TETRA TECH EC, INC.

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California Energy Commission
Docket No. 09-AFC-8
1516 9th St.
Sacramento, CA 95814

Genesis Solar Energy Project - Docket Number 09-AFC-8

Docket Clerk:

Enclosed for filing with this letter is one hard copy and one electronic copy of the ***Fall 2009 and Spring 2010 Biological Resources Technical Report for the Genesis Solar Energy Project.***

Sincerely,

Tricia Bernhardt
Project Manager/Tetra Tech EC

cc: Mike Monasmith /CEC Project Manager

143 Union Boulevard, Suite 1010, Lakewood, CO 80228-1875
Tel 303.988.2202 Fax 303.980.3539
www.tteci.com

BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV

APPLICATION FOR CERTIFICATION FOR THE *GENESIS SOLAR ENERGY PROJECT*

Docket No. 09-AFC-8

PROOF OF SERVICE
(Revised 6/7/10)

APPLICANT
Ryan O'Keefe, Vice President
Genesis Solar LLC
700 Universe Boulevard
Juno Beach, Florida 33408
E-mail service preferred
Ryan.okeefe@nexteraenergy.com

Scott Busa/Project Director
Meg Russel/Project Manager
Duane McCloud/Lead Engineer
NextEra Energy
700 Universe Boulvard
Juno Beach, FL 33408
Scott.Busa@nexteraenergy.com
Meg.Russell@nexteraenergy.com
Duane.mccloud@nexteraenergy.com
E-mail service preferred
Matt Handel/Vice President
Matt.Handel@nexteraenergy.com
Email service preferred
Kenny Stein,
Environmental Services Manager
Kenneth.Stein@nexteraenergy.com

Mike Pappalardo
Permitting Manager
3368 Videra Drive
Eugene, OR 97405
mike.pappalardo@nexteraenergy.com

Kerry Hattevik/Director
West Region Regulatory Affairs
829 Arlington Boulevard
El Cerrito, CA 94530
Kerry.Hattevik@nexteraenergy.com

APPLICANT'S CONSULTANTS
Tricia Bernhardt/Project Manager
Tetra Tech, EC
143 Union Boulevard, Ste 1010
Lakewood, CO 80228
Tricia.bernhardt@tteci.com
James Kimura, Project Engineer
Worley Parsons
2330 East Bidwell Street, Ste.150
Folsom, CA 95630
James.Kimura@WorleyParsons.com

COUNSEL FOR APPLICANT
Scott Galati
Galati & Blek, LLP
455 Capitol Mall, Ste. 350
Sacramento, CA 95814
sgalati@gb-llp.com

INTERESTED AGENCIES
California-ISO
e-recipient@caiso.com

Allison Shaffer, Project Manager
Bureau of Land Management
Palm Springs South Coast
Field Office
1201 Bird Center Drive
Palm Springs, CA 92262
Allison_Shaffer@blm.gov

INTERVENORS
California Unions for Reliable Energy (CURE)
c/o: Tanya A. Gulesserian,
Rachael E. Koss,
Marc D. Joseph
Adams Broadwell Joesph
& Cardoza
601 Gateway Boulevard,
Ste 1000
South San Francisco, CA 94080
tgulesserian@adamsbroadwell.com
rkoss@adamsbroadwell.com

Tom Budlong
3216 Mandeville Cyn Rd.
Los Angeles, CA 90049-1016
tombudlong@roadrunner.com

*Mr. Larry Silver
California Environmental
Law Project
Counsel to Mr. Budlong
E-mail preferred
larrysilver@celproject.net

Californians for Renewable
Energy, Inc. (CARE)
Michael E. Boyd, President
5439 Soquel Drive
Soquel, CA 95073-2659
michaelboyd@sbcglobal.net

*Lisa T. Belenky, Senior Attorney
Center for Biological Diversity
351 California St., Suite 600
San Francisco, CA 94104
lbelenky@biologicaldiversity.org

*Ileene Anderson
Public Lands Desert Director
Center for Biological Diversity
PMB 447, 8033 Sunset Boulevard
Los Angeles, CA 90046
ianderson@biologicaldiversity.org

OTHER
Alfredo Figueroa
424 North Carlton
Blythe, CA 92225
lacunadeaztlan@aol.com

ENERGY COMMISSION
JAMES D. BOYD
Commissioner and Presiding
Member
jboyd@energy.state.ca.us

ROBERT WEISENMILLER
Commissioner and Associate Member
rweisenm@energy.state.ca.us

Kenneth Celli
Hearing Officer
kcelli@energy.state.ca.us

Mike Monasmith
Siting Project Manager
mmonasmi@energy.state.ca.us

Caryn Holmes
Staff Counsel
cholmes@energy.state.ca.us

Robin Mayer
Staff Counsel
rmayer@energy.state.ca.us

Jennifer Jennings
Public Adviser's Office
publicadviser@energy.state.ca.us

*indicates change

I, Tricia Bernhardt, declare that on May 28, 2010, I served and filed copies of the *Spring Biological Survey Data for the Genesis Solar Energy Project* dated May 28, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [http://ww.energy.ca.gov/sitingcases/genesis_solar].

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(*Check all that Apply*)

FOR SERVICE TO ALL OTHER PARTIES:

__x__ sent electronically to all email addresses on the Proof of Service list;

__x__ by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses NOT marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

__x__ sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (*preferred method*);

OR

_____ depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-8
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

Original Signed By:

Tricia Bernhardt

Fall 2009 and Spring 2010
Biological Resources Technical Report

Genesis Solar Energy Project
Riverside County, CA

Prepared By:

TETRA TECH EC, INC.

143 Union Blvd. Ste 1010
Lakewood, CO 80228

and

Alice E. Karl, Ph.D.
P.O. Box 74006
Davis, CA 95617

Prepared For:

Genesis Solar, LLC

June 2010

EXECUTIVE SUMMARY

Genesis Solar, LLC (Genesis Solar), is proposing to develop a 250-megawatt (MW) solar thermal power generating facility located in Riverside County, California, between the community of Desert Center and the city of Blythe, on land managed by the Bureau of Land Management (BLM). The proposed Genesis Solar Energy Project (Project) would consist of two 125-MW units. Genesis Solar has applied for a 4,640-acre right-of-way (ROW) grant from the BLM for Project development; however, once constructed, the facility would occupy approximately 1,727 acres within the requested ROW, plus approximately 84 acres for linear facilities. To map and describe the vegetation communities, inventory plant and animal species, and determine the presence and distribution of special-status biological resources, Tetra Tech conducted comprehensive biological resource surveys of the entire requested ROW and several alternative linear facilities routes in Spring 2009, the results of which were documented in the *August 2009 Biological Resources Technical Report for the Genesis Solar Energy Project* (Tetra Tech and Karl 2009). In Fall 2009, Tetra Tech conducted additional surveys of the final transmission line route south of I-10 and in Spring 2010 Tetra Tech surveyed new portions of the final Linear Facilities route and alternatives, as well as a 52-acre parcel that were not surveyed in Spring 2009. A summary of the data collected during these surveys was docketed with the California Energy Commission (CEC) on May 28, 2010. This report presents the supplemental results from the Fall 2009 and Spring 2010 surveys.

During Fall 2009 and Spring 2010 surveys, surveyors did not detect any evidence of current occupation by federally listed wildlife species and detected only one state-listed threatened species (Swainson's hawk; *Buteo swainsoni*). However, surveyors did find old bone fragments, estimated to be 3,000 to 5,000 years old, of the federally and state-listed threatened desert tortoise (*Gopherus agassizii*), but no burrows, scat or tortoises were observed, indicating that tortoises do not currently occupy the Linear Facilities route. No state Fully Protected species were detected. Surveyors observed four California Species of Special Concern: Mojave fringe-toed lizard (*Uma scoparia*), loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), and possibly detected sign of western burrowing owl (*Athene cunicularia*). Surveyors also found suitable breeding habitat for Couch's spadefoot toad (*Scaphiopus couchi), a* California Species of Special Concern and BLM Sensitive species. Other observed special-status or protected species included ferruginous hawk (*Buteo regalis*; a BLM Sensitive species), burro deer (*Odocoileus hemionus eremicus*; a managed game species), and desert kit fox (*Vulpes macrotis*; a furbearer protected under the California Fish and Game Code).

Three vegetation communities were found within the Project Area (the 1,811-acre permanent footprint of all Project components): Sonoran Creosote Bush Scrub, Stabilized and Partially Stabilized Sand Dunes, and Playa and Sand Drifts over Playa (see Holland 1986). BLM Sensitive plant communities that occur in the Survey Area (area that was surveyed in Fall 2009 and Spring 2010) include Stabilized and Partially Stabilized Sand Dunes and Playa. Surveyors did not find any federally or state-threatened, endangered, or candidate plant species during surveys. However, surveyors did observe multiple populations of three California Native Plant Society-listed plants within the Project Area: Harwood's milkvetch (*Astragalus insularis* var. *harwoodii*), ribbed cryptantha (*Cryptantha costata*), and desert unicorn plant (*Proboscidea althaeifolia*). Four non-native and invasive species: Saharan mustard (*Brassica tournefortii*), tamarisk (*Tamarix sp.*), Russian thistle (*Salsola tragus*), and Mediterranean grass (*Schismus* sp.) were found.

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1.0 INTRODUCTION

Genesis Solar, LLC (Genesis Solar) is proposing to develop a 250-megawatt (MW) solar electric generating plant on land managed by the Bureau of Land Management (BLM) in the desert of eastern Riverside County, California (Figure 1). Genesis Solar has applied for a 4,640-acre Right-of-Way (ROW) grant from the BLM for development of the Genesis Solar Energy Project (Project). Once constructed, the Project would permanently occupy approximately 1,727 acres within this area (Plant Site), plus approximately 84 acres for Linear Facilities (Figure 2). The total permanent Project footprint would be 1,811 acres (collectively referred to as the Project Area). The primary purpose of the proposed Project is to construct, own, and operate a new solar powered electric generating facility.

To comply with federal, state, and local laws, the Project's effects on biological resources must be evaluated. To achieve this objective, the presence and potential for presence of federally listed, state-listed, and other special-status plants, animals, and natural communities must be identified and their distribution and approximate abundance determined. Comprehensive surveys for these biological resources were conducted on the 4,640-acre ROW and proposed and several alternate Linear Facilities routes during Spring 2009 (Tetra Tech and Karl 2009). Additional surveys were conducted in Fall 2009 and Spring 2010 on the revised Linear Facilities alternatives. These routes are in the immediate vicinity of and overlap routes surveyed in Spring 2009. An overview of all areas surveyed for biological resources in 2009 and 2010 is located in Appendix A. This report describes the methods and results of the biological resource surveys conducted in Fall 2009 and Spring 2010, and supplements the 2009 Biological Resources Technical Report (Tetra Tech and Karl 2009).

The following terms will be used throughout this document:

- "Project Area" or "Project" is the 1,811 acre permanent footprint of all Project components which includes the Plant Site and Linear Facilities.
- "Plant Site" is the 1,727-acre area that includes the solar arrays, power blocks, power generating equipment, support facilities, and evaporation ponds.
- "Linear Facilities" includes the proposed access road, transmission line, and natural gas and water pipelines route and covers approximately 84 acres.
- "Project Right-of-Way" (ROW) is the 4,640-acre area included in the right-of-way grant requested from the BLM.
- "Survey Area" refers to the area that was surveyed in Fall 2009 and Spring 2010 for tortoises, plants, and other special-status species, including all routes and zone-of-influence (ZOI) transects.
- "Project vicinity" is intended to be a general term to describe the broader, surrounding area.

2.0 PROJECT SETTING

2.1 Project Location

The Project is located in eastern Riverside County, California, between the communities of Blythe and Desert Center on lands managed by the BLM (Figure 1). Blythe is located approximately 25 miles east of the Project and Desert Center is located approximately 27 miles west of the Project. The Project is located in a largely undeveloped area of the Colorado Desert,

predominantly owned and managed by the BLM. Interstate-10 (I-10) is located approximately three miles south of the Plant Site. The Project is graphically depicted on two U.S. Geological Survey 7.5 Minute Topographic Maps (Ford Dry Lake and McCoy Spring). The Project is located in Township 6S Range 18E and Township 6S Range 19E, San Bernardino Base and Meridian.

2.2 Project Description

The Project would consist of the two 125 MW concentrated solar electric generating units with a nominal net electrical output of 250 MW. The Project will use parabolic trough solar thermal technology to produce electrical power using steam turbine generators fed from solar steam generators. The Project will use a wet cooling tower for power plant cooling. Project cooling water blowdown will be piped to lined, on-site evaporation ponds.

The Project will include the Plant Site and Linear Facilities. The Plant Site would contain the solar arrays, power block (i.e., where the steam turbine generators would be located), and associated Project facilities such as: a substation, an administration building, operation and maintenance facilities, and evaporation ponds. A transmission line, paved access road, and natural gas and water pipelines will be mostly co-located in one linear corridor to serve the Plant Site (Figure 2). The Linear Facilities would originate within the Plant Site and travel to the southeast to the vicinity of Wiley's Well Rest Area. The transmission line would then cross I-10 to the south where it would connect to the existing Blythe Energy Transmission Line (BEPTL). The transmission line would use the existing pole structures of the BEPTL to interconnect with the proposed Colorado River Substation, approximately 4.8 miles to the east.

2.3 Environmental Setting

The Project is located in the Colorado subdivision of the Sonoran Desert. This region is sparsely vegetated and characterized by broad valleys interspersed with mountain ranges and dry lakes. Summer temperatures routinely reach above 100ºF (June through September) and annual average precipitation in the Blythe, California, area is less than four inches. On average, August receives the most rainfall, although rainfall is also received in the winter months of December, January, and February (Western Regional Climate Center 2010).

The Project lies along the alluvial fan emanating from the Palen Mountains to the north and the McCoy Mountains to the east. The eastern portion of the Project is underlain by a broad, valley-axial drainage that extends southward between these mountains and drains to Ford Dry Lake, located about one mile south of the Project. The Project is relatively flat and generally slopes from north to south with elevations of approximately 370 to 400 feet above mean sea level (MSL).

The Project is sited in an area characterized by sheet flow hydrology. Shallow channels (runnels), which are typically one yard or less wide and one-to-few inches deep, form a network of ephemeral drainages across the Project that rarely flow and often fail to provide through-flow to larger drainages. Occasional, more well-defined washes are present in the northwestern corner of the Plant Site and along the southern portion of the Linear Facility route north of I-10. Ford Dry Lake experiences periodic flooding. There are no springs, seeps, wetlands, streams, or impoundments within the Project Area or vicinity.

The Project Area appears relatively undisturbed, although the Project vicinity has been used for sheep grazing and off-highway vehicle (OHV) recreation in the past. The former BLM Ford OHV area was southwest of the Plant Site, but there is little evidence of OHV traffic on the Project Area. Access to the Project is poor and limited to a four-wheel-drive track west of the Plant Site.

2.3.1 Vegetation Communities

Two main vegetation communities are found within the Project Area: Sonoran Creosote Bush Scrub and Stabilized and Partially Stabilized Sand Dunes (see Holland 1986, Tetra Tech and Karl 2009), each described below. The Project Area also crosses Playa and Sand Drifts over Playa (Figure 3). Representative site photos are located in Appendix C. Chenopod Scrub, Desert Dry Wash Woodland, and Playa communities are present within the Project Vicinity, but not on the Survey Area or Project Area.

