Service
WL = Watch List

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Qualified biologists conducted surveys for the various special-status species potentially present within the BSA boundary. Biologists were qualified by demonstrating previous survey experience for the species being surveyed, or by holding specific permits for the species being surveyed. Biologists who did not have previous experience with the surveyed species were under the direct supervision of an experienced or approved biologist. Species-specific protocols were followed for wildlife species.

The following species required focused surveys that were conducted independently of other species surveys: desert tortoise, burrowing owl, Mojave fringe-toed lizard and Couch's spadefoot toad (*Scaphiopus couchii)*. Documentation of desert kit fox, American badger, raptors, general wildlife, bats and any artificial or temporary water catchments that could serve as breeding pools for Couch's spadefoot toad (which were surveyed later after summer rains) occurred during other survey efforts throughout the field season due to the common nature of the species, or because no standard, focused survey protocols have been defined for these species.

Aerial photography was used in the field at an appropriate scale to designate the BSA, plan for access, and to help map species locations as necessary. Special-status species were identified during surveys by direct visual observation, aural detection, or by the observation of sign, including scat, track, feathers, middens, etc. Species were identified with the aid of 8x42 or similar power binoculars, as necessary. If possible, digital photographs of special status species were taken for documentation purposes and were reviewed by other biologists.

Desert Tortoise Surveys

Focused surveys for desert tortoise (FT, ST) were conducted according to the USFWS 2010 pre-project field survey protocol for potential desert tortoise habitats (USFWS 2010). Survey guidelines require 100 percent coverage of all suitable habitat using 10-meter-wide (30-foot-wide) belt transects. Surveys were conducted over the entire BSA and in the Zone of Influence (ZOI) consisting of 10-meter transects 200, 400, and 600 meter from the project site boundary. Surveys began in late April 2011, which is within the window of time that desert tortoises are most active. To facilitate the planning and execution of the surveys, the ~~site~~BSA was broken down into cells such that a team of qualified biologists was able to survey the cell within one day (approximately 7.5 transect miles per biologist). Breaking up the ~~site~~ BSA into cells also allowed for the random sampling of the site to avoid potential temporal or human variances, and allowed later reference to specific survey areas in the database, if needed. Surveys continued for the entire ~~site~~BSA, whether live tortoises were encountered or not. Desert tortoises and desert tortoise signs (including tortoise burrows, tortoise scat, carcasses, tracks, and egg shell fragments) observed during the focused survey were recorded on datasheets and GPS units. Sample presence/absence and live tortoise encounter datasheets are provided in Appendix 5.2A. Photographs were also collected to document the biological resources surrounding the location where the tortoise was detected.

Data on the observed quality of the habitat was collected, including macro-habitat features such as soil types, substrate composition and friability, vegetation community, density, geomorphology (e.g., hills, alluvial fan, bajada, wash), and micro-habitat features that included slope, aspect, forage species, and level and types of disturbance. The data was analyzed and summarized for inclusion in the BTR. The number of live desert tortoise observed during the surveys was used to estimate the number of desert tortoise potentially occurring within the ~~project site~~BSA. Table 4 of the 2010 *USFWS Desert Tortoise Pre-Project Survey Protocol* provides the formula to be used for the estimate. At no time during the

surveys were desert tortoises handled or harassed by biologists conducting these surveys. Although incidental observations of other species were documented, desert tortoise surveys were not conducted concurrently with other survey efforts.

Mojave Fringed-toed Lizard Surveys (no changes)

Couch's Spadefoot Toad Surveys (no changes)

Western Burrowing Owl Surveys

Focused breeding season (February 1 and August 31) surveys for the western burrowing owl (CA-SSC) were conducted in all suitable habitat within the BSA ~~on site~~ according to the 1993 California Burrowing Owl Consortium survey protocol. Suitable habitat was determined to exist within the BSA~~within the entire project site~~; therefore, the entire ~~site~~BSA~~-~~ was surveyed. The first round of surveys occurred in May and June 2011 and consisted of pedestrian surveys spaced wide enough (30 meters) to allow for 100 percent visual coverage of the BSA to locate burrows and other burrowing owl signs. All potential burrowing owl burrows were identified on datasheets and marked with a GPS unit for the second round of surveys to determine population density of owls.

The second round of surveys occurred in June 2011 and consisted of four separate days of surveys during which the burrows were observed for burrowing owl activity. These surveys were conducted in the afternoon, from two hours before sunset to one hour after sunset. Burrows were observed using binoculars or a spotting scope from as many different vantage points as necessary to provide visual coverage of the burrows. Surveys were conducted during weather that was conducive to observing owls outside their burrows. Surveyors maintained a minimum distance of 50 meters (approximately 160 feet) from burrows.

All observations of owl activity and burrows were mapped to determine potential impacts to the species. Although incidental observations of sign were documented, burrowing owl surveys were conducted independently of other survey efforts.

Golden Eagle Surveys (no changes)

Migratory Bird Counts (no changes)

Baseline Raven Population (no changes)

Kit Fox and Badger Surveys

Kit fox (no status) and American badger (SSC) use of the site was determined by the observation of kit fox and badger individuals and burrows within the BSA~~on site~~. Burrows of these species were searched for during the desert tortoise survey and burrowing owl burrow search. Any burrows that might potentially contain kit fox or American badger were marked and the information was used to determine the potential impact of the Project on kit fox and/or American badger.

Bat Surveys

Surveys for bat species were conducted during the general wildlife survey and in conjunction with other wildlife surveys occurring within the BSA~~on site~~. In general, bat species were searched for in areas where they are most likely to occur, such as in caves and cracks in canyons, entrances to mines and large boulder fields, other mountainous areas, and forested areas (e.g. mesquite riparian forest) for tree-roosting species. Bats observed flying over the proposed project site (usually at dusk during the Phase Three burrowing owl surveys) were documented. The species of these bats was not determined based on these visual encounters.

Biologist Patricia Brown has accumulated approximately 30 years of bat data within the vicinity of the Project. These data will be used to identify the species of bats that utilize the project site along with locations and densities of potential roosts on and/or near the Project.

5.2.4.5 Wetland and Other Waters Delineation Methods

The following sections describe the methods used to delineate wetlands and Other Waters located in the BSA.

Waters of the United States (WUS) (no changes)

Wetland and Other WUS Delineation Methods (no changes)

Lakes and Streambeds (no changes)

5.2.5 Results of Biological Surveys

The following sections provide a summary of the results of the biological surveys conducted in the BSA.

5.2.5.1 Vegetation Communities (no changes)

5.2.5.2 Invasive Plant Species (no changes)

5.2.5.3 Special-Status Plants (no changes)

5.2.5.4 General Wildlife Species (no changes)

5.2.5.5 Special Status Wildlife Species

A total of 17 special status wildlife species and/or signs of their presence were detected in the BSA: desert tortoise, Mojave fringe-toed lizard, American badger, Nelson's bighorn sheep, California leaf-nosed bat (*Macrotus californicus)*, burrowing owl, golden eagle, Swainson's hawk (*Buteo swainsoni*), Northern harrier (*Circus cyaneus*), prairie falcon, American white pelican (*Pelecanus erythrorhynchos*), loggerhead shrike (*Lanius ludovicianus*), Le Conte's thrasher (*Toxostoma lecontei*), Crissal thrasher (*Toxostoma crissale*), Gila woodpecker (*Melanerpes uropygialis*), Lucy's warbler (*Oreothlypis luciae*) and Vaux's swift (*Chaetura vauxi*). The following species accounts are provided for the special-status wildlife species

detected or for which sign was found within the BSA ~~on site~~, or for which focused surveys were performed. A listing of other special-management-status species known to be located within the project site is provided in Appendix 5.2A as are representative site photographs and special-status species data forms that were submitted to the CNDDB.

Desert Tortoise

Regulatory Status: Federal: USFWS: Threatened; State: CDFG: Threatened

Desert tortoise is widely distributed in the deserts of California, southern Nevada, extreme southwestern Utah, western and southern Arizona, and throughout most of Sonora, Mexico. Desert tortoise populations are declining because of various factors, including the spread of a respiratory disease, increases in raven populations that prey on juvenile tortoises, and habitat loss and degradation because of various extensive and intensive land uses. Scientists believe that the disease-related mortality may be a result of multiple factors including drought, poor nutrition, environmental toxicants, or habitat degradation including exotic plant invasion and fire (USFWS 2011). Only the Mojave population of desert tortoise is federal- and State-listed as threatened. Typical tortoise habitat consists of firm but not hard ground, usually soft sandy loams and loamy sands that allow for burrow construction (Karl 1983). Desert tortoise primarily occurs in four subpopulations in the California Mojave Desert (Ord-Rodman, Superior-Cronese, Fremont-Kramer, and Joshua Tree Designated Wildlife Management Areas [DWMA]). Outside of these DWMAs, tortoises tend to occur at much lower densities. This species is mostly found in creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub. The topography where this species is typically found includes flats, low valleys, bajadas, and low hills between 2,000 and 3,300 feet and occasionally above 4,100 feet.

The diet of desert tortoises consists mainly of annual plants and grasses, but also contains perennial plants such as cacti and native forbs. When available, certain non-native plant species are also eaten (West Mojave Planning Team 1999). Desert tortoises are most active when plants are available for forage or when pooled water is available for drinking, usually from March through early June and again between September and early November (Marlow 1979). They typically have overlapping home ranges averaging between 5 and 131 acres, which can fluctuate in size on a year-to-year basis based on several factors such as sex of the tortoise, rainfall, availability of resources, and other factors (Berry 1986, Duda 1999, CDFG 2000). Individuals commonly traverse 1,500-2,600 feet per day within their home range, and males have been recorded traveling up to 3,200 feet within their home range. Mojave desert tortoises are also known to disperse over more extended distances (1.9 miles in 16 days and 4.5 miles in 15 months; Berry 1986).

Observations of desert tortoise and desert tortoise sign in the BSA are shown in Figure 5.2-4 (rev) and in Appendix 5.2A respectively. Observations made during focused desert tortoise surveys and incidental observations made during all biological surveys conducted in 2011 were noted. Focused survey observations consisted of six live desert tortoise in total (three adults and one juvenile in the BSA and two in the ZOI), 37 carcasses, 31 instances of scat, and 113 burrows, with a great majority located in the western portion of the BSA. Incidental observations were excluded from the ~~focused desert tortoise survey results and~~ population estimates because they may include repeat counts of individuals, burrows, and/or signs that were not part of a sampling design for estimation of populations. A summary of

observations made during both focused desert tortoise surveys and incidental observations from all surveys is provided in Table 5.2-7.

