3.4 Biological Resources

This section describes the environmental setting, regulatory setting, and potential impacts of the construction and operation of the proposed project and alternatives with respect to biological resources. Information in this section is largely based on the Eldorado–Ivanpah Transmission Project Biological Technical Report (EPG 2009) and the Proponent's Environmental Assessment (PEA) dated May 28, 2009, as prepared by Southern California Edison (SCE, hereafter referred to as the applicant). Details on locations of the EITP facilities, rights-of-way (ROWs), extra workspaces, and staging areas can be found in Chapter 2. Chapter 2 also provides a detailed description of construction, operation, and maintenance techniques used for the proposed project and alternatives to the proposed project. Comments received from the general public and resource agencies during the scoping process are evaluated and addressed as well in Section 3.4.3, "Impact Analysis."

3.4.1 Environmental Setting

The EITP is located within the Eldorado and Ivanpah valleys in southern Clark County, Nevada, and in San Bernardino County in southeastern California. The project would cross public and privately owned lands (see Section 3.9, "Land Use, Agricultural Resources, and Special Management Areas"). Most of the lands that would be crossed by the transmission line in California are administered by the BLM. Small segments would cross private parcels at Nipton, California, and in the vicinity of the Mountain Pass Substation. Similarly, the EITP in Nevada is predominantly situated on BLM lands, but private lands would be crossed near the Eldorado Substation and possibly at Primm, Nevada.

Environmental analysis for biological resources is confined by the natural geographic boundaries of the region in which the EITP is sited. The region is comprised of alternating valleys and abrupt mountain ranges with gently sloping aprons of sediment debris spread along the slopes. The mountains drain to interior closed basins with playa lakes in the valley bottoms. Specifically, environmental analysis incorporates the drainage footprint of the Eldorado, Ivanpah, Roach, and Jean playa lake beds that are present in the Eldorado, Ivanpah, and Jean valleys (see Figure 3.8-2 in Section 3.8, "Hydrology and Water Quality"). These playas are typically high in evaporated salts, and associated plant communities are usually composed of salt-tolerant species. The analysis also incorporates the seven mountain ranges that surround the proposed project area. These ranges are typically rugged and characterized by cliffs, ledges, and formations with small pockets and crevices. Historic abandoned mines are located in some of the mountain ranges (EPG 2009). The Clark Mountains Range bounds the far western edge of the proposed project, while the Spring Mountains are to the north of the existing transmission line just above Primm, Nevada. At the eastern edge of the Ivanpah Valley in Nevada, the transmission line passes between Sheep Mountain to the north and the north end of the Lucy Gray Mountains, and then passes through the northern McCullough Mountains Range. The telecommunication line alternatives pass between the Highland Range to the east and the South McCullough Range to the west of the Highland Ranges, and, further south, between the McCullough Range and New York mountains Mountains and between the South McCullough Range and the Clark Mountain Range.

The entire EITP is within the Mojave Desert biome. A generally accepted elevation range for the Mojave Desert is from -479 feet in Death Valley, California, to 4,500 feet along the northern edge of the biome, and up to 5,500 feet in the mountains. Elevations within the EITP corridor vary from approximately 1,800 feet at the Eldorado Substation to 5,305 feet at the Mountain Pass Substation. Annual precipitation for the Mojave Desert typically ranges from 2.5 to 7.5 inches, and is predominantly associated with winter rains, which occur from mid-December through early March.

3.4.1.1 Existing Conditions

Survey Methodology and Coverage

Information on biological resources within the EITP was gathered through field surveys and desktop analyses. All ~~f~~Field surveys were conducted by the applicant and their biological consultants. As the third-party contractor charged with identifying and assessing project impacts, Ecology and Environment, Inc., independently conducted desktop analyses by reviewing current regional literature and accessing agency internet biological databases and resources, such as the California Natural Diversity Database (CNDDB), the Nevada Natural Heritage Program (NNHP) database, and California Department of Fish and Game (CDFG), Nevada Division of Environmental Protection, National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and BLM internet resources. Regional review was defined by the natural geographic boundaries in which the proposed project area is present, as described in Section 3.4.1, above.

Field surveys were conducted in 2008 ~~and~~, 2009, and 2010 for most of the project areas and in buffer zones of varying width around existing and proposed project facilities. ~~New access and spur roads as identified by the applicant will be surveyed during spring 2010~~. Reconnaissance surveys were performed along the entire existing transmission line route from the Eldorado Substation west to the proposed Ivanpah Substation site (proposed transmission line route), and from the proposed Ivanpah Substation site west to the Mountain Pass Substation. The following were also surveyed:

- Transmission Line Alternative Routes A and B near the Eldorado Substation, and Alternatives C and D and Subalternative E near Primm, Nevada;
- The Nipton 33-kV/Earth 12-kV line from the Mountain Pass Substation south to an existing AT&T microwave site;
- The proposed fiber optic route along the existing Eldorado–Lugo transmission line from the Eldorado Substation south to Nipton; and
- The Nipton 33-kV line between Nipton and the point where the Nipton 33-kV line crosses I-15
- The Nipton 33-kV line from the point where the Nipton 33-kV line crosses I-15 east to Mountain Pass Substation; and
- The Nipton 33-kV line from the point where the Nipton 33-kV line crosses I-15 north along I-15 to the Ivanpah Substation.

During field surveys, biological resources were assessed within a 250-foot-wide corridor along the transmission lines. The purpose of reconnaissance surveys was to identify vegetation communities and wildlife ~~present~~ presence, to conduct preliminary searches for sensitive plant and wildlife species in suitable habitats within the project limits (including nests for raptors), and to identify areas that required additional protocol-level surveys for sensitive species. Protocol surveys provide specific location information on sensitive species occurrences within project limits. Focused surveys conducted included USFWS protocol-level presence/absence surveys (including zones of influence) for the Mojave population of desert tortoise and surveys for rare plants and invasive/noxious weed species.

Protocol-level surveys for desert tortoise were conducted in spring 2008 and 2009 along the proposed transmission line route between the Eldorado Substation and the Mountain Pass Substation, all transmission alternative routes, the proposed telecommunications lines and all alternatives, and the proposed microwave tower site near the town of Nipton. ~~Because of the more limited potential impacts associated with placement of the fiber optic communications line along existing transmission and distribution lines~~ (Along the Eldorado–Lugo 500-kV and Nipton 33-kV~~,~~ ~~respectively)~~ lines, protocol surveys were ~~not performed for the entire telecommunication route but focused~~ only conducted on areas of ground disturbance associated with cable pulling and tensioning sites, tower retrofit construction areas, and other construction areas. Tower pads ~~and spur roads associated with~~ located along the

existing Eldorado–Lugo transmission line (route for the proposed fiber optic line, Path 2, Sections 1 and 2) were surveyed. ~~Access roads along the Eldorado–Lugo line were not surveyed. The USFWS service has agreed that data collected for the 100-foot-buffered tower sites and the spur roads on the Eldorado–Lugo transmission route can be used for estimating desert tortoise densities along these access roads (Burroughs 2009). The applicant plans to complete additional desert tortoise surveys in spring 2010. For the proposed transmission line route and alternatives, biologists surveyed a 200-foot ROW, plus five zone-of-influence transects on each side.~~ In spring 2010 additional protocol-level surveys for desert tortoise were conducted along proposed portions of the project that were not surveyed during the 2008 and 2009 surveys. During the spring 2010 survey effort, all access roads and non-linear features (pulling /splicing sites, helicopter landing zones, and proposed laydown areas) were surveyed to ensure 100 percent coverage; additionally, five zone-of-influence transects were surveyed on each side of the roads. Results of the 2008 desert tortoise surveys are provided in the Desert Tortoise Survey Report (Karl 2009), an appendix to the Eldorado-Ivanpah Transmission Project Biological Technical Report (EPG 2009). Results of the 2009 desert tortoise surveys are provided in the ~~DRAFT~~ Desert Tortoise Survey Report (Karl 2010a) and the results of the 2010 desert tortoise surveys are provided in the Desert Tortoise Survey Report (Karl 2010b), in Appendix B-2 of this document.

A rare plant and invasive/noxious weed survey was conducted by first developing target species lists after consulting lists of federally and state-listed species and similar species lists maintained by the California Native Plant Society (CNPS), the CNDDB, the NNHP, the Nevada Native Plant Society (NNPS), and the California and Nevada offices of the BLM. Field surveys for rare plants were conducted in 2008 along the proposed route and in most project areas; however, some areas were not covered, including some alternative routes and existing substation facilities. Field surveys were conducted in 2009 for project transmission and telecommunication alternative routes not identified in 2008. Additionally, the Ivanpah Dry Lake playa and disturbed ground areas and paved roads and parking lots near Primm, Nevada, were not surveyed due to lack of suitable habitat. ~~Additional surveys for rare plants will be completed by the applicant in spring 2010~~. An invasive/noxious weed survey was performed along the proposed project route from the existing Eldorado Substation to the proposed Ivanpah Substation site, extending west along the fiber optic communications route to the Mountain Pass Substation. Additional botanical surveys were conducted during the spring of 2010 including surveys for rare plants, invasive/noxious weeds, and cactus and yucca (see Appendix B-3). Surveys were conducted around each existing and proposed tower site, proposed disturbance areas used for pulling sites, laydown areas, and for telecommunication infrastructure. Although cactus and yucca surveys were conducted in both California and Nevada, counts were calculated for the Nevada portion of the proposed project at the request of the Nevada BLM field office.

A raptor and raptor nest survey was conducted during the winter of 2009 and spring of 2010. The raptor survey was conducted along the proposed transmission line route between the Eldorado Substation and Primm, Nevada, the proposed telecommunications line between Eldorado Substation and Nevada State Route 164, the vicinity of the Mountain Pass Substation, and the McCullough Pass area (two to three kilometers south of the proposed transmission line route). Biologists visually surveyed for raptors on or near the transmission structures for the proposed transmission and communication lines as well as adjacent lines, and for any evidence of nesting in the transmission structures or nearby cliffs (see Appendix B-4).

A delineation of the waters of the United States (U.S.) and CDFG Jurisdictional Aquatic Resources was conducted during spring 2010 (see Appendix B-5). The data that was collected is intended to assist the U.S. Army Corps of Engineers (USACE) in its determination of the extent of jurisdictional Waters of the U.S. within the proposed project area. The data is also intended to aid the CDFG with determination of the extent of jurisdictional habitats in the California portion of the proposed project. Biologists surveyed all project-related temporary and permanent impact areas including a 50-foot buffer surrounding all impact areas and access roads except for Alternative B, the California portion of Alternative D, the spur roads between the Eldorado-Lugo main access road and the existing transmission towers, and the Mountain Pass and Golf Course telecommunication alternatives for desert washes potentially falling under the regulatory jurisdiction of USACE and CDFG. Data was collected in accordance with the 1987 Corps of Engineers Wetlands Delineation Manual and additional supplemental manuals. For the evaluation of desert washes located along areas not physically surveyed, (i.e. Alternative B, etc), identification was based on United States

Geological Survey (USGS) topographical maps and National Hydrography Datasets (NHD). For the purposes of analysis, all blue-line drainages intersected by the project and alternatives that were not physically surveyed are assumed to be jurisdictional to the USACE and the CDFG.

Survey results for both 2008 and 2009 reconnaissance and protocol-level surveys are provided in the Eldorado–Ivanpah Transmission Project Biological Technical Report (EPG 2009). Table 3.4-1 outlines the ~~schedule for additional biological surveys~~ pre-construction surveys to be performed by the applicant should the project be permitted. ~~Pre-construction surveys are also outlined in Table 3.4-1, as these.~~ These surveys will be necessary to verify that the construction area is cleared of sensitive biological resources from 1 to 30 days prior to construction. Though additional biological surveys still need to be completed as outlined in Table 3.4-1, Council on Environmental Quality (CEQ) regulations (Title 40 of the Code of Federal Regulations [CFR], Section [§] 1502.22) allow the analysis within an environmental document to proceed with incomplete data, particularly if the available information is sufficient to determine the potential for impacts. As biological resources can move into project boundaries after initial surveys have been conducted, pre-construction surveys identify the current status of biological resources within project boundaries and allow for appropriate management if any sensitive ~~organisms~~ resources are found.

Table 3.4-1 Additional Biological Surveys to be Completed

Survey	Survey Area	Survey Schedule	Notes
Bighorn sheep	McCullough ~~Pass~~ Range, Highland Pass between Highland Range and ~~South McCullough Mountains~~, Mountain Pass Substation area	~~December through May, if construction is to occur in bighorn sheep areas during the January through May lambing season~~. Preconstruction survey for desert bighorn sheep within suitable bighorn sheep habitat within 1 week prior to construction activities in the McCullough Range and the southern portion of the Eldorado Valley between the Highland Range and the Southern McCullough Range.	~~Surveys conducted if bighorn lambing areas cannot be avoided during lambing season (January–May)~~. Conduct biological monitoring by a qualified biologist for desert bighorn sheep during duration of construction within suitable bighorn sheep habitat.
Burrowing owl	All project areas with suitable burrowing owl habitat: scrublands, sparse shrublands, and grasslands with low vegetation height. Presence of burrows made by fossorial mammals or manufactured structures such as culverts and drains.	~~Habitat assessment to be conducted during migratory bird survey and preconstruction surveys~~. Preconstruction surveys to be conducted in all areas with suitable habitat.	
Desert tortoise	~~Project areas not previously surveyed, including access and spur roads~~ All project areas	~~May 2010 and preconstruction~~ Preconstruction clearance surveys	~~Protocol-level surveys with zone of influence have been conducted for the majority of proposed project and alternatives during the 2008 and 2009 spring survey season~~
~~Jurisdictional delineation~~ Migratory birds	All project areas	~~Jan 2010~~ Preconstruction surveys (February–August)	~~Project area to be surveyed for washes/other areas that will require water permits~~
~~Migratory birds~~ Raptors nests	All project areas	~~February/March 2010 and~~ preconstruction surveys (February–August)	
~~Raptors and raptor nests~~ Rare plants	~~McCullough Pass, Eldorado–Lugo 500-kV line between Highland Range and South McCullough Mountains, Mountain Pass Substation area.~~ All project areas	~~December 2009, March 2010, and preconstruction surveys~~ Preconstruction surveys	~~Surveys for these areas to include the surrounding cliffs; surveys conducted during the spring, preferably March~~

Table 3.4-1 Additional Biological Surveys to be Completed

Survey	Survey Area	Survey Schedule	Notes
~~Rare plants~~ Other Special Status Wildlife	All project areas	~~Winter/spring 2009–2010; timing depends on growing conditions~~ Preconstruction surveys, all year	~~The majority of project areas were surveyed during the 2008 and 2009 rare plant surveys~~
~~Wildlife~~	~~All project areas~~	~~Preconstruction surveys, all year~~	

Plant Communities

Habitat types within the proposed project area are typical of those found in the Mojave Desert (Figure 3.4-1). Vegetation at lower elevations over most of the EITP is characteristic of the creosote bush-white bursage (*Larrea tridentata-Ambrosia dumosa*) series (Sawyer and Keeler-Wolf 1995). Other specific vegetation types include saltbush (*Atriplex* spp.) scrub, Mojave yucca (*Yucca schidigera*) desert scrub, Joshua tree (*Yucca brevifolia*) woodland, black bush (*Coleogyne ramosissima*) scrub, desert wash, and ~~pinion~~, for the Mountain Pass Alternative only, pinyon pine-juniper (*Pinus monophyla-Juniperus californica*) woodland. In addition, areas relatively devoid of native vegetation include the dry lake beds, developed areas, paved roads, highways, and access roads and other disturbed areas associated with construction and ongoing mining operations.

Saltbush Scrub

Saltbush scrub typically has low plant species diversity, and within the proposed project area is dominated by saltbush species, white bursage, and big galleta (*Pleuraphis rigida*) located in alkaline soils around the perimeter of the dry lake beds. Vegetation is an intermittent to open canopy, generally less than 2 feet in height.

Creosote Bush Scrub/Creosote Bush-White Bursage Scrub

The creosote bush-white bursage series is dominated by creosote bush and augmented by a variety of other shrubs, including four-wing saltbush (*Atriplex canescens*), all-scale (*A. polycarpa*), desert senna (*Senna armata*), cheesebush (*Hymenoclea salsola*), sweetbush (*Bebbia juncea*), and other less common shrubs. Numerous annual plants and forbs are present to varying degrees, including pincushion flower (*Chaenactis fremontii*), bristly fiddleneck (*Amsinckia tessellate*), desert globemallow (*Sphaeralcea ambigua*), cryptantha (*Cryptantha* sp.), combseed (*Pectocarya* sp.), and Mediterranean grass (*Schismus barbatus*). Cacti are not common at lower elevation; however, they are more common at higher elevations and on steeper slopes. Cacti species present include Wiggins' cholla (*Cylindropuntia echinocarpa*), Engelmann's hedgehog cactus (*Echinocereus engelmannii*), California barrel cactus (*Ferocactus cylindraceus*), diamond cholla (*Cylindropuntia ramosissima*), and beavertail pricklypear (*Opuntia basilaris*).

Mojave Yucca Desert Scrub

Mojave yucca is the dominant over-story plant in this community, which is a common transitional community between creosote bush-white bursage scrub and Joshua tree woodland communities. This plant community has a greater abundance of plant species than creosote bush communities, including more species of cacti. Cactus species include California barrel cactus, cottontop cactus (*Echinocereus polycephalus*), Wiggins' and diamond chollas, Engelmann's hedgehog cactus, and beavertail pricklypear. Shrub species include Virgin River brittlebush (*Encelia virginensis*), as well as white bursage at the lower elevation limits of the plant community and black bush at the upper limits.

Joshua Tree Woodland

Joshua tree woodland occurs at middle elevations in the proposed project area. Joshua tree woodland is dominated by Joshua trees as the overstory plant with Mojave yucca, ephedras (*Ephedra* sp.), cheesebush, California buckwheat (*Eriogonum fasciculatum*), and wolfberry (*Lycium andersonii*) present as common shrub species. Creosote bush and black bush typically occur at ecotonal boundaries with lower and higher elevation adjacent plant communities, respectively.

Black Bush Scrub

The black bush scrub plant community, typical of mid-elevation desert mountains, is dominated by black bush and features emergent (i.e., growth above the level of the standing canopy) Utah juniper (*Juniperus osteosperma*), single leaf pinyon (*Pinus monophylla*), and numerous shrub species including ephedra, annuals, and perennial plants, including turpentine broom (*Thamnosma montana*), goldenbush (*Ericameria* sp.), Mexican bladder sage (*Salazaria mexicana*), desert lupine (*Lupinus shockleyi*), freckled milkvetch (*Astragalus lentiginosus*), and desert paintbrush (*Castilleja angustifolia*). Black bush scrub intergrades with creosote bush scrub at lower elevations and Joshua tree woodland at higher elevations.

Desert Wash Habitat (Catclaw Acacia Series)

Vegetation present within the numerous desert washes in the proposed project area includes widely scattered catclaw acacia (*Acacia greggii*) and, more commonly, ephedra, cheesebush, and sweetbush. Mesquite mistletoe (*Phoradendron californicum*) occurs in some of the catclaw acacia in wash areas. Vegetation along canyon bottoms and washes in the McCullough Range is shrub-dominated, with no emergent tree species. Shrubs present include catclaw acacia, wolfberry, California trixis (*Trixis californica*), Virgin River brittlebush, and California buckwheat. The vegetation in the majority of these smaller washes at lower elevations does not dramatically differ from the vegetation community of the adjacent interfluvial areas.

Pinyon Pine-Juniper Woodland

Pinyon pine and juniper woodlands consist of scattered trees between 10 and 50 feet tall, and generally occur at elevations above Joshua tree woodland and in environments more mesic than those that support Joshua tree woodland. In Mojave Desert regions of California and Nevada within the EITP, the dominant species are single-leaf pinyon and California juniper. Other species found in association with these dominants include Joshua tree, various desert scrub oaks (*Quercus turbinell or Q. john-tuckeri*), blackbrush, Mormon-tea (*Ephedra viridis)*, burrobush (*Hymenoclea salsola*), wolfberry, and snakeweed (*Gutierrezia sp.).* This vegetation type occurs at the higher elevations in the Clark Mountain Range along the Mountain Pass Alternative between the Ivanpah Substation and the Mountain Pass Substation.

Summary of Plant Communities by Proposed Project Area

A complete list of plants observed within the EITP area is found in the Eldorado-Ivanpah Transmission Project Biological Technical Report (EPG 2009).

The proposed and alternative transmission line routes would be located primarily within creosote bush-white bursage vegetation, with the exception of the McCullough Range north pass, which includes desert wash vegetation, and the areas immediately adjacent to Ivanpah Dry Lake, which are dominated by saltbush scrub. Vegetation varies depending on elevation and disturbance factors.

The following vegetation description begins at the northern end (milepost [MP] 0) of the proposed transmission line ROW and moves south toward the Ivanpah Substation (MP 35) and the existing Mountain Pass Substation. The Eldorado Substation is at an elevation of approximately 1,800 feet in the flat Eldorado Valley. Vegetation in the vicinity of the Eldorado Substation is dominated by the creosote bush-white bursage series, and occurs on flat, sandy soils with numerous small washes. From the Eldorado Substation to the McCullough Range, the creosote bush-white bursage vegetation is augmented by a variety of shrubs and annual forbs. Cacti are not common here, but a few species of cacti are present.

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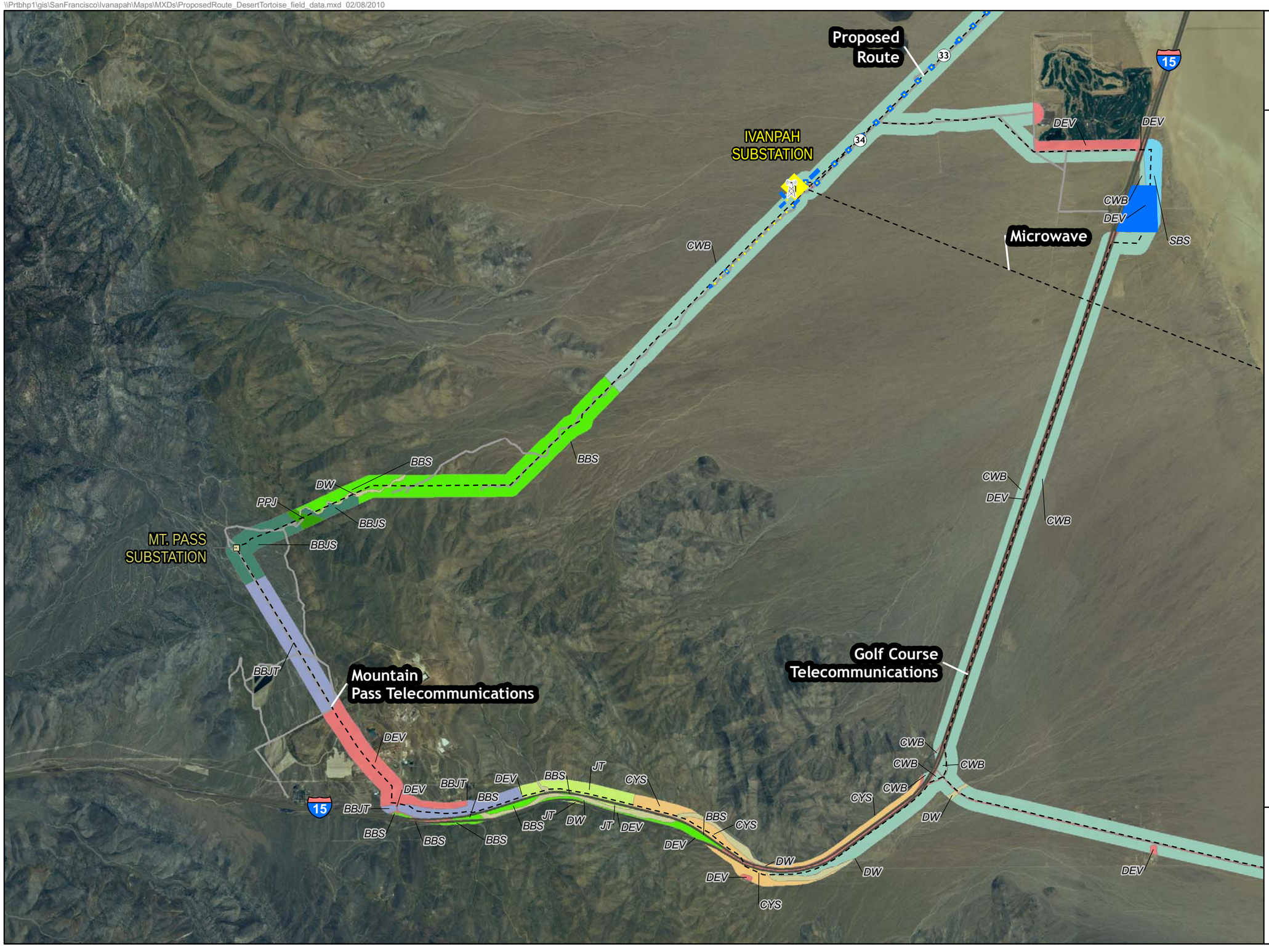
Figure 3.4-1a
Eldorado-Ivanpah Transmission Project

Vegetation



- Milepost
- Route Options
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- Permanent Distrubance
- Temporary Disturbance
- New Spur/Access Road
- Existing Spur/Access Road

Vegetation

- Joshua Tree Woodland (JT)
- Black Bush Scrub (BBS)
- Black Bush Scrub-Jashua Tree (BBJT)
- Black Bush-Juniper Scrub (BBJS)
- Creosote Scrub (CS)
- Creosote-White Bursage Scrub (CWB)
- Creosote-Yucca Scrub (CYS)
- Desert Wash (DW)
- Developed (DEV)
- Distrubed (DST)
- Distrubed Creosote Scrub (DCS)
- Dry Lake Bed (DLB)
- Pinon Pine-Juniper (PPJ)
- Saltbush Scrub (SBS)

N

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Miles

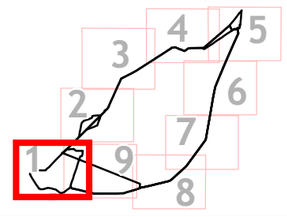

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Figure 3.4-1b
Eldorado-Ivanpah Transmission Project

Vegetation

Proposed Route
Alternative C
Alternative D
Alternative E
Primm
CWB
SBS
DL
DST
DEV
DCS
DW
15

- Milepost
- Route Options
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- Permanent Distrubance
- Temporary Disturbance
- New Spur/Access Road
- Existing Spur/Access Road

Vegetation

- Joshua Tree Woodland (JT)
- Black Bush Scrub (BBS)
- Black Bush Scrub-Jashua Tree (BBJT)
- Black Bush-Juniper Scrub (BBJS)
- Creosote Scrub (CS)
- Creosote-White Bursage Scrub (CWB)
- Creosote-Yucca Scrub (CYS)
- Desert Wash (DW)
- Developed (DEV)
- Distrubed (DST)
- Distrubed Creosote Scrub (DCS)
- Dry Lake Bed (DLB)
- Pinon Pine-Juniper (PPJ)
- Saltbush Scrub (SBS)