Sonoran Creosote Bush Scrub

The Sonoran Creosote Bush Scrub community on the Project Area has relatively low shrub cover, approximately 1-9%, and varies in response to hydrology and soils. Shrub cover is greatest in the anastomosing drainages that have the most frequent flow, decreasing in the fine, periodically inundated soils near Ford Dry Lake. Many of the runnels on the Project Area carry little water and have little more vegetation than the interfluves. Other small drainages are more densely populated by creosote bush (*Larrea tridentata*), white bursage (*Ambrosia dumosa*), brittlebush (*Encilia farinosa*), cheesebush (*Hymenoclea [=Ambrosia] salsola*), and white rhatany (*Krameria grayii*) than immediately adjacent areas. Big galleta grass (*Pleuraphis* [=*Hilaria*] *rigida*) is also common in some areas within these drainages. Ironwood (*Olneya tesota*) and palo verde (*Cercidium floridum*) are scattered in the occasional well-defined washes, primarily on the northwestern corner of the Plant Site and east of the Project Area in areas of heavy sheet flow. Common understory species include plantain (*Plantago ovata*), pebble pincushion flower (*Chaenactis carphoclinia*), forget-me-not (*Cryptantha spp.*), desert sunflower (*Geraea canescens*), peppergrass (*Lepidium lasiocarpum*), and stiff-haired lotus (*Lotus strigosus*).

Soils are generally soft sandy-loams and loamy-sands, with scattered to 90 percent cover of fine gravel. Broad patches of well-developed, large-gravel desert pavement characterize the area west of the Plant Site and are scattered (and less well-developed) throughout the central portion of the Plant Site. Several very small deposits of loose, aeolian sand naturally intersect the Linear Facilities route and the southern Plant Site, including some of the drainages; there are also a few artificially created, small dunes near Wiley's Well Rest Area that are the result of construction activities. Fine soils generally reflect proximity to the lakebed – the southern Project Area (Plant Site and the revised Linear Facilities route north of I-10) overlays the historic and current Ford Dry Lake bed (Worley Parsons 2010) and soils are much finer than elsewhere in the Project Area. In this same area, there is a transition zone where sand is patchily and shallowly deposited over the surface and there many small sinks are exposed (Playa and Sand Drifts over Playa).

Stabilized and Partially Stabilized Sand Dunes

A heterogeneous mixture of Stabilized and Partially Stabilized Sand Dunes overlaps the southern segment of the Linear Facilities route. This habitat contains low dune formations of fine sand that contain widely spaced perennial shrubs (2-5% cover). Dominant shrubs include creosote bush, white bursage, and galleta grass. Several sand-associates and other annuals are also abundant (e.g., sand verbena [*Abronia villosa*], birdcage primrose [*Oenothera deltoides*], desert marigold [*Baileya pauciradiata*], and narrow-leaved forget-me-not [*Cryptantha angustifolia*]). Although there are no coarse particles in the substrate of the dunes, the areas between the dunes that contain more shrubs may be partially stabilized by a light gravel layer.

3.0 SURVEY METHODS

Several species known to occur on or in the vicinity of the Project are accorded "special-status" by federal and state agencies because of their recognized rarity or potential vulnerability to extinction. These species typically have a limited geographic range and/or limited habitat and are referred to collectively as "special-status" species. Prior to field surveys, a target list of special-status species that might be affected by the Project was developed (Table 1) based on review of available literature and databases, and consulting with the agencies and local experts (see Tetra Tech and Karl 2009). Additional target species were added according to the Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan (BLM and California Department of Fish and Game [CDFG] 2002) for which surveys must be completed where a project intersects the species' ranges, as mapped in the NECO Plan. Managed game species and burros (protected by the Wild, Free-Roaming Horse and Burro Act) were also included in the target list. Desert kit fox (*Vulpes macrotis*) is protected furbearer (CDFG Code 4000). Finally, this list was updated in 2010 to accommodate recent requests from the California Energy Commission (CEC).

On October 30, 2009 (Fall 2009), March 16-19 and 29-31, 2010 (Spring 2010) biologists conducted comprehensive botanical and wildlife surveys of the portions of the proposed Linear Facilities route that were not surveyed in Spring 2009, plus three alternate routes (Figure 4A and 4B). Fall 2009 surveys covered the transmission line corridor south of I-10 only. Spring 2010 surveys also covered the transmission line south of I-10, plus the Linear Facilities route not previously surveyed north of I-10. Additionally, Spring 2010 surveys included two alternate routes (Route B and Route C), as well as a 52-acre area that, at the time, was being considered to accommodate an alternate configuration of the Plant Site (Figure 4B). The following survey methods are consistent with methods used in Spring 2009 surveys that were reviewed and agreed to by the CEC, BLM, U.S. Fish and Wildlife Service (USFWS), and CDFG; USFWS further agreed that methods employed in 2009 could continue to be used, although USFWS had revised their survey protocol subsequent to the 2009 surveys (T. Englehard, pers. comm. 2009a, 2009b).

3.1 Vegetation

3.1.1 Vegetation Communities and Habitat Survey

Surveyors described and mapped vegetation communities throughout the Survey Area. Vegetation communities were described based on biotic and abiotic features, including but not limited to species composition, species density and dominance, shrub cover percent, shrub height, common understory species, soils, substrates, hydrology, and topography. Mapping included communities determined by the BLM to be sensitive or otherwise special – including Desert Dry Wash Woodland, Sand Dunes, Chenopod Scrub, and Playa.

Table 1. Special-status and other target plant and wildlife species observed and potentially occurring within the Genesis Solar Energy Project

Species	Status[1] Federal	Status[1] State	CNPS[2]/Other	Habitat	Likelihood of Occurrence on the Project Area/Observed during Surveys
Plants					
Abrams's Spurge (*Chamaesyce abramsiana*)	---	---	2	Sandy sites in Mojavean and Sonoran Desert scrubs in eastern California; 0 to 3,000 feet	Possible/Not observed
Angel Trumpets[3] (*Acleisanthes longiflora)*	---	---	2	Sonoran Desert Scrub (limestone); mountains or base of mountains, 0-8,202 ft.	Highly unlikely due to lack of limestone and rocky habitat in Project Area/Not observed.
Argus Blazing Star[3,4] *(Mentzelia puberula)*	---	---	2	Rocky, generally mountainous sites from the Ord Mts. to northern Baja California.	Highly unlikely due to lack of habitat/Not observed
Arizona Spurge (*Chamaesyce arizonica*)	---	---	2	Sandy flats in Sonoran Desert Scrub, below ~1,000 feet	Possible/Not observed
Ayenia (*Ayenia compacta*)	---	---	2	Sandy and gravelly washes and canyons in desert scrubs, 450 to 6,000 feet	Possible/Not observed
Bitter Hymenoxys[3] (*Hymenoxys odorata)*	---	---	2	Riparian scrub and Sonoran Desert Scrub, sandy flats near Colorado River, known only from the Colorado River alluvial plain, 150- 495 feet	Highly unlikely/Not observed
California Ditaxis (*Ditaxis serrata* var. *californica*)	---	---	3	Sonoran Creosote Bush Scrub from 100 to 3,000 feet	Possible/Not observed
Chaparral Sand Verbena (*Abronia villosa* var.*aurita*)	---	---	1B	Loose to aeolian sands; chaparral and coastal sage scrub; below 2,000 feet	Highly unlikely/ Not observed
Coachella Valley Milkvetch (*Astragalus lentiginosus coachellae*)	E BLM Sensitive	---	1B	Loose to soft sandy soils, often in disturbed sites; 100 to 2,200 feet	Highly unlikely; no known nearby populations (population in Chuckwalla Valley misidentified)/Not observed
Cove's Cassia (*Senna covesii)*	---	---	2	Dry washes and slopes in Sonoran Desert Scrub, 1,600 to 1,900 feet	Possible, but elevations may be too low/Not observed
Crucifixion Thorn (*Castela emoryi*)	---	---	2	Mojavean and Sonoran Desert Scrubs; typically associated with drainages	Unlikely/Not observed
Desert Portulaca[3] (*Portulaca halimoides)*	---	---	4	Sandy areas and flats in Joshua tree woodland and desert mountains; 3280-3937 ft	Highly unlikely due to elevational constraints/Not observed
Desert Sand-parsley (*Ammoselinum giganteum*)	---	---	2	Sonoran Desert Scrub; known from one site, near Hayfield Dry Lake at 1,200 feet	Highly unlikely, but possible/ Not observed
Desert Unicorn Plant (*Proboscidea althaeifolia*)	---	---	4	Sandy areas in Sonoran Desert Scrub throughout southeastern California, below 3,300 feet.	Observed during 2009 and 2010 surveys
Dwarf Germander *(Teucrium cubense depressum)*			2	Sandy soils, washes, fields; below 1,300 feet	Possible/Not observed
Flat-seeded Spurge (*Chamaesyce platysperma*)	--- BLM Sensitive	---	1B	Sandy flats and dunes in Sonoran Desert Scrub; below 350 feet	Possible/Not observed
Foxtail Cactus (*Coryphantha alversonii*)	---	---	4	Primarily rocky substrates between 250 and 4,000 feet in Creosote Bush Scrub	Possible/Not observed
Glandular Ditaxis (*Ditaxis claryana*)	---	---	2	Sandy flats in Mojavean and Sonoran Creosote Bush Scrubs in Imperial, San Bernardino, and Riverside counties; below 1,500 feet	Possible/Not observed
Harwood's Milkvetch (*Astragalus insularis* var. *harwoodii*)	---	---	2	Dunes and windblown sands below 1,200 feet, east and south of approximately Desert Center	Observed during 2009 and 2010 spring surveys
Harwood's Phlox (*Eriastrum harwoodii*)	---	---	1B	Desert slopes below 7,000 feet., eastern Riverside and San Bernardino Counties	Possibly observed during Spring 2009 ZOI surveys; however, no flower to positively ID

Table 1. Special-status and other target plant and wildlife species observed and potentially occurring within the Genesis Solar Energy Project

Species	Status[1] Federal	State	CNPS[2]/Other	Habitat	Likelihood of Occurrence on the Project Area/Observed during Surveys
Jackass Clover (*Wislizenia refracta* var. *refracta*)	—	—	2	Sandy washes, roadsides, flats; 1,900 to 2,700 feet	Not observed
Las Animas Colubrina (*Colubrina californica*)	---	---	2	Sonoran Desert Creosote Bush Scrub, < 3,300 feet	Observed north of Project Area during 2009 ZOI surveys
Lobed Ground Cherry[3] *(Physalis lobata)*	---	---	2	Mojave Desert Scrub, playas, granitic soils, 1640-2625 ft	Unlikely/Not observed. All known locations well to north of Project and at higher elevations
Mesquite Neststraw (*Stylocline sonorensis*)	---	---	1A	Open sandy drainages; known from one site near Hayfield Spring	Highly unlikely/Not observed
Orocopia Sage (*Saliva greatae*)	--- BLM Sensitive	---	1B	Mojavean and Sonoran Desert Scrubs; gravelly/ rocky bajadas, mostly near washes; below 3,000 feet	Not present/Not observed
Pink Fairy Duster (*Calliandra eriophylla*)	---	---	2	Sonoran Desert Scrub; washes	Not present/Not observed
Pink Velvet Mallow[3] *(Horsfordia alata)*	---	---	4	Rocky areas in Sonoran Desert Scrub, 328-1640 ft	Unlikely (no rocky habitat in Project Area)/Not observed
Ribbed Cryptantha (*Cryptantha costata*)	---	---	4	Dunes in Mojavean and Sonoran Desert Scrub, 197-1640 ft	Observed in sandy areas throughout Linear Facility Route in Spring 2010
Sand Evening Primrose (*Camissonia arenaria*)	---	---	2	Sandy washes and rocky slopes below 1,300 feet	Possible/Not observed
Slender Woolly-heads (*Nemacaulis denudate* var. *gracilis*)	---	---	2	Dunes in coastal and Sonoran Desert Scrubs, primarily in the Coachella Valley; below 1,500 feet	Possible/Not observed
Small-flowered Androstephium [3] *(Androstephium breviflorum)*	---	---	2	Desert Dunes; Mojave Desert Scrub (bajadas), 722-2100 ft.	Unlikely/Not observed. All known locations well to north and generally higher in elevation
Spearleaf (*Matelea parvifolia*)	—	—	2	Rocky ledges and slopes, 1,000 to 6,000 feet, in Mojave and Sonoran Desert Scrubs	Unlikely; no habitat/Not observed
Spiny Abrojo (*Condalia globosa* var. *pubescens*)	---	---	4	Sonoran Creosote Bush Scrub; 500 to 3,300 feet	Possible/Not observed
Winged Cryptantha (*Cryptantha holoptera*)	--	--	4	330-5500 feet in Mojave and Sonoran Desert Scrubs; often sandy habitats	Possible/Not observed
Amphibians					
Couch's Spadefoot Toad (*Scaphiopus couchii*)	--- BLM Sensitive	SC	---	Various arid communities in extreme southeastern California and east, south	Possible/ Not observed
Reptiles					
Colorado Desert Fringe-toed Lizard (*Uma notata*)	--- BLM Sensitive	SC	---	Restricted to aeolian sandy habitats in the southeastern Sonoran Desert	Unlikely due to geographic range
Desert Rosy Boa (*Charina trivirgata gracia*)	--- BLM Sensitive	---	---	Rocky uplands and canyons; often near stream courses	Unlikely due to lack of habitat/Not observed
Mojave Fringe-toed Lizard (*Uma scoparia*)	--- BLM Sensitive	SC	---	Restricted to aeolian sandy habitats in the Mojave and northern Sonoran deserts	Observed during surveys
Desert Tortoise (*Gopherus agassizii*)	T	T	---	Most desert habitats below approximately 5,000 feet in elevation	Carcass fragments, burrows, and tracks observed in ROW during 2009 surveys. Only old bone fragments found within Project Area in 2009 and 2010.