~~The USFWS formula for protocol surveys estimates that between 3 and 30 adult (i.e., ≥160 mm Mid-line Carapace Length or MCL) desert tortoises may occur on the project site and vicinity and are likely clustered toward the western third of the project site.~~ Of the live tortoise observed during the focused surveys, two adults were found within the new Project fence line which reflects the deletion of RMS 3. The USFWS formula for protocol surveys estimates that four adult (i.e. greater than 160 mm Mid-line Carapace Length of MCL) tortoise occur within the fenced 3,805 acres of the Project site with a 95% confidence interval of 2-15.

The CDFG *Desert Tortoise Species Account* (CDFG 2000) states that typical desert tortoise densities are approximately 9 tortoises per square mile in the eastern Mojave Desert and 2,600 tortoises per square mile in the western Mojave Desert (CDFG 2000). Additionally, a 10-year research project conducted in the California Mojave Desert by the BLM estimated densities from 21 to 467 desert tortoises per square mile (8 to 184 desert tortoises per square kilometer) (Berry 1986). The estimated density of desert tortoise within the total desert tortoise survey area (USWFS protocol estimates 0.18 tortoises per square mile) is substantially lower than the densities reported by the CDFG and BLM.

The distribution of tortoise and signs of tortoise throughout the BSA, as well as throughout the total desert tortoise survey area, was not random and tended to be concentrated in the western third of the project site (in Figure 5.2-4 (rev) and in Appendix 5.2A). The soils on the western portion of the project site tend to be more compact and less sandy compared to the soils on the rest of the project site. These soils are better suited for tortoise burrowing activities. Potential movement areas for tortoise are also associated with the western portion of the site.

Table 5.2-7
All Desert Tortoise and Desert Tortoise Signs Detected within the BSA (no changes)

Mojave Fringe-toed Lizard (no changes except for reference to Figure 5.2-4 [rev])

Couch's Spadefoot Toad (no changes)

American Badger

Regulatory Status: Federal: None; State: CDFG: Species of Special Concern

The American badger is an uncommon resident of level, open areas in grasslands, agricultural areas, and open shrub habitats. It digs large burrows in dry, friable soils and feeds mainly on fossorial mammals (e.g., ground squirrels, gophers, rats, mice). Badgers are primarily active during the day, but may become nocturnal if living in close proximity to humans. The home range of badgers has been shown to vary from up to 1,549 acres for males, and 751 acres for females in Utah (Lindzey 1978) compared to as few as 400 acres for females in Idaho (Messick and Hornocker 1981). Mating occurs in late summer or early fall. Two to three young are born 183 to 265 days later in March or April (Long 1973). Badgers are known to live at least 11 to 15 years (Messick and Hornocker 1981). Threats to badgers include urban and agricultural development of habitat, excessive trapping, and persistent poisoning of prey in some areas (Zeiner, *et. al.*, 1990).

Two badgers were detected incidentally while driving through the project site (Figure 5.2-4 (rev)); however, no badgers were observed during the 2011 focused biological surveys.

Nelson's Bighorn Sheep (no changes except for reference to Figure 5.2-4 [rev])

California Leaf-Nosed Bat and Cave Myotis Bat (no changes)

Burrowing Owl (no changes except for reference to Figure 5.2-4 [rev])

Golden Eagle

Regulatory Status: Federal: BLM: Sensitive, USFWS: Birds of Conservation Concern;
State: CDFG: Watch List, Fully Protected (individuals and nesting sites)

Golden eagles are distributed throughout North America (Johnsgard 1990), although the golden eagle is an uncommon resident within California (Zeiner, *et al*., 1990; Unitt 1984). Golden eagles forage in grassy and open shrubby habitats and nest primarily on cliffs, but have been known to nest in large trees (e.g., oaks, sycamores). Breeding pairs may occupy territories of several square miles, within which they may often use several nest sites, shifting nest sites from year to year. This species' population has declined because of loss of foraging and nesting habitat to urban and agricultural development, illegal shooting,

incidental poisoning of prey species (e.g., ground squirrels, prairie dogs), egg collecting, power line electrocution, and human disturbance at nest sites (Snow 1973; Johnsgard 1990; Scott 1985).

Two golden eagles were observed during the 2011 spring botany survey (Figure 5.2-4 (rev)). Both observations were fly-overs. No active or occupied golden eagle nests were documented immediately surrounding or within the 10-mile spatial buffer of the Project for the 2011 breeding season (January through June). Three inactive golden eagle nests were observed within the 10-mile vicinity of the project site. The closest active (though not used for breeding) nest observed was more than 14 miles from the project site. The 2011~~A~~ golden eagle survey report is included as Appendix J to the BTR (Appendix 5.2A).

Swainson's Hawk (no changes except for reference to Figure 5.2-4 [rev])

Prairie Falcon (no changes except for reference to Figure 5.2-4 [rev])

Northern Harrier (no changes except for reference to Figure 5.2-4 [rev])

American White Pelican (no changes except for reference to Figure 5.2-4 [rev])

Loggerhead Shrike (no changes except for reference to Figure 5.2-4 [rev])

Le Conte's Thrasher (no changes except for reference to Figure 5.2-4 [rev])

Crissal Thrasher (no changes except for reference to Figure 5.2-4 [rev])

Gila Woodpecker (no changes except for reference to Figure 5.2-4 [rev])

Lucy's Warbler

Regulatory Status: Federal: None; State: CDFG: SSC

Lucy's warbler breeds only in the southwestern U.S. (Arizona, southern New Mexico, southwestern Texas, extreme southern Nevada and Utah, and southeastern California) and adjacent northern Mexico (Dunn and Garrett 1997 *in* Shuford and Gardali 2008). Within the U.S., it is most abundant in south-central Arizona (Price *et al.* 1995). Lucy's warblers migrate north from Mexico in the first half of March, coinciding with the leafing out of honey mesquite (Rosenberg *et al.* 1991). Breeding occurs mainly from mid-April to early July (Rosenberg *et al.* 1991, Johnson et al. 1997, Unitt 2004). Most depart the California breeding grounds by mid-July, but some do not migrate south until September (Rosenberg *et al.* 1991). Lowland riparian breeding habitat includes mesquite and willow "thickets", cottonwood-mesquite, cottonwood-willow gallery forests, cottonwoods, willows, and mid-elevation ash-walnut-sycamore-live oak associations and tamarisk thickets, while more arid habitats include (usually locally) larger stands of xero-riparian vegetation along dry desert washes or occasional upland mesquites, and rarely palo verde and ironwood (Johnson et al. 1997).

A total of 16 Lucy's warblers were observed during the spring 2011 survey in the BSA (Figure 5.2-4 (rev)) and were likely nesting within the BSA~~on site~~.

Vaux's Swift

Regulatory Status: Federal: None; State: CDFG: SSC

Vaux's swift breeds from southeastern Alaska, southern British Columbia, northern Idaho, and western Montana south to central California. Generally in California, it is primarily a migrant and summer resident from mid-April to mid-October. In southern California, it is a spring and fall migrant, and it is also occasionally in winter (Shuford and Gardali, 2008). Vaux's swifts usually roost and nest in large cavities in a variety of tree species and less frequently in artificial structures. This species forages over a variety of habitats during the breeding season, including over water at various heights where it searches for small flying insects.

There were 28 Vaux's swifts observed (fly-overs) during the spring 2011 survey in the BSA (Figure 5.2-4 (rev)). Being a migrant, the species is not expected to nest within the BSA~~on site~~.

Baseline Raven Population Estimate (no changes)

Kit Fox and Badger Surveys

Kit fox (no status) and American badger (SSC) use of the site was determined by the observation of kit fox and badger individuals and burrows within the BSA~~on site~~. Burrows of these species were searched for during the desert tortoise survey and burrowing owl burrow search. Any burrows that might potentially contain kit fox or American badger were marked and the information was used to determine the potential impact of the Project on kit fox and/or American badger.

Two badgers were observed incidentally during the spring 2011 survey effort near the existing transmission line just south of the Bradshaw Trail, though none were observed during focused surveys.

While desert kit fox den complexes were prevalent in the BSA (193 observed), many den complexes occur within the home ranges of each single female and can be used for birthing or as refuges from coyotes. The species is solitary except during the breeding season and does not maintain territories. Birthing dens are chosen in September and October after the female visits most of the dens in her home range and cleans them. Females usually use one complex for birthing that is three to four kilometers from the nearest neighbor to ensure a good hunting territory. Puppies are born in February or March and are weaned by June. Den changes are frequent during the summer when puppies are being fed. At three to four months the pups begin to forage with the parents. In October the pups head out away from their parents' home range. Young foxes may travel long distances (30 or more km) before settling down. With kit fox ranges varying from 1-2 square miles Morrell (1972), the 67~~193~~ den complexes observed may only represent 3~~8~~ to 6~~16~~ home ranges on site.

5.2.6 Wetlands and Jurisdictional Waters

The following sections describe wetlands and jurisdictional waters delineated in the BSA.

5.2.6.1 Waters of the U.S.

The BSA contains small-to-large, well-defined, ephemeral washes with smaller, broad alluvial fan/plains intertwined with high topographic variation. The overall landform slopes, trending from the west to east and in some areas to the southeast. There are occasional small hills (buttes) and sand dune areas in the BSA. Several drainage systems occur on the project site. These drainage systems follow the gradient of higher elevations in the mountains west of the project site towards lower elevations east and southeast across the project site. Ultimately, most of the proposed jurisdictional ephemeral washes flow to Hodges Drain, the Palo Verde Outfall, and into the Colorado River, a traditionally navigable water.

The project site is dissected by numerous ephemeral washes ranging in size from small (one to three feet wide), to broad, well-defined (100+ feet wide) drainages. The active flow channels are devoid of vegetation and typically have a sandy, gravel substrate, although some washes also contained cobble and scattered larger rocks. Throughout the ~~study area~~BSA, the majority of the washes are associated with blue palo verde / ironwood woodland.~~–~~ The co-dominant species are blue palo verde and ironwood. Additional species include cheesebush, catclaw acacia, Anderson's boxthorn, wire lettuce (*Stephanomeria pauciflora*), in some medium- to large-sized washes, especially in braided channels that contain slightly elevated areas intermixed with the active flow channels.