N

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Miles

1 2 3 4 5 6 7 8 9

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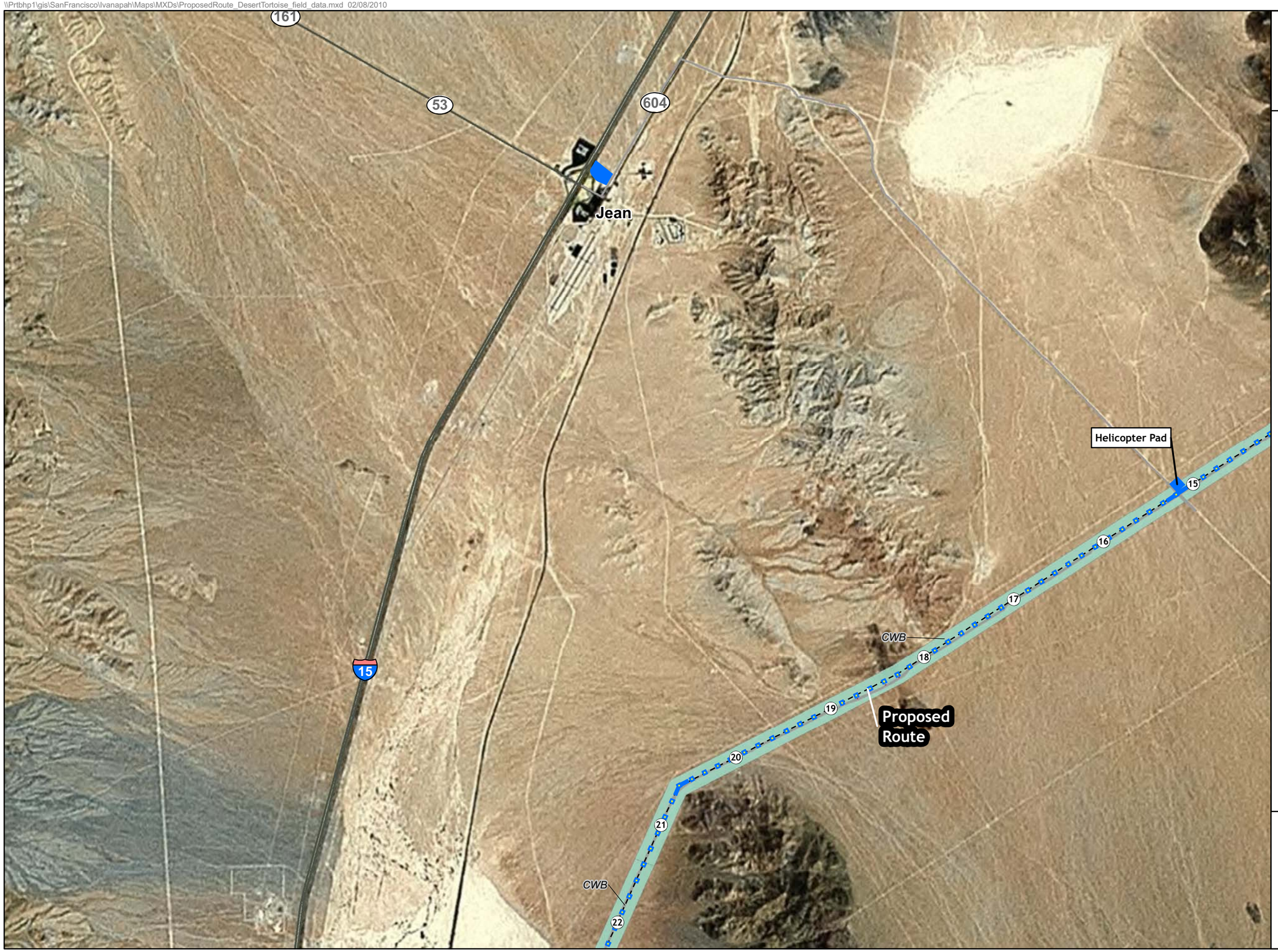
Figure 3.4-1c
Eldorado-Ivanpah Transmission Project

Vegetation



- Milepost
- Route Options
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- Permanent Distrubance
- Temporary Disturbance
- New Spur/Access Road
- Existing Spur/Access Road

Vegetation

- Joshua Tree Woodland (JT)
- Black Bush Scrub (BBS)
- Black Bush Scrub-Jashua Tree (BBJT)
- Black Bush-Juniper Scrub (BBJS)
- Creosote Scrub (CS)
- Creosote-White Bursage Scrub (CWB)
- Creosote-Yucca Scrub (CYS)
- Desert Wash (DW)
- Developed (DEV)
- Distrubed (DST)
- Distrubed Creosote Scrub (DCS)
- Dry Lake Bed (DLB)
- Pinon Pine-Juniper (PPJ)
- Saltbush Scrub (SBS)

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Miles

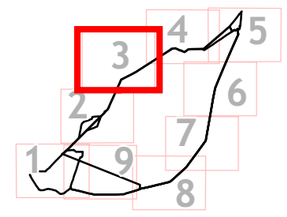

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Figure 3.4-1d
Eldorado-Ivanpah Transmission Project

Vegetation

Milepost
Route Options
Proposed Microwave Tower
Proposed Substation
Existing Substation
Permanent Distrubance
Temporary Disturbance
New Spur/Access Road
Existing Spur/Access Road

Vegetation
Joshua Tree Woodland (JT)
Black Bush Scrub (BBS)
Black Bush Scrub-Jashua Tree (BBJT)
Black Bush-Juniper Scrub (BBJS)
Creosote Scrub (CS)
Creosote-White Bursage Scrub (CWB)
Creosote-Yucca Scrub (CYS)
Desert Wash (DW)
Developed (DEV)
Distrubed (DST)
Distrubed Creosote Scrub (DCS)
Dry Lake Bed (DLB)
Pinon Pine-Juniper (PPJ)
Saltbush Scrub (SBS)

N
0 0.5 1
Miles

Proposed Route
Helicopter Pad
Helicopter Pad
Alternative A
CS
DW
CWB
1 2 3 4 5 6 7 8 9

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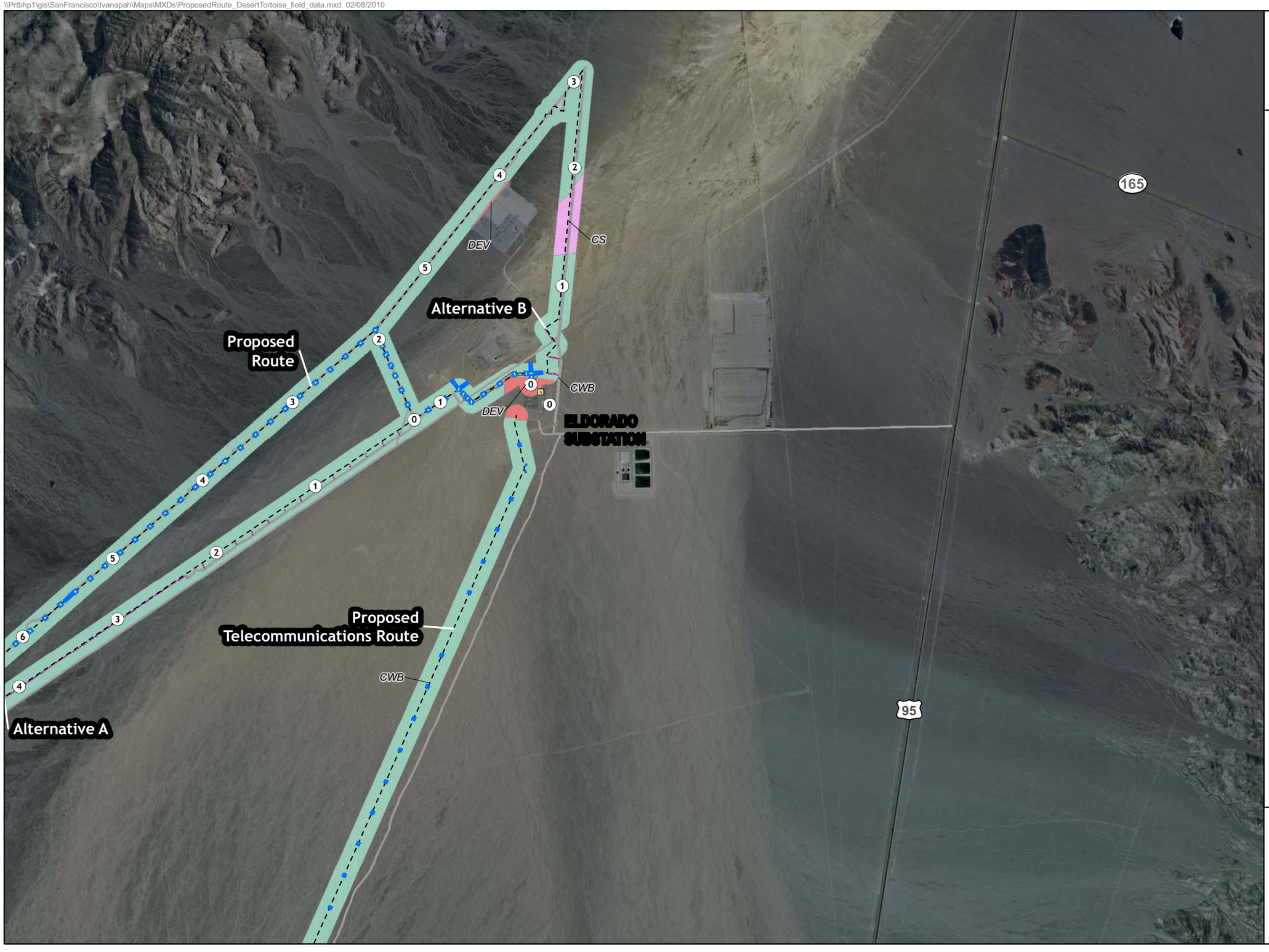
Figure 3.4-1e
Eldorado-Ivanpah Transmission Project

Vegetation



- Milepost
- Route Options
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- Permanent Distrubance
- Temporary Disturbance
- New Spur/Access Road
- Existing Spur/Access Road

Vegetation

- Joshua Tree Woodland (JT)
- Black Bush Scrub (BBS)
- Black Bush Scrub-Jashua Tree (BBJT)
- Black Bush-Juniper Scrub (BBJS)
- Creosote Scrub (CS)
- Creosote-White Bursage Scrub (CWB)
- Creosote-Yucca Scrub (CYS)
- Desert Wash (DW)
- Developed (DEV)
- Distrubed (DST)
- Distrubed Creosote Scrub (DCS)
- Dry Lake Bed (DLB)
- Pinon Pine-Juniper (PPJ)
- Saltbush Scrub (SBS)

N

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Miles

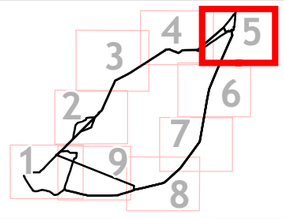

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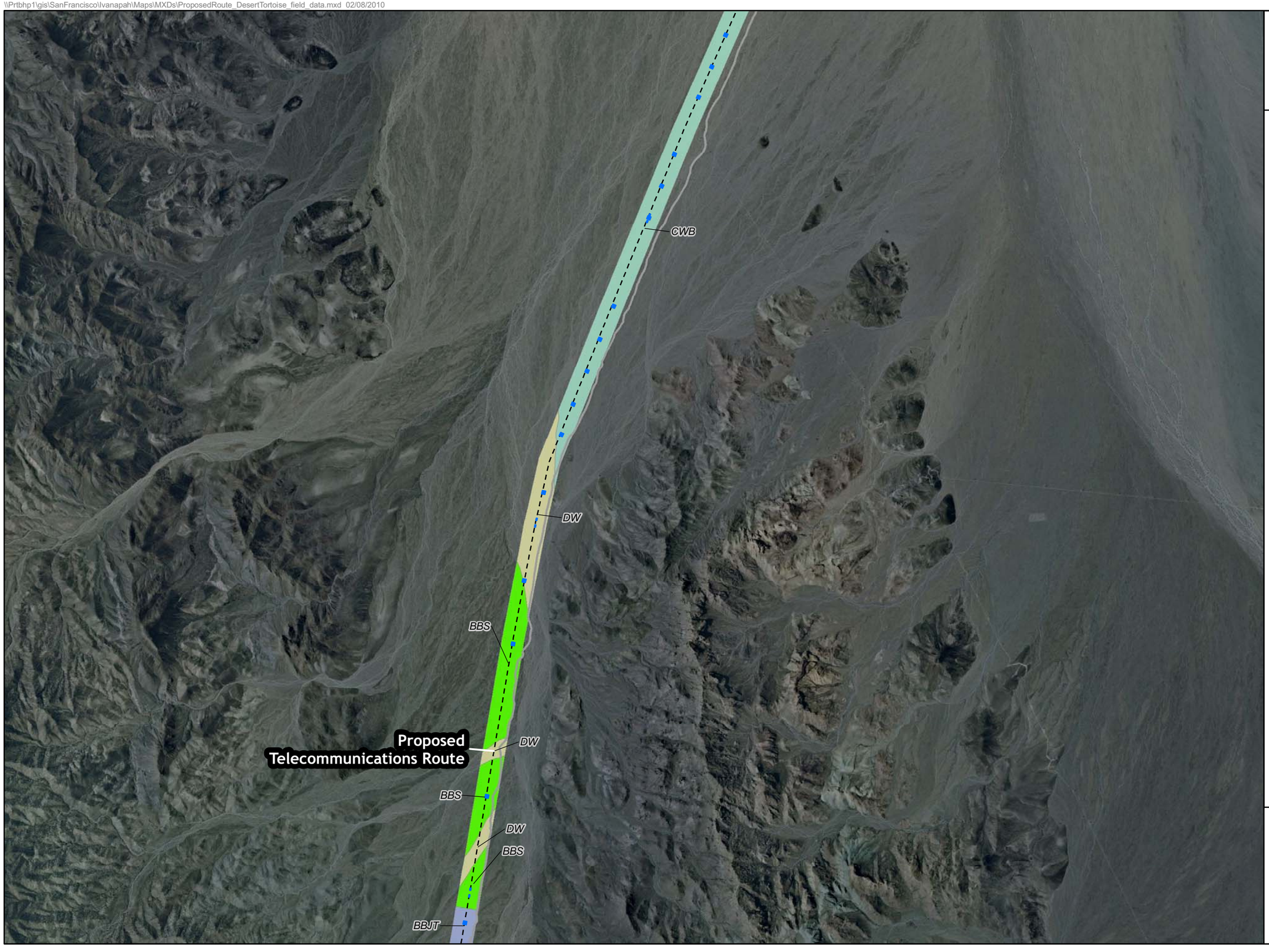
Figure 3.4-1f
Eldorado-Ivanpah Transmission Project

Vegetation



- Milepost
- Route Options
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- Permanent Distrubance
- Temporary Disturbance
- New Spur/Access Road
- Existing Spur/Access Road

Vegetation

- Joshua Tree Woodland (JT)
- Black Bush Scrub (BBS)
- Black Bush Scrub-Jashua Tree (BBJT)
- Black Bush-Juniper Scrub (BBJS)
- Creosote Scrub (CS)
- Creosote-White Bursage Scrub (CWB)
- Creosote-Yucca Scrub (CYS)
- Desert Wash (DW)
- Developed (DEV)
- Distrubed (DST)
- Distrubed Creosote Scrub (DCS)
- Dry Lake Bed (DLB)
- Pinon Pine-Juniper (PPJ)
- Saltbush Scrub (SBS)

N

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Miles

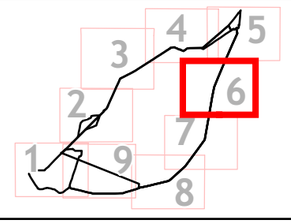

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Figure 3.4-1g
Eldorado-Ivanpah Transmission Project

Vegetation

- Milepost
- Route Options
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- Permanent Distrubance
- Temporary Disturbance
- New Spur/Access Road
- Existing Spur/Access Road

Vegetation

- Joshua Tree Woodland (JT)
- Black Bush Scrub (BBS)
- Black Bush Scrub-Jashua Tree (BBJT)
- Black Bush-Juniper Scrub (BBJS)
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- Desert Wash (DW)
- Developed (DEV)
- Distrubed (DST)
- Distrubed Creosote Scrub (DCS)
- Dry Lake Bed (DLB)
- Pinon Pine-Juniper (PPJ)
- Saltbush Scrub (SBS)

N

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Miles

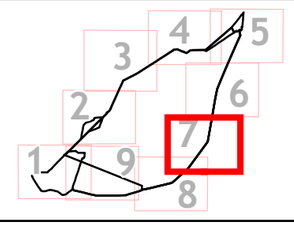

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Figure 3.4-1h
Eldorado-Ivanpah Transmission Project

Vegetation

BBJT
BBJT
DW
DW
DW
CS
CS
164
DW
CS
DEV
CWB
DW
CWB
DW
CWB
DEV
Microwave
CWB
DEV
Nipton
CWB
Proposed
Telecommunications Route

- Milepost
- Route Options
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- Permanent Distrubance
- Temporary Disturbance
- New Spur/Access Road
- Existing Spur/Access Road

Vegetation

- Joshua Tree Woodland (JT)
- Black Bush Scrub (BBS)
- Black Bush Scrub-Jashua Tree (BBJT)
- Black Bush-Juniper Scrub (BBJS)
- Creosote Scrub (CS)
- Creosote-White Bursage Scrub (CWB)
- Creosote-Yucca Scrub (CYS)
- Desert Wash (DW)
- Developed (DEV)
- Distrubed (DST)
- Distrubed Creosote Scrub (DCS)
- Dry Lake Bed (DLB)
- Pinon Pine-Juniper (PPJ)
- Saltbush Scrub (SBS)

N

0 0.5 1

Miles

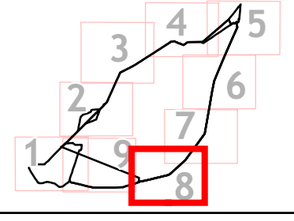

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Figure 3.4-1i
Eldorado-Ivanpah Transmission Project

Vegetation

Proposed Route
Golf Course Telecommunications
Mountain Pass Telecommunications
Microwave
33
34
15
CWB
DEV
SBS
CYS
DW

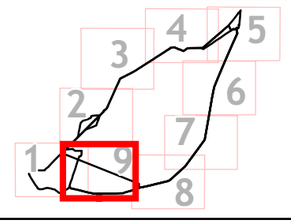
- Milepost
- Route Options
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- Permanent Distrubance
- Temporary Disturbance
- New Spur/Access Road
- Existing Spur/Access Road

Vegetation

- Joshua Tree Woodland (JT)
- Black Bush Scrub (BBS)
- Black Bush Scrub-Jashua Tree (BBJT)
- Black Bush-Juniper Scrub (BBJS)
- Creosote Scrub (CS)
- Creosote-White Bursage Scrub (CWB)
- Creosote-Yucca Scrub (CYS)
- Desert Wash (DW)
- Developed (DEV)
- Distrubed (DST)
- Distrubed Creosote Scrub (DCS)
- Dry Lake Bed (DLB)
- Pinon Pine-Juniper (PPJ)
- Saltbush Scrub (SBS)

N

0 0.5 1
Miles



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~~Creosote bush and black bush typically occur at ecotonal boundaries with lower and higher elevation adjacent plant communities, respectively.~~

~~Black Bush Scrub~~

~~The black bush scrub plant community, typical of mid-elevation desert mountains, is dominated by black bush and features emergent (i.e., growth above the level of the standing canopy) Utah juniper (*Juniperus osteosperma*), single leaf pinion (*Pinus monophylla*), and numerous shrub species including ephedra, annuals, and perennial plants, including turpentine broom (*Thamnosma montana*), goldenbush (*Ericameria* sp.), Mexican bladder sage (*Salazaria mexicana*), desert lupine (*Lupinus shockleyi*), freckled milkvetch (*Astragalus lentiginosus*), and desert paintbrush (*Castilleja angustifolia*). Black bush scrub intergrades with creosote bush scrub at lower elevations and Joshua tree woodland at higher elevations.~~

~~Desert Wash Habitat (Catclaw Acacia Series)~~

~~Vegetation present within the numerous desert washes in the proposed project area includes widely scattered catclaw acacia (*Acacia greggii*) and, more commonly, ephedra, cheesebush, and sweetbush. Mesquite mistletoe (*Phoradendron californicum*) occurs in some of the catclaw acacia in wash areas. Vegetation along canyon bottoms and washes in the McCullough Mountains is shrub-dominated, with no emergent tree species. Shrubs present include catclaw acacia, wolfberry, California trixis (*Trixis californica*), Virgin River brittlebush, and California buckwheat.~~

~~Pinion Pine-Juniper Woodland~~

~~Pinion pine and juniper woodlands consist of scattered trees between 10 and 50 feet tall, and generally occur at elevations above Joshua tree woodland and in environments more mesic than those that support Joshua tree woodland. For the proposed project, this vegetation type occurs at the higher elevations in the Clark Mountains. In Mojave Desert regions of California and Nevada within the EITP, the dominant species are single-leaf pinion and California juniper. Other species found in association with these dominants include Joshua tree, various desert scrub oaks (*Quercus turbinell or Q. john-tuckeri*), blackbrush, Mormon-tea (*Ephedra viridis)*, burrobush (*Hymenoclea salsola*), wolfberry, and snakeweed (*Gutierrezia sp.).*~~

~~Summary of Plant Communities by Proposed Project Area~~

~~A complete list of plants observed within the EITP area is found in the Eldorado-Ivanpah Transmission Project Biological Technical Report (EPG 2009).~~

~~The proposed and alternative transmission line routes would be located primarily within creosote bush-white bursage vegetation, with the exception of the McCullough Mountains north pass, which includes desert wash vegetation, and the areas immediately adjacent to Ivanpah Dry Lake, which are dominated by saltbush scrub. Vegetation varies depending on elevation and disturbance factors.~~

~~This description begins at the northern end (milepost [MP] 0) of the proposed transmission line ROW and moves south toward the Ivanpah Substation (MP 35) and the existing Mountain Pass Substation. The Eldorado Substation is at an elevation of approximately 1,800 feet in the flat Eldorado Valley. Vegetation in the vicinity of the Eldorado Substation is dominated by the creosote bush-white bursage series, and occurs on flat, sandy soils with numerous small washes. From the Eldorado Substation to the McCullough Mountains, the creosote bush-white bursage vegetation is augmented by a variety of shrubs and annual forbs. Cacti are not common here, but a few species of cacti are present.~~

The desert wash vegetation in the McCullough ~~Mountains~~ Range is shrub-dominated, supporting widely scattered catclaw acacia and ephedra. The canyon bottoms and washes of the McCullough ~~Mountains~~ Range in the transmission route area are treeless. The mountain slopes do support a wider diversity of cacti, subshrubs, and forbs than does the Eldorado Valley. Soils along this portion of the transmission route are generally sandy, with some rock- and cobble-dominated areas. The McCullough ~~Mountains~~ Range ranges from 2,300 feet elevation on the lower

slopes to 3,370 feet at the top. These mountains are rugged, with deeply incised canyons and frequent cliff faces. West of the McCullough ~~Mountains~~ Range, the transmission line descends from approximately 3,200 feet into the Jean Valley and the eastern Ivanpah Valley, which has an elevation of approximately 2,600 feet. Here the transmission line ROW is located on broad, sandy alluvial fans where the creosote bush-white bursage community is augmented by all-scale and big galleta. Yuccas, chollas, and cacti are also present here. The line then passes Roach Lake and continues to Primm, Nevada, where it traverses the Ivanpah Dry Lake playa and heads into the Clark ~~Mountains~~ Mountain Range. Both Roach and Ivanpah lakes are devoid of vegetation, and the areas immediately bordering the lakes are saltbush scrub.

West of the Ivanpah playa, the vegetation again becomes dominated by the creosote bush-white bursage series, which gives way to a distinctive black bush series as the line ascends into the Clark Mountain~~s~~ Range toward Mountain Pass Substation. The area around the Mountain Pass Substation, with an elevation of approximately 5,320 feet, is in black bush series habitat, with Utah juniper an important element of the plant community. In the Mountain Pass area, species of yucca (*Y. baccata*, *Y. brevifolia*, and *Y. schidigera*) are common but not abundant, and several species of cacti, including prickly pear species (*Opuntia* spp.), chollas, and others, are present. In addition, the approach to the Mountain Pass Substation from the east supports scattered single-leaf ~~pinion~~ pinyon pine.

The Eldorado–Lugo Telecommunication Line would traverse habitats dominated by creosote bush scrub, Mojave desert scrub, Joshua tree woodland, and black bush scrub, and would cross areas with desert wash habitat. Again, this description moves north from the Eldorado Substation south to Nipton and I-15. South of the Eldorado Substation, elevation gradually increases in the South McCullough ~~Mountains~~ Range, and vegetation density and diversity increase from the pure creosote bush-white bursage scrub to include more shrubby vegetation. Cacti species are few, desert washes are present with catclaw acacia, and at higher elevations around 3,200 feet, Joshua trees begin to become prominent. Black bush appears around 4,500 feet. Once the line descends to the Ivanpah Valley, the vegetation transitions back to Mojave desert scrub habitat. The Nipton 33-kV telecommunication route and alternatives between Nipton, California, and I-15 are located within creosote bush scrub and cross saltbush scrub on the southern end of the Ivanpah Dry Lake bed. Table 3.4-2 lists vegetation types within the proposed project area and provides estimates of temporary and permanent disturbance from the project to vegetation.

Table 3.4-2 Acreage of Project-Related Disturbance for Vegetation Communities within the EITP

Vegetation Type [1]	Acreage in EITP Area	Approximate Temporary Disturbance[2] (% of Total Acreage)	Approximate Permanent Disturbance[3] (% of Total Acreage)
Black bush scrub	1.36	1.36 (0.4)	0 (0)
Black bush scrub-Joshua tree woodland	8.43	8.43 (2.6)	0 (0)
Creosote scrub	29.57	22.80 (7.2)	6.77 (12.3)
Disturbed creosote scrub	1.23	1.10 (0.35)	0.13 (0.2)
Creosote-white bursage scrub	242.58	199.28 (63)	43.30 (78.9)
Desert wash	5.09	3.90 (1.2)	1.19 (2.2)
Saltbush scrub	13.54	12.79 (4.0)	0.75 (1.4)
Developed (urban/impervious)	53.13	52.39 (16.5)	0.74 (1.4)
Disturbed (bare ground)	5.31	5.26 (1.7)	0.05 (0.1)
Dry lake bed	12.13	10.19 (3.21)	1.94 (3.6)
~~Pinion-pine-juniper woodland~~	~~DNP~~	~~NA~~	~~NA~~

Table 3.4-2 Acreage of Project-Related Disturbance for Vegetation Communities within the EITP

Vegetation Type [1]	Acreage in EITP Area	Approximate Temporary Disturbance[2] (% of Total Acreage)	Approximate Permanent Disturbance[3] (% of Total Acreage)
Undetermined (Not provided by applicant at the time of publication)	443.28	384.53	58.75
Totals			

Notes:
[1] Pinyon-pine woodland is only found in the Mountain Pass Alternative and not in the proposed project area; thus, this vegetation type is not addressed in this table.
[2] Temporary impacts from: Laydown areas, OPGW areas, Tower construction areas, Helicopter pads, Pulling sites for the 115-kV line, Tensioning sites, Splicing areas
[3] Permanent impacts from: Tower clearance areas, New spur roads, Ivanpah Substation

Key:
kV = kilovolt
NA = not applicable
OPGW = optical ground wire

Noxious and Invasive Weeds

Noxious weeds are species of non-native plants included on the weed lists of the U.S. Department of Agriculture (USDA; USDA 2009a) or the California Invasive Plant Council (CIPC; CIPC 2006), Nevada State Department of Agriculture (2005) and those weeds of special concern identified by the BLM. Noxious weeds are a concern due to their potential to cause permanent damage to natural plant communities directly via competition or indirectly through alteration of the natural fire regime. ~~No high concentrations of noxious weeds were observed anywhere along the project ROW.~~

Noxious weeds encountered during the surveys included ~~nine~~ twelve species within the California segment of the project and ~~eight~~ nine within the Nevada segment (Table 3.4-3).[1] Compact brome (*Bromus madritensis* var. *rubens*), cheatgrass (*Bromus tectorum*), redstem stork's bill (*Erodium cicutarium*), African mustard (*Malcolmia africana*), prickly Russian thistle (*Salsola tragus*), common Mediterranean grass, London rocket (*Sisymbrium irio*), and saltcedar (*Tamarix ramosissima*) were common to both California and Nevada segments. Wild oat (*Avena fatua*), ~~cheatgrass (*Bromus tectorum*),~~ and Chilean chess (*B. trinii*), Asian mustard (*Brassica tournefortii*), and crossflower (*Chorispora tenella*) were found only on the California segment of the project, and Bermudagrass (*Cynodon dactylon*) ~~and London rocket (*Sisymbrium irio*)~~ were unique to the Nevada segment. ~~Asian mustard (*Brassica tournefortii*) was reported to be present on the adjacent proposed ISEGS plant site (CEC and BLM 2009) and, while not directly observed during the survey, is likely to be present within the proposed project area.~~ While Asian mustard was not directly observed within the Nevada segment during the surveys, it is likely to be present within the Nevada proposed project area. During the 2010 botanical survey there were three primary areas of noxious and invasive weed concentration along the proposed transmission line. These areas occur between MPs 0 to 1 (densest concentration observed; associated with Eldorado Substation), between MPs 22 to 23 (associated with Roach Lake), and between MPs 27 to 29 (associated with the town of Primm and Ivanpah Lake). Several plants listed below (*Erodium* spp., *Bromus* spp., and *Schismus* spp.) are widespread throughout the region and are difficult to control, while others, such as mustard, thistle, and *Tamarix* spp., can be successfully controlled and will continue to spread if not.