Table 1. Special-status and other target plant and wildlife species observed and potentially occurring within the Genesis Solar Energy Project

Species	Status[1] Federal	Status[1] State	CNPS[2]/Other	Habitat	Likelihood of Occurrence on the Project Area/Observed during Surveys
Birds					
American Peregrine Falcon (*Falco peregrinus anatum*)	Delisted BCC	E Fully Protected	---	Dry, open country, including arid woodlands; nests in cliffs	Possible forager on site, may nest in adjacent mountains/Not observed
Bendire's Thrasher (*Toxostoma bendirei*)	BCC BLM Sensitive	SC	---	Arid to semi-arid brushy habitats, usually with yuccas, cholla, and trees	Unlikely/Not observed
Burrowing Owl (*Athene cunicularia*)	BCC BLM Sensitive	SC	---	Open, arid habitats	Observed during 2009 and Phase III surveys
Crissal Thrasher (*Toxostoma crissale*)	BCC	SC	---	Dense mesquite and willows along desert streams and washes	Highly unlikely due to lack of habitat/Not observed
Ferruginous Hawk (*Buteo regalis*)	BCC BLM Sensitive	---	---	Arid, open country	Observed during 2009 and 2010 surveys
Golden Eagle (*Aquila chrysaetos*)	BCC BLM Sensitive	SC Fully Protected	---	Open country; nests in large trees in open areas or cliffs	Possible forager on site, nests in Palen and McCoy Mountains/Not observed in the Project Area
Loggerhead Shrike (*Lanius ludovicianus*)	BCC	SC	---	Arid habitats with perches	Observed during 2009 and 2010 surveys
Mountain Plover (*Charadrius montanus*)	BCC BLM Sensitive	SC	---	Dry upland habitats, plains, bare fields	Highly unlikely, but possible winter visitor on Ford Dry Lake and adjacent shore
Northern Harrier (*Circus cyaneus*)	---	SC	---	Open habitats; nests in shrubby pen land and marshes	Observed during 2009 and 2010 surveys
Swainson's Hawk (*Buteo swainsoni*)	BCC	T	---	Forages in open stands of grass-dominated vegetation, sparse shrublands, and small, open woodlands.	Observed during 2009 and 2010 surveys
Short-eared Owl (*Asio flammeus*)	---	SC	---	Open habitats: marshes, fields; nests on ground and roosts on ground, low poles	Observed during 2009 Surveys
Yellow-breasted Chat (*Icteria virens*)	---	SC	---	Dense streamside thickets, willows; brushy hillsides and canyons	Highly unlikely due to lack of habitat, but possible transient/ Not observed
Mammals					
American Badger (*Taxidea taxus*)	---	SC	---	Many habitats	Observed (burrow only) outside of Project Area
Arizona Myotis (*Myotis occultus*)	---	SC	WBWG:M	Lowlands of the Colorado River and adjacent mountain ranges, up to ponderosa pine habitat; mines, buildings, bridges, riparian woodlands, often near water	Unlikely/Not observed[5]
Big Free-tailed Bat (*Nyctinomops macrotis*)	---	SC	WBWG:M	Cliffs and rugged rocky habitats in arid, country, also riparian woodlands	Possible forager on site, especially near mountains/Not observed[5]
Burro (*Equus asinus*)	---	---	Protected	Various habitats near water	Unlikely/Not observed
Burro Deer (*Odocoileus hemionus eremicus*)	---	Game Species	---	Arboreal and densely vegetated drainages	Observed (tracks only) during 2009 and 2010 surveys
California Leaf-nosed Bat (*Macrotus californicus*)	---	SC	WBWG:MH	Lowland desert associate, found in caves, mines, tunnels and old buildings	Unlikely/Not observed[5]
Colorado Valley Woodrat (*Neotoma albigula venusta*)	---	---	---	Under mesquite in Creosote Bush Scrub; southeastern California	Unlikely due to lack of habitat/Not observed

Table 1. Special-status and other target plant and wildlife species observed and potentially occurring within the Genesis Solar Energy Project

Species	Status[1] Federal	State	CNPS[2]/Other	Habitat	Likelihood of Occurrence on the Project Area/Observed during Surveys
Desert Kit Fox (*Vulpes macrotis*)	---	Protected furbearer	---	In open desert scrub and dunes.	Sign observed during 2009 and 2010 surveys
Nelson's Bighorn Sheep (*Ovis canadensis nelsoni*)	--- BLM Sensitive	---	---	In mountains and adjacent valleys in desert scrub	Possible in Palen and McCoy Mountains/Not observed
Pallid Bat (*Antrozous pallidus*)	--- BLM Sensitive	SC	WBWG:H	Several desert habitats	Possible/Not observed
Pocketed Free-tailed Bat (*Nyctinomops femorosaccus*)	---	SC	WBWG:M	Variety of arid areas in pinyon-juniper woodland, desert scrubs, palm oases, drainages, rocky areas	Possible in the McCoy Mountains/Not observed[5]
Southwestern Cave Myotis (*Myotis velifer brevis*)	--- BLM Sensitive	SC	WBWG:M	Caves, mines and buildings in lower desert scrub habitats; also near streams and in woodlands, old ag fields	Unlikely /Not observed[5]
Spotted Bat (*Euderma maculatum*)	--- BLM Sensitive	SC	WBWG:H	Arid scrub and grasslands, to coniferous forests, roosts in cliffs, Forages along waterways	Unlikely/Not observed[5]
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	--- BLM Sensitive	SC	WBWG:H	Broad habitat associations. Roosts in caves and manmade structures; feeds in trees	Possible/Not observed*
Western Mastiff Bat (*Eumops perotis californicus*)	--- BLM Sensitive	SC	WBWG:H	Cliffs, trees, tunnels, buildings in desert scrub	Possible/Not observed[5]
Yuma Myotis (*Myotis yumanensis yumanensis*)	--- BLM Sensitive	---	WBWG:LM	Several habitat associations, but typically near open water; often roosts in manmade structures	Unlikely/Not observed[5]
Yuma Puma (*Felis concolor browni*)	---	SC	---	Colorado River bottomlands	Possible/Not observed

Sources: Unless noted, information is from *The Jepson Manual* (Baldwin et al. 2002), California Native Plant Society (CNPS) Online Inventory (CNPS 2010), and Jepson Flora Project (http://ucjeps.berkeley.edu/)

[1] CDFG and Habitat Data Analysis Branch, Biogeographic Data Branch 2009, http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf

E Endangered
T Threatened
BCC USFWS Bird of Conservation Concern
State SC CDFG Species of Special Concern (species that appear to be vulnerable to extinction)
Fully Protected Species that cannot be taken without authorization from the Fish and Game Commission
BLM Sensitive Species under review, rare, with limited geographic range or habitat associations, or declining. BLM policy is to provide the same level of protection as USFWS candidate species
WBWG = Western Bat Working Group (http://wbwg.org)
H – High Priority – These species should be considered the highest priority for funding, planning, and conservation actions.
M – Medium Priority – These species warrant closer evaluation, more research, and conservation actions of both the species and the threats
L – Low Priority – Most of the existing data support stable populations of the species and that the potential for major changes in status is unlikely

[2] CNPS. 2010:

List 1A - Plants presumed extinct in California
List 1B - Plants rare and endangered in California and elsewhere
List 2 - Plants rare and endangered in California but more common elsewhere
List 3 - Plants about which CNPS needs more information
List 4 - Plants of limited distribution (Watch List)
(Note: CNPS lists 1 and 2 require CEQA consideration. List 4 plants that must be surveyed per the Northern and Eastern Colorado Desert Management Plan (BLM and CDFG 2002) were also included for surveying)
Threat Ranks: 0.1-Seriously threatened in California (high degree/immediacy of threat)
0.2-Fairly threatened in California (moderate degree/immediacy of threat)
0.3-Not very threatened in California (low degree/immediacy of threats or no current threats known)

[3] Some plant species that are would not be expected in the Project vicinity due to habitat and elevation were added to the target list at the recommendation of the California Energy Commission

[4] According to Jepson Flora Project, taxonomy is unresolved; noted as a variant of *M. orephila* in the Jepson Manual (Baldwin et al. 2002) and not in the CNPS Inventory.

[5] No bats were observed; however, focused bat surveys were not conducted

3.1.2 Special-Status Plants

Surveyors timed the Spring 2010 botanical surveys to coincide with the growing season when optimum conditions for identification (generally blooms, fruits, and leaves) were present (surveys for fall-blooming species are scheduled for Fall 2010). Surveyors conducted surveys in accordance with California Native Plant Society (CNPS) (2001) and CDFG (2000) survey guidelines for rare plants and sensitive communities on March 16-19 and 29-31, 2010. Because of the intensity of the desert tortoise surveys (100 percent coverage at 30-foot intervals), surveyors conducted botanical surveys concurrently with desert tortoise surveys. Above-average precipitation in December 2009, January, February, and March 2010 facilitated germination and flowering of annual forbs, aiding in species identification (Table 2).

Table 2. 2008, 2009, and 2010 monthly precipitation data (in inches), Blythe, CA airport

YEAR	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Annual
2008	0.77	0.02	0	0	0.18	0	0.27	0.15	0.06	0	0.24	0.65	2.34
2009	0.02	0.43	0	0	0.03	0.01	0.07	0.02	0.03	0	0	0.85	1.46
2010	2.12	0.91	0.68	0.01	0.00	TBD	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Average 1948-2009	0.46	0.43	0.35	0.16	0.02	0.02	0.24	0.62	0.36	0.26	0.20	0.41	3.53

Source: Western Regional Climate Center (WRCC) (2010); J. Ashby pers. comm. (2010)
TBD: To Be Determined – Data not currently available for these months

Surveyors targeted every CNPS List plant that could reasonably be expected to occur, but employed a comprehensive floristic survey approach, identifying all plants observed, to ensure that unexpected special-status plants were also found. Surveyors were equipped with plant descriptions, keys to identify plants to the subspecies level, and pictures of each special-status plant species with the potential to occur within the Survey Area. All species observed were identified using relevant publications (e.g., Baldwin et al. 2002, Gowen 2008).

Surveyors were given intensive pre-survey training to become familiar with all special-status plants that could occur in the area. This included visits to local reference populations of reasonably accessible species prior to commencing surveys to become familiar with the species and microhabitat preferences, to establish a search image, and to assist in determining if the species had germinated and would be present at the time of surveys. The following species were visited on March 16, 2009 and/or March 16, 2010 (most special-status shrub species were easily identified and/or well-known to the surveyors and were not visited):

- Dwarf germander (*Teucrium cubense depressum*) – California Natural Diversity Database (CNDDB) EO Index No. 73266. Could not locate population (last recorded in 1979)
- Harwood's milkvetch (*Astragalus insularis* var. *harwoodii*) – Blythe area: (1) along Hobsonway across from Blythe Energy Project (BEP) and (2) south of Interstate 10 from BEP. Plants in bloom and fruit; *Astragalus aridus* present for comparison.
- Chaparral sand verbena (*Abronia villosa* var. *aurita*) – *A. villosa* var. *villosa* keyed at Wiley's Well Rest Stop for demonstration of comparative features. Plants in flower and fruit. Concluded that the plant was probably misidentified at nearby (vague) locations in 1910 and 1964 due to conflicting morphological characters.
- Glandular ditaxis (*Ditaxis claryana*) – CNDDB EO Index No. 5587. Could not locate population (last recorded in 1977).

- California ditaxis (*Ditaxis serrata* var. *californica*) – Population along gas line road near Eagle Mine Road, west of Desert Center. Plants in flower and fruit. Other congeners (*D. neomexicana* and *D. lanceolata*) in flower and fruit and available for comparison.
- Foxtail cactus (*Coryphantha alversonii*) – Population observed near Eagle Mine Road. Plants obvious without flowers/fruit.
- Desert unicorn plant (*Proboscidea althaeifolia*) – Location along Kaiser Road where plant was observed previous autumn. No plants present, but pods present.

Certain desert plant species are protected under the California Desert Native Plants Act (CDNPA). The purpose of the CDNPA is to prevent the unlawful harvesting of native desert trees and cacti. Regulated species include: trees, cacti, and yucca, as well as fan palms (*Washingtonia filifera*). Cacti, yucca, and trees protected by the CDNPA were counted and inventoried.

3.1.3 Invasive Plants

Surveyors inventoried all invasive plant species and recorded the location of concentrations. Invasive plants are defined as any non-native plant species that are injurious to the public health, agriculture, recreation, wildlife habitat, or the biodiversity of native habitats. The California Invasive Plant Council (Cal-IPC) categorizes invasive plants as high, moderate, or limited according to the severity of their ecological impact (Cal-IPC 2006). Invasive plants classified as high consist of species that have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure, and have a moderate to high rate of dispersal and establishment. Those classified as moderate consist of species that have substantial and apparent (but not severe) ecological impacts, and have a moderate to high rate of dispersal and establishment; however, establishment is generally dependent upon a disturbance regime such as soil disruption or fire. Those classified as limited consist of species that are invasive, but whose ecological impacts are minor on a state-wide level. Dispersal and establishment of species classified as limited are generally low to moderate.

3.2 Wildlife Surveys

3.2.1 Desert Tortoise

Qualified field biologists (Appendix B) conducted desert tortoise surveys in accordance with USFWS protocols (1992) and CEC guidelines (2007) in Fall 2009 and Spring 2010. Although the 1992 USFWS timing requirement for spring surveys is March 25 to May 31, and the new USFWS protocols have an April 1 start date, the USFWS Carlsbad field office, with agreement from BLM, permitted tortoise surveys to commence on March 17 based on 2010 weather conditions and data identifying that tortoises are active in the Project Area in March (T. Engelhard, pers. comm. March 18, 2009a; P. Sorensen pers. comm. March 10, 2010).

Surveys of the Linear Facilities included 100% coverage (30-foot wide transects) of each 420-ft wide route alternative. Additionally, surveyors walked single, 30-foot-wide ZOI transects at 100, 300, 500[1], 1200, and 2400 feet from the linear route boundary. The 52-acre parcel was

[1] The 1992 USFWS protocols place a ZOI transect at 600 feet; however, in Spring 2009 the desert tortoise ZOI transect was moved to 500 feet with permission from the CEC, BLM, USFWS, and CDFG to meet the California Burrowing Owl Consortium (CBOC) (1993) and CDFG (1995) burrowing owl survey requirement for a buffer transect at 500 feet. Spring 2010 survey methods were kept consistent with Spring 2009 methods.

surveyed at 100% coverage and an additional ZOI transect was surveyed at 3,960 and 5,280-ft from the boundary to comply with CEC data requirements (CEC 2007) (Figure 4A and 4B).

Using a handheld global positioning system (GPS) unit, surveyors recorded and mapped all tortoise sign (e.g., scat, burrows, tortoises, tracks, carcasses), all sightings of known tortoise predators (e.g., common raven, coyote), and other site features that could assist in the analysis of tortoise population impacts. Surveyors used a key to determine tortoise sign classes; all data was recorded on data sheets (see Appendix E). Per USFWS protocols (USFWS 1992), surveyors conducted a quality control (QC) survey of five percent of the Survey Area using 10-ft wide (vs. 30-ft) transects. Three QC locations were selected in a stratified manner to ensure a representative sampling of available habitats and all areas on the linear routes (Figure 4B).

3.2.2 Mojave Fringe-Toed Lizard

Surveyors conducted surveys for the Mojave fringe-toed lizard (*Uma scoparia*) in suitable sandy habitats concurrently with desert tortoise surveys. Survey methods are identical to those outlined in Section 3.1.2.1. Surveyors recorded and mapped all fringe-toed lizard sightings. It is possible, although unlikely, that the Colorado Desert fringe-toed lizard could be present in the Project Area. Because the Mojave and the Colorado fringe-toed lizards are CDFG Species of Special Concern and are treated equally by CDFG when evaluating impacts, and to prevent unnecessary harassment, surveyors did not capture lizards to identify to species.