The drainage features within the BSA~~on-site~~ are considered to be well-defined channels that result from seasonal, active flow.~~–~~ The drainage features consist of floodplains with areas that exhibit a mixed pattern of sheet flow or shallow, concentrated flow across isolated, wide areas of land; defined drainage features occur over most of the site with evenly distributed desert scrub vegetation throughout.~~—~~ Well-defined active floodplain or flow channels, whether from low or high flows, are present. Flow of water within the BSA~~on-site~~ is ephemeral and occurs during periods of brief intense rainfall. Flow of water within the BSA~~on-site~~ occurs seasonally in most years. The seasonal major storm events tend to occur from December to February with predicted winter rain, and intermittent, high-intensity monsoon rains coming from the south in late July to September.~~–~~ Water flow within the BSA~~on-site~~ is of sufficient intensity or duration to maintain channels indicative of a stream or wash that ~~all~~ mostly drain off site to Hodges Drain and ultimately to the Colorado River.

The paths of higher concentrated flow that may occur with major, high-intensity storm events within the BSA~~on-site~~ are associated with distinct, continuous washes and flood terraces across the project site. These paths of concentrated flow events indicate a clear natural scour line impressed on the bank, recent bank erosion, destruction of native terrestrial vegetation, and the presence of litter and debris. Blue palo verde / ironwood woodland is prevalent throughout these areas. Relict flood channels occur within the BSA,~~on-site~~ with indicators of watermarks in some areas that are indicative of larger floodplains. These relict flood channels are sometimes discontinuous within the BSA~~on-site~~, but are not isolated from the potential WUS. Therefore, potential WUS occur within the BSA ~~on-site~~ (Jim Mace, USACE, informal personal communication, July 2011).

Based on the field data and aerial photograph interpretation, the ~~project site~~BSA~~site~~ was divided into 11 drainage systems, labeled A through I, gen-tie line ROW corridor, and Bradshaw Trail/34th Avenue Access, for simplicity. These drainage systems are shown in Figures 5.2-5a and 5.2-5b (rev) and are summarized in Table 5.2-5.~~—~~ ~~The drainage systems were delineated based on connectivity of the smaller~~

~~delineated ephemeral washes to the largest five intermittent drainages and/or to Hodges Drain to the east of the project site boundary (Figure 5.2-5b).~~ Features for each drainage system include single, large channels with well-defined bed and banks, as well as broad, but sometimes weakly expressed, assemblages of shallow braided ephemeral channels. A total of approximately 1,179 acres of potentially jurisdictional WUS were identified and mapped in the original project area, with an additional 255 acres in the 500-foot buffer area. Table 5.2-8 shows the breakdown of each drainage system's total acreage and linear feet. A National Wetlands Inventory (NWI) wetland area of 8.3 acres is found on the eastern portion of the BSA; however, the 117.8 acres of bush seepweed scrub and bush seepweed scrub/mesquite bosque in the BSA are considered to be USACE jurisdictional wetlands (Figure-5.2-2 (rev)). A detailed analysis of the potential WUS within the project site is provided in the USACE Preliminary Determination included in Appendix K to the BTR (Appendix 5.2A).

5.2.6.2 Lakes and Streambeds

Seasonal, surface water flow events occur within the BSA ~~on site~~ in most years. The majority of ephemeral washes within the project site frequently flow intermittently through a bed or channel having banks that support riparian vegetation. No lakes occur within the BSA~~on site~~. Fish and Game Code §1600 typically applies to delineated potential WUS, other drainage patterns within the BSA~~on site~~, including wash and drainage patterns ("blue lines") shown on USGS topographic maps, and relict flood channels indicative of larger floodplains. Figures 5.2-5a and 5.2-5b (rev) shows the patterns of USGS "blue line" washes, drainage patterns, and drainage paths that are relict flood channels. For ephemeral washes, § 1600 analyses typically focus on the overall drainage patterns within the BSA~~onsite~~.~~–~~ As noted above, the Energy Commission will "stand in the shoes" of the CDFG for purposes of applying the LSAA requirements to a power plant under the Energy Commission's jurisdiction.

Table 5.2-8
Potential Waters of the United States (WUS) (acres)

Drainage Systems Division[1]	Original Project Site (including RMS 3) (acres)	500 ft Buffer Area (acres)	Total Mapped Area (BSA) (acres) (~~Project + Buffer~~)
A	17.31	7.01	24.32
B	127.84	17.26	145.10
C	9.88	1.17	11.05
D	6.52	0.98	7.50
E	191.62	44.86 [4.11][2]	236.~~46~~ 48 [4.11]
F	6.20	7.62 [6.09]	13.82 [6.09]
G	419.85 [58.85]	75.69 [42.85]	495.~~59~~ 54 [107.57]
H	141.53	50.05	191.58
I	238.28	50.20	288.48
Generator tie line (gen-tie line) Right-of-Way (ROW)	9.05	[3]	9.05

Bradshaw Trail & 34th Ave Access	10.7	[3]	10.7
Totals	1,178.78 [58.85]	254.84 [58.93]	1433.62 [117.78]

[1] Drainage Divisions A through I are shown on Figure 5.2-5a (rev)

[2] Numbers in parentheses designates wetland acreage included in total WUS

[3] Acreage included in Project Site

Gen-tie line = Generator tie line

ROW = right-of-way

WUS = Waters of the United States under Section 404 and 401 of the Clean Water Act. Defined in the ~~study area~~BSA by Ordinary High Water Mark in ephemeral washes and adjacent wetlands, where present.

5.2.6.3 Waters of the State of California (WSC)

All blue palo verde / ironwood woodland and potentially jurisdictional WUS ephemeral streams, washes and drainages within the entire project area were delineated as WSC. Potential jurisdictional WSC within the ~~project site~~BSA are divided into 11 drainage systems labeled A through I, gen-tie line ROW, and Bradshaw Trail and 34th Avenue Access, for simplicity, and are presented in Figures 5.2-6a and 5.2-6b (rev), and summarized in Table 5.2-9. A more detailed analysis of the potential WUS within the project site is provided in the CDFG Jurisdiction submittal included in Appendix K to the BTR (Appendix 5.2A).

The total area of all WSC delineated within the BSA is approximately 2,608 acres (Table 5.2-9). Approximately 2,355.6 acres are composed of wash-dependent vegetation, which includes: 2,237.8 acres of blue palo verde/ironwood woodland, and 117.8 acres of wetlands which includes 7.5 acres of bush seepweed scrub, and 110.3 of bush seepweed scrub/mesquite bosque (Table 5.2-5, Figure 5.2-2 (rev)).

Table 5.2-9
Potential Jurisdictional Waters of the State of California (WSC) (acres)

Drainage Systems[1]	Original Project Site (including RMS 3) (acres)	500ft Buffer Area (acres)	Total Mapped Area ~~Within~~ (BSA) ~~(Project + Buffer)~~ (acres)
A	86.46	32.25	118.71
B	255.27	31.42	286.69
C	24.39	1.88	26.27
D	8.16	1.37	9.53
E	273.66	56.75 [4.11][2]	330.41 [4.11]
F	14.55	7.79 [6.09]	22.34 [6.09]
G	675.22 [58.85]	171.20 [48.72]	846.42 [107.58]
H	418.53	108.64	527.17
I	302.93	70.45	373.38

Gen-tie line and ROW	56.84	[3]	56.84
Bradshaw Trail & 34th Ave Access	10.70	[3]	10.70
Totals	2,126.71 [58.85]	481.75 [58.93]	2,608.46 [117.78]

[1] Drainage Divisions A through I are shown on Figure 5.2-6a (rev)
[2] Numbers in parentheses designates wetland acreage included in total WSC
[3] Acreage included in Project Site

Gen-tie line = Generator tie line
ROW = right-of-way
WSC = Water of the State of California under Section 1602 of the State Fish and Game Code and Porter Cologne Act. Defined in the study area by bank to bank limits or to outer extent of riparian community where present. WSC includes riparian and streambed and includes WUS jurisdiction.

Surface water flows occur on-site in most years. Approximately 1,433.62 acres of WSC within the original project site are confined by beds, banks, and/or channels indicative of streams, creeks, or washes subject to the Porter-Cologne Water Quality Control Act. Stormwater runoff and flows from flash floods within the BSA~~on-site~~ would represent surface water in the form of storm water runoff that could potentially be regulated pursuant to the Porter-Cologne Water Quality Control Act. Concentrated flows through culverts under Bradshaw Trail and 34th Avenue may also be potentially regulated.

The BSA was determined to contain a total of 1,433.6 acres of WUS and WSC, and an additional 1,174.84 acres of WSC ~~within the project site and buffer areas~~ (Table 5.2-10). This included the potential NWI wetland area of 8.3 acres found on the eastern portion of the BSA. The total acreages for both potential WUS and WSC are summarized in Table 5.2-10.

Table 5.2-10
Potential Jurisdictional Water of the United States (WUS) and Waters of the State of California (WSC) in the BSA

Type	Existing within Original Project Site (including RMS 3)	Existing within Buffer Area	Existing Acres within BSA
Jurisdictional Waters of the United States (WUS) Wetland* on-wetland WUS	58.85 1,119.93	58.45 196.39	117.30 1,326.32
TOTAL United States Army Corps of Engineers (USACE) Jurisdiction	1,178.78	254.84	1,433.62

Jurisdictional Waters of the State of California (WSC)* Wetland* Non-wetland WSC	58.85 2,067.86	58.45 423.30	117.30 2,491.16
TOTAL California Department of Fish and Game (CDFG) Jurisdiction	2126.71	481.75	2608.46

BSA = Biological Survey Area
CDFG = California Department of Fish and Game
WSC = Waters of the State of California
WUS = Waters of the United States
USACE = United States Army Corps of Engineers

* National Wetland Inventory (NWI) wetland present included seepweed scrub/ mesquite bosque vegetation community.

5.2.7 Environmental Analysis

The following sections describe the environmental analysis that was conducted of biological resources within the BSA.