~~[1] NOTE: Data gap. BLM has indicated that the applicant should identify hot spot locations within the project area where these species are located in order to properly implement invasive management.~~

Table 3.4-3 Noxious and Invasive Weed Species Documented in the EITP

Common Name	Scientific Name	California Invasive Plant Inventory Invasiveness Rating	Control	Project Segment
Wild oat	*Avena fatua*	Moderate	Control	CA
Asian mustard	*Brassica tournefortii*	High	Eradicate	CA ~~& NV~~
Compact brome	*Bromus madritensis* var. *rubens*	High	Not feasible	CA & NV
Cheatgrass	*Bromus tectorum*	High	Not feasible	CA & NV
Chilean chess	*Bromus trinii*	Not rated*	Not rated*	CA
Crossflower	*Chorispora tenella*	Not rated*	Not rated*	CA
Bermudagrass	*Cynodon dactylon*	Moderate	Control	NV
Redstem stork's bill	*Erodium cicutarium*	Limited	Not feasible	CA & NV
African mustard	*Malcolmia africana*	Not rated*	Not rated*	CA & NV
Russian thistle	*Salsola tragus*	Limited	Eradicate	CA & NV
Mediterranean grass	*Schismus barbatus*	Limited	Not feasible	CA & NV
London rocket	*Sysimbrium irio*	Moderate	Control	CA & NV
Saltcedar	*Tamarix ramosissima*	High	Eradicate	CA & NV

Notes:
*USDA listing as invasive, not rated.
California Invasive Plant Inventory Invasiveness Rating:
High – These species have severe ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal and establishment. Most are widely distributed ecologically.
Moderate – These species have substantial and apparent—but generally not severe—ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment generally depends on ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.
Limited – These species are invasive, but their ecological impacts are minor on a statewide level or there was not enough information to justify a higher score. Their reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but these species may be locally persistent and problematic.

~~Drainages/Riparian Areas~~[2]

~~Ivanpah and Roach lakes are crossed by the proposed project and/or the alternatives, and Jean and Eldorado lakes lie adjacent to the project. Numerous washes and drainages are crossed by the project facilities. In the Eldorado Substation area, the desert washes are generally small and support shrub-dominated vegetation. The existing access road for the northern McCullough Pass area follows an alluvial fan and desert wash up through the canyon. West of the McCullough Mountains where the transmission line descends into the Jean Valley and the eastern Ivanpah Valley, the transmission line ROW crosses numerous small to relatively large dry washes that flow out of the McCullough Mountains. West of Ivanpah Dry Lake, the existing ROW crosses both small and broad washes as the transmission line heads up to Mountain Pass. Numerous washes are also present along the telecommunication route that runs from Eldorado Substation down to Nipton and into the Ivanpah Valley south of Ivanpah Dry Lake. The proposed telecommunications line just north of Nipton lies within the vicinity of Big Tiger Wash, a larger drainage between the southern McCullough and the New York mountains.~~

~~The specific condition of these desert drainages has not been determined; a jurisdictional delineation will be conducted in early spring 2010 by the applicant. The delineation will document drainage characteristics (including riparian vegetation presence) and determine jurisdictional extents based on the U.S. Army Corps of Engineers (USACE) and the CDFG codes and regulations. It will also determine whether any wetlands exist within the proposed project area.~~

[2] ~~NOTE: Lack of delineation is a significant data gap. This document is incomplete without this information from SCE as impact analysis cannot be conducted.~~

Drainages/Riparian Areas

The project traverses five watersheds in California and Nevada including tributaries of Ivanpah Lake (California, Nevada), Roach Lake (Nevada), Jean Lake (Nevada), Eldorado Valley Dry Lake (Nevada), and Piute Wash (Nevada), a tributary to the Colorado River. Table 3.4-4 outlines the potential federal jurisdictional waters by watershed that are crossed by the project facilities. Two general types of features qualifying as Waters of the United States occur within the project area: dry lake beds and ephemeral desert washes. Ivanpah Lake is a playa lake that is dry for most of the year and is the only dry lake bed in the project area considered jurisdictional by USACE. The portion of Ivanpah Dry Lake that is crossed by the proposed transmission line is composed of historic lake deposits that are very poorly drained, leading to ponding following sufficient rain events. The project is dissected by numerous ephemeral desert washes and drainage channels supporting numerous vegetation communities. About a quarter of the mapped potentially jurisdictional washes have sandy or gravelly un-vegetated channel bottoms, and banks with vegetation that are not distinct from the surrounding creosote brush scrub. Washes near the margins of Roach Lake typically have sandy bottoms and support saltbush scrub. Along the telecommunications route within the watershed north-west of Highway 164 that drains to Piute Wash, the margins of many of the mapped drainages and occasionally the channel bottoms are dominated by Joshua tree woodlands. Other systems within this area have channels dominated by species more characteristic of active channels such as catclaw acacia, desert almond, and wooly bursage. Several highly degraded drainages that cross the state line near Primm, Nevada, are dominated by non-native species such as tamarisk and Russian thistle.

Table 3.4-4 Summary of the Potential USACE Jurisdiction by Watershed within the EITP

Watershed	USACE Status	Section 404 Rational
Ivanpah Lake - Interstate tributaries	Jurisdictional	Interstate waters
Ivanpah Lake Playa	Jurisdictional	Nexus to interstate or foreign commerce
Piute Wash tributaries	Jurisdictional	Nexus to Traditional Navigable Water
Roach Lake tributaries	Jurisdictional	Nexus to interstate or foreign commerce
Eldorado Valley Dry Lake tributaries	Non-Jurisdictional	Isolated -No nexus to interstate or foreign commerce
Ivanpah Lake intrastate tributaries	Non-Jurisdictional	Recent determination by USACE
Jean Lake tributaries	Non-Jurisdictional	Isolated -No nexus to interstate or foreign commerce

Overall, the construction of the proposed project would result in approximately 13.857 acres of temporary and 0.0661 acres of permanent impacts to potential waters falling under the jurisdiction of USACE, which are known as Waters of the United States. The potential jurisdictional status of each water body was determined by a combination of field surveys, review of NRCS digital hydrologic unit boundary layer data set, recent Jurisdictional Determinations issued by USACE for nearby projects, consultation with USACE staff, and review of high resolution aerial imagery. The formal determination of the jurisdictional status of waters will not be confirmed until a Jurisdictional Determination is issued by the USACE.

Along the California portion of the proposed project, construction of the project would potentially result in up to a total of approximately 15.524 acres of temporary impacts and up to approximately 0.333 acres of permanent impacts to playa and desert wash habitats that are presumed to fall under Section 1600 jurisdiction of the CDFG. Again, final jurisdiction will be confirmed by the CDFG during the permitting process for the project.

Wildlife Communities

The mammalian fauna with potential to occur within the project area is dominated by small, mostly nocturnal species of rodents and bats. Diurnal mammals that are also potentially common ~~and~~ include hares, rabbits, ground squirrels (*Spermophilus tereticaudus*), and ungulates. The following species were observed ~~on~~ in the project ~~site~~ area: black-tailed jack rabbit (*Lepus californicus*), desert wood rat (*Neotoma lepida*), white-tailed antelope squirrel (*Ammospermophilus leucurus*), gray fox (*Urocyon cinereoargenteus*), wild burro (*Equus asinus*), and desert bighorn

sheep (*Ovis canadensis nelsoni*). Additionally, 22 other mammal species have the potential to occur within the proposed project area (refer to the Eldorado–Ivanpah Transmission Project Biological Technical Report [EPG 2009]).

Very few amphibian species have the potential to occur within the proposed project area: two in California and four in Nevada. In contrast, the potential reptilian fauna is very diverse for the project in both California and Nevada. There are potentially 15 lizard species, 18 snake species, and one tortoise species that occur within the EITP in California. The EITP in Nevada provides habitat ~~for~~ to potentially support 17 lizard species, 18 snake species, and one tortoise species.

The proposed project area potentially hosts a wide variety of avian fauna, including songbirds, raptors, woodpeckers, owls, ground fowl, flycatchers, doves, cuckoos, shrikes, crows, and ravens. Approximately 46 bird species may occur in the proposed project area. Many of these birds ~~would~~ may only winter in the area (e.g., Northern flicker [*Colaptes auratus*], sage thrasher [*Oreoscoptes montanus*], and white-crowned sparrow [*Zonotrichia luecophyrs*]), while others, such as the red-tailed hawk (*Buteo jamaicensis*), chukar (*Alectoris chukar*), and greater roadrunner (*Goecoccyx californianus*) are potential year-round residents. Additionally, numerous species may use vegetation or soil burrows to breed within the proposed project area. A full list of species with the potential to occur is found in the Eldorado–Ivanpah Transmission Project Biological Technical Report (EPG 2009).

Special-Status Species

Some species of plants and animals are accorded special status by state and federal agencies largely because they are either scarce on a regional level, facing clearly defined threats, or in a position within the regional landscape to potentially become scarce. Special-status species at the federal level include those listed as threatened, endangered, or proposed, or those that are candidates for listing under the Endangered Species Act (ESA). BLM-designated sensitive species are designated by the BLM State Director's Office. Still other species are tracked by state heritage programs and assigned different levels of concern based on rarity and perceived level of threat.

In California, plant and animal species are tracked and monitored by the CDFG via the CNDDB. The State of California through the Fish and Game Code may also formally designate plants and animals as state-listed threatened or endangered. The CDFG also maintains a list of fully protected species that may not be taken or possessed at any time and for which permits are required for scientific collection and/or relocation (for the protection of livestock).

In Nevada, at-risk species are tracked through the NNHP within the Department of Conservation and Natural Resources. The NNHP also assigns rank indicators to plant and animal species based on rarity and perceived level of threat. The State of Nevada can also fully protect wildlife species through the stipulations of Nevada Revised Statute 501. The State of Nevada also protects "critically endangered" plant species as well as cacti and yuccas under Nevada Revised Statute 527.

Plant and animal species that both are special status and are among those having greatest probability of occurrence within the proposed project area in California and Nevada are identified in Tables 3.4-6 and 3.4-7. Some species are included only in the California table or only in the Nevada table based solely on their state-protected status, even though most of these species are likely to occur in both states. The California list was derived from an online search of the CNDDB, coupled with lists of species of concern to the BLM and additional review of published literature. Similarly, the Nevada list was derived from an online review of the listing of special-status species maintained by the NNHP as well as lists of species of concern to the BLM and species covered by the Multiple Species Habitat Conservation Plan (MSHCP) of Clark County, Nevada. The narrative following the tables addresses only those species of special concern identified as occurring or likely to occur within the proposed project area.

Table 3.4-5 Special-Status Species of Wildlife and Plants with Potential to Occur in the California Segment of the Proposed Project Area

Common Name	Scientific Name	Habitat	Status	Potential
Plants				
Mormon needle grass	*Achnatherum aridum*	Outcrops in shrub-steppe, ~~pinion~~ pinyon–juniper, and Joshua tree habitats between 3,940 and 5,100 feet in elevation	S2.2	L
Small-flowered androstephium	*Androstephium breviflorum*	Creosote bush scrublands on sandy to gravelly soils, stabilized dunes to alluvial fans between 720 and 5,260 feet in elevation	S1.3	O
White bearpoppy	*Arctomecon merriamii*	Creosote bush scrub, limestone outcrops and dry lake beds at elevations between 2,000 and 6,280 feet	S2.2	L
Mojave milkweed	*Asclepias nyctaginifolia*	Arroyos and dry slopes in Mojave Desert scrub between 1,500 and 5,580 feet in elevation	S2	O
Borrego milkvetch	*Astragalus lentiginosus* var. *borreganus*	Sandy flats and semi-stabilized dunes in creosote bush scrub	S3.3, S1	O
Spring Mountain milkvetch	*Astragalus remotus*	Gravelly limestone or sandstone soils or washes in creosote bush scrub between 3,600 and 5,500 feet in elevation	S2	L
Scaly cloak fern	*Astrolepis cochisensis cochisensis*	~~Pinion~~Pinyon-juniper and Joshua tree habitats between 2,950 and 5,900 feet in elevation	S2.3	L
Black grama	*Bouteloua eriopoda*	Dry, open, sandy to rocky slopes, flats, washes, scrub, and woodland between 2,950 and 6,230 feet in elevation	S3.2	O
Gilman's cymopterus	*Cymopterus gilmanii*	Limestone- or gypsum-derived soils between 3,280 and 6,560 feet in elevation	S2.2	L
Utah vine milkweed	*Cynanchum utahense*	Sandy to gravelly soils in Mojave Desert scrub at 492 to 4,659 feet in elevation	BLM, S3.3	O
Clark Mountain buckwheat	*Eriogonum heermanni* var. *floccosum*	Calcareous, gravelly slopes or washes in creosote bush or saltbush scrub. Restricted to a few ranges in SW Nevada and possibly in adjacent California areas. Elevations between 2,950 and 7,540 feet	BLM, S2	O
Desert pincushion	*Escobaria vivipara* var. *deserti**	Limestone soils 3,281 to 7,874 feet in elevation	S2.2	†
Viviparous foxtail cactus	*Escobaria vivipara* var. *rosea***	Sandy to rocky often calcareous soils, desert woodland slopes between 4,100 and 8,860 feet in elevation	S1, S2	†
Nine-awned pappus grass	*Enneapogon desvauxi*	Rocky slopes or in crevices on calcareous soils in desert woodland; ~~pinion~~ pinyon-juniper between 4,180 and 5,990 feet in elevation	S2	O
California barrel cactus	*Ferocactus cylindraceus*	Gravelly or rocky hillsides, canyons, and alluvial fans between 200 and 5,000 feet in elevation	BLM‡	O

Table 3.4-5 Special-Status Species of Wildlife and Plants with Potential to Occur in the California Segment of the Proposed Project Area

Common Name	Scientific Name	Habitat	Status	Potential
Parish club cholla (a.k.a. matted cholla)	*Grusonia parishii*	Joshua tree habitat between 3,000 and 5,000 feet in elevation; this plant is present on the proposed Ivanpah Substation site	S2.3	O
Hairy-podded fine-leaf hymenopappus	*Hymenopappus filifolius* var. *eriopodus*	Limestone soils in ~~pinion~~ pinyon-juniper habitat in the New York Mountains and Clark Mountain~~s~~ Range. Known to occur between 5,250 and 5,580 feet in elevation	S1.3	L
Hillside wheat grass	*Leymus salinus mojavensis*	Hillsides in desert mountains and ~~pinion~~ pinyon-juniper woodland between 4,430 and 7,000 feet	S1.3	L
Plains flax	*Linum puberulum*	Dry ridges of desert mountains between 2,000 and 8,200 feet in elevation	S2.3	L
Rough menodora	*Menodora scabra*	Rocky soils of canyons in the New York Mountains and Clark Mountain~~s~~ Range between 1,500 and 7,500 feet in elevation. This plant is present along the Mountain Pass Alternative.	S2.3	~~L~~O
Polished blazing star	*Mentzelia polita*	Limestone or gypseous soils between 3,940 and 4,920 feet in elevation in the Clark Mountain~~s~~ Range	S1.2	L
Red four o'clock	*Mirabilis coccinea*	Dry, rocky slopes, and washes; ~~pinion~~ pinyon-juniper habitat between 3,510 and 5,900 feet in elevation	S2.3	L
Tough muhly	*Muhlenbergia arsenei*	Limestone rock outcrops and slopes; Clark Mountain~~s~~ Range between 4,590 and 6,100 feet in elevation	S1, S2	L
Curved-spine beavertail	*Opuntia curvospina*	Mojave Desert scrub between 3,280 and 4,590 feet in elevation	S1.2	L
Spiny cliffbrake	*Pellaea truncata*	Granite or igneous outcrops between 3,900 and 7,050 feet in elevation; ~~pinion~~ pinyon-juniper habitat in the New York Mountains	S2	L
White-margined beardtongue	*Penstemon albomarginatus*	Sand dunes and/or deep, sandy soils at elevations ranging from 2,560 to 5,890 feet in elevation	S1.2	L
Rosy two-toned beardtongue	*Penstemon bicolor* ssp. *roseus*	Rocky, calcareous soils and scree in creosote bush or black bush desert scrub at elevations from 1,800 to 4,840 feet	S1.3	L
Stephens' penstemon	*Penstemon stephensii*	Desert scrub or ~~pinion~~ pinyon-juniper woodland at elevations from 3,800 to 6,070 feet	BLM‡	L
Aven Nelson's phacelia	*Phacelia anelsoni*	Sandy or gravelly soils in creosote bush, ~~pinion~~ pinyon-juniper, or Joshua tree habitats between 3,900 and 4,920 feet in elevation	S2.3	O
Sky-blue phacelia	*Phacelia coerulea*	Open, sandy to rocky areas in Mojave Desert scrub and ~~pinion~~ pinyon-juniper habitats between 2,000 and 6,560 feet in elevation	S2.3	O

Table 3.4-5 Special-Status Species of Wildlife and Plants with Potential to Occur in the California Segment of the Proposed Project Area

Common Name	Scientific Name	Habitat	Status	Potential
Chamber's physaria	*Physaria chambersii*	Limestone soils in ~~pinion~~ pinyon-juniper habitat in the Clark Mountain~~s~~ Range between 4,920 and 8,500 feet in elevation	S2.3	L
Abert's sanvitalia	*Sanvitalia aberti*	Dry slopes from 5,150 to 5,900 feet in elevation in the New York Mountains and Clark Mountain~~s~~ Range	S1, S2	L
~~Rusby's desert mallow~~ Johnson's beehive cactus	~~*Sphaeralcea rusbyi* var. *eremicola*~~ *Sclerocactus johnsonii*	~~Mojave Desert scrub and Joshua tree habitats between 3,200 and 4,920 feet in elevation; Clark Mountains~~ Occurs in creosote bush habitat on granite soils from 500 to 1,200 meters.	BLM, ~~S1.3~~ S2	L
Rusby's desert mallow	*Sphaeralcea rusbyi* var. *eremicola*	Mojave Desert scrub and Joshua tree habitats between 3,200 and 4,920 feet in elevation; Clark Mountain Range	BLM, S1.3	L
Mammals				
American badger	*Taxidea taxus*	Mojave Desert scrublands on flats and alluvial fans with friable soils where rodents are present	BLM, S4, SSC	L
Desert bighorn sheep	*Ovis canadensis nelsoni*	Large, relatively contiguous areas of steep, sparsely vegetated mountainous terrain. ~~Present~~ Two individuals were observed in the McCullough Range.	BLM, S3, FPS[1]	L
Wild burro	*Equus asinus*	Mostly low desert environments in scrublands and woodlands. ~~Scat~~ Recent scat recorded in California at west Ivanpah Dry Lake	WHBA	L ~~O~~
Townsend's big-eared bat	*Plecotus townsendii*	Roosts in mines, caves, and buildings in Mojave Desert scrub	BLM, S2, S3	L
Birds				
Golden eagle	*Aquila chrysaetos*	Open country in woodland or mountains, nests on cliff ledges or very large trees. Recorded near Ivanpah Substation in California and south of the Eldorado Substation along the existing Eldorado–Lugo transmission line in Nevada	FPS	O ~~L~~
Western burrowing owl	*Athene cunicularia hypugaea*	Open, sparsely vegetated land with available animal burrows. ~~Observed~~ A burrowing owl pellet was observed along Alternative C, near California/ Nevada border	BLM, S2, SSC	L ~~O~~
Loggerhead shrike	*Lanius ludovicianus*	Occurs in desert scrub, denser vegetation along washes, and woodlands. Observed along California project segments	BLM	O
Crissal thrasher	*Toxostoma crissale*	Occurs where dense thickets of mesquite or other shrubs occur along desert washes or wetlands	S3	L
Le Conte's thrasher	*Toxostoma lecontei*	Most common in sparse, open vegetation including creosote bush scrub and saltbush scrub. Individuals were observed along the proposed transmission route in Nevada.	BLM‡	L

Table 3.4-5 Special-Status Species of Wildlife and Plants with Potential to Occur in the California Segment of the Proposed Project Area

Common Name	Scientific Name	Habitat	Status	Potential
Reptiles				
Desert tortoise	*Gopherus agassizii*	Occurs in Mojave Desert scrub and Joshua tree woodlands in valleys, on bajadas, and in low hills at elevations of up to 4,900 feet. ~~Observed at various points along the project alignment.~~ Sign and individuals were observed within suitable habitat throughout the project area.	FT, ST, S2	O
Gila monster	*Heloderma suspectum*	Prefers rocky outcrops, canyons, foothills, bajadas, and edges of washes with dense vegetation rather than open scrublands. A Sonoran desert species, peripheral in the Mojave desert	BLM‡, ~~S4~~ S1, SSC	L

Sources: Benson 1982; CDFG 2003; Jepson 2008

Key:
* Formerly *Coryphantha chlorantha*.
** Formerly *Coryphantha vivipara* var. r*osea*
† Individuals of an unknown species of *Escobaria* (*Coryphantha*) were located; species determination will require presence of flowers.
‡ BLM sensitive species not listed in the CNDDB database.
[1] Except as provided by California Fish and Game Code Section 4902

Status
BLM = Bureau of Land Management sensitive species
FPS = State of California Fully Protected Species
SSC = State of California Species of Special Concern
FT = Federally listed as threatened (Endangered Species Act)
ST = California listed as threatened

Potential of Occurrence
L = Likely (moderate or better potential)
O = Observed during reconnaissance studies or Protocol-level Surveys

CNDDB state ranking:
S1 = Less than 6 element occurrences (EOs), or fewer than 1,000 individuals, or less than 2,000 acres
S1.1 = Very threatened
S1.2 = Threatened
S1.3 = No current threats known
S2 = 6–20 EOs, or 1,000–3,000 individuals, or 2,000–10,000 acres
S2.1 = Very threatened
S2.2 = Threatened
S2.3 = No current threats known
S3 = 21–100 EOs, or 3,000–10,000 individuals, or 10,000–50,000 acres
S3.1 = Very threatened
S3.2 = threatened
S3.3 = no current threats known
S4 = Apparently secure within California. NO THREAT RANK
S5 = Demonstrably secure to ineradicable in California. NO THREAT RANK
WHBA = Wild Free-Roaming Horses and Burros Act

Table 3.4-6 Special-Status Species of Wildlife and Plants With Potential to Occur in the Nevada Segment of the Proposed Project Area

Common Name	Scientific Name	Habitat	Status	Potential
Plants				
Catclaw Acacia	*Acacia greggii*	Well-drained, sandy or rocky soils. Chaparral & brush country. Washes; stream banks; brushlands. The species was observed in desert washes within the project area in Nevada and California.	MSHCP	O ~~L~~
White bearpoppy	*Arctomecon merriamii*	Creosote bush scrub, limestone outcrops and dry lake beds at elevations between 2,000 and 6,280 feet	BLM, W, MSHCP	L
Spring Mountain milkvetch	*Astragalus remotus*	In gravelly or sandy soils in desert wash or desert shrub communities between 3.400 and 7,050 feet in elevation		L
Parish club cholla (a.k.a. matted cholla)	*Grusonia parishii*	Joshua tree habitat between 3,000 and 5,000 feet in elevation.	BLM	O
Scrub Lotus	*Lotus argyraeus var. multicaulis*	Pinyon Juniper Woodlands. Habitat sandy washes, ledges or clay slopes in canyons.	MSHCP	L
White-margined beardtongue	*Penstemon albomarginatus*	Sand dunes and/or deep, sandy soils at elevations ranging from 2,560 to 5,890 feet	BLM, ART, MSHCP	O
Rosy twotone beardtongue	*Penstemon bicolor* ssp. *roseus*	Rocky, calcareous soils and scree in creosote bush or black bush desert scrub at elevations of from 1,800 to 4,840 feet	BLM, ART	O
Honey Mesquite	*Prosopis glandulosa*	Found in desert drainage ways. Well-drained sandy soils.	MSHCP	L
Johnson's beehive cactus	*Sclerocactus johnsonii*	Occurs in creosote bush habitat in rocky habitats.	BLM	O
Mammals				
Desert Pocket Mouse	*Chaetodipus penicillatus*	Inhabit the sandy, open desert with sparse vegetation of grasses, mesquites, creosote bushes, and a few cacti.	MSHCP	L
Desert Kangaroo Rat	*Dipodomys deserti*	Found in a variety of desert scrub habitats, the common factor being a substrate of wind-drifted sand, probably not less than 50 cm (20 in) deep. Preferred canopy is sparse to moderate. Less common in denser stands. Areas of soft sand, such as dunes; creosote bush or shad scale scrub.	MSHCP	L
Wild burro	*Equus asinus*	Mostly low desert environments in scrublands and woodlands. Scat recorded in California at west Ivanpah Lake	WHBA	L
California leaf-nosed bat	*Macrotus californicus*	Caves and mines in desert scrub habitat, generally below 3,280 feet in elevation. Requires warm roost sites in winter	BLM, ART	L
California myotis	*Myotis californicus*	Dry, brushy habitats; roosts in cracks and crevices	BLM, ART	L
Townsend's big-eared bat	*Corynorhinus townsendii*	Roosts in mines, caves, and buildings in Mojave Desert scrub	BLM, ART	L
Big free-tailed bat	*Nyctinomops macrotis*	Roosts in rugged, rocky areas in desert scrub	BLM, ART	L
Desert bighorn sheep	*Ovis canadensis nelsoni*	Large, relatively contiguous areas of steep, sparsely vegetated mountainous terrain. ~~Present~~ Two individuals were observed in the McCullough Range.	BLM	O
American badger	*Taxidea taxus*	Mojave Desert scrublands on flats and alluvial fans with friable soils where rodents are present	BLM, S4	O ~~L~~

Table 3.4-6 Special-Status Species of Wildlife and Plants With Potential to Occur in the Nevada Segment of the Proposed Project Area