3.2.3 Burrowing Owl

California Burrowing Owl Consortium (CBOC) Guidelines (CBOC 1993) include three survey phases, each following the previous based on the latter's results. Phase 1 surveys determine if there is burrowing owl (*Athene cunicularia*) habitat in the Project Area. Phase II surveys determine the location of burrowing owl burrows in the Project Area. Phase III surveys determine how the Project Area is used by burrowing owls. A Phase I Habitat Assessment was completed on the Project in December 2007 and Phase II and III surveys were completed in 2009 (Tetra Tech and Karl 2009). In Fall 2009 and Spring 2010, Phase II surveys were completed along the remaining Linear Facilities alternatives. These surveys include a buffer transect (functionally equivalent to the desert tortoise ZOI transect) every 100 ft out to 500 ft from the Project boundary for the Phase II surveys. These buffer transects at 100 and 300 ft coincided with Project ZOI transects for the desert tortoise at 100 and 300 feet; however, to meet the burrowing owl survey requirement for a buffer transect at 500 ft, the desert tortoise ZOI was moved to 500 ft, from 600 ft, with permission from the CEC, BLM, USFWS, and CDFG. Two additional buffer transects were walked at 200 and 400 ft. All owl sightings and observed sign were recorded and mapped using a handheld GPS unit.

3.2.4 Other Special-Status Wildlife

Surveyors conducted surveys for other special-status wildlife surveys concurrently with tortoise surveys. Surveyors recorded all observations of special-status wildlife species (Table 1) and their sign (e.g., burrows, scat, and tracks) within one mile of the 52-acre area and within 2,400 feet of the Linear Facilities. Although desert kit fox is not a special-status species, all non-game furbearers are protected by CDFG; therefore, surveyors recorded and mapped kit fox complexes (natal dens or burrow complexes with three or more entrances). Although not subject to legal protection, all observations of other watchlist species (e.g., prairie falcon [*Falco mexicanus*], Brewer's sparrow [*Spizella breweri*], Costa's hummingbird [*Calypte costae*]) were also recorded. All artificial or temporary water catchments that could serve as breeding pools for Couch's spadefoot toad were also mapped. Surveyors also recorded and mapped any natural and anthropogenic features (e.g., water bodies, cliffs) that could funnel migrants or serve as

major avian roosting sites, wildlife corridors, and bat roosting and hibernacula. Small mammal trapping, which was conducted in Spring 2009 to inventory rodents and burrowing owl prey, was not repeated for the 2010 field season.

4.0 SURVEY RESULTS

4.1 Vegetation

4.1.1 Vegetation Communities and Habitat Survey

The Fall 2009 and Spring 2010 surveys did not encounter any vegetation communities not already observed during the original Spring 2009 surveys. Three vegetation communities were found within the Project Area: Sonoran Creosote Bush Scrub, Stabilized and Partially Stabilized Sand Dunes, and Playa and Sand Drifts over Playa (see Holland 1986, Figure 3). Chenopod Scrub and Desert Dry Wash Woodland are located within one mile of the Project Area but would not be affected by Project development. Table 3 shows the Project's anticipated acreage of temporary and permanent disturbance to vegetation communities mapped within one mile of the Project ROW and 2400 ft of Linear Facilities. A comprehensive list of plants observed at the Project Area can be found in Appendix D.

Table 3. Anticipated Permanent and Temporary Disturbance to Vegetation Communities

Vegetation Communities	Total Temporary Disturbance (Acres)	Total Permanent Disturbance (Acres)	Total Disturbance (Acres)
Sonoran Creosote Bush Scrub			
Plant Site	n/a	1712.3	1712.3
Linear Facilities	42.1	17.7	59.8
Stabilized and Partially Stabilized Sand Dunes			
Plant Site	n/a	0.0	0.0
Linear Facilities	1.0	0.3	1.3
Playa and Sand Drifts Over Playa			
Plant Site	n/a	14.3	14.3
Linear Facilities	16.7	6.6	23.3
Desert Dry Wash Woodland			
Plant Site	0.0	0.0	0.0
Linear Facilities	0.0	0.0	0.0
Chenopod Scrub			
Plant Site	0.0	0.0	0.0
Linear Facilities	0.0	0.0	0.0
Subtotal			
Plant Site	0.0	1726.6	1726.6
Linear Facilities	59.8	24.5	84.3
Total Acres	59.8	1751.1	1810.9

Sensitive Plant Communities

BLM Sensitive plant communities that occur in the Survey Area include Stabilized and Partially Stabilized Sand Dunes and Playa. The Plant Site configuration was revised in May 2010 to avoid direct impacts to Stabilized and Partially Stabilized Sand Dunes; however, portions of the Linear Facilities, north and south of I-10, overlap 1.3 acres of Stabilized and Partially Stabilized Sand Dunes (Figure 3). The Project Area avoids the current dry lake bed (Playa); however, portions of the Plant Site and Linear Facilities cross transitional areas containing both Playa and aeolian sand characteristics (Sand Drifts over Playa, 37.6 acres).

Surveyors did not observe any groundwater dependent plants that are known to rely on deep root systems as a primary strategy for survival (Phillips and Comus 2000). Both honey mesquite (*Prosopis glandulosa*) and tamarisk (*Tamarix* sp.) were associated with an unnatural borrow pit south of I-10, but this is a periodically flooded basin that holds water for varying amounts of time (depending upon frequency and intensity of rainfall). This basin had standing water during Spring 2010 surveys. The plants that grow in this basin are probably primarily dependent upon this periodic flooding. Similarly, a concentration of honey mesquite grows in the unnatural swale just north of I-10; also a topographical feature that carries and may hold water. Honey mesquite was infrequently observed elsewhere; only four plants were observed along other drainages.

4.1.2 Special-Status Plants

Surveyors did not find any federally or state-threatened, endangered, or candidate plant species during surveys. However, surveyors did observe multiple populations of three CNPS-listed plants within the Project Area and four cacti and tree species protected under the CDNPA.

Harwood's Milkvetch

Thirty-two observations of Harwood's milkvetch (*Astragalus insularis* var. *harwoodii*) including 23 populations, were found in sandy areas north and south of I-10 along the Linear Facilities, and to the east of the Linear Facilities, within Sonoran Creosote Bush Scrub (Figure 5). The number of individual plants found at each point ranged from one to approximately 250 individuals. Three populations would be directly affected by Project development (Table 4).

Ribbed Cryptantha

Surveyors observed multiple populations of ribbed cryptantha (*Cryptantha costata*), each ranging from one to approximately 2,000 plants, within the Survey Area (Figure 5); however, only nine populations will be directly affected by Project development (Table 4). The species was common to abundant on dune habitats, as well as on small, isolated sand drifts within the Survey Area.

Desert Unicorn Plant

Surveyors made 58 observations, including over 100 seed pods, 15 seedlings, and 20 populations of desert unicorn plant (*Proboscidea althaeifolia*). This species typically flowers between July and September, so it was not surprising that few plants were observed. The number of seed pods detected indicates that this species is common along the southern end of the Linear Facilities on both sides of I-10 and it is estimated that five populations will be directly affected by Project development (Table 4).

Table 4. Number and location of special-status plant species with the potential to be directly affected by Project development.

Special-Status Plant Species Observed During Fall 2009 and Spring 2010 Field Surveys	Location	Directly Affected[1]
Harwood's milkvetch	Linear Corridor North of I-10	3
	Linear Corridor South of I-10	0
Desert unicorn plant[2]	Linear Corridor North of I-10	5
	Linear Corridor South of I-10	0
Ribbed cryptantha	Linear Corridor North of I-10	9
	Linear Corridor South of I-10	1

[1] Includes individuals and populations within the 100-ft wide Linear Facilities route

[2] Many occurrences refer to seed pods found during surveys and not individual plants; therefore, direct impact numbers are inexact.

Surveyors recorded a total of 374 cacti and trees within the Survey Area, of which 271 were found along the proposed Linear Facilities (see Figure 4B, Route A); no *Yucca* species, fan palms, or other species protected by the CDNPA are present on the Linear Facilities routes (Table 5). Palo verde and ironwood (*Olneya tesota*) were scattered throughout the Survey Area, typically located within the larger drainages that receive more surface water flow that can support these desert wash tree species. A portion of the Linear Facilities route parallels an ephemeral wash that contains a higher concentration of palo verde when compared to other ephemeral drainages within the Survey Area (see Table 5 and Figure 4B, Route A, WP 4-5). A patch of honey mesquite (*Prosopis glandulosa*) is present in the man-made borrow pit south of I-10.

Table 5. Number and location of cacti and tree observations, Spring 2010

Location*	Silver Cholla	Palo Verde	Ironwood	Honey Mesquite	Total
Route A, Way Points 1-2	1	0	9	0	10
Route A, Way Points 2-4	0	1	9	0	10
Route A, Way Points 4-5	9	129	5	3	146
Route A, Way Points 5-6	7	4	0	0	11
Route A, Way Points 6-13	0	45	28	1, plus a bosque in the borrow pit	74
Route A, Way Points 7-11	0	0	0	20	20
Route B, Way Points 16-18	0	44	56	0	100
Route C, Way Points 14-15	0	3	0	0	3
Total, all Routes	17	226	107	24	374
Total, Route A	17	179	51	24	271

*Waypoints correspond to Figure 4B. Route A is the currently proposed Linear Facilities route.

4.1.3 Invasive Plants

Surveyors detected four non-native and invasive species: Saharan mustard (*Brassica tournefortii*), tamarisk (*Tamarix sp.*), Russian thistle (*Salsola tragus*), and Mediterranean grass (*Schismus* sp.). Saharan mustard and tamarisk are classified as High by the Cal-IPC, whereas Russian thistle and Mediterranean grass are classified as Limited. Saharan mustard was widespread throughout the Survey Area, with patches of higher concentrations occurring in some runnels, on aeolian substrates abundant, and in low-lying areas where water tends to pool. Surveyors recorded 20 tamarisk along an unnatural swale north of and paralleling I-10. Russian thistle was common within the Stabilized and Partially Stabilized Sand Dunes. Surveyors detected Mediterranean grass throughout the Project Area in both vegetation communities.

4.2 Wildlife

Surveyors did not detect any federally listed or candidate wildlife species and detected only one state-listed threatened species. Surveyors found old bone fragments for the federally and state-threatened desert tortoise, but no burrows, scat or tortoises were observed, indicating that tortoises do not currently occupy the Project's Linear Facilities routes. No state Fully Protected species were detected. Surveyors observed Swainson's hawk during Fall 2009 and Spring 2010 surveys. Surveyors also observed four California Species of Special Concern: Mojave fringe-toed lizard, loggerhead shrike (*Lanius ludovicianus*), northern harrier (*Circus cyaneus*), and possibly detected burrowing owl presence. Surveyors identified suitable breeding habitat for Couch's spadefoot toad *(Scaphiopus couchi*). Other special-status or target species detected included: ferruginous hawk (*Buteo regalis*), burro deer (*Odocoileus hemionus eremicus;* tracks), and desert kit fox (natal dens).

4.2.1 Desert Tortoise

Surveyors did not observe any live tortoises or other signs of recent tortoise presence (e.g., burrows, scat, or tracks) during the Fall 2009 and 2010 field surveys. In Spring 2010, surveyors found only one bone fragment, estimated to be between four and 10 years old, and 30 bone fragments estimated to be 3,000 to 5,000 years old (W. Orr, pers. comm. May 15, 2009) (Tables 6 and 7, Figure 6). Thirteen of these bone fragments, all 3,000-5,000 years old, were found along the Linear Facilities (Route A, Figure 6). All bone fragments were single, disarticulated bones, averaging approximately 30 millimeters (mm) in diameter. Those estimated to be between 3,000 and 5,000 years old showed evidence of permineralization, a process in which minerals are deposited into cells of organisms, usually by way of water (W. Orr, pers. comm. May 15, 2009). These fragments were heavier, more solid, and most had a slight orange/brown color than the younger fragments, which were lighter and whiter in color (Tetra Tech and Karl 2009). For the most part, bone fragments were found singly with a slightly higher concentration south of the Plant Site in the 52-acre area (Figure 6). This grouping of bone fragments is likely attributable to surface water flow as it is located downstream of an ephemeral drainage system that receives higher water runoff from the McCoy Mountains.

During the QC survey conducted for five percent of the original Survey Area, surveyors detected two desert tortoise bone fragments (both along Route B). These bone fragments were also discovered during the initial surveys (corresponding to number 23 and 27 in Figure 6 and Table 6).

Table 6. Desert tortoise sign found during Fall 2009 and Spring 2010 field surveys

Number on Figure 6	UTM Coordinates NAD 83 Easting	Northing	Sign Type[1]	Number of Sign	Age Class[2]	Comments
1	691866	3722166	Carcass	1	>4	Bone fragment, carapace
2	695141	3719047	Carcass	1	>>4	Bone fragment
3	690845	3722837	Carcass	1	>>4	Bone fragment, probable adult
4	690949	3721179	Carcass	1	>>4	Bone fragment, probable adult based on size of suture lines
5	690899	3722390	Carcass	1	>>4	Bone fragment
6	688107	3725096	Carcass	1	>>4	Bone fragment, probably tortoise, 30x50mm
7	692451	3722469	Carcass	1	>>4	Bone fragment, marginal
8	690860	3721995	Carcass	1	>>4	Bone fragment, adult
9	691178	3721201	Carcass	1	>>4	Bone fragment, adult
10	690863	3722464	Carcass	1	>>4	Bone fragment
11	692255	3722757	Carcass	1	>>4	Bone fragment, adult, marginal
12	690896	3722045	Carcass	3	>>4	Bone fragment, adult
13	691083	3721148	Carcass	1	>>4	Bone fragment, adult
14	687797	3724971	Carcass	1	>>4	Bone fragment
15	688359	3725124	Carcass	1	>>4	Bone fragment, adult
16	686807	3725389	Carcass	1	>>4	Bone fragment, adult
17	688356	3725122	Carcass	1	>>4	Bone fragment
18	687552	3725383	Carcass	1	>>4	Bone fragment
19	687812	3725116	Carcass	1	>>4	Bone fragment
20	687931	3725202	Carcass	1	>>4	Bone fragment
21	692527	3721769	Carcass	1	>>4	Bone fragment
22	688905	3724390	Carcass	1	>>4	Bone fragment
23	692495	3722618	Carcass	1	>>4	Bone fragment 4cm
24	694839	3718976	Carcass	1	>>4	Bone fragment 3cm
25	687713	3725111	Carcass	3	>>4	Bone fragments
26	692000	3721967	Carcass	1	>>4	Bone fragment
27	692421	3722549	Carcass	1	>>4	Bone fragment, 2cm

1 Carcass refers to shells, shell parts, and other bone fragments

2 Age class for carcasses refers to approximate time since death. >>4 indicate permineralized bone fragments estimated to be between 3,000 and 5,000 years old.

Table 7. Number and location of desert tortoise sign found during Fall 2009 and Spring 2010 field surveys

Sign	Description	Number of Observations and Location		
		Linear Facilities (Route A)	Route B and C	ZOI Transects (outside of Project Area)
Tortoise	-	0	0	0
Tortoise Burrow	-	0	0	0
Tortoise Tracks	-	0	0	0
Tortoise Scat	-	0	0	0
Carcass Fragment	Mineralized (30 total)	13	0	17
	Not Mineralized (1 total)	0	1	0

4.2.2 Mojave Fringe-toed Lizard

Surveyors recorded 77 Mojave fringe-toed lizards during surveys, 32 of which were found along the Linear Facilities route (Figure 7). Surveyors observed lizards in sand dunes, sand fields, hummocks, and other areas with loose sand substrates.

4.2.3 Burrowing Owl

Surveyors did not detect any live burrowing owls during Fall 2009 or Spring 2010 surveys, but one potential burrowing owl burrow with whitewash was observed on the 300-foot ZOI transect along Route B (Figure 7). Previous surveys had determined that the majority of the Project Area is suitable burrowing owl habitat.