5.2.7.1 Standards of Significance (no changes)

5.2.7.2 Potential Impacts of Project Construction, Operation and Maintenances

The potential effects associated with Project construction, operation, and maintenance are discussed below.

Impacts to Vegetation

The project site encompasses a total of ~~5,645.5~~3,805.04 acres that will be fenced with tortoise exclusion and security fencing. Estimated impact acreages to the various vegetation types within the fenced area, a 500-foot buffer to the fence, along the gen-tie line and access roads is provided in Table 5.2-11.

Impacts to Special-Status Vegetation Communities

Sensitive vegetation communities are natural vegetation communities that are of limited distribution within a county, region, or state (CDFG 2010). These vegetation communities are often vulnerable to environmental impacts associated with the construction and maintenance of projects. The Project site contains six sensitive vegetation communities (Figure 5.2-2 (rev)), which are described below. Each of the vegetation communities was also observed within the one-mile buffer during reconnaissance-level surveys, but the amounts present were not quantified. Impacts to these communities would be significant unless mitigated as it would reduce habitat for listed species and riparian/wetland vegetation (significance criteria 1, 9 and 10). However, removal of RMS 3 from the Project Description results in an approximate 2,108 acre reduction in total (direct and indirect) impacts to vegetation communities. These reductions per vegetation type have been updated in revised Table 5.2-11.

~~Table 5.2-11~~
~~Vegetation Impact Acreage for Rio Mesa SEGF~~

~~Vegetation Type~~	~~Impacts (acres)~~					
	~~Inside Fence~~	~~Gen-tie Line~~	~~Access Roads~~	~~Total Direct Impacts~~	~~500 ft Buffer from Fence~~	~~Total Project Impacts~~
~~Creosote Bush Scrub~~	~~1,747.6~~	~~1.9~~	~~4.9~~	~~1,754.4~~	~~548.9~~	~~2,303.2~~
~~Creosote / White Burr Sage Scrub~~	~~2,526.7~~	~~5.7~~	~~2.6~~	~~2,535.1~~	~~325.3~~	~~2,860.4~~
~~Creosote Bush / White Burr Sage Scrub with Big Galleta Grass Association #~~	~~173.9~~	~~0.1~~	~~0.3~~	~~174.4~~	~~105.7~~	~~280.0~~
~~Creosote Bush / White Burr Sage Scrub with Ocotillo Association #~~	~~60.7~~	~~0~~	~~0~~	~~60.7~~	~~7.9~~	~~68.6~~
~~Blue Palo Verde / Ironwood Woodland #~~	~~1,117.88~~	~~0.80~~	~~1.42~~	~~1,120.10~~	~~313.08~~	~~1,433.18~~
~~Brittle Bush / Ferocactus Scrub #~~	~~18.6~~	~~0~~	~~0~~	~~18.6~~	~~48.8~~	~~67.5~~
~~Desert Dunes #~~	~~0~~	~~5.6~~	~~0~~	~~5.6~~	~~0~~	~~5.6~~
~~Bush Seepweed Scrub~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
~~Bush Seepweed/Mesquite Bosque #~~	~~0~~	~~0~~	~~0.78~~	~~0.78~~	~~0~~	~~0.78~~
~~Open Channel~~	~~0~~	~~0~~	~~0.04~~	~~0.04~~	~~0~~	~~0.04~~
~~Ruderal~~	~~0~~	~~0~~	~~1.6~~	~~1.6~~	~~0~~	~~1.6~~
~~Agriculture~~	~~0~~	~~0~~	~~15.9~~	~~15.9~~	~~0~~	~~15.9~~
~~Totals~~	~~5,645.5~~	~~14.1~~	~~27.7~~	~~5,687.2~~	~~1,349.6~~	~~7,036.8~~

~~# Vegetation associations considered by CDFG as being rare or uncommon and having a high priority for inventory.~~

Table 5.2-11
Vegetation Impact Acreage for Rio Mesa SEGF

Vegetation Type	Impacts (acres)					
	Inside Fence	Gen-tie Line	Access Roads	Total Direct Impacts	Indirect Impacts[1]	Total Project Impacts
Creosote Bush Scrub	1,345.40	3.53	8.03	1,356.96	440.89	1,797.85
Creosote / White Burr Sage Scrub	1,671.04	4.31	1.68	1,677.03	272.68	1,949.71
Creosote Bush / White Burr Sage Scrub with Big Galleta Grass Association #	18.26	1.50	2.97	22.73	53.29	76.02
Creosote Bush / White Burr Sage Scrub with Ocotillo Association #	60.73	0	0	60.73	7.9	68.63
Blue Palo Verde / Ironwood Woodland #	707.17	1.37	0.34	708.88	265.51	974.39

Brittle Bush / Ferocactus Scrub #	2.43	0	0	2.43	43.28	45.71
Desert Dunes #	0	4.11	0	4.11	0	4.11
Bush Seepweed Scrub	0	0	0	0	0	0
Bush Seepweed/Mesquite Bosque #	0	0	0.65	0.65	0.54	1.19
Open Channel	0	0	.02	.02	0.02	0.04
Ruderal	0	0	0.64	0.64	0.53	1.17
Agriculture	0	0	5.88	5.88	4.17	10.05
Totals	3,805.04	14.82	20.21	3,840.06	1088.81	4,928.87

1 Includes 500 ft. Project site fence line buffer and 10 ft road buffer on gen-tie roads and access roads
Vegetation associations considered by CDFG as being rare or uncommon and having a high priority for inventory.
Direct and Indirect acreage calculations are potential overestimations since they are based on acreage of the vegetation community within the fenceline or buffer , not on direct or indirect impacts to those acreages within the fenceline or buffer.

Blue Palo Verde / Ironwood Woodland

Approximately 974.39 ~~1,433.18~~ acres of blue palo verde / ironwood woodland community type could be impacted by construction of the Project, 708.88 ~~1,120.10~~ acres directly and 265.51 acres~~313.08acres~~ indirectly within the adjacent 500-ft buffer zone. This vegetation community is mainly found in larger desert washes throughout the project site.

Bush Seepweed Scrub / Mesquite Bosque

No impact to the vegetation community is anticipated from the heliostat field, since it occurs beyond the 500-ft buffer zone of the fence line to the project and does not occur near where gen-tie line tower pads will be sited; however, the access road to 34th Street would impact 0.65~~0.78~~ acres of this community directly and 0.54 acres indirectly.

Creosote Bush / White Burr Sage Scrub with Big Galleta Grass Association.

Approximately 76.02 ~~280~~acres of creosote bush / white burr sage scrub with big galleta grass association ~~could~~ will be impacted by the Project either directly (22.73 ~~174.4~~ acres) or indirectly (53.29 ~~105.7~~ acres in buffer). This community is found primarily on upland areas on the southeastern portion of the project site.

Brittle Bush / Ferocactus Scrub

Approximately 56.39 ~~67.5~~ acres of brittle bush / ferocactus scrub community could be impacted by the Project, 13.11 ~~18.6~~ acres directly with an additional 43.28 ~~48.8~~ acres within the 500-ft buffer. This community is typically found on the slopes of desert mountains. It is found in the northwestern area of the project site by the mountains surrounding Bradshaw Trail.

Desert Dunes

Approximately 4.11 ~~5.6~~ acres of desert dunes community could be impacted by the gen-tie line. This community is found on the northwestern portion of the gen-tie line. Impacts to this community would be limited to tower pads and access roads.

Impacts to Special-Status Plants

The following sections describe the potential impacts to special-status plants that could occur as a result of the construction, operation and maintenance of the Project. Table 5.2-12 presents the tabulation of impacted individuals within the project site fence line, the 500-ft buffer to the fence line and the impact areas associated with the access to the site and within the gen-tie line corridor.

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Table 5.2-12
Impacts to Special Status Species

Scientific Name	Common Name	Status	Number of Individuals Impacted				
			Observed in BSA	Inside Fence	Gen-tie Line	Total Direct Impacts	500ft Buffer to Fence
Plants							
Astragalus insularis var. harwoodii	Harwood's milk-vetch	S2.2?	119	~~4~~2	0~~2~~	2~~6~~	~~46~~0
Eriastrum harwoodii	Harwood's eriastrum	S2	160	0	0	0	0
Funastrum utahense (Cyanchum utahense)	Utah vine milkweed	S3.2	98	47~~83~~	0	47~~83~~	2~~6~~
Proboscidea althaeifolia	Desert unicorn plant/desert devil's claw	S3.3	132	32~~45~~	0	32~~45~~	12
Cryptantha Costata	Ribbed cryptantha	S3.3	ca. 13,000	0	0	0	0
Animals							
Gopherus agassizii	Desert Tortoise	FT, ST	4	2	0~~2[1]~~	2~~5~~	1~~0~~
Melanerpes uropygialis	Gila Woodpecker	ST	6[1~~2~~]	3	0	3	0
Taxidea taxus	American badger	SSC	2	0~~2~~	0	0~~2~~	0
Athene cunicularia	Burrowing owl	SSC	1	1[2~~3~~]	0	1	0
Aquila chrysaetos	Golden Eagle	DFG-FP, BLM-S, BGEPA	2[3~~4~~]	0	0	0	0[2~~3~~4]
Circus cyaneus	Northern harrier (SSC)	SSC, FP	1[3~~4~~]	0	0	0	1
Chaetura vauxi	Vaux's swift	SSC	28[3~~4~~]	5~~6~~	0	5~~6~~	0~~2~~
Oreothlypis luciae	Lucy's warbler	SSC	16	0~~5~~	0	0~~5~~	2~~0~~
Lanius ludocianus	Loggerhead shrike	BBC/SSC	45	10~~23~~	0	10~~23~~	6~~13~~
Pelecanus erythrorhynchos	American White Pelican	SSC	14[3~~4~~]	0	0	0	14
Falco mexicanus	Prairie Falcon	FP	1	1	0	1	0
Toxostoma lecontei	Le Conte's thrasher	BCC, BLM-S, SSC	2	0	0	0	0
Toxostoma crissale	Crissal thrasher	SSC	1	1	0	1~~0~~	0

Notes:
~~[1]Two desert tortoise observed incidentally in gen- tie.line~~
[1~~2~~] While 6 observed, estimate 4 territories on site
[2~~3~~] Incidental detection during September 2011
[3~~4~~] Fly-overs during migration period.