Common Name	Scientific Name	Habitat	Status	Potential
Kit Fox	*Vulpes macrotis*	Inhabit arid and semi-arid regions encompassing desert scrub, chaparral, halophytic, and grassland communities. Prefer loose textured soils and generally avoid rugged terrain.	MSHCP	L
Birds				
Golden eagle	*Aquila chrysaetos*	Open country in woodland or mountains, nests on cliff ledges or very large trees. Recorded near Ivanpah Substation site in California and south of the Eldorado Substation along the existing Eldorado–Lugo transmission line in Nevada	BLM	O ~~L~~
Western burrowing owl	*Athene cunicularia hypugaea*	Open, sparsely vegetated land with available animal burrows. Observed along Alternative C, near California/Nevada border	BLM, 501	L
Peregrine falcon	*Falco peregrinus*	Nests on cliffs surrounded by large expanses of open space in a variety of habitats. Known to breed in the McCullough Range. Observed along the existing Eldorado-Baker-Coolwater-Dunn Siding-Mountain Pass 115 kV transmission line near Primm, Nevada.	BLM, 501, MSHCP	O ~~L~~
Prairie falcon	*Falco mexicanus*	Nests on cliffs and in deep canyons in a variety of arid and desert habitats. Known to occur in the McCullough Range. Observed along the existing Eldorado-Baker-Coolwater-Dunn Siding-Mountain Pass 115 kV transmission line near Eldorado Substation	BLM	O ~~L~~
Loggerhead shrike	*Lanius ludovicianus*	Occurs in desert scrub, denser vegetation along washes, and woodlands. Observed west of the McCullough ~~Mountains~~Range	BLM	O
Phainopepla	*Phainopepla nitens*	Mostly mesquite thickets along washes, but also desert scrub and woodland habitats. Observed on Nevada project segments	BLM, 501, MSHCP	O
Le Conte's Thrasher	*Toxostoma lecontei*	Saltbush/shadscale vegetation or cholla cacti in sandy substrate. It needs vegetative litter for cover and for obtaining prey. Individuals were observed along the proposed transmission route in Nevada.	MSHCP, FT	O ~~L~~
Crissal Thrasher	*Toxostoma crissale*	Primarily inhabits dense desert scrub and arroyo riparian vegetation. It also occurs in foothill scrub and pinyon-juniper woodland with a shrubby understory.	MSHCP, National Bird of Conservation Concern by USFWS	L
Gray Vireo	*Vireo Vicinior*	Dry thorn scrub, chaparral, and pinyon-juniper and oak-juniper scrub, in arid mountains and high plains scrubland.	MSHCP, National Bird of Conservation Concern by USFWS	L
Cactus Wren	*Campylorhynchus Brunneicapillus*	Primarily inhabit areas that are desert or semi-desert; they also live along arid hillsides and locales that provide them with vegetation such as spiny cacti and cholla, which is used for nesting.	MSHCP	L
Scott's Oriole	*Icterus parisorum*	Found in desert grassland prairies and mountain canyons, particularly if yucca or palms are present; nests in pinyon-juniper woodlands, sycamores, and cottonwoods.	MSHCP	L
Reptiles				
Desert tortoise	*Gopherus agassizii*	Occurs in Mojave Desert scrub and Joshua tree woodlands in valleys, on bajadas, and in low hills at elevations up to 4,900 feet. ~~Observed at various points along the project alignment~~ Sign and individuals were observed within suitable habitat throughout the project area.	FT, 501, MSHCP	O
Gila monster	*Heloderma suspectum*	Prefers rocky outcrops, canyons, foothills, bajadas, and edges of washes with dense vegetation rather than open scrublands. A Sonoran desert species, peripheral in the Mojave desert	BLM, 501	L
Chuckwalla	*Sauromalus ater*	Rocky outcrops with crevices for hiding in Mojave Desert scrub. Observed near the McCullough Pass alignment	BLM	O
Western banded gecko	*Coleonyx variegatus*	Creosote bush scrub, associated with rocks, or sometimes barren dunes. Largely nocturnal	MSHCP	L

Table 3.4-6 Special-Status Species of Wildlife and Plants With Potential to Occur in the Nevada Segment of the Proposed Project Area

Common Name	Scientific Name	Habitat	Status	Potential
Desert iguana	*Dipsosaurus dorsalis*	Creosote bush scrub with loose sand, or hardpan areas with rocks	MSHCP	L
Black collared lizard	*Crotaphytus insularis*	Frequents rocky areas in arroyos and on slopes of hills in creosote bush, saltbush, and Basin sagebrush deserts	MSHCP	L
Long-nosed leopard lizard	*Gambelia wislizenii*	Open scrublands such as creosote bush, alkali bush, or sagebrush on various substrates	MSHCP	L
Western leaf-nosed snake	*Phyllorhynchus decurtatus*	Sandy or gravelly substrates associated with creosote bush scrub	MSHCP	L
Glossy snake	*Arizona elegans*	Variety of habitats from sparse desert scrub to chaparral, as well as grasslands, mostly at low elevations	MSHCP	L
Common kingsnake	*Lampropeltis getula*	Found in a wide variety of habitats, including deserts with rock shelters or animal burrow refuges	MSHCP	L
Long-nosed snake	*Rhinocheilus lecontei*	Occurs in desert or shrubby habitats mostly in valleys and hills	MSHCP	L
Lyre snake	*Trimorphodon biscutatus*	Most often found in areas of massive rock outcrops in creosote bush, desert scrub, or desert grasslands	MSHCP	L
Speckled rattlesnake	*Crotalus mitchellii*	Generally in rocky areas, usually associated with creosote bush. Range includes sagebrush, succulent desert, and ~~pinion~~ pinyon-juniper	MSHCP	L
Sidewinder	*Crotalus cerastes*	Fine wind-blown sand areas in hummocks; also on flats and rocky hillsides. Associated with creosote bush and desert scrublands	MSHCP	L
Mojave rattlesnake	*Crotalus scutulatus*	Most common in upland desert scrublands in creosote bush habitat and also in mesquite thickets and barren desert	MSHCP	L
Desert Horned Lizard	*Phyrynosoma platyrhinos*	Arid regions with some loose sandy soils for burrowing, and limited vegetation such as sagebrush or shadscale. They can also be found in areas with hardpan and gravelly soils as well.	MSHCP	L

Status Codes

501 = Protected under NRS 501
ART = Nevada Natural Heritage Program At Risk Taxa
BLM = BLM sensitive species
FT = Federally listed as threatened
MSHCP = Clark County Multiple Species Habitat Conservation Plan
ST = Listed by the State of Nevada as threatened
W = Nevada Native Plant Society (NNPS) Watch List species; potentially vulnerable to becoming threatened or endangered

Potential of Occurrence

L = Likely (moderate or better potential
O = Observed During Reconnaissance Studies or Protocol-level Surveys

The following wildlife and plant species were identified on USFWS, CDFG, and BLM lists as potentially occurring within California in the vicinity of the project, but are highly unlikely to occur on site due to a lack of suitable habitat, appropriate soils, and/or suitable elevation and thus are excluded from Table 3.4-5. The wildlife species excluded are hoary bat (*Lasiurus cinereus*), ringtail (*Bassaricus astutus*), gray vireo (*Vireo vicinior*), Bendire's thrasher (*Toxostoma bendirei*), Virginia's warbler (*Vermivora virginiae*), hepatic tanager (*Piranga flava*), summer tanager (*Piranga rubra*), grey-headed junco (*Junco hyemalis*), and Kokoweef Crystal Cave harvestman (*Texella kokoweef*). The plant species excluded are desert ageratina (*Ageratina herbacea*), Cima milkvetch (*Astragalus cimea* var. *cimae*), Howe's hedgehog cactus (*Echinocereus engelmannii* var. *howei*), limestone daisy (*Erigeron uncialis* var. *uncialis*), Clark Mountain spurge (*Euphorbia exstipulata* var. *exstipulata*), hairy erioneuron (*Erioneuron pilosum*), Wright's bedstraw (*Galium wrightii*), pungent glossopetalon (*Glossopetalon pungens*), Jaeger's ivesia (*Ivesia jaegeri*), knotted rush (*juncus nodosus*), false buffalo grass (*Munroa squarrosa*), beavertail pricklypear (*Opuntia basilaris* var. *brachyclada*), Thompson's beardtongue (*Penstemon thompsoniae*), Jaeger's phacelia (*Phacelia perityloides* var. *jaegeri*), small-flowered rice grass (*Piptatherum micranthum*), New Mexico locust (*Robinia neomexicana*), many-flowered schkuhria (*Schkuhria multiflora* var. *multiflora*), and Johnson's beehive cactus (*Sclerocactus johnsonii*).

The following wildlife and plant species were identified on USFWS, Nevada Department of Wildlife (NDOW), BLM, and Clark County MSHCP lists as potentially occurring within the project area in Nevada but are very unlikely to occur on site due to a lack of suitable habitat, appropriate soils, and/or suitable elevation and thus are excluded from discussion. The wildlife species excluded are small-footed myotis (*Myotis ciliolabrum*), long-eared myotis (*Myotis evotis*), little brown bat (*Myotis lucifugus*), fringed myotis (*Myotis thysanodes*), cave myotis (*Myotis velifer*), long-legged myotis (*Myotis volans*), spotted bat (*Euderma maculatum*), Nevada admiral (*Limenitis weidemeyerii nevadae*), Carole's silver-spot butterfly (*Speyeria zerene carolae*), and Spring Mountains comma skipper (*Hesperia Colorado mojavensis*). The plant species excluded are Las Vegas bear poppy (*Arctomecon californica*), Clokey milkvetch (*Astragalus aequalis*), blue diamond cholla (*Opuntia whipplei* var. *multigeniculata*), scrub lotus (*Lotus argy raeus* var. *multicaulis*), Jaeger beardtongue (*Penstemon thompsoniae* var. *jaegeri*), and Parish's phacelia (*Phacelia parishii*).

Plants

~~Twenty-nine~~Thirty-three special-status plant species occur or are ~~very~~ likely to occur along the California segment of the project, while ~~four~~ seven special-status plant species occur or are ~~very~~ likely to occur along the Nevada segment of the project. Based on a review of the existing state and federal databases, no plant species listed as threatened or endangered by the federal government or the states of California or Nevada are expected to occur within the proposed project area.

Mormon Needle Grass (S2.2)

Mormon needle grass (*Achnatherum aridum*) is associated with rock outcrops or shrub-steppe habitats where Joshua tree or ~~pinion~~ pinyon-juniper woodland habitats exist on carbonate soils (CNPS 2001). Stems may approach 3 feet in height, with the inflorescence, which may be partially enclosed by the upper leaf sheath, being 2 to 7 inches in length. Plants flower in May or June (Jepson 2008). Mormon needle grass was not observed during surveys, but suitable habitat is present for the species in Antimony Canyon east of the Mountain Pass Substation.

Small-flowered Androstephium (S1.3)

Small-flowered androstephium (*Androstephium breviflorum*) is a perennial herbaceous monocot bulb native to the Mojave Desert of California and parts of western Arizona and southern Nevada (USDA 2009b). Sage green strap-like leaves surround a 10- to 30-centimeter (cm) flower stalk topped by three to 12 funnel-shaped white to lavender flowers 1 to 2 cm long (Hickman 1993). Blooming occurs between April and May. This species is associated with sandy to gravelly soils of alluvial fans or stabilized dunes in creosote bush scrub vegetation (eFlora 2009). ~~This plant was observed along Transmission Alternative Route D in California.~~ This plant was observed in 2008 along the proposed transmission route near the Ivanpah Substation in California and in 2010 in Nevada along Transmission Alternative Route D/E in Nevada.

White Bearpoppy (S2.2)

The white bearpoppy (*Arctomecon merriamii*) is an evergreen perennial herb. The leaves are basal, rounded-dentate, and moderately hairy, which give the leaves a bluish-green appearance. The emerging flower stalks have the typical poppy family nodding habit of the flower bud, which becomes erect at maturity. The flowers, which have white petals on stalks 12 to 16 inches in height, appear in the spring (NNHP 2001b). The white bearpoppy occurs in southeastern California and southern Nevada (Jepson 2008). The plants occur on generally barren, calcareous soils, alluvial gravels, and carbonate rock outcrops (Jepson 2008, NNHP 2001b). Populations of the white bearpoppy are decreasing in number (NNHP 2001b).

The white bearpoppy was not observed during surveys, but suitable habitat for the species occurs within the proposed project area. There is a CNDDB record of the species northeast of Umberci Mine at "Bearpoppy Saddle," which is approximately 4 miles west of the north end of Transmission Alternative Route C. Additional observances have been recorded between the Umberci Mine and Stateline Pass to the northeast.

Mojave Milkweed (S2)

Mojave milkweed (*Asclepias nyctaginifolia)* is a perennial plant with decumbent to erect stems to about 1 foot in height. The leaves are opposite, and may be elliptic, lanceolate, or oval. Greenish-white flowers may be present between May and September (CNPS 2001, Jepson 2008, Kearney and Peebles 1960). The plants occur along arroyos or on dry slopes (CNPS 2001, Kearney and Peebles 1960). In California the species is generally associated with ~~pinion~~ pinyon-juniper woodland (Calflora 2008). The range of the Mojave milkweed is from San Bernardino County, California, east to New Mexico (CNPS 2001).

A single Mojave milkweed plant was observed during the rare plants survey approximately 0.55 miles southwest of the proposed Ivanpah Substation site in California. Suitable habitat is present from this location west to the vicinity of the Mountain Pass Substation.

Borrego Milkvetch (S1, S3.3)

Borrego milkvetch (*Astragalus lentiginosus* var. *borreganus*) is a short-lived perennial or annual dicot herb with multiple stems up to 45 cm long. Silvery compound leaves occur with pea-shaped purple to lavender flowers in clusters of one to 15. Flowering occurs between March and May (Calflora 2009). The species is widely distributed in native to sandy or gravel soils in both the Mojave and Sonoran deserts in California, Nevada, and portions of Arizona (USDA 2009c). This plant was observed along the portion of Nipton Road included in both the Mountain Pass and Golf Course Telecommunication Alternatives in California.

Spring Mountain Milkvetch (S2)

Spring Mountain milkvetch (*Astragalus remotus*) is a perennial herb with several erect stems, 1.5 to 4 decimeters (dm) long, and with grayish compound leaves and buff-colored, lilac-tinged flowers. It blooms from April to early June and is commonly found in desert scrub or washes in dry, rocky-to-sandy soils derived from calcareous limestone or sandstone (USDA 2009c). This species may occur along the route in California west of Primm near the toe of the Spring Mountains.

Scaly Cloak Fern (S2.3)

The scaly cloak fern (*Astrolepis cochisensis.* var. *cochisensis*) is a perennial herb of small stature, generally between 1 and 4 inches in height, associated with limestone outcrops and associated rocky slopes in ~~pinion~~ pinyon-juniper woodland or in habitats that contain Joshua trees (CNPS 2001, Jepson 2008). The species occurs from California east to New Mexico. Suitable habitat for the scaly cloak fern is present in the vicinity of the Mountain Pass Substation, but the plant was not observed during surveys.

Black Grama (S3.2)

Black grama (*Bouteloua eriopoda)* is a tufted perennial grass of the western United States and northern Mexico that has decumbent to erect stems approximately 2 feet in height. Inflorescences are generally present between May and October (CNPS 2001, Gould 1951). Black grama most commonly occurs in dry habitats with sandy or rocky soils in flats, on slopes, along washes, and in scrub and woodland communities, including ~~pinion~~ pinyon-juniper habitat (CNPS 2001, Gould 1951, Jepson 2008). Black grama is present along the route and was observed in more than one location in Antimony Canyon east of the Mountain Pass Substation during rare plant surveys.

Gilman's Cymopterus (S2.2)

Gilman's cymopterus (*Cymopterus gilmanii*) is known to be present only in Nevada and California, and occurs in Mojave Desert scrub habitat, often on carbonate substrates (CNPS 2001). Flower stalks are usually less than 9 inches in height, with the greenish-purple flowers appearing between April and May (Jepson 2008).

Gilman's cymopterus was not observed during any project surveys, but there are CNDDB occurrences of the species in the Clark Mountain~~s~~ Range, and suitable habitat may be present near the Mountain Pass Substation. There are also CNDDB records of the species occurring at Bear Poppy Saddle, which is approximately 4.0 miles west of the north end of Transmission Line Alternative C, and to the north near Kally Mine and the vicinity of Stateline Pass.

Utah Vine Milkweed (BLM, S3.3)

Utah vine milkweed (*Cynanchum utahense)* is native to the Mojave Desert and is known to be present in the states of Utah, Arizona, Nevada, and California. Utah vine milkweed is a member of the dogbane family (*Apocynaceae*). It is a small (up to about 1 meter [m]), highly branched vine that grows up through other desert shrubs for support. It has small, narrow leaves, only a few centimeters long, and bright yellow to orange flowers that grow in umbels. The plant typically grows on sandy to gravelly flats in creosote bush desert. Multiple occurrences of the Utah vine milkweed were recorded during the rare plant survey along the proposed telecommunication line route in California just southwest of the proposed Ivanpah Substation site and directly east of Nipton.

Desert Pincushion (S2.2)

The desert pincushion cactus (*Escobaria vivipara* var. *deserti*) was formerly known as *Coryphantha chlorantha*, and appears in the CNDDB under this name. The desert pincushion cactus usually occurs as a single stem but may be multi-stemmed. Plants seldom exceed 6 inches in height, and the flower color is variable. Flowers usually occur in April and May (Jepson 2008). The species occurs on carbonate soils between approximately 3,280 and 7,870 feet in elevation.

~~A~~ The desert pincushion cactus was observed along the Eldorado–Lugo Telecommunication Line during the 2010 botanical survey. During the 2008 botanical survey, a species of *Escobaria* cactus ~~is~~ was present at several locations along the route from the Mountain Pass Substation east for a distance of approximately 3.5 miles. Most of the occurrences are within 0.4 miles of the substation. These cacti are of either the *deserti* variety or are the viviparous foxtail cactus (*Escobaria vivipara* var. *rosea*), but their identity could not be decisively determined because flowers were not present on the plants when the rare plant survey was conducted. Flowers must be present in order to discriminate between these two varieties of *E. vivipara*.

Viviparous Foxtail Cactus (S1, S2)

The viviparous foxtail cactus was formerly known as *Coryphantha vivipara* var. *rosea*. The range of this species includes northwestern Arizona, southern Nevada, and southeast California (Benson 1982). This cactus occurs on limestone substrates in ~~pinion~~ pinyon-juniper woodland or on low hills and slopes in Mojave Desert scrub (Benson 1982, CNPS 2001, Jepson 2008). The plants may have one to several heads and produce magenta to purplish blooms in May or June (Benson 1982, CNPS 2001). The species is considered rare and is threatened by over-collection (Hickman 1993, Jepson 2008). The viviparous foxtail cactus could occur in the Clark Mountain~~s~~ Range, and

it may be the species that is present along the route, as mentioned above under the discussion of the desert pincushion.

Nine-awned Pappus Grass (S2)

Nine-awned pappus grass (*Enneapogon desvauxi*) occurs on calcareous soils, usually associated with slopes or rocky crevices in desert woodland habitat. The species ranges from southern California east to Texas, and south to Peru. Plant stems may reach about 20 inches in height, with the inflorescences present in August and September (Jepson 2008). Nine-awned pappus grass was found during the rare plant survey. A single occurrence of this species was recorded 2.2 miles southwest of the proposed Ivanpah Substation site.

Clark Mountain Buckwheat (BLM)

The Clark Mountain buckwheat (*Eriogonum heermannii* var. *floccosum*) is a perennial subshrub that can grow up to 0.5 m tall. It is composed of a basal rosette of oblong grayish leaves, topped by a network of finely jointed branches with many small (1 to 3 mm), inconspicuous, pale yellowish flowers. It occurs on gravelly slopes and washes in desert scrublands. This species has a very limited distribution and is confined to a few mountain ranges in southeastern California and southwest Nevada (eFlora 2009, USDA 2009d). This plant was observed along the California segment of the route.

California Barrel Cactus (BLM)

The California barrel cactus (*Ferocactus cylindraceus*) has no federal status under the ESA, is not listed on the California BLM list of sensitive species, and is not afforded any status in the CNDDB (it is not tracked). It was considered too common to be included in the CNPS Inventory of Rare and Endangered Plants of California (2001). The BLM policy for this species is avoidance. If avoidance is not possible, individuals of this species should be temporarily relocated to areas outside of the disturbance footprint and used in later restoration and re-vegetation efforts of temporary disturbance areas.

This cactus and its varieties occur widely in Arizona, Nevada, California, and Utah in desert habitats. The plants prefer gravelly to rocky hillsides, canyon walls, and wash margins in the desert. Two varieties could be present in the proposed project area: var. *lecontei*, which occurs between 2,500 and 5,000 feet in elevation, and var. *acanthodes*, which occurs between 200 and 2,500 feet in elevation. This species was found ~~in moderate density~~ along the proposed route in California west of Ivanpah Dry Lake and along the proposed transmission and telecommunication line in Nevada, near and in the McCullough Range.

Parish Club Cholla (Matted Cholla; BLM, S2.3)

Parish club cholla (*Grusonia parishii*) is known to be present in the Mojave and Sonoran deserts of Arizona, California, and Nevada. Parish club cholla grows in mats, hence the alternate common name of "matted cholla." The mats are close to the ground and this cactus never "emerges" from the shrubby desert vegetation surrounding it. Plants flower in late spring and early summer and are usually found on silty, sandy, or gravelly flats, dunes, and hills. During rare plant surveys, Parish club cholla was found on the proposed Ivanpah Substation site and along the proposed transmission and telecommunication alignment north and south of the substation site in California. It was also found in 2010 surveys in Nevada along the existing Eldorado to Lugo line route.

Hairy-podded Fineleaf Hymenopappus (S1.3)

Hairy-podded fineleaf hymenopappus (*Hymenopappus filifolius* var. *eriopodus*) inhabits limestone soils among pines and/or junipers at elevations of about 1,600 to 1,700 m (5,250 to 5,580 feet; Jepson 2008). Plants may reach 0.8m (30 inches) in height and produce whitish flowers in May or June, and occasionally again in October (Jepson 2008). This species is recorded in the Clark and New York mountains, and may occur near the Mountain Pass Substation.

Hillside Wheat Grass (S1.3)

Hillside wheat grass (*Leymus salinus mojavensis*) grows to about 14 dm (55 inches) in height with an inflorescence to 14 cm (5.5 inches) long, and flowers between May and June. This grass occurs on rocky hillsides in ~~pinion~~ pinyon-juniper habitat (CNPS 2001, Jepson 2008). The only place within the project ROW where this species might occur is in the vicinity of the Mountain Pass Substation, where suitable habitat is found.

Plains Flax (S2.3)

Plains flax (*Linum puberulum*) inhabits dry ridges of deserts, mesas, or mountains from California to Colorado and Texas (Jepson 2008). Plains flax is a perennial species that can grow to about 15 inches in height (Epple and Epple 1995, Jepson 2008, Kearney and Peebles 1960). The flowers, which have yellow to orange petals, may bloom any time between April and October (Epple and Epple 1995, Jepson 2008). Plains flax was not observed during project surveys, but suitable habitat is present throughout the proposed project area.

Rough Menodora (S2.3)

Rough menodora (*Menodora scabra*) is a shrub that grows to about 18 inches in height and produces light canary yellow flowers anytime between May and September, which are followed by distinctive translucent paired fruit (Epple and Epple 1995, Kearney and Peebles 1960). Rough menodora occurs on rocky soils of slopes, dry mesas, foothills, and canyons (Jepson 2008, Kearney and Peebles 1960). In California, rough menodora is recorded from the Clark, Eagle, and New York mountains (Jepson 2008). ~~Rough menodora has not been observed during surveys but may occur within the project limits on the east flank of the Clark Mountains.~~ Rough menodora was observed along the Mountain Pass Alternative to the southeast of the Mountain Pass Substation and may occur within the project limits on the east flank of the Clark Mountain Range.

Polished Blazing Star (S1.2)

The polished blazing star (*Mentzelia polita*) is a perennial plant that grows to about 31 cm (1 foot) in height with white, peeling stems and linear to lanceolate leaves less than 7 cm (2.75 inches) in length. The white to pale yellow flowers appear in April or May (Charters 2008). The plants occur on limestone or gypseous soils often associated with ephedra (*Ephedra nevadensis)* and sumac (*Rhus* spp.) The polished blazing star is present in the Clark Mountain~~s~~ Range (Charters 2008, Jepson 2008). ~~This species could occur within the proposed project area in the Clark Mountains.~~ This species could occur along the Mountain Pass Alternative in the Clark Mountain Range.

Red Four O'clock (S2.3)

Red four o'clock (*Mirabilis coccinea*) has ascending to erect stems to nearly 2 feet in height. The fleshy, linear leaves are sessile, and the intense red blossoms may be present between May and July (Jepson 2008). This plant occurs on dry soils of rocky slopes and along washes, often associated with ~~pinion~~ pinyon-juniper habitat (CNPS 2001, Jepson 2008). Red four o'clock was not observed during surveys, but suitable habitat for the species is present near the Mountain Pass Substation.

Tough Muhly (S1, S2)

Tough muhly (*Muhlenbergia arsenei*) is a perennial grass that may reach 4 dm (16 inches) in height. The inflorescence is 12 cm (4.7 inches) long and may be present from August to October. Tough muhly occurs on rock outcrops and limestone slopes in the Clark and New York Mountains (CNPS 2001, Jepson 2008). ~~Tough muhly could be present in the proposed project area near the Mountain Pass Substation.~~ Tough muhly could be present along the Mountain Pass Alternative in the Clark Mountain Range.

Curved-spine Beavertail (S1.2)

The curve-spined beavertail cactus (*Opuntia curvospina*), also known as the searchlight pricklypear, is a recognized hybrid between tulip and dollarjoint pricklypears (*O. phaeacantha* and *O. chlorotica*) that has been proposed as a

distinct species (CNPS 2001, USDA 2008). The species occurs in Mojave Desert scrub, chaparral, and ~~pinion~~ pinyon-juniper woodland. Blooms appear on the plants between April and June (CNPS 2001). The curve-spined beavertail cactus could be present within the project limits.

Spiny Cliffbrake (S2)

Spiny cliffbrake (*Pellaea truncata*) occurs in rock crevices, on cliffs, and in boulder piles of granite or other igneous rocks in ~~pinion~~ pinyon-juniper habitat (CNPS 2001, Jepson 2008). Spiny cliffbrake was not observed during surveys, but suitable habitat is present in the steep, rocky terrain near the Mountain Pass Substation.

White-margined Beardtongue (BLM, ART)

The white-margined beardtongue (*Penstemon albomarginatus*) is a multi-stemmed perennial herb that grows from rhizomes, 6 to 14 inches in height, with distinctive, white-margined, spatulate leaves. The tubular flowers, arranged in leafy whorls, appear from March to early June. The flowers are pink to lavender with darker purple markings. When dried, the flowers remain purplish (Jepson 2008, Smith 2001).

The white-margined beardtongue is currently present at 12 sites in Clark and Nye counties, Nevada (Smith 2001). The plants have also been recorded within San Bernardino County, California (NNHP 2001c). In Nevada, the plants are generally restricted to deep, loose deposits of aeolian sands, or sandy alluvium along dry arroyos, low-profile slopes, or alluvial terraces (Smith 2001). All sites in Nevada are within either the creosote bush-bursage or Joshua tree-mixed shrub associations (NNHP 2001c, Smith 2001).

The white-margined beardtongue was observed along the project route during the 2008 and 2010 rare plant ~~survey~~ surveys in Nevada but may also occur along the California segments.

Rosy Two-toned Beardtongue (CA: S1.3, NV: BLM, ART)

The rosy two-toned beardtongue (*Penstemon bicolor* ssp. *roseus*) is a perennial herb less than 60 inches in height with thick, ovate leaves 1.5 to 4.5 inches in length. The basal leaves are fused around the stem. The flowers, which appear from mid-March to mid-May, vary from cream to magenta, and the corolla is from 0.7 to 1.1 inches in length. The plants are found in rocky soils of calcareous, granitic, or igneous origin, in drainages, along roads, on scree at the bases of rock outcrops, and in other places receiving enhanced runoff. The plants are found in creosote bush-bursage, black bush, and mixed shrub associations (Jepson 2008, NNHP 2001a). The plant is present in Clark and Nye counties, Nevada; Mohave County, Arizona; and California (Kearney and Peebles 1960, NNHP 2001a). Three occurrences of this species are known in California: one east of Keany Pass on the Clark Mountain USGS quad, one near Heart in the Castle Mountains on the Heart Peak USGS quad, and one vague location on the Homer Mountain USGS quad, all in San Bernardino County. At least 70 sites for the species are known in Nevada, most of which are the rose-flowered phase (Smith 2005). The two subspecies of the two-toned beardtongue (*P. b. bicolor* and *P. b. roseus*) are not considered valid taxa by Smith (2005), who includes them in *P. bicolor*.

No individuals of this species were found in California during the spring 2008 and 2010 surveys. However, the rosy two-toned beardtongue was observed at several locations along the project route in Nevada, primarily along the main drainage on the east flank of the north McCullough Pass area, and at a single locality along the Eldorado–Lugo transmission line corridor. Because of their stature, the plants stand out in the landscape, even when dormant. Based on recorded occurrences, the species is evidently widespread but is expected to be uncommon in the proposed project area.

Stephens' Penstemon (BLM)

Stephens' penstemon (*Penstemon stephensii*) occurs on rocky slopes or in bedrock crevices, and along washes, usually associated with carbonate soils, in habitats from creosote bush scrub to ~~pinion~~ pinyon-juniper woodland. The

rose to magenta flowers may be present between April and June (CNPS 2001, Jepson 2008). Stephens' penstemon has not been observed during surveys, but suitable habitat is present in the proposed project area.