4.2.4 Other Special-Status Wildlife

Couch's Spadefoot Toad

Surveyors did not observe (nor expected to observe) any Couch's spadefoot toad during Spring 2010 surveys because the timing of the surveys fell outside of the species' greatest activity period; however, surveyors did detect suitable breeding habitat for this species in the borrow pit south of I-10 that crosses the Project's transmission line route (Figure 7). Habitat for this species consists of extremely xeric areas with sandy, well-drained soils, often associated with creosote bush and mesquite trees (Arizona-Sonora Desert Museum 2010). Sandy habitats are important, as adults of this species bury themselves and dig short burrows in order to avoid desiccation. Temporary ponds created during seasonal rainstorms are important habitat for breeding. Couch's spadefoot toad breed primarily in response to summer storms, from May through September, so surveys have been scheduled for Summer or early Fall 2010.

Swainson's Hawk

Three Swainson's hawks were observed flying over the Survey Area during Spring 2010 surveys. The Project Vicinity is in a known migratory route and migrating Swainson's hawks are commonly seen in this area (P. Bloom, pers. comm.). No nesting is known as far east as the Project Area. Swainson's hawks breed throughout North America, and typically winter in South America, Central California, and parts of Florida (Dunn and Alderfer 2006). The Project Area is located outside of this species' range (England 1997), with the closest breeding range located just east of the Sierra Nevada Range (Woodbridge 1998, Bloom pers. comm.).

No focused Swainson's hawk nesting surveys are necessary since Swainson's hawk does not nest in the Project Vicinity. However, helicopter surveys were recently performed to collect golden eagle nest data within a 10-mile radius of the Project ROW, encompassing the Palen Mountains, McCoy Mountains, and portions of the Little Chuckwalla Mountains. Four Swainson's hawks were observed in April 2010 in the Palen Mountains north of the Project Area but none was observed nesting (WRI 2010).

Ferruginous Hawk

Surveyors observed a single ferruginous hawk during Spring 2010 surveys. The ferruginous hawk is a winter resident of California and can be found throughout the Mojave and Sonoran Deserts in open grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, and fringes of pinyon-juniper habitats (Bechard and Schmutz 1995). The Project Area is located within the ferruginous hawk's range and suitable wintering habitat exists within the Project Area. As this area is not considered breeding habitat, it is likely this hawk was migrating through the area.

Loggerhead Shrike

Surveyors observed six loggerhead shrikes during Spring 2010 surveys. The loggerhead shrike is a year-round resident in this portion of its range (Yosef 1996) and a relatively common desert resident. The Project Area provides suitable loggerhead shrike habitat because of the open and relatively low shrub vegetation that also contains taller structures used for nesting and prey surveillance. No nests were detected.

Northern Harrier

Surveyors observed a single, migrating northern harrier during Spring 2010 surveys. The northern harrier is considered a wintering occupant of the area (Macwhirter and Bildstein 1996). Suitable winter habitat consists of open areas dominated by herbaceous cover, including deserts, coastal dunes, pasturelands/grasslands, estuaries, and salt- and freshwater marshes; therefore, the entire Project Area is considered wintering habitat for the northern harrier.

Burro Deer

Surveyors recorded two sets of burro deer tracks north of I-10. One observation was on the Linear Facilities and the other observation was north of the Linear Facilities route (Figure 7). Burro deer is a subspecies of mule deer found in the Colorado region of the Sonoran Desert. It primarily occupies woodland communities, especially arboreal washes. Suitable habitat for the burro deer exists in the Project Area in the arboreal drainage near a man-made swale north of I-10, along the southern end of the Linear Facilities route; however, additional, higher quality habitat is present in the Desert Dry Wash Woodland to the east of the Project Area, farther from I-10 and closer to the McCoy Mountains.

Desert Kit Fox

Surveyors detected two active and four inactive kit fox natal dens (burrow complexes) during Spring 2010 surveys, five of which were found along the Linear Facilities route (Figure 7). Suitable habitat for the desert kit fox occurs throughout the Project Area, as this species inhabits many desert habitats, including the Sonoran Creosote Bush Scrub and Sand Dune habitats in the Project Area. Typically, the species inhabits areas with less than 20 percent vegetation cover (NPS 2006), also present in the Project Area.

5.0 DISCUSSION

The Fall 2009 and Spring 2010 species observations were similar to Spring 2009 and furthered understanding of the biological resources associated with the Linear Facilities routes. Surveyors did not detect any additional special-status plant or wildlife species in Fall 2009 and Spring 2010 that had not been previously observed and reported. As a result, there are no major alterations to the original impact analysis.

5.1 Vegetation

No sensitive plant communities that were not previously known to occur in the Project Area were observed during Fall 2009 and Spring 2010 surveys. The man-made borrow pit south of I-10 contains a honey mesquite-tamarisk bosque that is likely sustained by seasonal flooding. Mesquite (*Prosopis* spp.) has a combination of deep and shallow roots, with most of the roots confined to the upper three feet of soil (Phillips and Comus 2000). Based on the locations of honey mesquite, it is unlikely that any are groundwater dependent.

5.1.1 Special-status Plants

The three CNPS-listed plant species found during all surveys that would be directly affected by Project development are Harwood's milkvetch, ribbed cryptantha, and desert unicorn plant.

Harwood's milkvetch is found within the Sonoran Creosote Bush Scrub, Playa and Sand Drifts Over Playa, and Stabilized and Partially Stabilized Sand Dunes communities in the Project Area. Whereas this species occurs in soils with a high sand component, it is not as closely associated with the sand dunes as the ribbed cryptantha or other dune associates. Although apparently widespread, as there are documented occurrences in three counties, this species is considered rare in California and has a CNPS ranking of 2.2, which means that it is fairly endangered in California, but more common elsewhere. The observation of 23 populations on the Linear Facilities routes indicates that this species is fairly common in appropriate habitats on the Project Area. It will be directly and indirectly affected by Project development. However, Harwood's milkvetch may benefit from construction-associated disturbance. During the 2005 high rainfall year, this species' greatest densities in the Blythe area occurred along road berms and shoulders (A. Karl pers. obs.). Because this species is relatively widespread, fairly common in the appropriate habitats, and apparently enhanced by certain surface disturbance, Project impacts will not threaten the local population.

Ribbed cryptantha occupies aeolian areas within the Project Area. It has a CNPS ranking of 4.3, which means it has limited distribution, but is not very endangered in California. Surveys identified multiple ribbed cryptantha populations of one (1) to 2,000 plants that may be directly and indirectly affected by Project development. Because this species is not very endangered in California, is relatively widespread, and was abundant within sandy areas in the Survey Area, the disturbance or elimination of approximately 1.3 acres of dune habitat and 37.6 acres of sand drifts over Playa would be a minor reduction in overall acreage of suitable habitat.

Desert unicorn plant is found in sandy places in the Sonoran Desert in San Bernardino, Imperial, Riverside, and Imperial Counties in California (Baldwin et al. 2002, CNPS 2009), especially in association with washes and other runoff (A. Karl, personal observation). It has a CNPS ranking of 4.3, which means it has limited distribution, but is not very endangered in California. Over 100 seed pods and several plants within multiple populations were observed. Because seed pods only indicate approximate plant locations, but not the number of plants, the number of directly affected plants cannot be estimated. However, the observations indicate that the plants are fairly common along the Linear Facilities. Because this species is not very endangered in California, is relatively widespread, is relatively common on the Linear Facilities routes and is found in an abundant vegetation community (there are 3.8 million acres of Sonoran Creosote Bush scrub in the NECO planning area [BLM 2002]), Project impacts to populations and the species are expected to be negligible.

Abram's spurge (*Chamaesyce ambramsiana*), a species that grows in response to summer rains, has the potential to occur within the Project Area, but surveys for this species have not yet been completed. Surveys in appropriate habitat for this species will be conducted at the appropriate time in late summer/early fall 2010. Other fall-blooming species that are not expected at the Project Area due to habitat and elevational constraints – lobed ground cherry (*Physalis lobata*), pink velvet-mallow (*Horsfordia alata*), and desert portulaca (*Portulaca halimoides*) - or species that bloom in both fall and spring (e.g., glandular ditaxis), will be sought as well during summer/fall 2010 surveys.

Cacti and Trees

One cactus species (silver cholla) and three tree species (palo verde, honey mesquite, and ironwood) were present within the Survey Area, all of which were also observed during Spring 2009 surveys. Cacti and trees are protected from unnecessary harvesting under the CDNPA and offer important vertical structure in the habitat. They will be avoided where feasible, and used in revegetation and vertical mulching. Based on the amount of local as well as regional habitat that includes these species, Project effects on populations and species will be negligible.

5.1.2 Invasive Plants

Surveyors did not detect any invasive plant species in Fall 2009 and Spring 2010 that were not detected in Spring 2009: tamarisk (high), Saharan mustard (high), Mediterranean grass (limited), and Russian thistle (high). The Cal-IPC classifications are based on cumulative state-wide trends and can vary at local scales; this means that a species classified as limited may be more invasive on a local scale than a species classified as high, depending on local conditions (Cal-IPC 2006). Therefore, all invasive species can potentially impact a local ecosystem. In order to prevent the spread of the existing weed species and prevent introduction of new weed species, a Weed Management Plan will be prepared for Project construction and operation.

5.2 Wildlife Species

5.2.1 Desert Tortoise

The lack of live tortoises and recent tortoise sign (e.g., scat and burrows) detected during Fall 2009 and Spring 2010 surveys indicates that (a) no tortoises currently occupy or have recently occupied the Project Area and (b) the current tortoise population density within the Survey Area is very low. Both are consistent with Spring 2009 surveys. Additionally, the size, condition, and distribution of the bone fragments found during Spring 2010 support the conclusion that tortoises do not currently occupy the Linear Facilities.

The 2010 survey results support the conclusion that Project impacts to desert tortoise are expected to be negligible due to lack of current occupation. The Sonoran Creosote Bush Scrub found within the Project Area is poor desert tortoise habitat (Genesis Solar, LLC 2010) and the patches of sand dunes along the Linear Facilities are generally not considered tortoise habitat. It is reasonable that tortoises could occupy the inter-dune spaces; however, no tortoises or sign were observed in these areas. It is also possible that tortoises are present upslope to the north and east of the Project Area where higher quality creosote bush scrub and ephemeral washes are present.

Multiple mitigation measures will be implemented to reduce the chances that a tortoise will be harmed during construction and operation. These measures include, but are not limited to, Plant Site tortoise exclusion fencing and site clearance, a Worker Environmental Awareness Program (WEAP) for all Project employees working on-site, a Desert Tortoise Translocation Plan, and biological construction monitoring, as required by the CEC and BLM.

5.2.2 Mojave Fringe-Toed Lizard

The Mojave fringe-toed lizard occupies the Stabilized and Partially Stabilized Sand Dunes and smaller patches of sandy habitats along the Linear Facilities routes. The Project design has been changed from its originally proposed configuration to avoid direct impacts to the high quality Sand Dunes habitat, by: 1) re-routing the Linear Facilities route to bypass the dunes located in the eastern ROW and 2) eliminating 41 acres from the eastern Plant Site that

overlapped the Stabilized and Partially Stabilized Sand Dunes. Project design changes have greatly reduced the direct impacts to Mojave fringe-toed lizard habitat to 1.3 acres of combined temporary and permanent impacts. Although habitat loss has been reduced, Project construction and operation activities could still result in loss of individual lizards. A WEAP, biological construction monitoring, and speed limits will be implemented to reduce direct impacts to individuals.

5.2.3 Burrowing Owl

Although no burrowing owls were observed during Spring 2010 surveys, previous surveys show that habitat for this species exists within the entire Project Area. The Spring 2009 surveys identified that burrowing owls were present within the Project ROW and Linear Facilities, and the Winter 2009 burrowing owls surveys confirmed that they were also present within the Plant Site (Tetra Tech and Karl 2010). This indicates that burrowing owls are present year-round. However, it is uncertain if the owls observed in winter are resident birds because the observations of live birds during the spring and winter surveys were not made at the same locations and were not associated with the same burrows. It is also uncertain whether these owls are breeding in the Project Area, as no active nests were found during the breeding-season surveys. In addition to the WEAP and biological construction monitoring, pre-construction surveys will be performed to identify active burrowing owl burrows. A Burrowing Owl Mitigation Plan will be prepared and implemented if any burrowing owls need to be relocated.

5.2.4 Other Special-status Wildlife Species

Other special-status wildlife species (e.g., birds, bats, kit foxes, burro deer) are expected to be directly and indirectly affected by Project development mainly due to habitat loss, but also possibly due to loss of individuals, especially during construction. The loss of habitat resulting from Project development is unlikely to create a substantial, permanent impact because the Project Area hosts no special foraging habitat or shelter sites (e.g., water sources, riparian vegetation) and there is ample, identical habitat immediately outside of the Project Area.

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FIGURES

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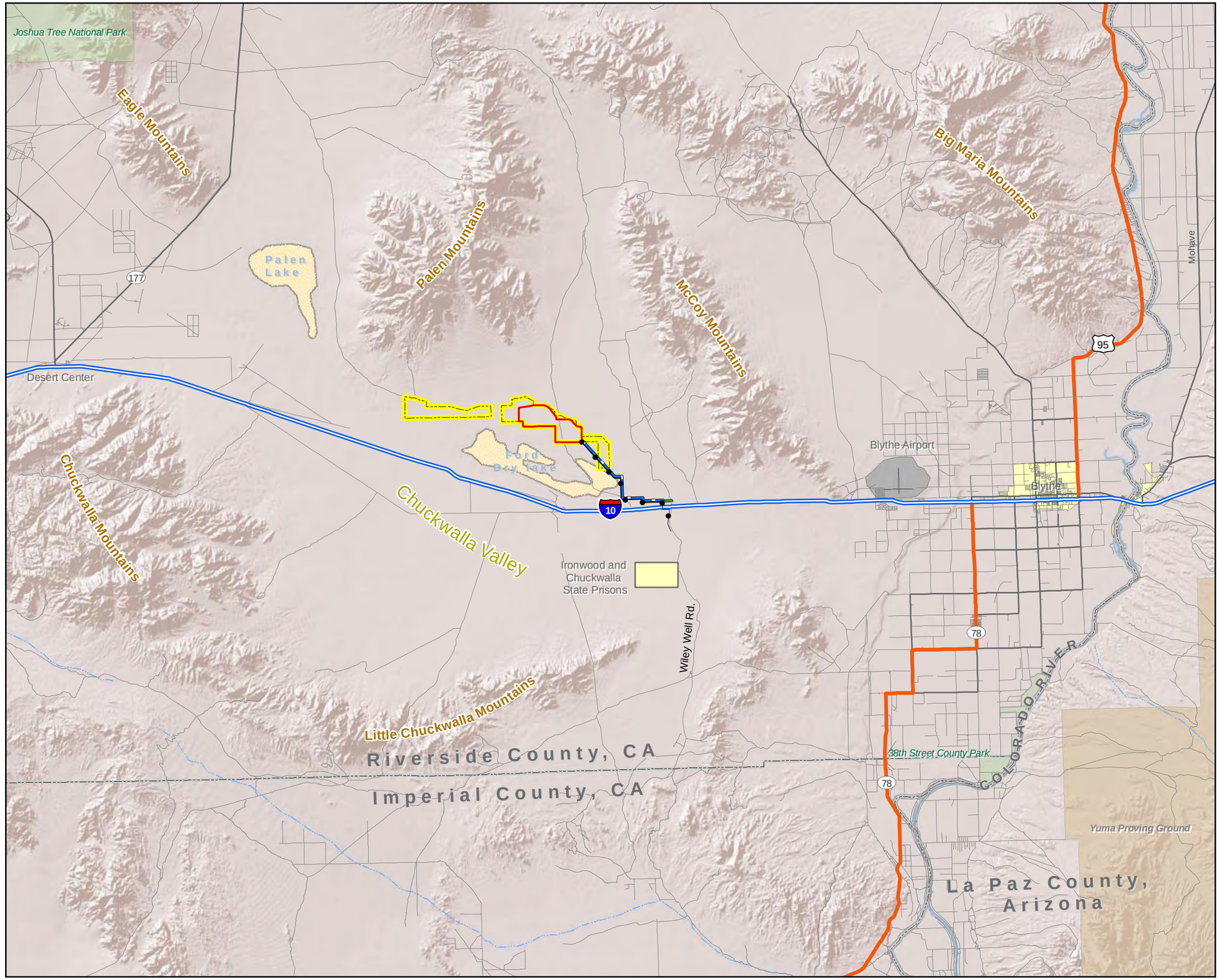