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Ribbed Cryptantha (State Rank S3.3)

Thousands of ribbed cyptantha individuals (approximately 13,000) were mapped during both the early and late spring 2011 protocol surveys within the BSA (See Appendix 5.2A for locations). Project design avoids all impacts to all known locations of ribbed.

Harwood's Milk-vetch (State Rank S2.2?)

The majority of the 119 individuals of Harwood's milk-vetch found occur within the northwestern portion of the existing transmission line area and within sandy washes in the eastern portion of the BSA and were mapped during both the 2011 early and late spring protocol surveys (Figure 5.2-3). Unavoidable impacts to Harwood's milk-vetch are considered less than significant because they will likely affect only ~~6~~ 2 individuals of this moderately rare species.

Utah vine milkweed (State Rank S3.2)

During both the 2011 early and late spring surveys, a total of 98 individuals were identified and mapped within the boundaries of the BSA (See Appendix 5.2A for locations). Impacts to this species (~~83~~ 47 directly and ~~6~~ 2 indirectly in the buffer zone) are considered adverse, but less than significant due to the species being too common in the region and its low sensitivity.

Desert Unicorn Plant (State Rank S3.3)

A total of 132 individuals of desert unicorn plant were detected within the BSA (See Appendix 5.2A for locations). Populations of this species occur outside of California in Arizona, New Mexico, Baja California and Sonora, Mexico. When considering populations outside California, desert unicorn plant is considered secure. Direct impacts to ~~45~~ 32 occurrences of desert unicorn plants within the project fence line impact areas as a result of construction and operation of the Project and indirect impacts to 12 more in the 500-foot buffer is considered adverse, but less than significant because the impact is not substantial for a species of such low sensitivity.

Harwood's Eriastrum (State Rank S2)

During the late season spring protocol surveys, 160 individuals were detected in the northwestern portion of the initial boundaries of the gen-tie line corridor (Figure 5.2-3). The Project design avoids impacts to all of these individuals.

Impacts to Special-Status Wildlife Species

Temporary and permanent impacts to special status wildlife could occur from removal, mowing and crushing of shrubs and herbaceous vegetation (resulting in loss of nesting/breeding and foraging habitat), vegetation clearing, trenching, entombment of animals in dens or burrows, collisions with vehicles, collision with power line conductors or towers, concentrated heat hazards, electrocutions, increased predation on sensitive species, disturbance from noise, and fragmentation of habitat. These impacts have the potential to be significant.

However, with the implementation of awareness training, pre-construction and clearance surveys, avoidance, proper timing of vegetation disturbance activities, implementation of standard and project-specific Best Management Practices (BMP) and mitigation measures proposed by the Applicant and required by the BLM, USFWS, CDFG, and the CEC Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP), no significant, unmitigated environmental impacts to biological resources will occur in association with the construction and operation of the Project. Species-specific impacts are discussed below.

Desert Tortoise

The desert tortoise population of adult / juvenile tortoises at the project site was estimated using USFWS Protocol 10-meter transect survey data and the USFWS desert tortoise population estimation formula. A total of six live desert tortoise were observed during focus surveys conducted in 2011: ~~A total of~~ three desert tortoise (two adults and one juvenile) were found within the proposed project site ~~in 2011 (Figure 5.2-4). An~~ and an additional adult was observed in the project site survey buffer for a total of 4 tortoises within the BSA (Figure 5.2-7 rev). Two more tortoises were observed in the ZOI survey transects beyond the 500-foot buffer zone to the fence line. Two tortoises were also detected incidentally within the gen-tie line corridor. The distribution of tortoise and signs of tortoise was not random and tended to be concentrated in the western third of the project site (Figure 5.2-~~4~~7 (rev) and Appendix 5.2A). Based on the USFWS formula (USFWS 1992), an estimated four ~~approximately eight~~ adult/sub-adult desert tortoise (95 percent confidence interval range of ~~3~~2 to ~~30~~15 individuals) may occupy the 3,~~-~~805~~9,184~~ acres ~~otal~~that will be fenced for the project site ~~within the larger BSA~~.

Eggs and juveniles are difficult to detect and it is assumed that many or most will be missed during the clearance surveys; therefore, for the 3,805 acre fenced area, a conservative estimate of eggs and juvenile tortoises based on ~~15~~ 8 female tortoises (maximum 95% estimate = ~~30~~15/2) being present would be ~~90~~48 eggs (six eggs per female) and ~~232~~124 juveniles based on the life table estimation method (Croft 2011). Eggs and most juveniles are likely to be missed during surveys and not be translocated as a result of the Project implementation. Mortality due to roadkill, site grading, enhanced predation by human-subsidized predators, and loss or degradation of suitable foraging habitat are the most likely impacts on any desert tortoise that may remain on site during construction. Installation of tortoise-proof fencing around the site will preclude reoccupation of the site after construction is completed. Desert tortoise will be excluded (relocated and/or translocated) via clearance surveys before initiation of the construction phase of the Project. Translocation/relocation of desert tortoise can potentially represent take via harm and/or harassment as a possibility exists for tortoises to be killed or injured during the translocation/relocation process.

The fence and heliostats could provide roosting perches for ravens, which could prey upon hatchling and juvenile desert tortoise occurring in the 500-ft buffer zone adjacent to the perimeter fence. Other project activities also have some potential to subsidize potential predators of tortoise, such as ravens and coyotes, through the provision of limited resources (e.g., fresh water, food, nest sites), which are mostly absent from the site (Boarman et al. 2006). Potential effects of predators would be limited to the area surrounding the site due to exclusion of tortoises from any potentially suitable habitat remaining on site.

Desert tortoises were observed in the western third of the project site, most likely because the remainder of the project site has soils that are too soft (fine sands) or are dominated by desert pavement, which are

not optimal for the creation of desert tortoises burrows. Using a 500 meter buffer around tortoise sightings and recent sign and burrows, an estimated ~~1,572~~991.67 acres of tortoise occupied habitat occurs within the project fence line (Figure 5.2-7 (rev); Table 5.2-13). An additional ~~220.17~~296.08 acres of tortoise occupied habitat occurs within the 500-ft buffer zone. Only ~~1.4~~0.90 acre~~s~~ of tortoise occupied habitat occurs within the gen-tie line impact areas. No tortoise–occupied habitat is associated with the access roads to the project site.

Table 5.2-13
Impacts to Desert Tortoise Occupied Habitat on the Project Site

Vegetation Community with Desert Tortoise Sign Detected	Within Fence	Gen-tie line Corridor	In 500-ft Buffer to Fence[1]
Creosote Bush Scrub	485.82~~649.64~~	0	157.86~~84.55~~
Creosote / White Burr Sage Scrub	293.83~~533.75~~	0.52	33.35~~27.40~~
Creosote Bush / White Burr Sage Scrub with Big Galleta Grass Association	0~~21.73~~	0.21	3.75~~2.79~~
Blue Palo Verde / Ironwood Woodland	210.63~~348.52~~	0.17	78.30~~59.90~~
Brittle Bush / Ferocactus Scrub	1.39~~18.34~~	0	22.82~~45.53~~
Desert Dunes	0	0~~1.40~~	0
Total	~~1,571.98~~991.67	0.9~~1.40~~	~~220.17~~296.08

[1] The buffer surrounding the original project site, inclusive of RMS 3, had less suitable habitat whereas with the removal of RMS 3, the new buffer includes suitable habitat that was within RMS 3.

Acreage calculations are potential overestimations since they are based on acreage of the vegetation community within the fenceline, corridor or buffer, not on impacts to those acreages within the fenceline, corridor or buffer.

The potential for edge effects along the project site boundary, especially to the west of the Project, has been considered. The primary indirect effects beyond the Project boundary include:

- disturbance from vibration during construction that could affect burrowing animals near the boundary;
- potential for dust during construction to negatively affect adjacent intact native vegetation;
- introduction of weeds that may increase on the project site and in the buffer area during construction and operation;
- potential for partial loss of tortoise home ranges along the Project boundary; and
- potential increases in ravens and other predators of desert tortoise occupying adjacent lands as a result of perches provided by the heliostats, transmission towers, and perimeter fencing.

Noise and vibration during construction is a short-term effect that will not be a permanent issue. The majority of disruption due to noise and vibration is limited to the immediate area and dissipates significantly with distance from the construction activity. No significant impacts from noise and vibration are expected to occur because of the temporary nature of the impact.

Construction activities and operational vehicle traffic on the roads within the project site could generate dust that could affect adjacent vegetation, although adverse effects on vegetation are also not expected to occur with appropriate mitigating dust prevention measures. Use of water or tackifiers (compounds that cause dust particles to stick to each other) on the roads during operations will also help prevent adverse impacts to vegetation from dust. Introduction of weeds will be controlled via implementation of a Noxious Weed Management Plan that should prevent the spread/colonization of weeds both on site and off site. With the project site fully fenced, there may be a partial loss of occupied desert tortoise territories

along the Project boundary; however, with estimated desert tortoise density on site being low (0.21 to 1.95 desert tortoises per square mile), partial territory loss is anticipated to only affect a few individuals, if any.

Given that a Noxious Weed Management Plan will be implemented to address effects of potential weed issues, it is unlikely that these issues would result in substantial increases in non-native species such that adjacent lands beyond the Project boundaries would be at substantial risk from weeds. With implementation of the Weed Management Plan, no adverse effects on desert tortoise from weeds within the Project boundary or in adjacent lands are expected to occur.

Ravens may be attracted to the heliostats, perimeter fencing and transmission lines as perches, as well as to other facilities associated with the Project. Boarman *et al*. (2006) illustrates that ravens are primarily attracted to areas with human influence that provide supplemental nesting, food or water resources. Increased sources of food or water for ravens will not be present at the heliostats. There is potential for increased sources of food or water at the few buildings on site where people will concentrate; however, a Raven Management Plan will be prepared to deal with potential raven-related impacts to desert tortoise. Education regarding control of food/trash sources and minimization of water resources are the main focus of the plan. Ravens may also be attracted to evaporation ponds. Covering or netting the ponds will prevent raven and other wildlife access to the ponds. With implementation of the Raven Management Plan, increased predation on desert tortoise from ravens within the project site or in adjacent lands is expected to be less than significant.