Aven Nelson's Phacelia (S2.3)

Aven Nelson's phacelia (*Phacelia anelsoni*) is an annual herb that occurs on carbonate, sandy, or gravelly soils in a variety of habitats (Jepson 2008). The species' range extends from southern California across Nevada to southwest Utah. It is an erect annual plant to about 20 inches in height, with white or pale blue to lavender flowers that may be present in April or May (CNPS 2001, Jepson 2008). Aven Nelson's phacelia was observed at four closely spaced locations ~~in the proposed project area~~ along the Mountain Pass Alternative, about 1 mile northeast of the Mountain Pass Substation.

Sky-blue Phacelia (S2.3)

Sky-blue phacelia (*Phacelia coerulea*) is an ascending to erect annual herb that grows to about 16 inches in height. The plants inhabit sandy to rocky soils, from creosote bush desert to ~~pinion~~ pinyon-juniper habitats. The pale bluish to purple flowers may be present from April to May (CNPS 2001, Jepson 2008, Kearney and Peebles 1960). ~~Sky-blue phacelia was observed in the project area as a single occurrence approximately 2.8 miles northeast of the Mountain Pass Substation.~~ Sky-blue phacelia was observed north and south of the Mountain Pass Substation in California and along the telecommunication route on Nipton Road to the east of Nipton, Nevada. The species is likely to exist at other locations within the proposed project area.

Chamber's Physaria (S2.3)

Chamber's physaria (*Physaria chambersii*) is an herbaceous tufted plant that is usually no more than 6 inches in height. Leaves are basal and spatulate with an acute tip. Chamber's physaria is a limestone soil endemic species usually associated with ~~pinion~~ pinyon-juniper habitat. The species is recorded in the Clark and Grapevine mountains in California, and occurs north to Oregon and east to Utah and Arizona. The yellow flowers usually appear in April or May (CNPS 2001, Jepson 2008, Kearney and Peebles 1960). Chamber's physaria was not observed during the project rare plant survey, but there is suitable habitat for the species in the Clark Mountain~~s~~ Range.

Abert's Sanvitalia (S1, S2)

Abert's sanvitalia (*Sanvitalia aberti*) is an annual plant occurring on dry slopes in ~~pinion~~ pinyon-juniper woodland (CNPS 2001, Jepson 2008). Plants may reach 11 inches (29 cm) in height (Jepson 2008). The yellow flowers are present in August or September. In California the species is present in the Clark and New York mountains (Jepson 2008). Abert's sanvitalia might occur in the project area in the vicinity of the Mountain Pass Substation.

Johnson's Beehive Cactus (BLM, S2)

Johnson's beehive cactus (*Sclerocactus johnsonii*) occurs in creosote bush habitat in rocky habitats in the Mojave Desert. Johnson's beehive cactus usually has a single stem to about 25 centimeters (10 inches) in height. The variable greenish-yellow, pink, or, magenta flowers bloom in April or May. In California, Johnson's beehive cactus is only known from Inyo County (CNPS 2001; Jepson 2008), but there is potential for the species to occur within the project limits in suitable habitat.

Rusby's Desert Mallow (BLM, S1.3)

Rusby's desert mallow (*Sphaeralcea rusbyi* var. *eremicola*) occurs in Joshua tree woodland and Mojave Desert scrub habitats (CNPS 2001, Jepson 2008). The species is relatively short for a plant in the *Sphaeralcea* genus, reaching only about 12 inches (3 dm) in height. Rusby's desert mallow occurs only in Death Valley and the Clark Mountain~~s~~ Range (Jepson 2008). There are CNDDB records of this species in the vicinity of the Kally Mine and Stateline Pass area, which are west/northwest of the north end of Transmission Alternative Route C. This species could occur within the project area near the Mountain Pass Substation.

Catclaw Acacia (MSHCP)

Catclaw acacia (*Acacia greggii*) is a native, long-lived, deciduous, spreading shrub or small tree. Depending on the harshness of site conditions, catclaw acacia typically ranges from 3.3 to 29.5 feet (1 to 9 meters) tall. In Nevada, Catclaw acacia occurs with desert wash vegetation (Gucker 2005), and has been observed in desert washes within the project area in Nevada and California~~could occur within any portion of the project with this vegetation type~~.

Honey Mesquite (MSHCP)

Honey mesquite (*Prosopis glandulosa*) is a deciduous, thorny shrub or small tree exhibiting a high degree of variation in growth form. The largest trees are often found along water courses or floodplains where the deep root system has access to year-round water. Drainage ways in the Mojave Desert are the primary habitat for western honey mesquite. This vegetation could occur in California and Nevada, although none was observed in the proposed project area during surveys.

Scrub Lotus (MSHCP)

Scrub lotus (*Lotus argyraeus var. multicaulis*) is a perennial herb that is native to California and is endemic to California, but also found occasionally into Nevada. It occurs in pinyon-juniper woodland on mountain slopes or gravely sandy soils (Calflora 2010). This species has limited potential to occur within the project area.

Cactus and Yucca (BLM)

There were 15 species of cactus and yucca observed in the Nevada portion of the proposed project. A complete list of cactus and yucca species and the total number of individuals observed is found in Table 3.4-7. All of these species are protected and regulated under NRS 527.060.120, Nevada Administrative Code Chapter 527.060–120 and Nevada Administrative Code Chapter 527.

Table 3.4-7 Summary of Cactus and Yucca Species observed the Nevada Portion of the Proposed EITP[1,2,3]

Common Name	Scientific Name	Total number of individuals observed
Foxtail cactus	Escobaria cf. vivipara var. deserti	2
Buckhorn cholla	Cylindropuntia acanthocarpa var. coloradensis	491
Wiggins' cholla	Cylindropuntia echinocarpa	554
Pencil cholla,	Cylindropuntia ramosissima	114
Engelmann's hedgehog cactus	Echinocereus engelmannii	137
Johnson's fishhook cactus	Echinomastus johnsonii	45
Cottontop cactus	Echinocereus polycephalus	1
California barrel cactus	Ferocactus cylindraceus	67
Matted cholla	Grusonia parishii	6
Fishhook cactus	Mammillaria tetrancistra	8
Beavertail cactus	Opuntia basilaris	157
Pancake prickley-pear	Opuntia chlorotica	6
Banana yucca	Yucca baccata	32
Joshua tree	Yucca brevifolia	102
Mojave yucca	Yucca schidigera	107
Total		1,830

[1] Source: Summplemental Biotechnical Report: 2010 Botanical Survey

[2] Nevada portion of the proposed EITP that was surveyed included; around each existing and proposed tower site, proposed disturbance areas used for pulling sites, laydown areas, and telecommunication infrastructure

[3] The total area that was surveyed was 211 acres.

Wildlife

Based on desktop analysis and field surveys, several special-status wildlife species are known to occur or ~~have a very high potential~~ are likely to occur within the EITP (Tables 3.4-5 and 3.4-6 ~~3.4-3 and 3.4-4~~).

Reptiles

Mojave Population Desert Tortoise (FT, ST, S2, NRS 501)

The Mojave population of the desert tortoise (*Gopherus agassizii*) is currently listed as threatened by both the USFWS under the ESA (Federal Register 1990) and the State of California under the California Endangered Species Act (CESA; CDFG 2008b). The Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994) and the Draft Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*) (USFWS 2008) define recovery units, critical habitat, and management strategies for all desert tortoise populations in California and Nevada, among other states. The entire project is within the Northeast Mojave Recovery Unit and passes through the Piute-Eldorado Critical Habitat Unit in Nevada and the Ivanpah Critical Habitat Unit in California (Figure 3.4-2).

Desert tortoises occupy a variety of habitats, from flats and lower slopes dominated by creosote bush scrub at lower elevations to rocky slopes dominated by blackbrush and juniper woodland ecotones at higher elevations (USFWS 2008). Desert tortoises generally occur at elevations from below sea level in Death Valley, California, to 5,000 feet at Yucca Mountain, Nevada; however, presence at elevations up to 7,300 feet has been reported (USFWS 2008). In the Mojave Desert, tortoises occur most commonly on gently sloping terrain with sandy gravel soils and where there is sparse cover of low-growing shrubs, which allows establishment of herbaceous plants. Soils must be friable enough for digging burrows, but firm enough so that burrows do not collapse. Typical habitat for the desert tortoise in the Mojave Desert has been characterized as creosote scrub, often mixed with cacti, yucca, and other drought-resistant shrubs, such as white bursage and saltbush. These habitats tend to have a relatively high diversity of perennial plants and average annual precipitation ranges from 2 to 6 inches ~~5 to 20 cm~~ (USFWS 2008). The diet of the desert tortoise will vary depending on the seasonal availability of food. Tortoises prefer flowers of annual plants and grasses, but will also ~~assume~~ consume cacti and the vegetation of woody ~~herbs~~ plants. Desert tortoises reach reproductive maturity at 18 to 20 years of age. Tortoises typically lay eggs in late spring/early summer, and the eggs hatch 90 to 120 days later in late summer/early fall. Eggs are laid under several inches of sand near the mouth of the burrow opening.

The entire proposed project area falls within the range of the species, and most of the project areas provide suitable habitat for tortoises (Figure 3.4-2). In Nevada, the proposed transmission alignment would pass through approximately 8.3 miles of the Piute-Eldorado Critical Habitat Unit to the west of Eldorado Substation (Table 3.4-7 ~~3.4-6~~). In California, the proposed transmission alignment would not cross designated critical habitat.

In Nevada, the proposed redundant telecommunication line would cross approximately 11.8 miles of the Piute-Eldorado Critical Habitat Unit to the south of the Eldorado Substation (Figure 3.4-2, Table 3.4-7 ~~3.4-6~~). In California, the proposed redundant telecommunications line would cross approximately 3.1 miles of the Ivanpah Critical Habitat Unit between the California-Nevada state line and the proposed microwave tower site to the northeast of the town of Nipton. The proposed microwave tower site would also be located entirely within the Ivanpah Critical Habitat Unit for the desert tortoise. Both of the alternative redundant telecommunications line routes (Mountain Pass and Golf Course) would cross the Ivanpah Critical Habitat Unit in California. While in Nevada these two alternative redundant telecommunication routes are identical to the proposed route, the California segments differ significantly from the proposed route. Whereas the proposed redundant telecommunication route would cross approximately 3.1 miles of the critical habitat in California, the Golf Course alternative would cross approximately 12.9 miles of the Ivanpah Critical Habitat Unit, and the Mountain Pass alternative would cross approximately 12.8 miles of the Ivanpah Critical Habitat Unit (Figure 3.4-2, Table 3.4-7 ~~3.4-6~~).

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Figure 3.4-2
Eldorado-Ivanpah Transmission Project

Desert Tortoise Densities Within the EITP Area (BLM Data)

Goodsprings
Jean
ELDORADO
IVANPAH
MT. PASS
Nipton
Searchlight
Jean Lake (Dry)
Roach Lake (Dry)
Ivanpah Lake (Dry)
Nipton Road
CLARK CO.
SAN BERNARDINO CO.
NEVADA
CALIFORNIA
A
B
C
D
E
53
161
604
15
165
95
164

PROPOSED PROJECT
- Transmission L.ine
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- Road

Tortoise Relative Density
- Very High
- High
- Moderate
- Low
- Very Low

USFWS Desert Tortoise Critical Habitat

N

0 1 2 3 4 5
Miles

December 2009

NV UT CO CA AZ NM

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Table 3.4-8 ~~3.4-6~~ Desert Tortoise Critical Habitat Crossed by EITP Components

Route	Critical Habitat Unit	State	Miles in Critical Habitat	Start MP	End MP	Difference between Alternative and Proposed Route (miles)[a]
Transmission Line Route (& primary telecommunications line)						
Proposed Transmission Route	Piute-Eldorado	NV	8.27	23.49	31.75	NA
Transmission Alternative Route A	Piute-Eldorado	NV	3.88[b]	0.00	3.88	-0.37
Redundant Telecommunication Line Route						
Proposed Redundant Telecommunication Route (NV)	Piute-Eldorado	NV	11.75	14.82	26.57	NA
Proposed Redundant Telecommunication Route (CA)	Ivanpah	CA	3.10	0.00	3.10	NA
Telecommunication Alternative Route (Mountain Pass) – west of Nipton, CA	Ivanpah	CA	12.80	13.58	26.39	9.70
Telecommunication Alternative Route (Golf Course) – west of Nipton, CA	Ivanpah	CA	12.88	8.91	21.79	9.78

Notes:

[a] A negative value indicates that this alternative route would decrease the total number of miles that the project feature would cross designated critical habitat for the desert tortoise.

[b] Transmission Alternative Route A traverses fewer miles of critical habitat when compared to the Proposed Transmission Route, however Alternative A Route would increase the amount of new disturbance to critical habitat, because the alternative would require 2.3 miles of new ROW.

Key:
MP = Milepost.

Almost the entire lengths of all proposed and alternative project features are located within suitable habitat for the desert tortoise, although there are several exceptions. Roach and Jean lakes (dry) are not considered suitable desert tortoise habitat, nor are the disturbed and developed areas associated with the town of Primm, Nevada. At higher elevations, neither the proposed telecommunication line near the southern end of the McCullough Range nor the Mountain Pass Telecommunication Alternative is optimal desert tortoise habitat.

During protocol-level desert tortoise surveys conducted in 2008, ~~and~~ 2009, and 2010, desert tortoises or associated sign (scat, burrows, shell fragments) were observed throughout most of the survey area with the exception of the developed and disturbed areas around Primm, Nevada, disturbed areas near the Molycorp Mine west of 1-15, the dry lake playas (Roach and Jean), and the higher elevation areas around Mountain Pass Substation. Desert tortoise densities were calculated for the proposed transmission route using the 100 percent coverage surveys conducted during 2008 and 2009 with the tortoise density calculator in the USFWS 2010 Desert Tortoise Pre-project Survey Guidance document. Based on this tool, tortoise density for the approximately 34.67 miles length of the proposed transmission line route was found to be approximately 5.2 tortoises per square mile. Historic desert tortoise densities in the Nevada portion of the proposed project area, as reported by the BLM, range from very low to moderate (Figure 3.4-2). ~~Desert~~ Density estimates for the proposed transmission route are lower than the 2007 density estimates for the adjacent Ivanpah Valley monitoring strata and for the adjacent Piute-Eldorado Valley monitoring strata, which are 16.9 tortoises per square mile and 10.9 tortoises per square mile, respectively (USFWS 2007). Historic desert tortoise densities for the California portion of the project were not reported by BLM. The desert tortoise 2008 survey results are an appendix to the Eldorado-Ivanpah Transmission Project Biological Technical Report (EPG 2009), while the 2009 and 2010 survey results are provided as ~~a~~ separate documents. The Biological Technical Report and the desert tortoise 2008 survey results are found in Appendix B-1 Biological Technical Report, and the 2009 and 2010 Desert Tortoise Surveys ~~Reports~~ are found in Appendix B-2 Desert Tortoise Surveys.

Gila Monster (BLM, S4, NRS 501)

The Gila monster (*Heloderma suspectum)* occurs in southern Nevada, extreme southwestern Utah, southern California, Arizona, and northern Sinaloa, Mexico (Beck 2005, Stebbins 2003). Gila monster populations in California are not currently faced with any immediate threat, but their numbers are very low, with only 26 credible records (from four counties) in the past 153 years (Beaman and Lovich 2007). In Nevada, the species occurs in Clark, Lincoln, and Nye counties (NNHP 2004).

Gila monsters prefer undulating rocky foothills, bajadas (shallow slopes under rocky hills), and canyons, and tend to avoid open sandy plains (Beck 2005). Brown and Carmony (1991) indicate that rough, rocky country is an important component of Gila monster habitat. Habitat of this type provides many crevices under rocks and similar structures that can be used for winter hibernacula and and/or summer dens. Trees and shrubbery are an important part of Gila monster habitat in providing shade and cover, but also in supporting larger populations of prey species.

Gila monsters use dry washes and their edges, as well as mesquite thickets, for foraging. Gila monsters use a "search and dig" strategy to forage for nests, and have a varied diet that includes newborn rodents and rabbits, lizards, ground-nesting birds, carrion, and eggs from birds and reptiles (Beck 2005, Ivanyi et al. 2000, Lowe et al. 1986). The daily timing of Gila monster activities varies according to season and locality, and generally shows a bimodal pattern (Beck 2005). The amount of surface activity is estimated to be low; in some locations Gila monsters may spend up to 98 percent of their time in burrows (Brown and Carmony 1991, Ivanyi et al. 2000). However, recent telemetry studies indicate that Gila monsters move much more than expected when they are active (Beck 2005). Home range estimates vary from an average of 86 acres in Utah to 159 acres in Nevada (Beck 2005).

With respect to the proposed project area, potentially suitable Gila monster habitat occurs in the proposed project area in the rougher terrains on mountain slopes and in rocky canyons and ravines associated with the McCullough Range and Clark ~~mountains~~ Mountain Range. No Gila monsters have been observed in the project area to date, but they are unlikely to be observed due to their often crepuscular activity regime and limited time spent on the surface during the year.

Chuckwalla (BLM)

The chuckwalla (*Sauromalus ater*) is restricted to rocky areas in desert flats, hillsides, and mountains, where crevices are available for shelter (Brennan and Holycross 2006). Creosote bush is common throughout its range (Stebbins 2003). Chuckwallas are primarily herbivorous, eating a variety of desert annuals and perennials, but they occasionally eat insects (Brennan and Holycross 2006, Sherburn 1972, Stebbins 2003). The common chuckwalla is widely distributed across western Arizona, southern Nevada, southeastern California, Baja California, and northwestern Sonora.

The chuckwalla is likely to occur anywhere in the proposed project area where suitable rocky habitat is present. It was observed in the rocky terrain of the Lucy Gray Range and the McCullough Range during the biological surveys.

Western Banded Gecko (MSHCP)

With its soft, pliable skin, the western banded gecko (*Coleonyx variegatus*) would seem poorly suited to life in extremely arid situations, but its nocturnal and subterranean habits allow it to thrive in arid environments such as creosote bush desert and desert scrub habitats (Stebbins 2003). It feeds on a variety of arthropods, primarily insects (Degenhardt et al. 1996, Stebbins 2003). The western banded gecko is likely present within the proposed project area, and because it accepts various soil types and elevation, it could be present anywhere (Degenhardt et al. 1996).

Desert Iguana (MSHCP)

The desert iguana (*Dipsosaurus dorsalis*) is primarily an inhabitant of creosote bush habitat, where it is often active in the heat of the day. Creosote bush provides shelter from heat and predators, and its flowers are a staple in the diet of

the desert iguana. The desert iguana is primarily herbivorous and often accesses food plant materials by climbing up into creosote bushes or other vegetation. It will also eat insects and carrion (Ivanyi et al. 2000, Stebbins 2003). The desert iguana is likely to be present within the project area, particularly in creosote bush habitat. The species was documented at the proposed ISEGS site adjacent to the California segment of the project (BLM 2010).

Black Collared Lizard (MSHCP)

The black collared lizard (*Crotaphytus insularis*) tends to prefer rocky habitat with generally sparse vegetation but has been recorded in less rocky areas. It eats primarily insects but may also eat other lizard species and some plant materials (Stebbins 2003). The black collared lizard is likely not common within the project area, but it would most likely be found along the ROW that passes through the McCullough Range where the terrain is hillier and some rocks are present. The species was documented at the proposed ISEGS site near the California segment of the proposed project (BLM 2010).

~~***Western Banded Gecko (MSHCP)***~~

~~With its soft, pliable skin, the western banded gecko (*Coleonyx variegatus*) would seem poorly suited to life in extremely arid situations, but its nocturnal and subterranean habits allow it to thrive in arid environments such as creosote bush desert and desert scrub habitats (Stebbins 2003). It feeds on a variety of arthropods, primarily insects (Degenhardt et al. 1996, Stebbins 2003). The western banded gecko is very likely present within the proposed project area, and because it accepts various soil types and elevation, it could be present anywhere (Degenhardt et al. 1996).~~

~~***Desert Iguana (MSHCP)***~~

~~The desert iguana (*Dipsosaurus dorsalis*) is primarily an inhabitant of creosote bush habitat, where it is often active in the heat of the day. Creosote bush provides shelter from heat and predators, and its flowers are a staple in the diet of the desert iguana. The desert iguana is primarily herbivorous and often accesses food plant materials by climbing up into creosote bushes or other vegetation. It will also eat insects and carrion (Ivanyi et al. 2000, Stebbins 2003). The desert iguana is likely to be present within the project area, particularly in creosote bush habitat. The species was documented at the proposed ISEGS site adjacent to the California segment of the project (CEC 2008).~~

~~***Black Collared Lizard (MSHCP)***~~

~~The black collared lizard (*Crotaphytus insularis*) tends to prefer rocky habitat with generally sparse vegetation, but has been recorded in less rocky areas. It eats primarily insects, but will take other lizard species and some plant materials (Stebbins 2003). The black collared lizard is likely not common within the project area, but it would most likely be found along the ROW that passes through the McCullough Mountains where the terrain is hillier and some rocks are present. The species was documented at the proposed ISEGS site near the California segment of the proposed project (CEC 2008).~~

Long-nosed Leopard Lizard (MSHCP)

The long-nosed leopard lizard (*Gambelia wislizenii*) is a rather large lizard that can be quite variable in coloration. This lizard prefers mostly open country, and will occur on a variety of substrates and in many vegetation communities such as creosote bush, sagebrush (*Artemisia* spp.), or other low scattered plant groupings (Stebbins 2003). It may occur in rocky areas, but the presence of rocks is not a requirement for the species (Degenhardt et al. 1996). The long-nosed leopard lizard eats a variety of prey including insects, lizards, and snakes, but because of its large size, it is even capable of taking small rodents (Degenhardt et al. 1996, Stebbins 2003). It also consumes some plant materials (Stebbins 2003). The long-nosed leopard lizard is likely to be present almost anywhere within the EITP area. Its presence in the creosote bush habitat at the bases of the mountains would be expected. The species was documented at the proposed ISEGS site adjacent to the proposed project (~~CEC 2008~~ BLM 2010).

Desert Horned Lizard (MSHCP)

Desert horned lizard (*Phrynosoma platyrhinos*) occurs in arid regions that have at least some loose soil available for burrowing. Desert horned lizard is generally found in areas with sandy soils and limited vegetation such as sagebrush or shadscale. This species could occur anywhere within the project area.

Western Leaf-nosed Snake (MSHCP)

The Western leaf-nosed snake (*Phyllorhynchus decurtatus*) is found in creosote bush desert, but is not often observed. These snakes seldom exceed 20 inches in length, and have an enlarged rostrum that aids in digging. This snake occurs in desert scrub habitat, and is typically associated with areas where creosote bush is dominant. Its principal foods are various species of lizards including the western banded gecko (Stebbins 2003). The Western leaf-nosed snake is likely to be present within the proposed project area where creosote bush is the dominant plant. This snake probably would be present where the project would pass through the McCullough Range or Clark ~~mountains~~Mountain Range.

Glossy Snake (MSHCP)

The glossy snake (*Arizona elegans*) is found in sparsely vegetated or barren desert, grasslands, or chaparral-covered slopes, where it is primarily active at night (Degenhardt et al. 1996, Stebbins 2003). While it is an efficient burrower, it readily utilizes burrows of other animals or spaces beneath rocks for shelter. The glossy snake is more common at lower elevations, and is often found associated with Western and diamondback rattlesnakes (*Crotalus viridis* and *C. atrox*, respectively; Degenhardt et al. 1996). It eats primarily lizards, but snakes, small mammals, and birds are also taken (Degenhardt et al. 1996, Stebbins 2003). The glossy snake may be present anywhere within the EITP area.

Common Kingsnake (MSHCP)

The common kingsnake (*Lampropeltis getula*) is present through a wide range of habitats and elevations, from sea level to near 7,000 feet (Degenhardt et al. 1996, Stebbins 2003). In desert habitats it uses rock shelters, animal burrows, or manufactured structures to escape high temperatures and low humidity (Degenhardt et al. 1996). It feeds primarily on other snake species, but also consumes lizards, frogs, birds, and eggs of reptiles and birds (Degenhardt et al. 1996, Stebbins 2003). The common kingsnake is likely to occur within the proposed project area and is more likely to be found in the mountainous areas of the corridor than in the creosote bush-dominated flats.

Long-nosed Snake (MSHCP)

The long-nosed snake (*Rhinocheilus lecontei*) is typically a snake of valleys or low rolling hills where grasses or thick vegetation and little rock are present (Degenhardt et al. 1996). The primary prey of the long-nosed snake are lizards and small mammals, but it will also take snakes, reptile eggs, insects, and, occasionally, birds (Degenhardt et al. 1996, Stebbins 2003). The long-nosed snake is likely to be present within the proposed project area among low shrubby vegetation where the project would cross the Clark Mountain Range and McCullough ~~mountains~~ Range.

Lyre Snake (MSHCP)

The range of the lyre snake (*Trimorphodon biscutatus*) barely extends into southern Nevada. This snake tends to prefer the steeper slopes and rocky terrain of canyons and arroyos, but may occasionally be encountered on valley floors (Degenhardt et al. 1996, Stebbins 2003). It may occur in a variety of vegetation types from sea level to almost 8,000 feet in elevation (Stebbins 2003), and it preys mainly on lizards but also takes snakes, birds, and small mammals, including bats, which it seeks out in their roosts (Degenhardt et al. 1996, Stebbins 2003). No lyre snakes were observed during surveys; however, their presence within the proposed project area is possible.

Speckled Rattlesnake (MSHCP)

The speckled rattlesnake (*Crotalus mitchellii*) prefers rocky habitats, but may also occur in areas of non-cohesive soils and sandy habitats. The speckled rattlesnake is present in creosote bush, succulent desert, thornscrub, and ~~pinion~~ pinyon-juniper woodland habitats. This rattlesnake preys primarily on small mammals, birds, and lizards (Stebbins 2003). The speckled rattlesnake is likely to be present anywhere within the EITP, and is not likely to be restricted to any specific habitat type.

Sidewinder (MSHCP)

Usually less than 3 feet in length, the sidewinder (*Crotalus cerastes*) is not a large snake. It is usually found in areas of aeolian sands where plants such as creosote bush or mesquite have developed mounds that support the burrowing rodents that are its main prey. The sidewinder is not restricted to sandy areas, and may occur on hardpan or even rocky hillsides (MacMahon 1985, Stebbins 2003). The "stepped" tracks it leaves in sand are characteristic of its method of locomotion. The principal prey of the sidewinder are rodents and lizards, but birds may also be taken (Stebbins 2003). The sidewinder is likely to be present within the proposed project area in areas of loose sand, and may be present on upper mountain slopes. Sandy habitat near where the line passes between Sheep Mountain and the Lucy Gray Mountains would be possible habitat for the sidewinder. The sidewinder was documented at the proposed ISEGS site (~~CEC 2008~~ BLM 2010).

Mojave Rattlesnake (MSHCP)

The Mojave rattlesnake (*Crotalus scutulatus*) is more commonly found in upland desert and the foothills of the mountains in areas with mostly scattered vegetation, often in creosote bush or mesquite habitat, and usually not in very rocky habitat (Degenhardt et al. 1996, Stebbins 2003). The Mojave rattlesnake eats mostly small mammals, lizards, snakes and birds (Stebbins 2003). The Mojave rattlesnake is likely to be present anywhere along the project corridor except in areas where loose, sandy soils are prevalent.

Mammals

Desert Bighorn Sheep (BLM, S3)

The subspecies of desert bighorn sheep that is present in the proposed project area (Nelson's bighorn sheep) occurs in the Southwest desert regions of the United States. The sheep is classified by the CDFG and NDOW as a big game mammal, and annual hunting seasons allow for a very limited take. The Clark Mountain~~s~~ Range and the entire proposed project ROW in California are in the CDFG Zone 3 for desert bighorn sheep hunting, while the McCullough ~~Mountains~~ Range are within the NDOW Area 26 Unit 263 hunting area. The 2008 quota for bighorn for Unit 263 is set at 10 animals, and the hunt period in Unit 263 is from November 10 through December 10.