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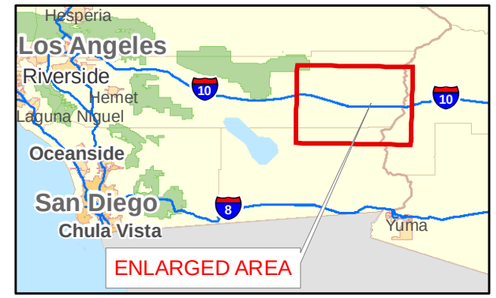
RIVERSIDE COUNTY, CALIFORNIA



Legend

- Project Requested ROW
- Interstate
- Highway
- Major Road
- Local Road
- State Boundary
- Plant Site
- Airport Area
- County Boundary
- Lake/River
- Lake Intermittent
- Parks (Regional)
- Military Installation
- Urban Areas

Project Linear Facilities

- Proposed Transmission Interconnect (7.5 Miles)
- Proposed Gas Line (5.9 Miles)
- Proposed Access Road (6.1 Miles)

N

0 2.5 5 7.5 10
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, TTEC

FIGURE 1
REGIONAL LOCATION MAP

TETRA TECH EC, INC.

685000 690000 695000 700000

3730000 3725000 3720000 3715000

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RIVERSIDE COUNTY, CALIFORNIA

Legend

- Proposed Gas Line (5.9 Miles)
- Proposed Access Road (6.1 Miles)
- Existing Blythe Energy Transmission Line
- Proposed Transmission Interconnect
- Project Requested ROW
- Plant Site
- Proposed Colorado River Substation
- Biological Resources Survey Area (surveyed by AECOM, Spring 2010)

N

0 2,500 5,000 7,500 10,000

Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI,TTEC

FIGURE 2
PROJECT FACILITY LAYOUT

TETRA TECH EC, INC

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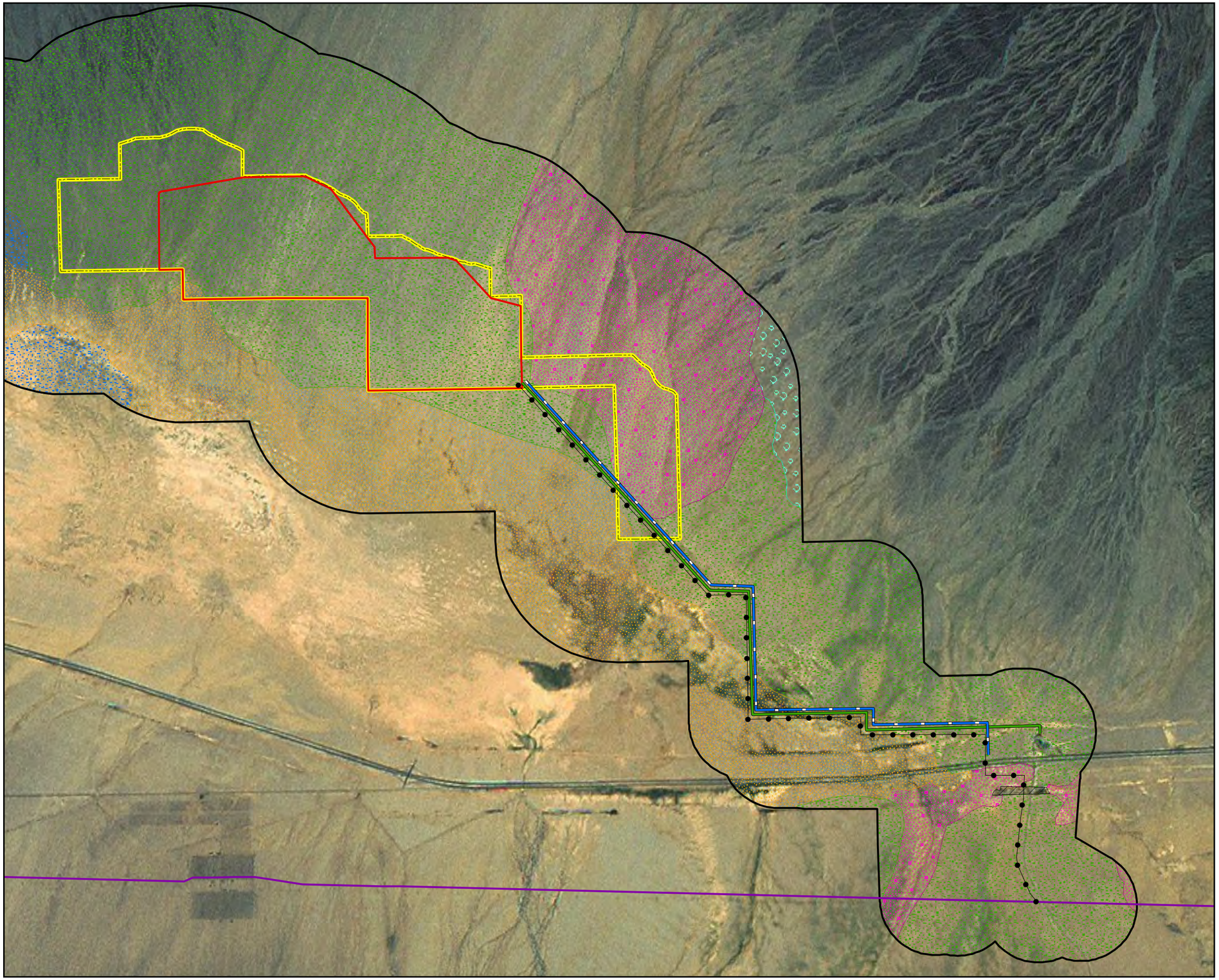

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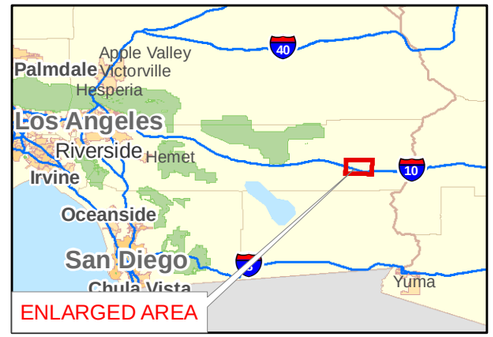
RIVERSIDE COUNTY,
CALIFORNIA



Legend

- Borrow Pit - Honey Mesquite Population
- Chenopod Scrub
- Sonoran Creosote Bush Scrub*
- Dry Desert Wash Woodland
- Playa and Sand Drifts over Playa
- Stabilized and Partly-Stabilized Sand Dune
- Blythe Energy Project Transmission Line
- Plant Site
- Requested Project ROW
- Extent of Surveyed Area

Project Linear Facilities

- Proposed Transmission Interconnect (7.5 Miles)
- Proposed Gas Line (5.9 Miles)
- Proposed Access Road (6.1 Miles)

***Substrates are patchily aeolian especially near Dunes and Sand Drifts over Playa.**

N

0 0.5 1 1.5 2
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: TTEC, Alice Karl & Assoc.
(c) Imagery: ESRI

FIGURE 3
NATURAL COMMUNITY TYPES

TETRA TECH EC, INC

693000 693500 694000 694500 695000 695500 696000

3720500 3720000 3719500 3719000 3718500

Wiley's Well Rest Area

10

122 121 120 119 118 117 116 115 114 113 112 111

Wiley's Well Rd.

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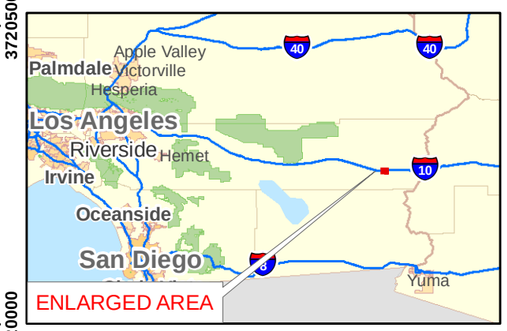

Legend

- Linear Route Boundary
- Blythe Transmission Line
- Proposed Transmission Interconnect
- Blythe Transmission Line Structure & Number
- Linear Route Waypoint & Number
- Zone of Influence Transect Waypoint & Number
- 420 ft Proposed Transmission Interconnect(100% coverage)

Zone of Influence Transect

- 100 ft ZOI
- 200 ft ZOI
- 300 ft ZOI
- 400 ft ZOI
- 500 ft ZOI

N

0 125 250 500
Meters

0 375 750 1,125 1,500
Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, TTEC

FIGURE 4A
FALL 2009
BIOLOGICAL RESOURCES SURVEY AREA

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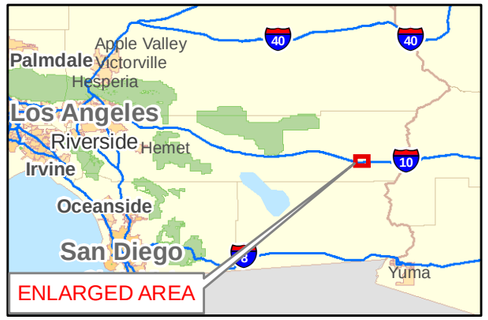
RIVERSIDE COUNTY,
CALIFORNIA



Legend

- Blythe Transmission Line Structure
- Blythe Transmission Line
- 420 ft Survey area(100% coverage)
- Botany Survey Area
- Project Requested ROW
- 5% Quality Control Survey Area
- Linear Route Point
- Zone Of Influence (ZOI) Point
- Botany Survey Area Point
- 420 ft Survey Area Point

Zone Of Influence Transects

- 100 ft
- 200 ft
- 300 ft
- 400 ft
- 500 ft
- 1,200 ft
- 2,400 ft
- 3,960 ft
- 5,280 ft

2010 Survey Area Centerline

- Route A
- Route B
- Route C
- Route D

N

0 500 1,000 1,500 2,000
Meters

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, TTEC

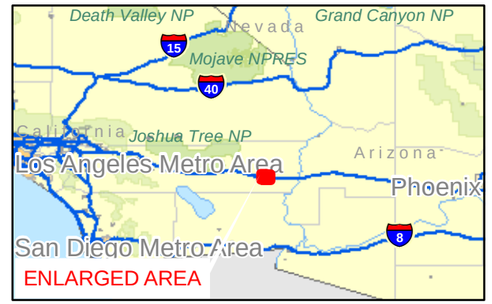
FIGURE 4B
SPRING 2010
BIOLOGICAL RESOURCES SURVEY AREA

TETRA TECH EC, INC.

Printing Date: 6/9/2010 11:26 AM
File: P:\GIS\Projects\FPL\Maps\Genesis\2010BioSurvey\Genesis-2010-BioSurvey-Figure4B.mxd

Genesis Solar, LLC

GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY,
CALIFORNIA



Special - Status Plant Observations

Ribbed Cryptantha
- Population (>2 Individuals)
- Individual

Harwood's Milkvetch
- Individual
- Population (>2 Individuals)

Desert Unicorn Plant
- Fall 2009
- Spring 2010

- Proposed Access Road (6.1 Miles)
- Proposed Gas Line (5.9 Miles)
- Proposed Transmission Interconnect (7.5 Miles)
- Blythe Energy Project Transmission Line
- Plant Site
- Project Site

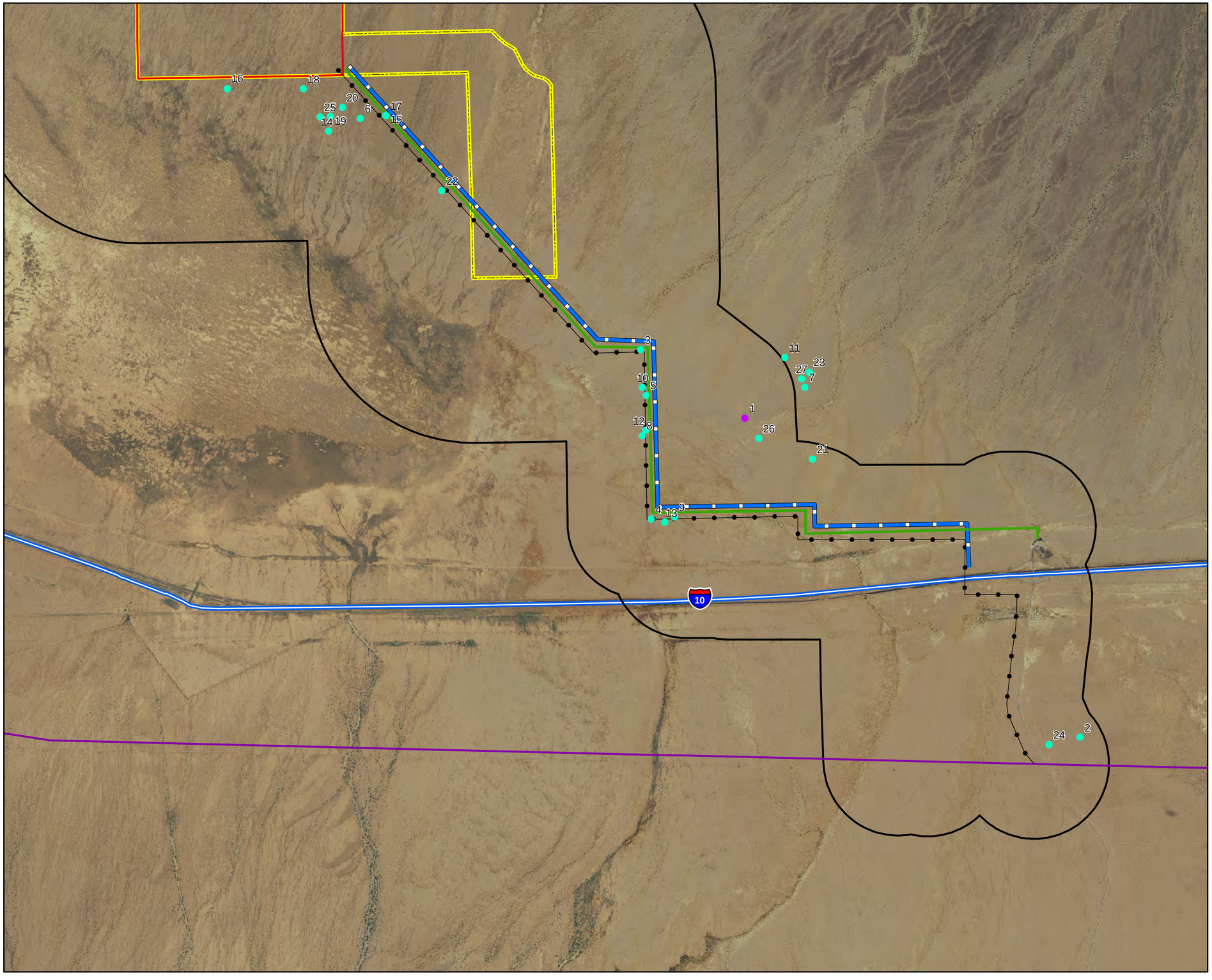
N

0 0.5 1
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl & Assoc. Tetra Tech,
(c) Road data: ESRI; Imagery: USDA