A taking of a species listed pursuant to CESA is defined as:

"Take means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" (CDFG Code Division 0.5, Chapter 1, 86).

Therefore, take of an estimated 3 to 30 adult desert tortoise (95% CI range) within the project site is anticipated. The above impacts to tortoise are considered significant (Criterion 1). The implementation of various measures, including exclusionary fencing, worker environmental awareness training, pre-construction and clearance surveys, and habitat compensation, as well as those measures required by the CEC, CDFG, BLM, and USFWS, will be employed to fully mitigate impacts on tortoises to a less than significant level. Mitigation measures to reduce potentially significant impacts to the tortoise are detailed in Section 5.2.9.1.

Mojave Fringe-toed Lizard

Approximately 653 acres of potential Mojave fringe-toed lizard habitat was surveyed on the northwest section of the gen-tie line and proposed CRS~~, along with approximately 2.5 acres on the western slope of the mountains on the west edge of the project site~~. URS biologists observed 70 Mojave fringe-toed lizards in the BSA during focused surveys, but only along the gen-tie line and at the CRS area. Habitat that supports the Mojave fringe-toed lizard will be directly affected as a result of placement of the generator tie-line and tie-in to the proposed substation, though to a much smaller degree than the construction of the CRS and the Palo Verde-Devers No. 2 500 kV line. Indirect effects of the Project will include subsidizing potential predators of Mojave fringe-toed lizard, such as ravens, through the provision of limited resources (e.g., fresh water, roosting/nest sites) that are mostly absent from the site; however, the gen-tie line and tie-in to the proposed CRS will not provide such resources for ravens, so no indirect

impact is expected from increased predation by ravens. No Mojave fringe-toed lizard-occupied habitat exists at the main project site, no impacts would occur to mapped Mojave fringe-toed lizard locations, and only small, potentially avoidable, impacts would occur along the gen-tie line where habitat occupied by the species exists. As a result, impacts to Mojave fringe-toed lizards are considered adverse, but less than significant due to the limited amount of habitat disturbance and current sensitivity status of the species in the region.

Couch's Spadefoot Toad (no changes)

American Badger

No American badgers were observed during the spring 2011 focused surveys, although they are known to exist in the area as two badgers were observed incidentally while driving ~~through the site~~ along the existing transmission line. American badgers are known to have home ranges from 338 to 1,549 acres, with males having larger home ranges than females (CDFG 2009). Based on this information, the ~~project site~~BSA may potentially support up to 27 badgers; however, based on the lack of badger observations during extensive field efforts conducted for this Project, the actual numbers of badgers on site is likely to be less than 10. American badgers present on site will be detected during desert tortoise clearance surveys prior to site disturbance. An accurate estimate of the number of badgers impacted will be known at that time. Prior to construction, measures will be taken to minimize impacts on badgers. A qualified biologist will monitor any burrows during construction. It is expected that badgers will leave the site once construction begins and burrows will be collapsed after it is confirmed that the burrows are unoccupied. Direct mortality of badgers should be avoided through construction monitoring. Impacts to American badger are considered adverse, but less than significant with the required biological construction monitoring to be implemented.

Nelson's Bighorn Sheep

No live Nelson's bighorn sheep were detected in the ~~AFC Assessment Area~~BSA, although signs were observed (Figure 5.2-4 (rev)). The sign was likely from a killed sheep that was transferred to the site by a predator. No historic use of this area by bighorn sheep has been documented; therefore, no known bighorn sheep habitat will be affected as a result of the Project. No bighorn sheep herds are known to occur in the project vicinity. No impact to bighorn sheep is anticipated.

California Leaf-Nosed Bat and Cave Myotis Bat (no changes)

Burrowing Owl

No burrowing owls were observed within the BSA~~on site~~ during the 2011 spring focused survey. Seventeen burrows showing signs of past, historic but not recent, activity were observed. No active owl burrows were observed. Two burrowing owls were observed, one within the BSA~~on site~~, the other off site, in September 2011, but were likely migrant individuals.~~—~~ One of these locations is within the proposed Project fence line.~~-~~ Habitat that supports the old burrows and that could potentially support burrowing owls will be affected as a result of the proposed Project; however, impacts to burrowing owl individuals are not considered significant since no resident individuals likely occupy the project site. Preconstruction surveys for burrowing owl are required to confirm absence from the site.

Golden Eagle (no changes)

Swainson's Hawk (no changes)

Prairie Falcon (no changes)

Northern Harrier (no changes)

American White Pelican (no changes)

Loggerhead Shrike (no changes)

LeConte's Thrasher (no changes)

Crissal Thrasher (no changes)

Gila Woodpecker (no changes)

Lucy's Warbler (no changes)

Vaux's Swift (no changes)

Impacts to migratory birds due to collision and concentrated heat (no changes)

Impacts to Wetlands and Other Jurisdictional Waters

Waters of the United States

Project construction and operation activities will potentially require removal of vegetation, grading, placement of fill, placement of structures, construction of road crossings, placement of culverts and underground piping, causing disturbance to jurisdictional WUS. Construction activities, including vegetation clearing and grading, will result in alteration of some of the existing ephemeral washes at the project site. Features most likely to be affected are the smaller ephemeral washes that both have and lack defined bed and bank characteristics.

The surface water control for development of the site will maintain the pre-construction volumes and velocity of run-off from the site into the same drainage basins; however, as currently designed, the proposed Project could permanently impact up to 51.45 acres of non-wetland WUS and potentially up to 0.65 acres of National Wetland Inventory (NWI) wetland WUS (Figures 5.2-5a and 5b and Table 5.2-14). Temporary impacts to 1.53 acres of WUS could occur from the Construction Area and 0.36 acre for pulling areas in the gen-tie corridor. Actual impacts are likely to be considerably less when a final impact analysis is completed for the project components. All jurisdictional WUS determinations will be confirmed during consultation with the USACE and RWQCB.

Lakes and Streambeds

Well-defined streams that are under the jurisdiction of the CDFG and RWQCB or surface waters that are potentially subject to Porter-Cologne Water Quality Control Act occur at the project site; therefore, adverse impacts on WSC are expected to occur as a result of the Project. Drainage across the site in the form of flood flows will be affected by the Project, and will be addressed in with storm water management BMPs approved by the RWQCB.

Table 5.2-14
Temporary and Permanent Impacts to Jurisdictional Waters

		Permanent Impacts					Temporary Impacts	
Type	Existing Acres within BSA (acres)	Within Fence Line (acres)	Transmission Line (acres)	Access Roads to Site (acres)	Total Direct Impacts (acres)	Indirect Impacts Within 500-ft Buffer to Fence Line (acres)	Construction Area	Indirect Impacts (500-foot buffer to Construction Area)
Jurisdictional Waters of the United States (WUS) Wetland[1] Non-wetland WUS	117.8 1,205.5	0.0 618.69 392.13	0.0 0.151.72	0.78 0.65 1.68 0.17	0.78 0.65 620.52 51.45[3]	0.0 0.54 158.13 146.23	0.0 1.53	0.0 16.33
TOTAL United States Army Corps of Engineers (USACE) Jurisdiction	1,433.6	618.69 392.13	0.15 1.72	2.46 0.82	621.30 52.10	158.13 146.	1.53	16.33
Jurisdictional Waters of the State of California (WSC)[2] Wetland[1] Non-wetland WSC	117.8 2,490.6	0 1,261.49 809.91	0 0.92 3.78	0.78 0.65 1.75 0.36	0.78 0.65 1,264.16 119.83	00.54 347.61 292.39	0.0 2.67	0.0 26.93
TOTAL California Department of Fish and Game (CDFG) Jurisdiction	2,608.4	1,262.49 809.91	0.92 3.78	2.53 1.01	1,264.94 120.37	347.61 292.93	2.67	26.93

CDFG = California Department of Fish and Game
WSC = Waters of the State of California
WUS = Waters of the United States
USACE =United States Army Corps of Engineers
[1] Wetlands consist of Bush seepweed scrub and Bush seepweed scrub/mesquite bosque
[2] WSC includes streambeds, adjacent riparian vegetation.
[3]Acres of impact increased to include Inner Circle Drive Zone Areas. This number reflects additional disturbance acreage for "inner drive zones" not included in original 40.8 acres formally accepted by USACE. This number was changed from 40.8 to reflect an "apples to apples" comparison with the original USACE formally accepted numbers.

Waters of the State

Project activities will require removal of vegetation; grading; placement of fill; placement of structures; construction of road crossings; and placement of culverts and underground piping, which will cause disturbance to potentially jurisdictional WSC, as defined by CDFG. The surface water control for development of the site will maintain the pre-construction volumes and velocity of run-off from the site into the same drainage basins; however, the Project will permanently impact 119.83-acres of non-wetland WSC (Table 5.2-14), and ~~permanently impact~~ potentially up 0.65 acre of National Wetland Inventory (NWI) wetland WSC~~(Table 5.2-14)~~. Temporary impacts to 2.67 acres of WUS could occur from the Construction Area. Actual effects are likely to be considerably less when a final impact analysis is completed for the project components within the fence line. The majority of the potential impacts are to the jurisdictional blue palo verde / ironwood woodland associated with the major washes that provide the highest quality habitat on the site and provide food, shelter, and cover for movement of a disproportionate number of wildlife species, including the federal and state listed desert tortoise and state-listed Gila woodpecker. This impact is significant based on significance criteria 1, 4, 7, 9, and 10. All jurisdictional WSC determinations will be confirmed during consultation with the RWQCB and CDFG.