Desert bighorn are creatures of rugged, open, mountainous terrain where adequate forage, water, and escape terrain are available. Steep slopes and cliffs are used to escape from predators. The Nelson subspecies has become well adapted to the desert mountain environment. It is typically found in small bands in areas with little or no permanent water, although it does require access to surface water (Wehausen 2006). Its diet consists of grasses, forbs, and sedges. Mating may take place at any time in the desert if climatic conditions are suitable. The gestation period is about 180 days. Decline of the species can be attributed to degradation of habitat due to development, road-building, water-management practices, and recreational activities. The bighorns are also highly susceptible to various diseases, e.g., bacterial pneumonia (Pasteurellosis), sometimes passed on to them by domestic sheep, and they are often preyed upon by mountain lions, coyotes, and likely by domestic dogs. High predation by mountain lions has been documented in the Clark Mountain~~s~~ Range (Wehausen 2006). Drought-induced mortality can also occur if edible food sources decline or if there is competition for surface water with humans and other large mammals (i.e. cattle or burros).

Within the proposed project area in California, Nelson's bighorn is found in the rugged, upland topography associated with the Clark Mountain Range. Specific to the Nevada segment of the project, desert bighorn sheep are present in the McCullough Range, including the north McCullough Pass area through which the proposed transmission line alignment would pass (Figure 3.4-3). Bighorn were observed along the transmission line alignment in the north McCullough Pass area during surveys. Within the McCullough range are bighorn special use areas (lambing areas and summer grounds) that are of concern to wildlife and land managers. Lambing grounds are generally at higher elevation in mountain ranges where ewes go in the winter or spring to drop their lambs. The higher, less accessible terrain may afford the ewes and lambs greater protection from certain predators, such as coyotes. The EITP intersects potential lambing grounds within the McCullough Pass (Figure 3.4-3). Summer grounds are areas of the mountain range sheep occupy during the hot summer months. Summer grounds must provide adequate forage and be close enough to water. The only water development in the McCullough ~~Mountains~~ Range available to bighorn sheep in summer is the "Linda" guzzler (a manufactured water storage device), approximately 1.3 miles north of the McCullough Pass.

Wild Burros (WHBA)

The wild burro receives protection under the 1971 federal Wild Free-Roaming Horses and Burros Act (WHBA; 16 USC 1331-1340). The act protects wild horses (*Equus caballus*) and burros within designated allotments on lands administered by the United States Forest Service (USFS) and the BLM. The rationale is to maintain populations of these animals in ecological balance within the designated areas. The species is not listed as threatened or endangered by the USFWS (under the ESA) or the states of California or Nevada. The California Fish and Game Code (Section 4600) provides additional protection for these animals (MacDonald 2006).

As of 2006, there were only three remaining wild burro herds in California, none of which are considered genetically viable populations. The combined California populations consist of approximately 345 animals (MacDonald 2006). Wild burros are present in the proposed project area in California. Although no burros were identified during field surveys, recent burro scat was observed on the west edge of Ivanpah Dry Lake.

American Badger (BLM, S4)

The American badger (*Taxidea taxus*) is frequently found on the flats and alluvial fans next to desert mountains (Hoffmeister 1986). It occupies a diversity of habitats, particularly with the following elements: sufficient food ~~-~~friable soils, and relatively open uncultivated land. It will eat small mammals and burrowing rodents, wood rats (*Neotoma* spp.), reptiles, birds and their eggs, and bees and other insects (CDFG 1986).

Badger populations have declined drastically, particularly in California. Urban and agricultural development has had the greatest detrimental effects on badgers. They have been targets of deliberate killing for many years, and have suffered from rodent and predator poisoning (CDFG 1986).

A badger was observed near the Eldorado Substation during project surveys, and badgers were observed during field surveys for the ISEGS (~~CEC 2008~~ BLM 2010), which is proximal to the project area. Badgers are more likely to occur on upper bajadas, such as the bajada east of Mountain Pass Substation, where greater plant species diversity and cover provides better habitat for prey species.

Desert Kangaroo Rat (MSHCP)

Desert kangaroo rat (*Dipodomys deserti*) live in sand dunes in very hot, dry deserts of the southwestern United States, even below sea level in Death Valley, California. Desert kangaroo rat require deep sand for their burrow, and will not dig them in rapidly shifting sand. They could occur anywhere within the project area.

\\SanFrancisco\Ivanapah\Maps\MXDs\ReportFigures\DesertBighornSheepManagementAreas.mxd 12/08/2009

Figure 3.4-3
Eldorado-Ivanpah Transmission Project

Desert Bighorn Sheep Management Areas

PROPOSED PROJECT
- Transmission L.ine
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course

- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- Road

Bighorn Sheep Habitat
- Crucial Habitat (Includes Potential Lambing Areas)
- Historically Unoccupied
- Winter Range
- CDFG Zone 3

N

0 1 2 3 4 5
Miles

December 2009

NV UT CO CA AZ NM

Goodsprings
Jean
Nipton
Searchlight
ELDORADO
IVANPAH
MT. PASS
Jean Lake (Dry)
Roach Lake (Dry)
Ivanpah Lake (Dry)
Nipton Road
SPRING MOUNTAINS
IVANPAH VALLEY
SHEEP MOUNTAINS
LUCY GRAY MOUNTAINS
MCCULLOUGH RANGE
ELDORADO VALLEY
HIGHLAND RANGE
CLARK MOUNTAIN RANGE
CLARK CO.
SAN BERNARDINO CO.
NEVADA
CALIFORNIA
A
B
C
D
E
53
161
604
165
95
15
164

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Desert Pocket Mouse (MSHCP)

Desert pocket mouse (*Chaetodipus penicillatus*), a medium-sized pocket mouse, occurs in the southwestern United Sates and northern Mexico. Desert pocket mouse is found in various arid, open desert environments, usually where the vegetation is rather sparse. These may include desert wash, desert succulent shrub, desert scrub, and alkali desert scrub. Desert pocket mouse prefers soft alluvian, sandy, or silty soils along stream bottoms, desert washes, and valleys, rather than rocky terrain. These pocket mice live in soils that may be populated by creosote bush, cholla, palo verde, burroweed, mesquite, cacti, and short, sparse grass, as well as in lower edges of alluvial fan with yucca, mesquite, grama, and prickle poppy (Chebes 2002). This species could occur anywhere within the project vicinity.

Kit Fox (MSHCP)

The kit fox (*Vulpes macrotis*) primarily occur in the southwestern part of the United States and northern and central Mexico. Kit foxes are primarily found in arid regions, such as desert scrub, chaparral, and grasslands; they may also occur in agricultural areas and urban environments. Kit foxes prefer areas with loose soils for constructing dens (Patton and Francl 2008). This species may occur within the project area at any time.

California Leaf-nosed Bat (BLM, ART)

The California leaf-nosed bat (*Macrotus californicus*) is primarily a resident of caves and mines in desert scrub habitat, generally below 3,280 feet in elevation (Hoffmeister 1986, Western Bat Working Group [WBWG] 2005). These bats use a variety of night roosts, such as open buildings, porches, bridges, rock shelters and mines (Harvey et al. 1999). The California leaf-nosed bat feeds on large night-flying and terrestrial insects, and sometimes fruit, including those of cacti (Hoffmeister 1986). There is evidence that a California leaf-nosed bat may use the same roost throughout its life (Brown et al. 1993). It does not forage far from its roost. Approximately 20 maternity colonies, and fewer than 20 winter roost sites, all located in mines, are known in California, mostly in mountains bordering the Colorado River Basin (Brown et al. 1993). Threats to this species include mine closures, vegetation removal, vandalism at roosts, and prolonged exposure to low temperatures (Brown et al. 1993).

The project is within the generally accepted range of the California leaf-nosed bat (Barbour and Davis 1969, Bat Conservation International [BCI] 2008, Harvey et al. 1999), and the species could occur where suitable mine or cave roost habitat is present. There is ~~very~~ little evidence of historic mining on Clark Mountain, Sheep Mountain, in the Lucy Gray Mountains, or in the north McCullough Pass area. Mine shafts suitable for bat roosts are unlikely to be present in these areas. Large solution pockets or small caves on Sheep Mountain and eroded pockets in igneous strata in the Lucy Gray and McCullough ~~mountains~~ Range could support small numbers of roosting bats if the voids are of adequate depth to maintain the proper roost temperature range required.

The proposed fiber optic communication line on the Eldorado–Lugo transmission line passes through an area of intense historic mining activity in the south end of the McCullough ~~Mountains~~ Range and the north end of the New York Mountains near the Big Tiger Wash and Nevada State Highway 164. Numerous abandoned mine shafts in that area may contain suitable roosting habitat for this species. The status of these features as habitat is not known.

California Myotis (BLM, ART)

The California myotis (*Myotis californicus*) roosts in a variety of habitats including in rock crevices, under loose bark and within holes in trees, in buildings, and occasionally in caves or mines (Harvey et al. 1999, Hoffmeister 1986). It is primarily a resident of desert scrub habitats, but occurs as high as the lower edge of conifer zones, though rarely above 6,000 feet. In the southwestern deserts, it usually occurs near a water source, often in rocky riparian canyons (Barbour and Davis 1969, Hoffmeister 1986).

There is only marginally suitable habitat present in the project area in Nevada that may support this species. It would be most likely to occur within the proposed project limits during nocturnal foraging activity.

Townsend's Big-eared Bat (BLM, ART)

Townsend's big-eared bat (*Corynorhinus townsendii*) occurs throughout the western United States west of the Great Plains, north into British Columbia, and south to Oaxaca in Mexico (BCI 2008, Harvey et al. 1999). The pale Townsend's big-eared bat (*Corynorhinus townsendii pallescens*) is restricted to the desert southwest (Barbour and Davis 1969), and is the subspecies that would occur within the vicinity of the proposed project. This species normally roosts in mines or caves, and typically returns to the same roosts each year (Harvey et al. 1999).

It is probably the bat species most frequently encountered in caves and mines in the western United States (Barbour and Davis 1969). The pale big-eared bat is found from low desert up into coniferous forest (Hoffmeister 1986). It prefers moths to other prey (WBWG 2005).

Townsend's big-eared bat would be likely to use habitats similar to those attractive to the California leaf-nosed bat. The abandoned mines in the Big Tiger Wash area would be the most likely place for this species to occur within the EITP area.

Big Free-tailed Bat (BLM, ART)

The big free-tailed bat (*Nyctinomops macrotis*) is found in the southwestern United States, as far north as central Utah and Colorado, south to northern South America, and east to the Caribbean (Harvey et al. 1999, Hoffmeister 1986). The big free-tailed bat is probably at the northern limit of its normal range in the southwestern United States (Harvey et al. 1999). It is apparently uncommon within its range in the United States in general, but may be locally common Records for this species are often of individual bats from widespread locations (Barbour and Davis 1969). Maternity colonies are known in the United States from Arizona, New Mexico, and Big Bend National Park on the Rio Grande River in Texas (Hoffmeister 1986, Schmidly 1991). The big free-tailed bat roosts among rocky, usually high cliffs in crevices, in rock shelters, under slabs of rock, and occasionally in buildings (Harvey et al. 1999, Hoffmeister 1986).

The big free-tailed bat could use natural bedrock cavities or fractures in cliffs in the north McCullough Pass area, or in the Lucy Gray Mountains, or on Sheep Mountain. Its presence within the project area would likely be limited to nocturnal foraging activities.

Birds

The project provides foraging and nesting habitat for bird species, including raptors. Given the higher elevation and greater diversity (species and structure) in the plant community at Mountain Pass and on the southern portion of the existing Eldorado–Lugo transmission line, it may be that these areas are used more by ~~transient~~ migrating individuals, summer ~~visitor~~ residents, and permanent resident birds than are lands to the north, south, and east. Bird nesting could occur within vegetation (particularly shrubby plants and cacti species), in ground burrows, in cliffs and crevices associated with surrounding mountain ranges, and potentially on project facilities such as existing poles and towers. In the proposed project vicinity, the ~~avian~~ nesting season for most bird species is from late February to early July. There is a general lack of natural potential roosting and nesting habitat for raptors along most of the proposed project route. Some potential nesting habitat is found in the Clark Mountain~~s~~ Range near the Mountain Pass Substation, where there are rocky cliffs and a few ~~pinion~~ pinyon pine, and potential nesting habitat in the north McCullough Pass area where rocky terrain might support cliff nesting species. Electrical transmission line lattice towers probably provide most of the potential raptor nesting habitat in the area. A pair of red-tailed hawks was observed constructing a nest in a lattice tower in the east foothills of the Clark Mountain~~s~~ Range, and a second stick nest was also observed in a tower in this vicinity during 2008 surveys. Biologists also observed a red-tailed hawk nest along the proposed transmission route near within the McCullough Range during the 2008 surveys. A single stick nest was observed along the Eldorado-Lugo telecommunication route during the 2010 raptor nest surveys, and was determined to most likely be a common raven nest. No raptor nests were observed in any existing lattice towers on the Eldorado–Lugo

line. Stick nests in lattice towers are often re-occupied or modified and re-used intermittently by raptors and ~~corvids~~ crows returning to an area annually. The nests are generally persistent on the towers for years.

Golden Eagle (BLM, FPS)

The golden eagle *(Aquila chrysaetos)* is relatively common in the western United States and can be found in a variety of habitats, but prefers open ground or low hills where visibility is good for hunting (Ehrlich et al. 1988, Glinski 1998). It nests on cliffs, large or small trees, and sometimes telephone poles (Glinski 1998). The golden eagle feeds primarily on mammals, preferring rabbits (*Lepus* spp.) and ground squirrels, but also will feed on snakes, birds, and large insects when mammals are unavailable (Ehrlich et al. 1988, Glinski 1998, Terres 1980). Preferred nesting habitat for the golden eagle is rugged mountains and canyons with little human disturbance. They use cliff faces and ledges for perching and nest cover.

~~Suitable nesting habitat for the golden eagle is present in the Clark Mountains, but primarily in rockier areas at higher elevations, and not within the project area. There is also potential for golden eagles nesting in the upper elevations of the McCullough Mountains, and there is a probable nesting record for the Highland Range (Floyd et al. 2007), which is east of the Eldorado–Lugo alignment.~~

Suitable nesting habitat for the golden eagle is present in the Clark Mountain Range, McCullough Range, and Highland Range (east of the proposed project), primarily in rockier areas at higher elevations. This habitat is fairly limited in extent within the project area. A review of golden eagle historic and current occurrences compiled by NDOW identifies two sightings of golden eagle nests in Nevada within ten miles of the proposed project.There is a nesting record for the Highland Range east of the Eldorado–Lugo alignment and another record in the McCullough Range to the northwest of the proposed transmission line (NDOW 2010). There is also a known active golden eagle breeding territory in the Clark Mountain Range, as reported in the ISEGS environmental document that is located approximately 4.3 miles from the proposed ISEGS site (BLM 2010). Two other inactive breeding territories were found in the Clark Mountain Range east of the project area (BLM 2010). Golden eagle territories are quite large and eagles are thought to forage up to ten miles from the nest within breeding territories in arid environments (USFWS 2010).

~~The project area as a whole is quite open, and provides suitable hunting habitat for the golden eagle. The golden eagle was recorded near the Ivanpah Substation site during project surveys and during surveys for the ISEGS site in 2008 (CEC 2008).~~

The project area as a whole is open and provides suitable hunting and forage habitat for the golden eagle with the exception of developed and paved areas. The golden eagle was recorded near the Ivanpah Substation site during the reconnaissance survey and just south of the Eldorado Substation along the existing Eldorado–Lugo transmission line during the 2010 raptor survey, as well as during surveys for the ISEGS site in 2008 (BLM 2010).

Burrowing Owl (BLM, NRS 501)

Burrowing owls (*Athene cunicularia*) use a variety of habitat types, including shortgrass prairie, open scrublands of mesquite (*Prosopis* spp.), creosote bush, or rabbit-brush (*Chrysothamnus* spp.), as well as agricultural fields, airports, and golf courses (Terres 1980, Ehrlich et al. 1988, Dechant et al. 1999). In desert areas, habitat is typically treeless, open, and relatively level. Burrowing owls often select burrows where surrounding vegetation is kept short by grazing, dry conditions, or burning (Hjertaas et al. 1995, Dechant et al. 1999). The burrowing owl is unique among North America owls in nesting in burrows in the ground. It is semi-colonial and usually occupies burrows excavated by small mammals, often at the edges of active colonies of prairie dogs (*Cynomys* spp.) or ground squirrels. In areas that lack colonial burrowing mammals, burrowing owls will use excavations made by other animals such as badgers, woodchucks (*Marmota monax*), skunks, foxes, armadillos (*Dasypus novemcinctus*), coyotes (*Canis latrans*), and tortoises. It may also use natural cavities in rocks and openings in human-made structures. In addition to the nest burrow it may also use several satellite burrows that may provide protection from predators and parasites (Dechant et

al. 1999). Burrowing owls in the western United States do not dig their own burrows; thus, the presence of burrowing animals is a critical element of their habitat.

Burrowing owls are opportunistic feeders, preying on a variety of arthropods and small vertebrates (Dechant et al. 1999, Hjertaas et al. 1995). They may forage during the day or night, but tend to forage closer to the nest during the day. Foraging habitat requirements are variable, depending on prey availability and abundance.

The project is within the greater limits of the known range of the burrowing owl, and is within the historic and current breeding ranges of the species (Shufford and Gardali 2008). A review of current information shows almost no recent breeding records in the part of the eastern Mojave Desert that includes the project area (CNDDB 2008, Institute for Bird Populations 2008, State of California 2008, Bates 2006). Suitable habitat for burrowing owls is present in areas throughout the project, particularly where animal burrows, especially those of desert tortoise, are common. ~~A burrowing owl was observed along Transmission Alternative Route C during project surveys. They were also observed on the adjacent proposed ISEGS site (CEC 2008).~~ Burrowing owl sign (i.e., pellet) was observed along Transmission Alternative Route C in California during project surveys. Burrowing owls were observed on the adjacent proposed ISEGS site (BLM 2010). No burrowing owls were observed during the 2010 raptor surveys, although non-protocol methods were employed for burrowing owls.

Crissal Thrasher (S3)

Crissal thrasher (*Toxostoma crissale*) is known to occur in both San Bernardino County, California, and Clark County, Nevada. Habitat includes a range of desert scrublands, mesquite thickets along washes, and chaparral environments (AOU 1983). Nesting occurs in large shrubs or low trees generally less than 8 feet above the ground. This species feeds primarily on insects, but will eat berries and seeds and occasionally take small lizards (Terres 1980). The species is uncommon throughout its range and is abundant only where large segments of mesquite bush occur, such as along the Colorado River (CDFG 2009). Therefore, the primary threat to this species is loss of preferred ~~mesquite thicket~~ breeding habitat within vegetation thickets along desert washes and watercourses.

This species could occur in the desert wash habitats within the project area in California and Nevada.

LeConte's Thrasher (BLM)

LeConte's thrasher (*Toxostoma lecontei*) is very sparsely distributed in southern California, western Arizona, southern Nevada, and extreme southwestern Utah (Schram 1998). It is generally restricted to the lowest, hottest, and most barren desert plains, particularly in saltbush and creosote bush habitats (Terres 1980). LeConte's thrashers feed primarily on large insects and other terrestrial invertebrates, and they occasionally eat lizards, other vertebrates, seeds, or fruit (Dobkin and Granholm 2005, Ehrlich et al. 1988). Populations of this species are very sparse, with densities in optimum habitat of five pairs or fewer per square mile (Remsen 1978). This species is very secretive and sensitive to human disturbance. Specific threats include off-road vehicle activity and clearing of shrubs for agriculture or other development.

LeConte's thrashers were observed during project surveys north of Primm, Nevada, near Roach Lake. LeConte's thrashers are very likely to occur in other areas throughout the project, mostly on the lower bajadas, where vegetation is sparse and where chollas provide suitable nesting sites.

Peregrine Falcon (BLM, NRS 501)

Peregrine falcons (*Falco peregrinus*) inhabit open wetlands near cliffs, and they can also be found living in cities with tall buildings or bridges (National Geographic Society [NGS] 2002). General breeding habitat for this species includes open areas from tundra, savanna, and seacoasts to high mountains, as well as open forest and tall buildings (Ehrlich et al. 1988). Their diet is solely comprised of birds, which they catch in mid-air (Phillips et al. 1964). They eat mostly doves and pigeons, but also waterfowl, shorebirds, and passerines (Ehrlich et al. 1992).

The peregrine falcon is known to occur in the project vicinity (Floyd et al. 2007), as the project area contains both suitable open areas for foraging and suitable nesting habitat in the form of cliff ledges within the McCullough ~~Mountains~~ Range. An incidental siting of the peregrine falcon was recorded along the existing Eldorado–Baker–Cool Water–Dunn Siding–Mountain Pass 115-kV transmission line near Primm, Nevada during the 2010 raptor survey.

Prairie Falcon (BLM)

The prairie falcon (*Falco mexicanus*) is typically found in very open habitats in perennial grasslands, rangeland, and light agricultural areas, but is present in the southeast deserts in California as well (Dawson 1998, Wheeler 2003). The prairie falcon is known to nest almost exclusively on sheltered cliffs. The nests are usually on a rock ledge that is overhung, or in a crack, and the nest always faces open habitat (Ehrlich et al. 1988, Steenhof 1998, Wheeler 2003). However, there are a few records of these birds nesting in earthen embankments (Ehrlich et al. 1988). While they may nest near riparian areas, they do not require the presence of water (Wheeler 2003). They do not construct their own nest, but use an old avian nest or scrape together soil, rocks, and sticks (Dawson 1998, Wheeler 2003). The nests may be reused annually for many years (Wheeler 2003).

The prairie falcon may occur in the vicinity of the McCullough ~~Mountains~~ Range, but there are no records of the species breeding in the range (Floyd et al. 2007). The project area contains both suitable open areas for foraging and suitable nesting habitat within the McCullough ~~Mountains~~ Range. The prairie falcon prefers to nest on cliff faces using ledges, cavities, or crevices and will also lay eggs in abandoned stick nests of eagles, hawks, or ravens (Steenhof 1998). The prairie falcon was incidentally sited along the existing Eldorado-Baker-Coolwater-Dunn Siding-Mountain Pass 115 kV transmission line near Eldorado Substation during the 2010 raptor survey.

Phainopepla (BLM, NRS 501)

The phainopepla (*Phainopepla nitens*) is a member of the silky flycatcher family, *Ptilogonatidae*, a primarily tropical family of birds. The phainopepla feeds on a variety of berries and insects. In desert scrub habitats, mesquite mistletoe berries are an important food source, and are an attractant to the species. In other areas they feed on juniper, elderberry (*Sambucus* spp.), grape (*Vitis* spp.), buckthorn (*Rhamnus* spp.), Russian olive (*Elaeagnus angustifolia* L.), and other berries. They forage for insects in typical flycatcher fashion, repeatedly launching out from a high perch to retrieve an insect and returning to the perch (Chu and Walsberg 1999, NatureServe 2008).

The phainopepla typically nests twice a year, but occasionally three broods are produced (NatureServe 2008). The first nest of the year is produced in low desert scrub or mesquite habitat. As the warmer weather approaches, the phainopepla moves to higher elevations into ~~pinion~~ pinyon-juniper or oak (*Quercus* spp.) forest, where it will nest a second time. Nests are constructed mostly by the male and are usually in a tree or occasionally in a shrub (Chu and Walsberg 1999, NatureServe 2008). The phainopepla is a confirmed breeding species in the McCullough ~~Mountains~~ Range (Floyd et al. 2007).

The creosote bush-white bursage habitat on much of the project is mostly unfavorable to the presence of phainopeplas. Very few trees are associated with desert arroyos in the area, but a few small-stature catclaw acacia are present, and some support mesquite mistletoe. Two phainopeplas were observed during site visits to the project. One individual was observed within McCullough Pass, and the second was observed along the proposed telecommunication line.

Loggerhead Shrike (BLM)

The loggerhead shrike (*Lanius ludovicianus*) is widely distributed across the United States. It is found in a variety of habitats, which generally include open country, thinly wooded or shrubby areas with clearings, meadows, pastures, old orchards, and thickets along roadsides (Terres 1980). In California, this species may be found in desert, ~~pinion~~ pinyon-juniper woodland, savannah, grassland, ranches, and agricultural land (Small 1977). Loggerhead shrikes feed primarily on large insects, but they frequently eat small birds, mice, lizards, amphibians, carrion, and other invertebrates (Ehrlich et al. 1988). Populations of this species appear to be declining almost everywhere throughout

its range, with the probable causes being habitat loss and pesticides (Ehrlich et al. 1988). The loggerhead shrike is relatively common in the lower elevations of southern California, including deserts, foothills, the Salton Sea, and the Colorado River (Schram 1998). The loggerhead shrike is a resident throughout the state of Nevada and probably nests in the McCullough ~~Mountains~~ Range (Floyd et al. 2007).

Loggerhead shrike~~s~~ have been observed on the California and Nevada segments of the project. Several observations were made just west of the slopes of the McCullough ~~Mountains~~ Range.

Gray *Vireo* (MSHCP)

Gray Vireo (*Vireo vicinior*) is a sub-foraging inhabitant of some of the hottest, most arid regions of the southwestern United States and adjacent parts of northwestern Mexico (Barlow Sheridan and Colette 1999). It is associated with scrub vegetation and chaparral in mountains and high plains scrubland. This species could occur within the California and Nevada portions of the project.

Scott's *Oriole* (MSHCP)

Scott's oriole (*Icterus parisorum*) is found in desert grassland prairies and mountain canyons, particularly if yucca or palms are present. This species nests in pinyon-juniper woodlands, sycamores, and cottonwoods and forages for insects on the ground or in yuccas and other trees close to the ground. The size of their territory has not been studied extensively; however, it is generally believed to be large, depending on the availability of appropriate habitat (Gartland 2006). Scott's oriole has limited potential to occur along the proposed transmission line and alternative routes in California and Nevada.

Cactus Wren (MSHCP)

Cactus wren (Campylorhynchus brunneicapillus) primarily inhabit areas that are desert or semi-desert, such as Joshua tree woodland in the Mojave Desert; they also live along arid hillsides and locales that provide them with vegetation such as spiny cacti and cholla, which are used for nesting. Declines in population have been correlated to urbanization, although the species less affected by development when nest-site alternatives are available (California Partners in Flight 2009). Cactus wren has ~~limited~~ potential to occur along the proposed transmission line and alternative routes.

3.4.1.2 ~~Wildlife~~General Resource Conditions and Management Areas

Big Game Ranges/Wintering Areas

Nelson's bighorn sheep, also known as desert bighorn sheep, is the only big game species likely to occur within the project area. Habitat connectivity is important for maintaining sustainable populations for this species, and any boundaries or obstacles that restrict access between mountain ranges or to surface water can impede natural colonization. Bighorn, especially rams, will move between mountain ranges if the distance of flat open desert to be crossed is not great and their route between ranges is not bisected by intense human activity such as freeways. Ewes generally tend to be more sedentary and long movements by ewes between mountain ranges are unusual.

As described previously, the Clark Mountain~~s~~ Range provide~~s~~ occupied suitable habitat for the bighorn. Additionally, the BLM Rangewide Plan for Managing Habitat of Desert Bighorn Sheep on Public Lands identifies the McCullough ~~Mountains~~ Range as a Category II (Crucial Habitat) area, where wintering areas and potential lambing areas are located in the mountain range. Figure 3.4-3 illustrates bighorn sheep management areas within the EITP area. Continuous suitable habitat for bighorn sheep exists from the McCullough Range to the southeast, including the nearby Highland Range Crucial Bighorn Habitat Area (approximately 7 miles south-southeast of the proposed transmission line alignment through the McCullough ~~Mountains~~ Range). The proximity of the two ranges, with the relatively narrow, high valley in between, is favorable to regular movements of bighorn sheep between the two ranges. The Eldorado–Lugo transmission line, which would support the fiber optic communications line, passes

through this habitat between the two ranges, but does not enter either the South McCullough Wilderness Area or the Highland Range Crucial Bighorn Habitat Area. The population of bighorn sheep in the McCullough Range was estimated at approximately 200 animals in 2002 (Cummings 2002). Bighorn may also be present on Sheep Mountain and the Lucy Gray Mountains, and may use the valley between the two ranges during movements. The existing transmission line ROW passes between these two ranges east of I-15 and north of Primm, Nevada. Further south of this area, I-15 is likely a movement barrier between the west and east sides of the project area for bighorn sheep.