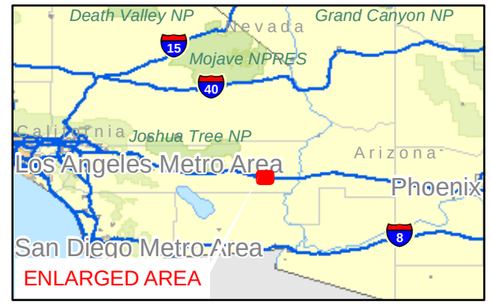
Figure 5.
Special - Status Plants
Observed During Field Surveys

TETRA TECH EC, INC



Genesis Solar, LLC

GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY,
CALIFORNIA



Legend

Desert Tortoise Observations Spring 2010 (Reference Table 6) [Index Number]

- Bone Fragments 4-10 Years Old (Estimated)
- Bone Fragments 3,000 - 5,000 Years Old
- Blythe Energy Project Transmission Line
- Proposed Transmission Interconnect
- Proposed Gas Line
- Proposed Access Road
- Project Requested ROW
- Plant Site
- Extent of Surveyed Area

N

0 0.5 1
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl & Assoc, Tetra Tech
(c) Roads: ESRI; Imagery: USDA

Figure 6.
Desert Tortoise Sign Observed During Field Surveys

TETRA TECH EC, INC

Last Saved: Tuesday, May 25, 2010 9:08 AM
Analyst: J MacLachlan File: P:\projects_2005\fpl\maps\Genesis_Bio\FDL_SpecStatWildSpp_2010_GL_20100525.mxd

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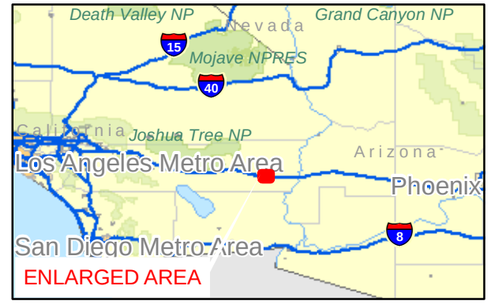
RIVERSIDE COUNTY,
CALIFORNIA



Legend

- Possible Burrowing Owl Burrow with Whitewash
- Kit Fox Complex - Inactive
- Kit Fox Complex - Active
- Mojave Fringe-toed Lizard (1-3 Individuals)
- Burro Deer (Tracks)
- Loggerhead Shrike
- Ferruginous Hawk
- Northern Harrier
- Swainson's Hawk
- Borrow Pit - Potential Couch's Spadefoot Toad Breeding Area
- Blythe Energy Project Transmission Line
- Proposed Transmission Interconnect (7.5 Miles)
- Proposed Gas Line (5.9 Miles)
- Proposed Access Road (6.1 Miles)
- Project Requested ROW
- Plant Site

N

0 0.5 1
Miles

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: A. Karl & Assoc. Tetera Tech EC
(c) Roads: ESRI: Imagery: USDA

FIGURE 7.
Other Special-status Wildlife Species Sign Observed During Field Surveys

TETRA TECH EC, INC

APPENDIX A

OVERVIEW OF BIOLOGICAL RESOURCES SURVEY AREA, 2009 AND 2010

Printing Date: 6/10/2010 3:00 PM
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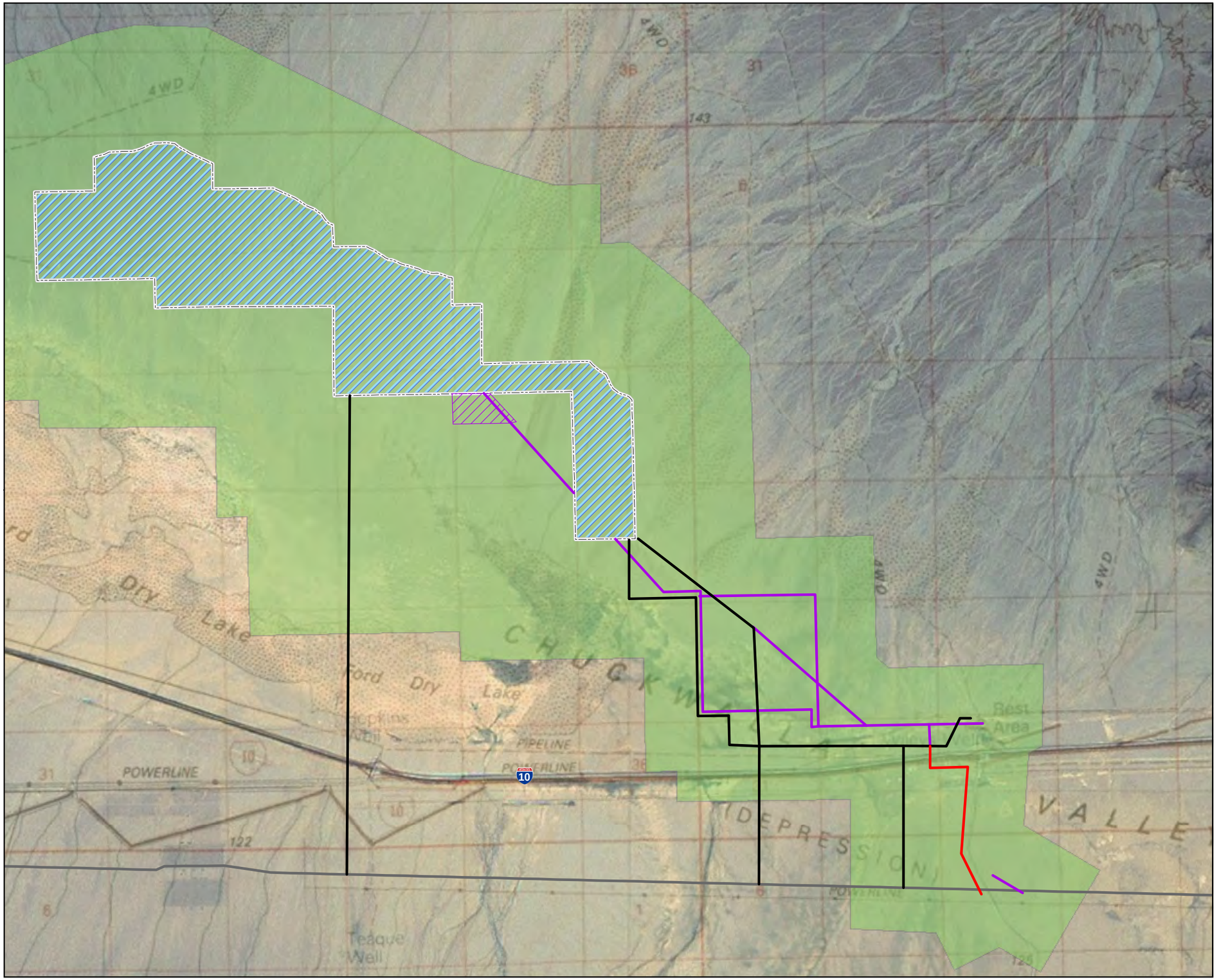

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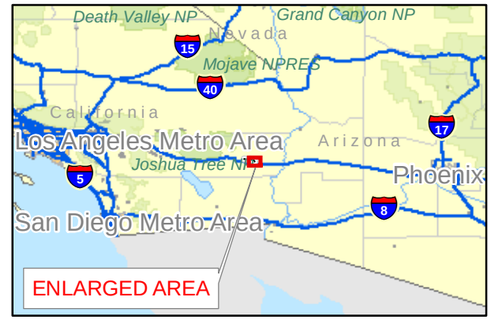
GENESIS SOLAR ENERGY PROJECT
RIVERSIDE COUNTY, CALIFORNIA



Legend

- Routes Surveyed for Biological Resources Fall 2009 & Spring 2010
- Routes Surveyed for Biological Resources Spring 2009 Only
- Routes Surveyed for Biological Resources Spring 2010 Only
- Blythe Transmission Line
- Project Site
- Spring 2009 Survey Area
- Spring 2010 Survey Area
- ZOI Extent 2009-2010

N

0 2,000 4,000 6,000 8,000

Feet

Notes:
(a) UTM Zone 11, NAD 1983 Projection.
(b) Source data: ESRI, BLM, TTEC

Overview of Biological Resource Survey Area 2009 and 2010

TETRA TECH EC, INC.

APPENDIX B

LIST OF FIELD BIOLOGISTS

APPENDIX B

LIST OF FIELD BIOLOGISTS

Field Biologists	Fall 2009	Spring 2010
Alice Karl, Ph.D. *	X	X
Art Schaub		X
Bill Hasskamp		X
Bret Blosser, Ph.D.		X
Dave Focardi		X
Emily Festger *		X
Jennifer Weidensee		X
Kevin Walsh		X
Liz (Jacqueline) Smith		X
Mary Ann Hasskamp		X
Nathan Mudry (eGIS)	X	X
Paul Frank		X
Peggy Wood	X	X
Shawn Lindey		X
Tim Thomas		X
Tina Poole		X

*Report Preparers

APPENDIX C

REPRESENTATIVE PHOTOGRAPHS

Sonoran Creosote Bush Scrub with Patches of Sand over Playa
Proposed Linear Route, Facing East

Sonoran Creosote Bush Scrub Located within the Requested ROW

Sonoran Creosote Bush Scrub North of I-10 along Linear Route, Facing East

APPENDIX D

COMPREHENSIVE LIST OF SPECIES OBSERVED, 2009 AND 2010

APPENDIX D

COMPREHENSIVE LIST OF SPECIES OBSERVED, 2009 AND 2010

Wildlife and Plant Species Observed at the Genesis Solar Energy Project during 2009 and 2010 Surveys	
REPTILES	
Callisaurus draconoides	zebra-tail lizard
Chionactis occipitalis	western shovel-nosed snake
Cnemidophorus (=Aspidoscelis) tigris	western whiptail
Crotalus cerastes	Sidewinder rattlesnake
Dipsosaurus dorsalis	desert iguana
Gambelia wislizenii	leopard lizard
Phrynosoma platyrhinos	desert horned lizard
Uma scoparia	Mojave fringe-toed lizard
Urosaurus graciosus	brush lizard
Uta stansburiana	side-blotched lizard
MAMMALS	
Ammospermophilus leucurus	antelope ground squirrel
Canis latrans	coyote (scat)
Chaetodipus penicillatus	desert pocket mouse
Dipodomys deserti	desert kangaroo rat
Dipodomys merriami	Merriam's kangaroo rat
Lepus californicus	black-tailed hare
Neotoma lepida	desert woodrat (midden)
Odocoileus hemionus eremicus	burro deer (tracks)
Perognathus longimembris	little pocket mouse
Taxidea taxus	American badger (burrow)
Spermophilus tereticaudus	round-tailed ground squirrel
Sylvilagus audubonii	desert cottontail
Vulpes macrotis	desert kit fox (digs, scat, natal dens)
INSECTS	
Pepsis sp.	tarantula hawk
BIRDS	
Amphispiza bilineata	black-throated sparrow
Asio flammeus	short-eared owl
Auriparus flaviceps	Verdin
Athene cunicularia	burrowing owl
Bubo virginianus	great-horned owl
Buteo jamaicensis	red-tailed hawk
Buteo swainsoni	Swainson's hawk
Buteo regalis	ferruginous hawk
Callipepla gambelii	Gambel's quail
Calypte anna	Anna's hummingbird
Calypte costae	Costa's hummingbird
Cathartes aura	turkey vulture
Chordeiles acutipennis	lesser nighthawk
Circus cyaneus	northern harrier
Corvus corax	common raven
Dendroica coronata	yellow-rumped warbler
Eremophila alpestris	California horned lark
Falco mexicanus	prairie falcon
Hirundo rustica	barn swallow
Hirundo pyrrhonota	cliff swallow
Lanius ludovicianus	Loggerhead shrike
Loxia curvirostra	red crossbill
Mimus polyglottos	northern mockingbird
Myiarchus cinerascens	ash-throated flycatcher
Passerculus sandwichensis	savannah sparrow

APPENDIX D

COMPREHENSIVE LIST OF SPECIES OBSERVED, 2009 AND 2010

Wildlife and Plant Species Observed at the Genesis Solar Energy Project during 2009 and 2010 Surveys	
Phainopepla nitens	phainopepla
Phalaenoptilus nuttallii	common poor-will
Quiscalus mexicanus	great-tailed grackle
Spizella breweri	Brewer's sparrow
Stelgidopteryx serripennis	northern rough-winged swallow
Streptopelia decaocto	Eurasian collared dove
Sturnella neglecta	western meadowlark
Tachycineta bicolor	tree swallow
Tachycineta thalassina	violet-green swallow
Toxostoma lecontei	LeConte's thrasher
Tyrannus verticalis	western kingbird
Vireo gilvus	warbling vireo
Zenaida asiatica	white-winged dove
Zenaida macroura	mourning dove
Zonotrichia albicollis	white-crowned sparrow
PLANTS	
Abronia villosa var. *villosa*	sand verbena
Acacia greggii	catclaw acacia
Achyronychia cooperi	onyx flower, frost-mat
Allionia incarnata	windmills, trailing four o'clock
Amaranthus blitoides	amaranth
Ambrosia acanthicarpa	annual bursage
A. dumosa	white bursage
A. (=Hymenoclea) salsola	cheesebush
Amsinckia tessellata	bristly fiddleneck
Aristida purpurea	three-awn
Asclepias subulata	rush milkweed
Asclepias erosa	desert milkweed
Astragalus aridus	Astragalus
A. insularis var. *harwoodii*	Harwood's milkvetch
Atrichoseris platyphylla	gravel-ghost
Atriplex polycarpa	allscale
Baileya pauciradiata	desert marigold
B. pleniradiata	woolly marigold
Bebbia juncea	Chuckwalla bush
Bouteloua aristidoides	needle grama
Brandegea bigelovii	desert starvine
**Brassica tournefortii*	Saharan mustard
Bromus madritensis var. *rubescens*	red brome
Calandrinia ambigua	desert pussypaws
Calycoseris wrightii	white tackstem
Calyptridium monandrum	pussypaws
Camissonia boothii	sun cup
C. boothii ssp. *condensata*	bottlebrush primrose
C. boothii ssp. *desertorum*	bottlebrush primrose
C. claviformis ssp. *aurantiaca*	browneyed primrose
Cercidium floridum (=Parkinsonia florida)	blue paloverde
Chaenactis carphoclinia	pebble pincushion
C. fremontii	Fremont's pincushion
C. stevioides	desert pincushion
Chamaesyce polycarpa	spurge
Chenopodium murale	goosefoot
Chorizanthe brevicornu	brittle spine-flower