~~*Impacts to Wetlands and Other Jurisdictional Waters*~~

~~**Waters of the United States**~~

~~Project construction and operation activities will require removal of vegetation, grading, placement of fill, placement of structures, construction of road crossings, placement of culverts and underground piping, causing disturbance to potentially jurisdictional WUS. Construction activities, including vegetation clearing and grading, will result in alteration of most of the existing ephemeral washes at the project site. Features most likely to be significantly affected are the smaller ephemeral washes that both have and lack defined bed and bank characteristics.~~

~~The surface water control for development of the site will maintain the pre-construction volumes and velocity of run-off from the site into the same drainage basins; however, as currently designed, the proposed Project will permanently impact 621.30 acres of non-wetland WUS and 0.78 acre of wetland WUS. Within the buffer area of the proposed Project, 158.13 acres of non-wetland WUS will be indirectly impacted by implementation of the proposed Project (Figures 5.2-5a and 5b and 5.2-6a and 6b, Table 5.2-14). All jurisdictional WUS determinations will be confirmed during consultation with the USACE and RWQCB.~~

~~**Lakes and Streambeds**~~

~~Well-defined streams that are under the jurisdiction of the CDFG and RWQCB or surface waters that are potentially subject to Porter-Cologne Water Quality Control Act occur at the project site; therefore, adverse impacts on WSC are expected to occur as a result of the Project. Drainage across the site in the form of flood flows will be affected by the Project, and will be addressed in with storm water management BMPs approved by the RWQCB.~~

~~*Waters of the State*~~

~~*Project activities will require removal of vegetation; grading; placement of fill; placement of structures; construction of road crossings; and placement of culverts and underground piping, which will cause disturbance to potentially jurisdictional WSC, as defined by CDFG. The surface water control for development of the site will maintain the pre-construction volumes and velocity of run-off from the site into the same drainage basins; however, the proposed Project will permanently impact 1,205.5 acres of non-wetland WSC, and permanently impact 0.78 acre of wetland WSC. Within the BSA, 347.61 acres of non-wetland WSC will be indirectly impacted by construction and operation of the proposed Project (Table 5.2-14). The majority of the impacts are to the jurisdictional blue palo verde / ironwood woodland associated with the major washes that provide the highest quality habitat on the site and provide food, shelter, and cover for movement of disproportionate number of wildlife species, including the federal and state listed desert tortoise and state-listed Gila woodpecker. This impact is significant based on significance criteria 1, 4, 7, 9, and 10. All jurisdictional WSC determinations will be confirmed during consultation with the RWQCB and CDFG.*~~

Impacts to Wildlife Corridors

A wildlife corridor is defined as a linear landscape feature that allows animal movement between two patches of habitat or between occupied habitat and geographically discrete resources (e.g., water). Corridors are intermittently used by species to move from one area of preferred habitat to another. To function effectively, a corridor must accomplish two basic functions. First, it must effectively link two or more large areas of habitat. The corridor must conduct animals through the landscape to areas of suitable habitat without excessive risk of directing them to unsuitable areas where risk of mortality may be high. Second, the corridor must be suitable to the focal target species so that they will use the corridor frequently enough to achieve the desired demographic and genetic exchange between populations. Presence of wildlife corridors allow an exchange of individuals between populations, lowering inbreeding within populations, increasing effective population size, and facilitating re-establishment of populations that have been decimated or eliminated because of random events.

Focal species are those species that naturally occur in low densities and that may be unwilling or unable to cross extensive areas of development or otherwise unfavorable habitat. Animals have a natural aversion to situations or physical settings they perceive to be dangerous and will often shy away from situations in which they are exposed without cover or escape routes. Disturbance outside of the animal's normal experience is often avoided by animals. In the Colorado Desert, potential focal species for wildlife movement assessment could include desert tortoise, Mojave fringe-toed lizard, mountain lion (*Puma concolor couguar)*, coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), American badger, Nelson's bighorn sheep, bobcat (*Lynx. rufus mohavensis)*, and desert kit fox (*Vulpes macrotis arsipus)*.

Generally, the project site is unrestricted, with uniform habitat composition throughout the area conducive to occupation and movement of wildlife. The primary constraints to wildlife movement are agricultural

fields and associated roads and canals situated to the east of the Project and the Mule and Palo Verde Mountains to the west and southwest.

Currently, north-south wildlife movement is unrestricted from undeveloped habitat in the northern and southern portions of the BSA. Operation of the Project will restrict the north-south movement corridor and force wildlife to use the immediately adjacent foothills of the Mule Mountains to the west.~~,~~ With the removal of RMS 3, the north-south movement corridor is further expanded east of the WAPA transmission lines~~-~~ and is more accessible for terrestrial species to access. This is in addition to the off-mesa area ~~immediately~~ east of the site, ~~or~~ and the agricultural fields to the east. This constraint will primarily affect terrestrial species such as desert tortoise, mule deer, kit fox, coyote, badger, and bobcat that have been documented at the project site. Mammal species are less constrained because they can use the foothills and existing roads and trails as travel corridors. A low elevation pass exists between the Mule and Palo Verde mountains west of the site provides access to lands to the west.~~—~~ Bird species will still be able to fly over the BSA, but collision and concentrated heat may present a hazard to certain bird species. Project-related impacts to movement corridors of Nelson's bighorn sheep are not anticipated because of their preference for steep habitats and their tendency to avoid flat areas.~~—~~ Herds of Nelson's bighorn sheep have not recently been documented in the BSA.

Local east-west movement will also be potentially affected by the Project though less so with the removal of RMS 3.~~—~~ Undeveloped land to the north and south of the Project will remain intact and allow for movement from the Mule Mountains ~~west~~ east toward agricultural fields and ~~east~~ ~~toward~~ the Colorado River. A transmission line and associated access road already exist within the proposed Project gen-tie line corridor.~~—~~ A large wash along the southern portion of the site will be avoided to allow for some wildlife movement eastward, as will two additional washes north of the project site which are no longer impacted by RMS 3; however, several washes across the center ~~and north~~ of the main project site will be impacted by the placement of heliostats and fencing. In addition, the presence of operations and maintenance staff and vehicles will likely discourage use of the project site or these washes by diurnal wildlife. Impacts to local wildlife movement are considered adverse, but less than significant due the retention of large washes north and south of the project site. Regional movement routes are conserved along the Colorado River and conserved lands west of the Mule Mountains.

5.2.8 Cumulative Effects

Potential impacts to biological resources could result due to past, present, and reasonably foreseeable future actions, in combination with the Project, associated with the loss of individuals, loss of habitat, constraints to wildlife movement corridors, habitat degradation, and other "edge" effects. At present, there are numerous pending BLM solar and wind applications (appendix

5.2-8) for projects within the area near the proposed project site.

The BLM, in consultation with the USFWS and CDFG, has identified areas of biological concern and has designated DWMAs, ACECs, and DCHs to avoid significant cumulative impacts on biological resources in the project vicinity. The project site is located outside of these high-value biological resource areas, and impacts resulting from the Project would not substantially affect the integrity of these high-value areas. The Project will not interfere with the preservation of these high-value areas that are necessary for long-term preservation of natural resources. Additionally, the Project will not substantially prevent movement

to and from high-value biological areas. The area that might be impacted by the Project does not support special management resources and, on a regional scale, the proposed Project will not contribute to a cumulatively significant impact based on the preservation of designated high-value biological habitat.

The Project will have less than significant impacts to Desert tortoise, Mojave fringe-toed lizard, Gila woodpecker, Harwood's milk-vetch, Harwood's eriastrum, WSC, and WUS. The potential for these less than significant impacts of the Project to be increased or compounded by similar effects of other past, present, and reasonably foreseeable future projects is evaluated below.

The Blythe Solar Power Project (BSPP) will result in significant direct and indirect impacts to biological resources, including Desert tortoise, Mojave fringe-toed lizard, Harwood's milk-vetch, and WSC. The Genesis Solar Energy Project (GSEP) will result in significant direct and indirect impacts to biological resources, including Desert tortoise, Mojave fringe-toed lizard, Harwood's milk-vetch, Harwood's eriastrum, and WSC. Palen Solar Power Project (PSPP) will result in significant direct and indirect impacts to biological resources, including Desert tortoise, Mojave fringe-toed lizard, and WSC. GSEP will result in significant direct and indirect impacts to biological resources, including Desert tortoise, Harwood's milk-vetch, and WSC. DSSF will have impacts to WSC. Each of these projects will reduce these impacts to less than significant levels. None of these projects will result in adverse effects to Gila woodpecker or WUS. The Devers-Palo Verde No. 2 transmission line, including the new CRS, also has the potential to adversely affect biological resources in the project vicinity.

The Project will only affect a relatively small number of desert tortoises, and potential impacts will be avoided or reduced. Moreover, the project site is not located in a DWMA, HMA, ACEC, National Wilderness Preservation Area, or DCH for the desert tortoise. Impacts to Mohave fringe-toad lizard will be marginal since the species and its habitat are predominantly avoided by the Project. Harwood's eriastrum and Harwood's milkvetch are predominantly avoided by the Project. Therefore, the incremental effects of the Project to these special status wildlife and plant species and WSC, when considered together with the less than significant impacts of other reasonably foreseeable projects, will not contribute to cumulatively significant impacts. Existing LORS for impacts to WSC will ensure that the incremental effects of the Project are not cumulatively considerable when considered together with the WSC impacts of the other reasonably foreseeable projects. Impacts to Gila woodpecker and WUS will not be cumulatively significant since no reasonably foreseeable projects will affect these biological resources.

The pending Desert Quartzite project is located ~~immediately~~ approximately 1.7 miles north of the Project, but there is a lack of certainty at this time regarding the whether this project will be developed, and if so, when it will be developed. Other details regarding this project, such as the location of project features, also are not available at this time. Nevertheless, to provide a conservative evaluation of potential cumulative effects, the potential for the Desert Quartzite project to increase or compound the effects of the Project on wildlife movement are evaluated below.

Despite the fact that the Desert Quartzite project would be located immediately north of the Project and extend northward near I-10, the combined impact of the two projects to wildlife movement will not be cumulatively significant. The incremental effects of the Project and the Desert Quartzite project may restrict some north-south wildlife movement along the western edge of the project site, primarily for desert tortoise movement since the western edge of the site contains mountainous terrain not navigable for desert tortoise. Cumulative impacts to north-south movement of wildlife south of the project site are not

expected to change with the implementation of the Project as only a few hundred acres of similar habitat are present south of the project area before mountainous terrain and the agricultural fields of the Colorado River Valley converge less than five miles south of the community of Palo Verde. Agricultural lands and State Route 78 to the east of the Project also remain major constricting factors to north-south wildlife movement. North-south movement of desert tortoise will not be affected along the eastern edge of the site since this species is not found along the eastern edge of the site.