Areas of Special Management ~~Areas~~ Consideration

Components of the project traverse a number of areas requiring special management considerations.

BLM Areas of Critical Environmental Concern, Desert Wildlife Management Areas, and Wilderness Areas

Critical areas have been established at various times by the BLM for the conservation and recovery of certain species (e.g., desert tortoise), unique biological habitats, and non-biological resources such as cultural resources. These are known as Desert Wildlife Management Areas (DWMAs) and Areas of Critical Environmental Concern (ACECs). ~~The Clark Mountain ACEC was designated under the California Desert Conservation Act (CDCA) Plan of 1980 (described further in Section 3.4.2, "Applicable Laws, Regulations, and Standards") to protect the natural and cultural values of the area (BLM 1980). The Clark Mountain ACEC has significant endemic plant species, plant communities, diverse wildlife elements, and cultural resources values.~~ These areas are designated as they have significant endemic plant species, plant communities, diverse wildlife elements, and cultural resources values. The Clark Mountain ACEC is just west and north of the Mountain Pass Substation. The proposed project or alternatives would not cross the Clark Mountain ACEC. However, the project does cross the Ivanpah DWMA ACEC and the Puite-Eldorado ACEC. The USFWS (2008c) maps critical habitat for the desert tortoise in all of these ACECs. Figure 3.4-4 depicts ACECs within the EITP.

The BLM manages several wilderness areas as part of the National Wilderness Preservation System. No vehicles or motorized equipment are allowed within these designated wilderness areas. The Wee Thump Joshua Tree Wilderness Area was established in 2002 and has a total of 6,050 acres (BLM 2009a). This wilderness was established to protect the dense stand of Joshua trees present in the flat, alluvial plain that is co-dominated by creosote and blackbrush. The wilderness provides habitat for desert tortoise and an unusually diverse group of cavity-nesting birds and birds finding winter refuge. The South McCullough Wilderness Area is a larger area comprised of various vegetation habitats (creosote scrub, yucca and cacti, Joshua trees, and ~~pinion~~ pinyon-juniper at higher elevations). The wilderness provides habitat for chukar, desert tortoise, and desert bighorn sheep (BLM 2009b). The proposed telecommunication route ~~(Path 2, Sections 1 and 2)~~ runs in between, but not across, the South McCullough and Wee Thump Joshua Tree wilderness areas (Figure 3.4-4). The boundaries of these wilderness areas directly abut the proposed telecommunication ROW.

Mojave National Preserve

Mojave National Preserve covers 1.6 million acres and is located in California east of Barstow between I-15 and I-40, stretching to the Nevada border. Established in 1994, the preserve is managed by the National Park Service to "preserve unrivaled scenic, geologic and wildlife values associated with these unique natural landscapes" (California Desert Protection Act 1994). The proposed project directly borders, but is not in, the Mojave National Preserve. The project would be separated from the preserve by Nipton Road in eastern San Bernardino County (NPS 2009; Figure 3.4-4).

Boulder City Conservation Easement

The Clark County Desert Conservation Program (DCP) purchased the Boulder City Conservation Easement (BCCE) from Boulder City in 1995 to exact protections and provide conservations for the desert tortoise, other species, and their habitat (Clark County 2007). The BCCE is a high priority conservation area in which development activity is severely limited with only passive use allowed (hiking, driving slowly on designated routes, and sightseeing) (Clark County 2000), with the exception of approved activities in designated corridors. Only existing uses of historical easements are permitted, and expansion or significant modification to these uses is not allowed (Wainscott, personal communication 2009; Kokos, personal communication 2009). The DCP manages the BCCE through policies outlined in the Interlocal Agreement (as amended), and the City of Boulder City maintains the right to approve land uses within the area.

Portions of the BCCE are designated as critical habitat for the desert tortoise by the USFWS, while the remaining portion of the BCCE is considered the equivalent of USFWS-designated critical habitat by Clark County planners (Wainscott 2009; Kokos 2009). Clark County considers the BCCE as part of the mitigation and conservation reserve for the Clark County Multiple Species Habitat Conservation Plan (MSHCP), but does not regulate the BCCE area; nor does the MSHCP supersede the BCCE agreement.

The northeastern portion of the proposed project (i.e., transmission and telecommunication routes) would fall within and outside an existing utility corridor crossing the BCCE just east of the McCullough Pass area (Figure 3.4-4). The proposed transmission route follows a 2,000-foot-wide utility corridor along its southernmost edge from the western side of the BCCE until it deviates outside of the BLM corridor into the BCCE in a southerly direction for less than one mile at MP 2 along an existing 70-foot ROW (see Figure 3.9-3 in Section 3.9, "Land Use"). The line then re-enters an adjacent 3,000-foot-wide BLM corridor, continues to the northeast, and terminates at the Eldorado Substation. Transmission Alternative Route A would begin at the same point-of-entry into the BCCE as the proposed route but follow the adjacent 3,000-foot-wide BLM corridor to the Eldorado Substation. Transmission Route Alternative B would continue north in the 2,000-foot-wide corridor instead of turning south at MP 2. Alternative B would then make a sharp right turn at the intersection between the 2,000- and 3,000-foot-wide corridors and continue south to the Eldorado Substation. Neither Transmission Route Alternatives A or B would deviate outside of BLM-designated corridors.

Unusual Plant Assemblages

Unusual plant assemblages are specific types of plant communities that are given special protection designations within the California Desert Conservation Act (CDCA) Plan (BLM 1980). These assemblages include riparian areas, which provide a unique niche of vegetation and moisture conditions within the dry desert landscape. Loss of riparian areas within the project area could impact plants and wildlife in the area, which is particularly important for special-status species. Riparian corridors only occur within the Nevada portions of the project area in the McCullough Pass area and along portions of the Eldorado-Lugo telecommunications line area.

Wildlife Corridors/Linkages

A wildlife corridor is defined as a linear landscape feature that allows animal movement between two patches of habitat or between habitat and geographically discrete resources such as water. Connections between extensive areas of open space are integral to maintaining regional biological diversity and population viability. Areas that serve as wildlife movement corridors are considered biologically sensitive because they facilitate the persistence of special-status species. In the absence of corridors, habitats become fragmented, isolated islands surrounded by development. Fragmented habitats support much lower numbers of species and increase the likelihood of extinction for select species.

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Figure 3.4-4
Eldorado-Ivanpah Transmission Project
Designated Areas Within the EITP

Goodsprings
Jean
ELDORADO
IVANPAH
MT. PASS
Nipton
Searchlight
CALIFORNIA
NEVADA
SAN BERNARDINO CO.
CLARK CO.
NORTH MCCULLOUGH WILDERNESS AREA (BLM)
SOUTH MCCULLOUGH WILDERNESS AREA (BLM)
MESQUITE WILDERNESS AREA (BLM)
STATELINE WILDERNESS AREA (BLM)
MOJAVE WILDERNESS AREA (BLM)
MOJAVE WILDERNESS AREA (NPS)
WEE THUMP JOSHUA TREE WILDERNESS AREA (BLM)
Mesquite Lake ACEC
Clark Mountain ACEC
Keyhole Canyon ACEC
Piute-Eldorado Valley ACEC
Crescent Townsite ACEC
Ivanpah Dry Lake Special Recreation Management Area
Ivanpah DWMA (ACEC)
Jean Lake (Dry)
Roach Lake (Dry)
Ivanpah Lake (Dry)
Nipton Road
MP 0.5
MP 5
MP 10
MP 15
MP 20
MP 25
MP 30
MP 35
MP 40
MP 45
MP 50
A
B
C
D
E
53
161
604
15
95
164
165

PROPOSED PROJECT
- Transmission L.ine
- Telecommunications Line
- Redundant Telecommunications Line
- Microwave

ALTERNATIVES
- Transmission Line Alternatives
- Redundant Telecommunications Line - Mountain Pass
- Redundant Telecommunications Line - Golf Course
- Proposed Microwave Tower
- Proposed Substation
- Existing Substation
- City
- Road

Ownership/Juristdiction
- BLM
- NPS
- Proposed Southern NV Supplemental Airport (Clark County Dept of Aviation)
- ACEC (BLM)
- State Land
- State Land Within NPS
- SRMA (BLM)
- Wilderness Area
- Boulder City Conservation Easment (approx. boundary)
- Private Lands

N

0 1 2 3 4 5
Miles

December 2009

NV UT CO CA AZ NM

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Important distinctions exist between regional and local corridors. Regional corridors link two or more large areas of natural open space and maintain demographic and genetic exchange between wildlife populations residing within these geographically distinct areas, whereas local corridors give resident animals access to essential resources (water, food, cover, or den sites) within a large habitat patch and may also function as secondary connections to the regional corridor system. Different species have different corridor use potentials. For example, a landscape feature that functions as a corridor for a songbird may not suffice for a mountain lion (*Felis concolor*) or a reptile. A useful distinction can be drawn between natural and constructed corridor elements. Natural elements are features of the landscape, such as canyons or riparian strips, conducive to animal movement. Constructed elements, such as roadway bridges and drainage culverts, are often part of a corridor. Wildlife corridors in a partially developed landscape generally include both natural and constructed elements.

In the project vicinity, mountain ranges and valleys provide discrete corridors for wildlife movement. Barriers to movement include the highways and paved roads (such as I-15 and Highway 164), the Union Pacific railroad tracks running north–south through the project, and the dry lake beds (for some species). The surrounding mountain ranges, while providing corridors, may also present barriers. Animals that may use corridors are large mammals, reptiles, and bird species. As discussed above, desert bighorn sheep occur within the mountain ranges in this area, and may use the valleys to migrate between the mountains on a regional level, and use local corridors as access to guzzlers and lambing areas. Wild burros require habitat similar to that used by the bighorn sheep (Wehausen 2006), and ~~have~~ sign has been observed in the area; they may also use the area as a wildlife corridor. Suitable and critical habitat for the desert tortoise occurs throughout the project area and the area likely functions as an important regional linkage among individual populations. While the exact migratory patterns of Gila monster are not known, these reptiles likely have seasonal movement patterns (Nowak 2005), and may use local corridors within the area. Various locations within the project area may also provide habitat for migrating birds along the Pacific Flyway or local movements into preferred forage habitats. The Clark Mountain~~s~~ Range provide unique habitat for a variety of birds as previously discussed, and birds using the Clark range may also forage within the EITP.

3.4.2 Applicable Laws, Regulations, and Standards

The following section provides a summary of federal, state, and local laws, regulations, and standards that govern biological resources in the project area.

3.4.2.1 Federal

Endangered Species Act, Section 7 (ESA, 16 USC §1531 et seq., and 50 CFR §17.1 et seq.)

The ESA was passed by the U.S. Congress in 1973, and has since been amended several times. The ESA and 50 CFR 17.1 et seq. designate and provide for protection of threatened and endangered plants and animals and their critical habitat. Procedures for addressing federally listed species follow two principal pathways, both of which require consultation with the USFWS, which administers the ESA for all terrestrial species. The first pathway (ESA Section 10(a), Incidental Take Permit) is set up for situations in which a non-federal government entity (where no federal nexus exists) must resolve potential adverse impacts to species protected under the ESA. The second pathway (ESA Section 7, Consultation) involves projects with a federal connection or requirement; typically these are projects sponsored or permitted by a federal lead agency. For the EITP, the federal lead agency (the BLM) initiates and coordinates the steps below for Section 7:

- Informal consultation with USFWS to establish a list of target species
- Preparation of biological assessment assessing potential for the project to adversely affect listed species

- Coordination between state and federal biological resource agencies to assess impacts and proposed mitigation
- Development of appropriate mitigation for all significant impacts on federally listed species

The USFWS ultimately issues a final Biological Opinion on whether the project would affect federally listed species. The Biological Opinion includes ~~a~~ an Incidental Take statement of anticipated incidental take accompanied by the appropriate and reasonable mitigation measures to minimize such take. It is expected that the USFWS will issue a Biological Opinion for the EITP for impacts to any federally listed species.

Clean Water Act, Section 404 (33 USC §1344 and 40 CFR §100 et seq.)

The USACE has been authorized to regulate the discharge of dredged or fill material to the waters of the United States and adjacent wetlands by Section 404 of the Clean Water Act (CWA) of 1977. Wetland delineation is fundamental to USACE and U.S. Environmental Protection Agency regulatory responsibilities under Section 404 of the CWA. Wetland delineation consists of standardized procedures that are used to determine whether a wetland is present on a site and, if so, to establish its boundaries in the field. In combination with current regulations and policies, delineation methods help define the area of federal responsibility under CWA, within which the agencies attempt to minimize the impacts of proposed projects to the physical, chemical, and biological integrity of the nation's waters. In determining jurisdiction under the CWA, the USACE is governed by federal regulations (33 CFR 320–330) that define wetlands. The USACE Wetlands Delineation Manual is the accepted standard for delineating wetlands pursuant to the Section 404 regulatory program. An Interim Regional Supplement to the USACE Wetlands Delineation Manual for the Arid West Region was released by the USACE in December 2006, and is the current accepted standard for this region.

The USACE evaluates permit applications for essentially all construction activities that occur in the nation's waters, including wetlands. USACE permits are also required for any work in the nation's navigable waters under the Rivers and Harbors Act of 1899. The USACE either performs or receives jurisdictional delineations of waters of the U.S. that are within the potential area of impacts for proposed developments, and provides a jurisdictional determination of effects. The jurisdictional review performed by the USACE may require modifications of development plans and specifications in order to preclude impacts on waters of the U.S. SCE will conduct and submit a jurisdictional determination to the USACE for the EITP to ascertain whether any U.S. waters are within the project boundary. If they are, a permit will be required for any impacts to those systems.

Clean Water Act, Section 401 (33USC §1341)

Applicants applying for USACE permit coverage under Section 404 of the CWA for actions that could result in any discharge into waters of the U.S. must obtain a water quality certification from the state in which the action is proposed.

The State of California uses its CWA Section 401 certification authority to ensure Section 404 permits protect state water quality standards. Water quality in California is governed by the Porter-Cologne Water Quality Control Act (California Water Code), which assigns overall responsibility for water rights and water quality protection to the State Water Resources Control Board (SWRCB). The nine statewide Regional Water Quality Control Boards (RWQCBs) develop and enforce water quality standards within their boundaries. The California Water Code defines "Waters of the State" as any surface water or groundwater, including saline waters, within the boundaries of the state. The Lahontan RWQCB has jurisdiction over the California portion of EITP.

The Nevada Department of Environmental Protection (NDEP) has the authority to grant or deny CWA Section 401 certification of a project requiring a federal permit for the discharge of dredge or fill materials under CWA Section 404. Alternately, the NDEP has the right to waive its certification authority if no action is taken on an application within a "reasonable time," not to exceed one year. If a waiver is granted, no conditions are attached, and in some cases a waiver may be equivalent to certification without conditions (NDEP 2009).

Migratory Bird Treaty Act (16 USC §7.3-712; 50 CFR §10)

The federal Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703-712) provides protection for a majority of bird species occurring in the U.S. The MBTA makes it unlawful to pursue, hunt, take, capture, kill, or sell birds listed under the MBTA. Some common species are not covered under the MBTA and include the European starling (*Sturnus vulgaris*), the house sparrow (*Passer domesticus*), the rock pigeon (*Columba livia*), and game species such as grouse, turkey, and ptarmigan. There have been several amendments to the original law (including the Migratory Bird Treaty Reform Act of 1998). Currently, penalties include a fine of not more than $15,000 or imprisonment of not more than two years for misdemeanor violations of the act. The statute does not discriminate between live or dead birds and grants full protection to any bird parts, including feathers, eggs, and nests. Currently, 836 bird species are protected by the MBTA. The USFWS Migratory Birds and Habitat Program primarily operates under the auspices of the MBTA (USFWS ~~2009a~~ 2010a).

Bald and Golden Eagle Protection Act (16 USC §668 and 50 CFR §22 et seq.)

The Bald and Golden Eagle Protection Act (BGEPA) prohibits any form of possession or taking of either bald eagles (*Haliaeetus leucocephalus*) or golden eagles. A 1962 amendment created a specific exemption for possession of an eagle or eagle parts (e.g., feathers) for religious purposes of Indian tribes. Rule changes made in 2009 (September 11, 2009, Eagle Rule (Rule) 50 CFR parts 13 and 22) finalized permit regulations to authorize limited take of these species associated with otherwise lawful activities. These new regulations establish permit provisions for intentional take of eagle nests under particular limited circumstances (USFWS ~~2009b~~ 2010b).

California Desert Protection Act of 1994

This act established 23 wilderness areas, including Death Valley and Joshua Tree national parks, the Mojave National Preserve, and the Granite Mountains National Reserve. It also declared certain lands in the California Desert as wilderness, and included other natural resource designations and provisions. Though the proposed project does not directly impact any lands regulated by this act, the project does border the Mojave National Preserve ~~and the Wee Thump Joshua Tree Wilderness Area~~.

California Desert Conservation Area Plan of 1980, as amended

The CDCA Plan was originally conceived under the Federal Land Policy and Management Act of 1976. It provides guidance for development of a plan for BLM management of public lands in the California desert (BLM 1980).

Northern and Eastern Mojave Coordinated Management Plan

The BLM approved the Northern and Eastern Mojave (NEMO) Management Plan in 2002, which is an amendment to the 1980 CDCA Plan (BLM 2002a). The NEMO plan sets standards for protection and preservation of approximately 2.4 million acres of public lands in the northern and eastern Mojave Desert in southeastern California. The plan established two DWMAs encompassing about 312,000 total acres that are managed as ACECs for the recovery of the desert tortoise (BLM 2002a, BLM 2002b). The project would cross through one of these areas, the Ivanpah DWMA, in California in areas north of Nipton Road (but south of I-15). The NEMO plan also addresses grazing guidelines for public leases and adjusted herd management areas for wild horses and burros as they affect the desert tortoise. The plan incorporated 23 wilderness areas (totaling 1.2 million acres) that were established by the 1994 California Desert Protection Act in the CDCA (BLM 2002b).

Desert Tortoise Recovery Plan and Critical Habitat Designation of 1994

The Desert Tortoise Recovery Plan established a strategy for the recovery and eventual de-listing of the Mojave population of desert tortoise. Six recovery units with 14 DWMAs were originally proposed in Arizona, California, Nevada, and Utah. Based on information in the Recovery Plan, 12 Critical Habitat Units were established for the Mojave population of desert tortoise by the USFWS on February 8, 1994 (59 FR 5820, USFWS 1994).

A draft revised recovery plan was prepared in 2008, which re-delineated the recovery units and reduced them from six units to five units, based on recent genetic research. The draft revised recovery plan combines the originally designated Eastern Colorado and Northern Colorado recovery units into the Colorado Desert Recovery Unit, which also now encompasses part of the Eastern Mojave Recovery Unit in Piute and Fenner valleys. The recovery units cover the entire range of the Mojave population of desert tortoise (USFWS 2008).

Cactus and Yucca Removal Guidelines, BLM

The BLM normally requires transplanting or salvage of certain native plant species that would be lost to development on lands under their jurisdiction. Species that typically require salvage regardless of their height in this region include yuccas (*Yucca* spp.), ocotillo (*Fouquieria splendens*), and cacti. For chollas, the plant must be less than 3 feet in height to require salvaging; all plants greater than 3 feet in height must be left on site to be destroyed by clearing activities and used for vertical mulch on the site (BLM 2001). The larger chollas thus become part of a natural desert mulch, which provides a seedbank for regeneration of these species.

3.4.2.2 State of California

California Endangered Species Act (California Fish and Game Code §2050 et seq.)

The CESA is similar to the federal ESA, and is administered by the CDFG. CESA was enacted to protect sensitive resources and their habitats. The CESA prohibits the take of CESA-listed species unless specifically provided for under another state law. 'Take' is defined under Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill" a state-protected species. CESA does allow for incidental take associated with otherwise lawful development projects. The CDFG recommends consultation early in project planning stages to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project-induced losses of listed species. A project applicant is responsible for consulting with the CDFG~~, if applicable,~~ to preclude activities that are likely to ~~jeopardize the continued existence~~ result in a take of any CESA-listed threatened or endangered species ~~or destroy or adversely affect habitat essential for any given species~~. If take may occur, then an Incidental Take Permit (CDFG Code Section 2081) or Consistency Determination (i.e., with the USFWS Section 7 consultation) would be required.

California Department of Fish and Game Code §1600-1603, Streambed Alteration Agreement

This statute regulates activities that would "substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed of a natural watercourse" that supports fish or wildlife resources. A stream is defined as a body of water that flows at least periodically or intermittently through a bed or channel having banks, and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. A Streambed Alteration Agreement (SAA) must be obtained for any proposed project that would result in an adverse impact to a river, stream, or lake. If fish or wildlife would be substantially adversely affected, an agreement to implement mitigation measures identified by the CDFG would be required. An SAA would likely be required for impacts to drainages in the EITP in California.

California Native Plant Protection Act of 1977; California Fish and Game Code §1900 et seq.

This law includes provisions that prohibit the taking of listed rare or endangered plants from the wild. The law also includes a salvage requirement for landowners. Furthermore, it gives the CDFG the authority to designate native plants as endangered or rare and provides specific protection measures for identified populations.

California Fish and Game Code §3503

This section prohibits the taking and possession of any bird egg or nest, except as otherwise provided by this code or subsequent regulations. The administering agency is the CDFG.

California Fish and Game Code §3503.5

This section prohibits the taking and possession of eggs or nest of any bird classified as a *Falconiformes* or *Strigiformes* (birds-of-prey), except as otherwise provided by this code or subsequent regulations. The administering agency is the CDFG.

California Fish and Game Code §3511, §4700, §5515, and §5050

These sections prohibit the taking and possession of birds, mammals, fish, and reptiles listed as "fully protected." The administering agency is the CDFG.

California Fish and Game Code §3513 – Adoption of the Migratory Bird Treaty Act

This section provides for the adoption of the MBTA's provisions. As with the MBTA, this state code offers no statutory or regulatory mechanism for obtaining an incidental take permit for the loss of non-game migratory birds. The administering agency is the CDFG.

California Food and Agriculture Code §80001 et seq. – California Desert Native Plants Act

The purpose of this act is to protect California desert native plants from unlawful harvesting on both public and privately owned lands. The act provides for legal harvesting of native plants.

California Code of Regulations §670.2 and §670.5

The code lists wildlife and plant species listed as threatened or endangered in California or by the federal government under ESA. Species considered future protected species by the CDFG are designated California species of special concern (CSC). CSC species currently have no legal status, but are considered indicator species useful for monitoring regional habitat changes.

Natural Communities Conservation Plan, Habitat Conservation Plan, and Other Jurisdictions in the Region

A review of the current (2008) USFWS-ECOS Conservation Plans and Agreements Database and the CDFG Natural Community Conservation Planning revealed no Natural Communities Conservation Plan (NCCP), Habitat Conservation Plan (HCP), or candidate HCPs within the area of influence of this project in California (CDFG 2008a).

3.4.2.3 State of Nevada

Nevada Revised Statute 501

Nevada Revised Statute 501, supplemented by the Nevada Administrative Code (NAC), is the Nevada state law that covers administration and enforcement of wildlife resources within the state. The administering agency is the NDOW. Any authorizations for impacts to protected species would be processed through the NDOW.

Nevada Revised Statute 527.060–527.120

Nevada Revised Statute 527, supplemented by the NAC, protects and regulates the removal of Christmas trees, yuccas, and cacti for commercial purposes. Such removal or possession requires a permit and tags from the Nevada Spur Forester Fire Warden, Nevada Division of Forestry.

3.4.2.4 Regional and Local

San Bernardino County Development Code

Approval from the county is required to remove, harvest, or transplant a living desert native plant. Provision 89.0415 of the San Bernardino County Development Code prohibits harvest or removal of the following desert native plants except under a permit issued by the Agricultural Commissioner or other applicable County Reviewing Authority: (1) desert plants with stems 2 inches or greater in diameter or 6 feet or greater in height (e.g., smoketree [*Dalea spinosa*]), (2) all species of the genus *Prosopis* (mesquites), (3) all species of the family *Agavaceae* (century plants, nolinas, yuccas), (4) creosote rings 10 feet or greater in diameter, and (5) all Joshua trees (Keep Milpas Rural 2009).

When the removal of specimen-size Joshua trees is requested, a removal permit will be granted only if the director of the Building and Safety Department finds that no other reasonable alternative exists for the development of the land. Joshua trees that are proposed to be removed would be transplanted or stockpiled for future transplanting wherever possible. In the instance of stockpiling, the permittee must comply with department policy to ensure Joshua trees are transplanted appropriately (Keep Milpas Rural 2009).

San Bernardino County General Plan

The San Bernardino County General Plan requires retention of existing native vegetation for new development projects, particularly Joshua trees, Mojave yuccas, creosote rings, and other species protected by the Development Code and other regulations. This can be accomplished by requiring the building official to make a finding that no other reasonable siting alternatives exist for development of the land prior to removal of a protected plant, by encouraging onsite relocation of Joshua trees and Mojave yuccas, and by requiring the developer to bear the cost of tree or yucca relocation (San Bernardino County 2007).

The San Bernardino County General Plan requires 50- to 100-foot riparian setbacks that prohibit removal of mature natural vegetation or of vegetation within 200 feet of a stream without a tree permit and environmental review with mitigations imposed. The San Bernardino County General Plan also encourages use of conservation practices when managing grading, replacing ground cover, protecting soils and natural drainage, and protecting or replacing trees (San Bernardino County 2007).

Clark County (Nevada) Multiple Species Habitat Conservation Plan

The Clark County MSHCP and the resultant USFWS Section 10(a) incidental take permit are designed to allow the incidental take of species covered by the ESA (Clark County 2000) on non-federal lands. The MSHCP provides for the long-term conservation and recovery of native species of wildlife and plants and their habitats, while allowing for regulated development of lands within Clark County. The plan is designed to comply with statutory and regulatory requirements of the ESA and NEPA. The plan represents a county-wide conservation strategy that emphasizes ecosystem-level management of natural resources. The plan supplants earlier species-specific conservation efforts. Lists of species that are covered under the plan are provided. ~~Under the MCHSP, tree removal is allowed only for insect and disease control or in emergencies, and tree improvement activities may not impair wilderness values (Clark County 2000).~~

~~Four classes of management are designated under the MSHCP, and mitigation ratios and fees are applied to projects based on these classes.~~ For projects that impact non-federal lands that are protected under the MSHCP, a one-time mitigation and land disturbance fee of $550 per acre is required at the time a grading permit is issued. The collected fees are used to implement the mitigation strategy outlined within the MSHCP. Mitigation activities are undertaken on both federal and non-federal lands that are part of the MSHCP conservation reserve. Restoration projects such as removal of noxious weeds, native vegetation restoration, and placement of protective desert tortoise fencing are types of mitigation projects enacted through MSHCP funding. The MSHCP conservation reserve is comprised of lands that are categorized into four classes based on land management designations. Not all of the lands that are contained

within the MSHCP conservation reserve are regulated or governed by the MSHCP, but rather are under the authority of the actual land owner. The following is a description of the four land management designations that are included within the MSHCP conservation reserve.

Intensively Managed Areas (IMAs) are "Core, High Priority Conservation Areas" set aside for one or more species, and no uses other than preservation are allowed. Less Intensively Managed Areas (LIMAs) are buffers between IMAs and other lands that preserve much of the natural resource values, while allowing low impact uses and development. Multiple Use Managed Areas (MUMAs) allow a variety of development (usually surrounding existing development and transportation and utility corridors), but mitigation is still required for species impacts. ~~Impacts to LIMAs generally require higher mitigation ratios than do impacts to MUMAs.~~ Unmanaged Areas (UMAs) are developed areas with little natural resource value and few requirements for natural resource preservation.