APPENDIX D

COMPREHENSIVE LIST OF SPECIES OBSERVED, 2009 AND 2010

Wildlife and Plant Species Observed at the Genesis Solar Energy Project during 2009 and 2010 Surveys	
C. corrugata	spineflower
C. rigida	rigid spinyherb
Colubrina californica	Las Animas colubrina
Croton californicus	California croton
Cryptantha angustifolia	narrow-leaved forget-me-not
C. barbigera	bearded cryptantha
C. costata	ribbed cryptantha
C. dumetorum	flexuous forget-me-not
C. maritima	white-haired forget-me-not
C. nevadensis	Nevada forget-me-not
C. pterocarya	wing-nut forget-me-not
Cylindropuntia acanthocarpa	buckhorn cholla
C. (=Opuntia) echinocarpa	silver cholla
C. (=Opuntia) ramosissima	pencil cactus
Cuscuta cf denticulata	dodder
Dalea mollis	silk dalea
D. mollissima	silk dalea
Datura wrightii	jimsonweed
Dicoria canescens	desert dicoria
Ditaxis lanceolata	narrowleaf silverbush
D. neomexicana	ditaxis
D. serrata serrata	saw-toothed ditaxis
Dithyrea californica	spectacle-pod
Encelia farinosa	brittlebush
Eremalche exilis	white mallow
E. rotundifolium	desert five-spot
Eriastrum harwoodii	Harwood's phlox
E. inflatum	desert trumpet
E. reniforme	wild buckwheat
E. thomasii	wild buckwheat
E. trichopes	wild buckwheat
Eriogonum sp.	buckwheat
Erodium texanum	storksbill
Eschscholtzia glyptosperma	gold-poppy
E. minutiflora	small-flowered gold-poppy
Fagonia laevis	California fagonbush
Fouquieria splendens	ocotillo
Geraea canescens	desert sunflower
Gilia latifolia	broad-leaved gilia
G. stellata	star gilia
Guillenia (=Thelopodium) lasiophylla	California mustard
Hesperocallis undulata	desert lily
Hibiscus denudatus	rock hibiscus
Hoffmannseggia glauca	pig-nut, hog potato
Hyptis emoryi	desert lavender
Justicia californica	beloperone
Kallstroemia grandiflora	Arizona poppy
Krameria erecta	pima rhatany, purple heather
K. grayi	white rhatany
Langloisia setosissima ssp. *setosissima*	bristly langloisia
Larrea tridentata	creosote bush
Lepidium lasiocarpum	pepper grass
Linanthus lemmonii	Lemmon's linanthus

APPENDIX D

COMPREHENSIVE LIST OF SPECIES OBSERVED, 2009 AND 2010

Wildlife and Plant Species Observed at the Genesis Solar Energy Project during 2009 and 2010 Surveys	
L. schottii	Schott gilia
Lotus strigosus	hairy lotus
Lupinus arizonica	Arizona lupine
Malacothrix glabrata	desert dandelion
**Malva parviflora*	cheeseweed
Mammillaria tetrancistra	fish-hook cactus
Marina parryi	parry dalea
Mentzelia affinis	blazing star
M. albicaulis	blazing star
M. involucrata	sand blazing star
M. multiflora var. longiloba	blazing star
Mohavea confertifolia	ghost flower
Monoptilon bellioides	Mojave desert-star
Nama demissum	purple mat
N. hispidum var. *spathulatum*	hispid nama
Nemacladus rubescens	thread plant
Oenothera deltoides	dune primrose
Oligomeris linifolia	mignonette
Olneya tesota	ironwood
Palafoxia arida (= linearis)	Spanish needle
Pectocarya penicillata	hairy-leaved comb-bur
P. recurvata	arch-nutted comb-bur
Perityle emoryi	Emory rock daisy
Peucephyllum schottii	desert fir
Phacelia crenulata var. *crenulata*	notchleaf phacelia
P. crenulata var. *minutiflora*	notchleaf phacelia
P. distans	distant phacelia
P. ivesiana	Ive's phacelia
P. neglecta	alkali phacelia
P. tanacetifolia	lacy phacelia
Physalis crassifolia	ground cherry
Plantago ovata	plantain
Pleuraphis (=Hilaria) rigida	big galleta grass
Pleurocoronis pluriseta	arrow-leaf
Porophyllum gracile	slender poreleaf
Prenanthella (= *Lygodesmia*) *exigua*	brightwhite
Proboscidea althaeifolia	desert unicorn plant
Prosopis glandulosa	honey mesquite
Psathyrotes ramosissima	turtleback, turpentine plant
Psorothamnus emoryi	Emory dalea
P. spinosus	smoke tree
Rafinesquia neomexicana	desert chicory
**Salsola tragus*	Russian thistle, tumbleweed
Sarcostemma hirtellum	hairy milkweed
S. cyanchoides hartwegii	climbing milkweed
**Schismus arabicus*	Mediterranean grass
Senecio mohavensis	Mojave ragwort
Sisymbrium irio	London rocket
Sphaeralcea ambigua	globe mallow
S. angustifolia	Fendler globe mallow
Stephanomeria pauciflora	Wire-lettuce
Stillingia spinulosa	broad-leaved stillingia
Streptanthella longirostris	mustard

APPENDIX D

COMPREHENSIVE LIST OF SPECIES OBSERVED, 2009 AND 2010

Wildlife and Plant Species Observed at the Genesis Solar Energy Project during 2009 and 2010 Surveys	
**Sisymbrium irio*	London rocket
**Tamarix ramosissima*	tamarisk
** T. parviflora*	smallflower tamarisk
Tidestromia oblongifolia	Arizona honeysweet
Tiquilia plicata	plicate coldenia
**Tribulus terrestris*	caltrops, puncture vine

*Non-native

APPENDIX E

EXAMPLE OF SURVEY DATASHEETS AND KEY TO DESERT TORTOISE SIGN CLASSES

PROJECT Genesis

2010 SPECIAL-STATUS SPECIES SURVEYS

DATE March 16 2010
TIME: Start 1135 DST
End 1252

Navigator - Walsh
SURVEYORS: JW, AK, KW, MH, BH, LS, EF
~~ZOI DESCRIPTON~~
ROW DESCRIPTION ~~ROW "A" portion~~ ROUTE A, ~~N portion from~~ PT 5 to POINT 4, ~~E side~~ N side
STARTING UTM 0692405 E 3721233 N
ENDING UTM 0690932 E 3721202 N
(NAD 83)
TRANSECT WIDTH 30 x 7=210 FT
DATA Recorder - Karl

WEATHER:

	Ta	Tg	Cloud Cover	Wind
Start	21.8	31.3	Sunny, 90% cirrus	WNW 1-2
End	28.9	33.4	90% cumulus cirrus	E 3-4

GENERAL SITE DESCRIPTION:
VEGETATION SHRUB LAYER AND BUNCH GRASSES)

Aspect Dominants
LATR

Swales - LATR w/ AMDU & scatt HIRI, CEFL & OLTE

CEFL	OLTE	Cactus
35	5	Ø

Common Species
AMDU

Occasional Species

% Cover ~4-6% outside of swales; ~9% in swales; <1% in W basins

Avg. Height of Dominant Shrub Species
LATR - outside swales - 1.4m In swales - 2-2.2m

UNDERSTORY
Abundant Species PEPE, CRYMAR; OEDE, Abronia common in sandier areas, is abundant in western basins

Exotics (Map concentrations and describe here relative to population size and geographic breadth.)
BROTOU - Common throughout, esp. in swales

TOPOGRAPHY
Landform Valley. W end becomes basins.

Drainage Type Several low areas (swales) but no actual washes. Percolation.

Elevation (state meters or feet) 333'

SUBSTRATE
Color Pale tan to sl. reddish

Coarse Particles (Type, % Cover)
Ø - Scatt. fine gravel.

Soil Texture and Consistence
Soft, consolidated sand ~~patch~~ w/ lots of patches of silty sand. W end is fine silt.

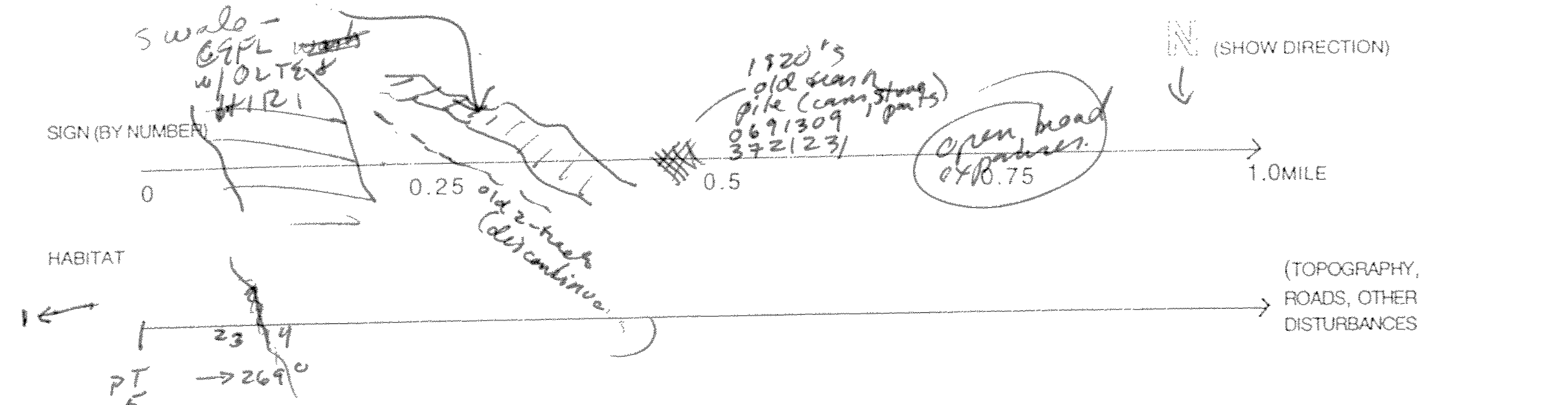
PRESENCE OF PREDATORS: Ravens - # Detected Ø # Nests

Coyotes - # Detected 1 Scat? 1 ~~Est~~ Scat Piles 1
└ Poss ~~Fox~~ bobcat

HUMAN-RELATED DISTURBANCES (Onsite and Adjacent)
One old, small trash pile of cans & stove part

SITE PICTURE: Photographer Karl
A - Form ☑
B – From end (identify) ✓ ☑
C – From other end (identify) ✓ ☑
D – Other ☐

COMMENTS



SIGN #	WAYPOINT	UTM (NAD 83)	DESERT TORTOISE			OTHER SPECIES		
			SIGN TYPE	CLASS	width (sc, bur, tr) MCL (shell, tort)	SPECIES	SIGN TYPE	FURTHER DESCRIPTION
01	GMZZ1	0692478 3720896				Prob. althaeifolia	Seed pods - 卌 卌 卌 I	En route to Row
					+ Hesperocallis	Open, LATR scrub. Consolidated sandy soil. Scattered OLTE washes. Cove close (+ 250 inconspicuous BEP. It is [illegible] size of plants), other common annuals — CRUMAR, PLAOVA, OENDEL, PEPE, PHA, [illegible]. Scattered pods to a couple 100 m away from wash.		
02	GKZZ1	0692185 3721254				Prob. alth. wash.	Seed pods - 卌 many. w/in 100m of OLTE & CEFL	
03	GLZZ1	0692117 3721284				One likely plant - many pods in a clump. Consolidated sand + firm silt & many small		
				~~mostly~~	Sand + silt →	cracked basins (wax [illegible]). Same annuals as above.		
						Another plant w/in 40m. Dead 2 live plants - a few leaves, ~40m W of wypt.		
04	GM AAZ	0691961 3721275				Volpes macrotis		Den (complex) 4 entrances, one w/recent digging. no scat Prob no recent use

KEY TO SIGN CLASSES

BURROWS

1 – DEFINITELY TORTOISE – FRESH (TRACKS, TORTOISE INSIDE, FRESHLY DISTURBED SOIL ON MOUND/RUNWAY)

2 – DEFINITELY TORTOISE – USED THIS SEASON (CLEARED OF ANNUALS, BUT NO FRESHLY DISTURBED SOIL)

3 – DEFINITELY TORTOISE – NOT USED THIS SEASON (PROBABLY HAS ANNUALS GROWING IN RUNWAY)

4 – POSSIBLY TORTOISE – IN GOOD CONDITION BUT UNSURE OF SPECIES USING BURROW

5 – DEFINITELY TORTOISE – DETERIORATED SUCH THAT IT WOULD REQUIRE SUBSTANTIAL REMODELING TO BE USABLE

6 – POSSIBLY TORTOISE – DETERIORATED

SCAT

TY1 – WET OR FRESH DARK, ODORIFEROUS

TY2 – DRIED, POSSIBLE GLAZE ON PART; UNEXPOSED SURFACES DARK BROWN; SLIGHT ODOR

TY3 – DRIED, NO GLAZE; AT LEAST PARTIALLY FADED ON EXTERIOR; VERY SLIGHT ODOR

NTY3 – DRIED, NO GLAZE; AT LEAST PARTIALLY FADED ON EXTERIOR; NO ODOR (DISTINGUISHES FROM TY3)

NTY4 – DRIED, LOOSENING, PALE OR BLEACHED

CARCASSES – GENERAL INDICATORS FOR TIME SINCE DEATH

<1 YR – UNEXPOSED SCUTES NORMAL COLOR AND SHEEN, ADHERE TIGHTLY. EXPOSED SCUTES PALING AND MAY BE LIFTING OR OFF. UNEXPOSED BONE WAXY AND SOLID.

1–2 YRS – UNEXPOSED SCUTES NORMAL COLOR WITH SLIGHT SHEEN, MOSTLY TIGHTLY ATTACHED. EXPOSED SCUTES SLIGHTLY PALE WITH NO SHEEN AND NO TO SLIGHT GROWTH RING PEELING. NO ODOR. UNEXPOSED BONE SILKY.

2–3 YRS – UNEXPOSED SCUTES PALE AND WITHOUT SHEEN BUT NO GROWTH RING PEELING. EXPOSED SCUTES PALE WITH SLIGHT PEELING, SCUTES LOOSE, OFF AND/OR TIGHT. BONE SUTURES GENERALLY TIGHT.

4 YRS – UNEXPOSED SCUTES NORMAL COLOR TO SLIGHTLY PALE, NO SHEEN, NO PEELING. EXPOSED SCUTES LOOSE, PALE, DULL, WITH MODERATE PEELING. SUTURES SEPARATING AND BONE SURFACE IS FISSURED, EDGES ARE ROUGHENED (FISSURED UNDER HAND LENS) AND CHIP FAIRLY EASILY.

>>4 YRS –` DISARTICULATED AND DISARTICULATING. BONE EDGES CHIP AND CRUMBLE EASILY. SCUTES ARE PEELING AND CURLED.