East-west wildlife movement would still be possible for terrestrial species south of the Project because of the presence of undeveloped desert habitats in this area which allows for unrestricted wildlife movement opportunities. East-west wildlife movement will also remain possible north of the site, due to the approximately 1.7 mile separation between the Project and Desert Quartzite due to removal of RMS 3. This area is not planned for development and allows wildlife to move from the east, through the pass between the ~~and also to the west of the south of the site between the~~ Mule Mountains to the northwest of the project site and the Palo Verde Mountains to the southwest of the project site. Between the northernmost portion of the gen-tie line and I-10, there is an approximately two-mile-wide east-west corridor. This corridor north of the Project will remain available for wildlife use. An analysis of the areas where desert tortoise are found and the potential combined effects of the Project and the Desert Quartzite project, will not significantly impede movement to and from critical resource areas for this species. The Project will not result in cumulatively considerable impacts to wildlife movement.

5.2.9 Mitigation Measures (no changes)

5.2.10 Involved Agencies and Agency Contacts (no changes)

5.2.11 Permits and Required Permit Schedule

5.2.12 References

Anderson, B. W., R. D. Ohmart, and S. D. Fretwell. 1982. Evidence for social regulation in some riparian bird populations. Am. Nat. 120:340-352.

Berry, K.H. 1986. Desert tortoise (Gopherus agassizzii) research in California, 1976-1985. Herpetologica 42:62-67.

Boarman, W.I., M.A. Patten, R.J. Camp, and S.J. Collis. 2006. Ecology of a population of subsidized predators: Common ravens in the central Mojave Desert, California. Journal of Arid Environments, Volume 67, Supplement 1, Pages 248-261

Bolster, B.C. 2005. Western Bat Working Group Species Accounts: for *Lasiurus blossevillii*, Western Red Bat and *Eumops perotis*, Western Mastiff Bat. http://www.wbwg.org/speciesinfo/species_accounts/vespertilonidae/anpa.pdf

Bradford, D.F., L.A. Smith, D.S. Drezner, and J.D. Shoemaker. 1991. Minimizing contamination hazards to waterbirds using agricultural drainage evaporation ponds. Environmental Management 15 (6): 785-795.

BrightSource Industries (Israel), Ltd. 2011. SEDC Bird Observation Report.

Brown, P.E. 1995 California leaf-nosed bat (Macrotus californicus). Species Accounts. Western Bat Working Group. Developed For the 1998 Reno Biennial Meeting. Updated at the 2005 Portland Biennial Meeting http://www.wbwg.org/speciesinfo/species_accounts/phyllostomidae/maca.pdf

Brown, P.E.; Berry, R.D.; Brown, C. 1993. Foraging behavior of the California leaf-nosed bat, Macrotus californicus. In: Ecology, conservation, and management of western bat species: Bat species accounts. Unpublished document distributed at the Western Bat Working Group Workshop, February 9- 13, 1998, Reno, NV.

Calflora. Imperial County [map]. Calflora: What Grows Here. Accessed February 23, 2011. http://www.calflora.org/app/wgh?page=entry

California Department of Fish and Game (CDFG). 2011. California Natural Diversity Data Base. Sacramento, CA.

California Department of Fish and Game (CDFG). 2010. Sensitive Vegetation Communities. http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf. Accessed online July, 2011.

California Department of Fish and Game, Natural Diversity Database. 2011c. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 71 pp. April.

California Department of Fish and Game (CDFG). Accessed November 2009. Life History Accounts and Range Maps, American badger. http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx

California Department of Fish and Game (CDFG). 2000. Life History Accounts and Range Maps, Desert Tortoise. http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx

California Food and Agriculture Code. 1981. California Desert Native Plants Act [80001. – 80201.]. California Code, Division 72 and 73.

California Native Plant Society (CNPS).2001. CNPS Botanical Survey Guidelines. Sacramento, CA. 3 pp.

California Native Plant Society. 2011. Inventory of rare and endangered plants (online edition).

California Native Plant Society. Sacramento, CA. http://www.cnps.org/inventory. Accessed January and June 2011.

Collins, C.T. 1979. The ecology and conservation of burrowing owls. Pages 6-17 Proceedings of the National Audubon Society symposium of owls of the west, their ecology and conservation, Scheaffer, P.P. and S.M. Ehlers (editors). National Audubon Society Western Education Center, Tiburon, CA.

County of Riverside. 2003. Riverside County General Plan. Riverside, CA. Available at http://www.rctlma.org/genplan/content/gp.aspx

DMG (Desert Managers Group). 2002a. Memorandum of Understanding, Mojave Weed Management Area.

Emlen, J. T. 1974. An urban bird community in Tucson, Arizona: derivation, structure, regulation. Condor 76:184-197.

Endangered Species Act. 1973. Section 3 (19), as amended. (definition of "take").

Hawk Migration Association of North America (HMANA). 2010. Data collection protocol. Available at http://hmana.org/data_entry_paper.php.

McCrary, M.D., R.L. McKernan, R.W. Schreiber, W.D. Wagner, and T.C. Sciarrotta. 1986. Avian mortality at a solar energy power plant. Journal of Field Ornithology. 57(2): 135-141.

Morrell, S. 1972. Life history of the San Joaquin kit fox. Calif. Fish and Game. 58:162-174. O'Farrell, T. P., and L. Gilbertson. 1979. Ecological life history of the desert kit fox in the Mojave Desert of southern California. USDI BLM., Riverside. Draft Final Rep. 95pp

Remsen, J.V., Jr. 1978. Bird Species of Special Concern in California. California Department of Fish and Game, Sacramento, California.

Rosenberg, K. V., R. D. Ohmart, W. C. Hunter, and B. W. Anderson. 1991. Birds of the lower Colorado River Valley. Univ. of Arizona Press, Tucson.

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation. 2nd ed. California Native Plant Society Press. Sacramento, CA. 1300 pp.

Sherwin, R. 2005. Western Bat Working Group Species Accounts: *Antrozous pallidus*, Pallid Bat. http://www.wbwg.org/speciesinfo/species_accounts/vespertilonidae/anpa.pdf

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

Smallwood, K.S., C.G., Thelander. 2005. Bird Mortality at the Altamont Pass Wind Resource Area: March 1998 - September 2001. National Renewable Energy Laboratory. Retrieved on April 23, 2007 from http://www.nrel.gov/docs/fy05osti/36973.pdf

Stebbins, R. C. 2003. A Field Guide to Western Reptiles and Amphibians. Third Edition. Houghton Mifflin Company, Boston. 533 pp.

Turner, F.B., Berry, K.H., Randall, D.C., White, G.C. 1987. Population ecology of the desert tortoise at Goffs, California, 1983-1986. University of California at Los Angeles, California. Report Southern California Edison Co., Rosemead, CA, 101pp.

USACE (Army Corps). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

USACE (Army Corps). 2001. Final summary report: Guidelines for Jurisdictional determinations for water of the United States in the arid Southwest. San Francisco, CA: U.S. Army Corps of Engineers, South Pacific Division. (http://www.spl.usace.army.mil/regulatory/lad.htm).

USACE (Army Corps). 2008a. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. Robert W. Lichvar and Shawn M. McColley. ERDC/CRREL TR-08-12. August 2008.

USACE (Army Corps). 2008b. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ERDC/EL TR-08-28. September 2008.

USBLM (U.S. Bureau of Land Management). 2010a. BLM Ridgecrest Special Status Plants. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.30759.File.dat/Ridgecrest%20Plants%20Detailed%20Report-12-17-2010.pdf (accessed August 2, 2011).

USBLM (U.S. Bureau of Land Management). 2010b. BLM Needles Special Status Plants. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.79337.File.dat/Needles%20Plants%20Detailed%20Report-12-17-2010.pdf (accessed August 2, 2011).

USBLM (U.S. Bureau of Land Management). 2010c. BLM Barstow Special Status Plants. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.35945.File.dat/Barstow%20Plants%20Detailed%20Report-12-17-2010.pdf (accessed August 2, 2011).

USBLM (U.S. Bureau of Land Management). 2010d. BLM El Centro Special Status Plants. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.40592.File.dat/El%20Centro%20Plants%20Detailed%20Report-12-17-2010.pdf (accessed August 2, 2011).

USBLM (U.S. Bureau of Land Management). 2010e. BLM Palm Springs Special Status Plants. http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.85410.File.dat/Palm%20Springs%20Plants%20Detailed%20Report-12-17-2010.pdf (accessed August 2, 2011).

USBLM (U.S. Bureau of Land Management)., 2002, Northern and Eastern Colorado Desert Coordinated Management Plan.

USFWS (U.S. Fish and Wildlife Service). 1992. USFWS Field Survey Protocol for a Non-Federal Action that may occur within the range of the desert tortoise.

USFWS (U.S. Fish and Wildlife Service). 1996b. Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species; Notice of Review; Proposed Rule. Federal Register 61(40): 7596-7613.

U.S. Fish and Wildlife Service. 2011. Revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 222 pp.

USGS (United States Geological Survey). 1971a. Wiley Well quadrangle, California [map]. 1:24,000. 7.5 Minute Series. Washington D.C.: USGS.

USGS (United States Geological Survey). 1971b. Thumb Peak quadrangle, California [map]. 1:24,000. 7.5 Minute Series. Washington D.C.: USGS.

USGS (United States Geological Survey). 1975a. Mc Coy Wash quadrangle, California – Riverside Co [map]. Photoinspected 1975. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.

USGS (United States Geological Survey). 1975c. Ripley quadrangle, California – Riverside Co. [map]. Photorevised 1975. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.

USGS (United States Geological Survey). 1983a. Hopkins Well quadrangle, California – Riverside Co [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.

USGS (United States Geological Survey). 1983b. Mc Coy Peak quadrangle, California – Riverside Co [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.

USGS (United States Geological Survey). 1983d. Roosevelt Mine quadrangle, California – Riverside Co. [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.

USGS (United States Geological Survey). 1983e. Palo Verde quadrangle, California [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.

USGS (United States Geological Survey).1983c. Mc Coy Spring quadrangle, California – Riverside Co [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.

VTN. 20110121_PVM_map_VTN_HI_preliminary.jpeg. [map]. Jan 21, 2011.

VTN. Topo_image_028_sheet1-20 [map].May 2011. Accessed June 2011.

Winkler, H., D. A. Christie, and D. Nurney. 1995. Woodpeckers. Houghton Mifflin, Boston.

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