The non-federal lands around Primm, Nevada, and some of the land to the south and east of the existing Eldorado Substation are the only lands that would be directly governed by the Clark County MSHCP within the project boundaries ~~(Figure 3.4-4)~~. However, the BLM, as lead NEPA agency, is taking responsibility for EITP compliance with the ESA. Thus even though the project may cross private, non-federal lands, ESA compliance would be achieved through the USFWS Section 7 federal consultation process. Clark County does have Section 10 take authority for discretionary permits on private land through the MSHCP. Even though the applicant would not seek take authorization through the MSHCP, the underlying tenants of the HCP should be followed during project implementation.

~~Boulder City Conservation Easement~~

~~The Boulder City Conservation Easement (BCCE) was established by Boulder City in 1994 to exact protections and provide conservations for the desert tortoise, other species, and their habitat (City of Boulder 1994). The BCCE is a high priority conservation area in which development activity is severely limited. Only existing uses of historical easements are permitted, and expansion or significant modification to these uses is not allowed (Wainscott, personal communication 2009; Kokos, personal communication 2009). The BCCE was in place prior to the Clark County MSHCP, and the MSHCP has incorporated BCCE provisions. Clark County planners consider the BCCE to be the equivalent of USFWS-designated critical habitat (Wainscott 2009; Kokos 2009). The proposed project would fall within an existing utility easement corridor crossing the BCCE just east of the McCullough Pass area (Figure 3.4-4).~~

The Clark County Desert Conservation Program (DCP) promulgates the funding of many restoration projects in and around the EITP project area as part of the mitigation process for fees received by the Clark County MCHCP. After providing funds to parties participating in the MSHCP, the DCP does not direct these projects nor grant protections for them. These projects do not have legal instruments applied that protect the sites in perpetuity. Many of these restoration efforts are located within the boundaries of BLM's Piute-Eldorado Valley ACEC. The restoration mitigation projects fall under two categories: a) removing ecological threats or b) restoration/improvement of desert habitat quality. Specifically, restoration projects within the area aim to remove potential threats to special status species (and in particular, the desert tortoise). Potential actions to remediate threats include purchasing and closing sheep and cattle grazing allotments, road designations and closures, and other area closures (e.g., fencing off sensitive habitats to protect from damages from current OHV use and mining). Restoration and habitat improvement projects include monitoring for wild horses, burros, and desert tortoise, revegetation efforts, and invasive plant removal. These restoration projects are part of BLM's management and proactive conservation efforts within existing ACEC boundaries, and become part of the conservation portfolio for these areas. Currently, most of the grazing allotments (i.e., Jean Lake and McCullough Mountains grazing allotments) have been closed, and many access roads (Figure 5-5). The majority of habitat fencing was installed by the Nevada Department of Transportation and concentrated along Hwy 95 from Laughlin to the BCCE, and on the west side of I-15 from Primm to Rt. 53. The majority of the rest of the restoration projects are revegetation efforts (including special status plants) and invasive plant removal within specific locations (Figure 5-5).

Boulder City Conservation Easement

According to the "Interlocal Agreement for Sale and Grant of a Conservation Easement" between Boulder City and Clark County in 1995, the purpose of the BCCE is "to assure that the Property will be retained in a natural condition and to prevent any use of the Property that will impair or interfere with its National Resource Value." The terms of the easement are enforced by Clark County (the Grantee), which instituted "measures to preserve, protect, manage and study the Natural Resource Values of the Property, and in particular the habitat of the desert tortoise" (Boulder City and Clark County 1995) through the Clark County MSHCP. The "Amendment (Agreement No. 94-A313A) to the Conservation Easement Grant (Agreement No. 94-A313)," approved by the Boulder City on August 24, 2010, updates and clarifies the original agreement, establishes an Energy Zone (Exhibit C), and provides a list of "Best Practices to be used for the Construction, Maintenance, and Operation of Infrastructure to Pass Through and Within the Easement" (Exhibit D). The portion of the EITP that crosses outside of BLM-designated utility corridors would be required to pay a bond to Clark County, per the terms of Exhibit D of the 2010 Amendment. All other construction within the BCCE would be required to follow posted speed limits and other general requirements according to BCCE policies.

3.4.3 Impact Analysis

This section defines the methodology used to evaluate impacts on biological resources, including CEQA impact criteria. The definitions are followed by an analysis of each alternative, including a joint CEQA/NEPA analysis of impacts. At the conclusion of the discussion is a NEPA impact summary statement and CEQA impact determinations. For mitigation measures, refer to Section 3.4.4.

3.4.3.1 NEPA Impact Criteria

The NEPA analysis determines whether direct or indirect effects to biological resources would result from the project, and explains the significance of those effects in the project area (40 CFR 1502.16). Significance is defined by CEQ regulations and requires consideration of the context and intensity of the change that would be introduced by the project (40 CFR 1508.27). Impacts are to be discussed in proportion to their significance (40 CFR 1502.2[b]). To facilitate comparison of alternatives, the significance of environmental changes is described in terms of the temporal scale, spatial extent, and intensity.

Effects to biological resources would occur if the project would:

- Substantially alter the structure and functions of sensitive upland, riparian, or aquatic vegetative communities;
- Change the diversity or substantially alter the numbers of a local population of any wildlife or plant species, or interfere with the survival, growth, or reproduction of affected wildlife and plant populations;
- Substantially interfere with the seasonal or daily movement or range of migratory birds and other wildlife;
- Result in a substantial long-term loss of existing special species habitat;
- Result in direct or indirect impacts on candidate or special-status species populations or habitat that would contribute to or result in the federal or state listing of the species (e.g., substantially reducing species numbers, or resulting in the permanent loss of habitat essential for the continued existence of a species); or
- Introduce and/or increase the potential for introduction of invasive, non-native, or noxious weeds to an area.

3.4.3.2 CEQA Impact Criteria

Under CEQA, the proposed project would have a significant impact if it would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the CDFG or the USFWS;

   I. For desert tortoise, have any adverse effect on individuals of this species such that these animals become stressed and/or experience take;

   II. For raptors and birds protected by the MBTA, have any adverse effect on nesting birds such that birds abandon active nests and/or fledglings/young become stressed and/or experience take;

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFG or USFWS;

   I. Have a substantial adverse effect on sensitive desert vegetation and intact native vegetation communities;

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA;

d. Interfere substantially with the movement of native resident or migratory fish or wildlife species, wildlife corridors, or wildlife nursery sites;

   I. Interfere substantially with the movement of terrestrial wildlife species through physical entrapment or other means such that these animals become stressed and/or experience take;

e. Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

f. Conflict with the provisions of an approved local, regional, or state habitat conservation plan.

In addition to CEQA significance criteria, the NDOW has identified disturbance thresholds for certain species, restricting significant adverse impacts from project activities. These thresholds were considered in the assessment of impacts. Impacts would be significant if the construction, operation, or maintenance of the proposed project would not avoid adverse impacts to:

a. adult and juvenile desert bighorn sheep and sensitive habitat areas (i.e., lambing areas)

b. adult and juvenile burrowing owls and occupied habitat

c. Gila monster and occupied habitat;

d. nesting birds within the Wee Thump Joshua Tree Wilderness Area

3.4.3.3 Methodology

Impact analysis for biological resources was conducted by (1) gathering and vetting information from numerous sources (see description of sources below) in addition to the data provided by the applicant and (2) evaluating temporal and spatial affects to habitats and organisms potentially present within the project area and within a regional geographic context. Recent survey data provided by SCE were assessed for accuracy and appropriate implementation of resource agency protocols. Calculations for temporary and permanent disturbance to vegetation habitat were based on the applicant's projections of land disturbance from project features. Estimates for desert tortoise densities present within the EITP were provided from the 2008, 2009, and ~~2009~~ 2010 survey reports from SCE. Mapping resources were consulted to determine the extent of impact from the project on special management areas, including the Clark County MSHCP and the BCCE. Potential impacts and appropriate minimization and

mitigation measures were discussed in-depth with resource agencies, specifically the USFWS, NDOW, and CDFG. Additionally, other relevant environmental documents for projects occurring in the same vicinity as the EITP were reviewed to assure consistency with impact analyses and proposed mitigation, including the ISEGS Final Staff Assessment/Draft Environmental Impact Statement (FSA/DEIS) prepared by the California Energy Commission (CEC) and the BLM ~~and the joint CCPUC/BLM Draft Environmental Report (DEIR)/DEIS for the Sunrise Powerlink Transmission Project~~.

When analyzing impacts from the project alternatives, discussions were confined to impacts specifically generated by differences between the footprint of the proposed project and that of the alternative.

3.4.3.4 Applicant Proposed Measures

The applicant has included the following applicant proposed measures (APMs) related to biological resources:

APM BIO-1: Conduct Preconstruction Surveys. Preconstruction biological clearance surveys would be conducted by qualified biologists to identify special-status plants and wildlife.

APM BIO-2: Minimize Vegetation Impacts. Every effort would be made to minimize vegetation removal and permanent loss at construction sites. If necessary, native vegetation would be flagged for avoidance.

APM BIO-3: Avoid Impacts on State and Federal Jurisdiction Wetlands. Construction crews would avoid impacting the streambeds and banks of streams along the route to the extent possible. ~~If necessary, an SAA would be secured from the CDFG.~~ As applicable, the necessary permits would be obtained from the appropriate agencies. Impacts would be mitigated based on the terms of the ~~SAA~~ permits. No streams with flowing waters capable of supporting special-status species would be expected to be impacted by the proposed project.

APM BIO-4: Best Management Practices. Crews would be directed to use Best Management Practices (BMPs) where applicable. These measures would be identified prior to construction and incorporated into the construction operations.

APM BIO-5: Biological Monitors. Biological monitors would be assigned to the project in areas of sensitive biological resources. The monitors would be responsible for ensuring that impacts on special-status species, native vegetation, wildlife habitat, or unique resources would be avoided to the fullest extent possible. Where appropriate, monitors would flag the boundaries of areas where activities would need to be restricted in order to protect native plants and wildlife or special-status species. Those restricted areas would be monitored to ensure their protection during construction.

APM BIO-6: Worker Environmental Awareness Program (see CR-2b, PALEO-3, W-11). A Worker Environmental Awareness Program (WEAP) would be prepared. All construction crews and contractors would be required to participate in WEAP training prior to starting work on the project. The WEAP training would include a review of the special-status species and other sensitive resources that could exist in the project area, the locations of sensitive biological resources and their legal status and protections, and measures to be implemented for avoidance of these sensitive resources. A record of all trained personnel would be maintained.

APM BIO-7: Avoid Impacts on Active Bird Nests. SCE would conduct project-wide raptor and nesting bird surveys and remove trees or other vegetation, if necessary, outside of the nesting season (nesting season in the project area is late February to early July). If vegetation or existing structures containing a raptor nest or other active nest needed to be removed during the nesting season, or if work was scheduled to take place in close proximity to an active nest on an existing transmission or subtransmission tower or pole, SCE would coordinate with the USFWS, CDFG, and/or the NDOW as appropriate to obtain written verification prior to moving the nest.

APM BIO-8: Avian Protection. All transmission and subtransmission towers and poles would be designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006).

APM BIO-9: Facility Siting. Final tower and spur road locations would be adjusted to avoid sensitive biological resources to the greatest extent feasible.

APM BIO-10: Invasive Plant Management. An invasive plant management plan would be developed to reduce the potential for spreading invasive plant species during construction activities.

APM BIO-11: Desert Tortoise Measures. The applicant or a qualified consultant would provide for the following to reduce impacts on desert tortoise:

- The applicant cannot begin construction until issuance and acceptance of the USFWS Biological Opinion, the CDFG 2081 permit, and NDOW authorization. Additionally, compliance discussions with Clark County and Boulder City must occur prior to construction that resolve and outline the specific compensation fees or additional mitigation measures needed for loss of desert tortoise habitat. A copy of the USFWS Biological Opinion and documentation of any compliance discussions with Clark County and Boulder City will be provided to the CPUC.
- A field contact representative (FCR) would be designated and would oversee compliance monitoring activities and coordination with authorizing agency(s). Compliance activities would at a minimum include conducting preconstruction surveys, assuring proper removal of desert tortoise, staffing biological monitors on construction spreads, and upholding all conditions authorized. The field contact representative would also oversee all compliance documentation including daily observation reports, non-compliance and corrective action reports, and final reporting to any authorized agency upon project completion.
- All work area boundaries associated with temporary and permanent disturbances would be conspicuously staked, flagged, or otherwise marked to minimize surface disturbance activities. All workers would strictly limit activities and vehicles to the designated work areas.
- Crushing/removal of perennial vegetation in work areas would be avoided to the maximum extent practicable.
- All trash and food items generated by construction and maintenance activities would be promptly contained and regularly removed from the project site(s) to reduce the attractiveness of the area to common ravens.
- Pets would not be allowed in working areas unless restrained in a kennel.
- Where possible, motor vehicles would be limited to maintained roads and designated routes.
- Vehicle speed within the project area, along ROW maintenance routes, and along existing access roads would not exceed 20 miles per hour. Speed limits would be clearly marked and all workers would be made aware of these limits.
- Constructed road berms would be less than 12 inches in height and have slopes of less than 30 degrees.
- Construction monitoring would employ a designated field contact representative, authorized biologist(s), and qualified biologist(s) approved by the BLM during the construction phase. At a minimum, qualified biologist(s) would be present during all activities in which encounters with tortoises could occur. A qualified biologist is defined as a person with appropriate education, training, and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other implementing actions. An authorized biologist is defined as a wildlife biologist who has been authorized to handle desert tortoises by the USFWS. A field contact representative is defined as a person designated by the project proponent who is responsible for overseeing compliance with desert tortoise protective measures and for coordination with agency compliance officer(s).
- Preconstruction clearance surveys would be conducted within 48 hours of initiation of site-specific project activities, following USFWS protocol (USFWS 1992). The goal of a clearance survey is to find all tortoises on the surface and in burrows that could be harmed by construction activities. Surveys would cover 100 percent of the acreage to be disturbed. All potential tortoise burrows within 100 feet of construction activity would be

marked. Tortoise burrows would be avoided to the extent practicable, but would be excavated if they would be crushed by construction activities.

- Any tortoise found on the surface would be relocated to less than 1,000 feet away. Tortoises would be handled carefully following the guidelines given in Guidelines for Handling Desert Tortoise during Construction Projects (Desert Tortoise Council 1999). Tortoises would be handled with new latex gloves each time to avoid transmission of disease, and handlers would especially note guidelines for precautions to be taken during high-temperature periods.
- If a potential tortoise burrow were required to be excavated, the biologist would proceed according to the guidelines given in Guidelines for Handling Desert Tortoise during Construction Projects (Desert Tortoise Council 1999). Tortoises removed from burrows would be relocated to an artificial burrow (Desert Tortoise Council 1999). The entrance of the artificial burrow would be blocked until construction activities in the area were over (Desert Tortoise Council 1999).
- For activities conducted between March 15 and November 1 in desert tortoise habitat, all activities in which encounters with tortoises might occur would be monitored by a qualified or authorized biologist. The biologist would be informed of tortoises relocated during preconstruction surveys so that he or she could watch for the relocated tortoises in case they attempted to return to the construction site. The qualified or authorized biologist would watch for tortoises wandering into the construction areas, check under vehicles, examine excavations and other potential pitfalls for entrapped animals, examine exclusion fencing, and conduct other activities to ensure that death or injuries of tortoises were minimized.
- No overnight hazards to desert tortoises (e.g., auger holes, trenches, pits, or other steep-sided depressions) would be left unfenced or uncovered; such hazards would be eliminated each day prior to the work crew and biologist leaving the site. Large or long-term project areas would be enclosed with tortoise-proof fencing. Fencing would be removed when restoration of the site was completed.
- Any incident occurring during project activities that was considered by the biological monitor to be in non-compliance with the mitigation plan would be documented immediately by the biological monitor. The field contact representative would ensure that appropriate corrective action was taken. Corrective actions would be documented by the monitor. The following incidents would require immediate cessation of the construction activities causing the incident, including (1) imminent threat of injury or death to a desert tortoise; (2) unauthorized handling of a desert tortoise, regardless of intent; (3) operation of construction equipment or vehicles outside a project area cleared of desert tortoise, except on designated roads; and (4) conducting any construction activity without a biological monitor where one was required. If the monitor and field contact representative did not agree, the federal agency's compliance officer would be contacted for resolution. All parties could refer the resolution to the federal agency's authorized officer.
- Results of biological monitoring and status of construction will be detailed in daily reports by biological monitors. These reports will be submitted to the authorized biologist on a daily basis and to the FCR on a weekly basis (at minimum). The authorized biologist will notify the FCR within 24 hours of any action that involves harm to a desert tortoise, or involves a blatant disregard by construction personnel for the APMs or MMs designed to minimize impacts on desert tortoise or other wildlife. The authorized biologist will submit to the USFWS, NDOW, CDFG, and CPUC a summary of all desert tortoises seen, injured, killed, excavated, and handled at the end of the project or within 2 working days of when desert tortoises are harmed.
- All construction personnel, including subcontractors, would complete a WEAP. This instruction would include specific desert tortoise training on distribution, general behavior and ecology, identification, protection measures, reporting requirements, and protections afforded by state and federal endangered species acts.
- Parked vehicles would be inspected prior to being moved. If a tortoise were found beneath a vehicle, the authorized biologist would be contacted to move the animal from harm's way, or the vehicle would not be moved until the desert tortoise left of its own accord. The authorized biologist would be responsible for taking

appropriate measures to ensure that any desert tortoise moved in this manner was not exposed to temperature extremes that could be harmful to the animal.

- Should any desert tortoise be injured or killed, all activities would be halted, and the field contact representative and/or authorized biologist immediately contacted. The field contact representative and/or authorized biologist would be responsible for reporting the incident to the authorizing agencies.
- A report to the USFWS would be produced reporting all tortoises seen, injured, killed, excavated, or handled. GPS locations of live tortoises would be reported.
- The applicant would implement a Raven Management Program that would consist of: (1) an annual survey to identify raven nests on towers and any tortoise remains at ~~the base of the towers;~~ tower locations; this information would be relayed to the BLM so that the ravens and/or their nests in these towers could be targeted for removal, (2) SCE making an annual or one time contribution to an overall raven reduction program in the California or Nevada desert, with an emphasis on raven removal in the vicinity of this project.

APM BIO-12: Desert Bighorn Sheep Measures. The applicant would consult with the BLM, USFWS, and NDOW regarding conservation measures to avoid impacts on desert bighorn sheep during construction. Project areas with the potential to impact bighorn sheep include the proposed transmission line route through the McCullough ~~Mountains~~ Range and the telecommunication route segment in the southern Eldorado Valley between the Highland Range and the Southern McCullough ~~Mountains~~ Range. Avoidance and minimization measures could include such elements as preconstruction surveys, biological monitoring, and timing construction activities to avoid bighorn sheep active seasons. Construction requiring the use of helicopters would be conducted outside of bighorn lambing season (April through October) and the dry summer months when bighorn may need to access artificial water sources north of the propose route in the McCullough ~~Mountains~~ Range (June through September).[3]

APM BIO-13: Western Burrowing Owl Measures. Where project ground-disturbing activities would occur prior to the burrowing owl breeding season (mid-March to August), all burrows, holes, crevices, or other cavities in suitable habitat on the project, within the limits of proposed ground disturbance, would be thoroughly inspected by a qualified biologist before being collapsed. This would discourage owls from breeding on the construction site. Other species using burrows would be relocated prior to collapsing burrows. If construction were to be initiated after the commencement of the breeding season and burrowing owls could be seen within areas to be affected by ground construction activities, a qualified biologist would observe behavior to determine their breeding status. If breeding were observed, the nest area would be avoided, with an appropriately sized buffer sufficient to prevent disturbance during construction activities until the chicks fledged.

APM BIO-14: Gila Monster and Chuckwalla Measures. The following measures are the current NDOW construction site protocols for the Gila monster (NDOW 2005).[4] These protocols are applicable for the Gila monster in both the Nevada and California sections of the project, and applicable for the chuckwalla in the Nevada section of the project.

Through the WEAP, workers and other project personnel should (at a minimum) know how to (1) identify Gila monsters and distinguish them from other lizards such as chuckwallas and banded geckos, (2) report any observations of Gila monsters (in Nevada) to the biological monitor for notification of the NDOW, (3) be alerted to the consequences of a bite resulting from carelessness or unnecessary harassment, and (4) be aware of protective measures provided under state law.

- Live Gila monsters found in harm's way on the construction site would be captured and then detained in a cool, shaded environment (<85 degrees Fahrenheit) by the project biologist or equivalent personnel until an NDOW biologist could arrive for documentation purposes. Although a Gila monster is venomous and can deliver a serious bite, its relatively slow gait allows for it to be easily coaxed or lifted into an open bucket or

[3] The date of bighorn lambing season has been amended per MM BIO-13 to be January to May.
[4] The date of the most current NDOW Gila monster protocols has been amended per MM BIO-17 to be 2007.

box, carefully using a long handled instrument such as a shovel or snake hook (note: it is not the intent of NDOW to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistical points). A clean 5-gallon plastic bucket with a secure, vented lid; an 18-inch x 18-inch x 4-inch plastic sweater box with a secure, vented lid; or a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location (e.g., GPS record), date, time, and circumstances (e.g., biological survey or construction) and habitat description (vegetation, slope, aspect, and substrate) would also be provided to NDOW.

- Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. If a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses would not be covered by NDOW. However, NDOW would be immediately notified during normal business hours. If an animal were killed or found dead, the carcass would be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, habitat, and mapped location.
- Should NDOW's assistance be delayed, biologists or equivalent acting personnel on site may be requested to remove and release the Gila monster out of harm's way. Should NDOW not be immediately available to respond for photo-documentation, a 35-mm camera or equivalent (5 mega-pixel digital minimum preferred) would be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures, preferably on slide film (.tif or .jpg digital format) would be provided to NDOW. Pictures would include the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); (3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

3.4.3.5 Proposed Project / Proposed Action

The EITP would be constructed within an existing SCE transmission line ROW which contains areas of pre-existing ground disturbance. However, the existing SCE 70- to 100-foot ROW would need to be widened to a minimum of 100 feet and where possible to a 130-foot ROW for the entire route to accommodate the 230-kV transmission line. At major utility transmission line crossings, a 250-foot ROW would be required at the crossing locations for side-by-side structures. New spurs roads would be required for the new towers since the existing towers have no spur roads (they were built in 1930 to 1931). The proposed project would result in impacts to both vegetation and wildlife communities, as well as to special-status plant and wildlife species. The analysis is presented below, followed by NEPA and CEQA conclusions and a summary of all recommended mitigation measures.

Vegetation

Clearing and grading or other ground disturbing activities for project infrastructure (the substation, improvements to existing access/spur roads, new access/spur roads, staging areas, pulling areas, stringing and splicing areas, and tower foundations for the transmission and telecommunications lines) would cause the direct loss of vegetation communities within the project area boundaries. Vegetation communities affected would include creosote brush-white bursage desert scrub, saltbush scrub, Mojave yucca desert scrub, Joshua tree woodland, black bush scrub, desert wash~~, and pinion pine-juniper~~. Some disturbance would be temporary, such as for the installation of temporary spur roads, staging areas, and pulling and stringing areas, which would all be removed upon construction completion. Impacts to vegetation in these areas would be temporary, as communities would likely re-colonize these areas over time. Other project infrastructure would be permanent, and vegetation would be permanently impacted for those project areas (substation, access roads, and towers). The extent of disturbance impact would vary by vegetation community and location within the project area. Total temporary disturbance would be approximately ~~384 acres~~ 318 acres, while permanent disturbance would be approximately ~~59 acres~~ 55 acres. Table 3.4-2 contains a breakdown of the acreage of permanent and temporary impacts per vegetation community. Creosote-white bursage scrub and black

bush scrub are the dominant vegetation types within the project area and thus these communities would have the highest acreage impact.

Clearing and grading activities could cause the direct loss of *Escobaria spp*., small-flowered androstephium, California barrel cactus, rosy two-toned beardtongue, and white-margined beardtongue along the proposed transmission line in Nevada, and the direct loss of Utah vine milkweed, Parish club cholla, nine-awned pappus grass, Mojave milkweed, Aven Nelson's phacelia, sky-blue phacelia, California barrel cactus, and black gamma along the proposed transmission line in California. Clearing and grading required for one of the proposed pulling stations for the 115-kV line located to the west of the proposed substation could cause the loss of Parish club cholla and nine-awed pappus grass. Clearing and grading required for the telecommunication line ~~(Path 1)~~ could impact individuals of several special-status plant species: the Utah vine milkweed, *Escobaria* spp., desert pincushion and sky-blue phacelia~~, all identified in the EITP in California~~ along the California portion, and desert pincushion and California barrel cactus along the Nevada portion of the telecommunications line. Clearing and grading for the Ivanpah Substation could cause the loss of Parish club cholla, barrel cactus, and *Escobaria* spp. There could be both temporary and permanent impacts, depending on whether plant individuals ~~could~~ would re-colonize on their own (a species-specific factor) and whether the impact is a permanent disturbance, which would also depend on whether the existing seedbank was still present after clearing.

Grading activities would disturb soil along the proposed transmission line and telecommunication line, thus indirectly impacting the vegetation communities by creating opportunities for non-native invasive weed species to colonize the disturbed work areas. Invasive weed species could out-compete native plants for resources such as water and space. Additionally, soil disturbance could reduce the native seed bank associated with the site. Dust generated during construction could adversely affect onsite and offsite native vegetation communities by reducing photosynthetic and respiratory activity, which could lead to lower growth rates and/or lower fitness of native plant species. Removal of native plant species would leave denuded areas at risk for the potential spread of non-native invasive weed species. Non-native invasive weeds could also be spread during operation and maintenance activities, such as from additional vehicle traffic due to routine line patrols, line washing, and ROW road maintenance. Additional vehicles and crews could indirectly impact the native vegetation by inadvertently track in clinging seeds and/or parts of noxious weeds, thus facilitating their spread. The spread of noxious weeds could also impact the current fire regime, as an increase in noxious weeds could increase the biofuel present, resulting in an increase in the intensity and/or frequency of fires. The increase in fire intensity and/or frequency could indirectly impact the native vegetation community by creating conditions in which plant species that are fire tolerant would have a competitive advantage. In general, noxious weeds tend to be more adaptive to frequent fires than the native desert vegetation. Spread of noxious weeds also could impact special management areas adjacent to or crossed by the project, such as the BCCE, MSHCP-funded restoration projects, the Mojave National Preserve, Wee Thump Joshua Tree Wilderness Area, Clark Mountain ACEC, Eldorado-Puite ACEC, and Ivanpah DWMA ACEC. Some invasive/noxious species (e.g., *Erodium* spp., *Bromus* spp., and *Schismus* spp.) are already widespread in the area and thus project implementation would have little effect on further impacts from these species. The proliferation of other weeds such as saltcedar and thistles could adversely impact native vegetation in the project area because these species would require aggressive control strategies.

The applicant has incorporated the following measures to minimize impacts to vegetation and special-status plants, and to reduce the spread of noxious, non-native, and invasive species:

- Preconstruction surveys (APM BIO-1)
- Minimal vegetation impacts (APM BIO-2)
- Best management practices (APM BIO-4)
- Biological monitors (APM BIO-5)
- Worker and environmental awareness program (APM BIO-6)

- Facility siting (APM BIO-9)
- Invasive plant management (APM BIO-10)
- Seeding and inter-planting (APM AES-2; see Section 3.2, "Aesthetics and Visual Resources," for details on this and the next three measures)
- Regrading/revegetation of construction sites (APM AES-4)
- Minimizing of road modifications (APM AES-6)
- Suppression of dust (APM AES-7)

Implementation of the project as designed, including these APMs, would result in adverse, moderate impacts on native vegetation communities and individuals of special-status plants species. There would be both short- and long-term impacts (depending on whether the ground disturbance was permanent or temporary) localized to the proposed route and substation footprint. Impacts also could be extensive due to the potential spread of introduced noxious and invasive plant species outside the boundaries of the proposed project along disturbance corridors. To avoid and minimize the impacts, mitigation measures are recommended. Details of recommended mitigation measures (MM) are found in Section 3.4.4. Preconstruction surveys proposed by the applicant need to include specific measures related to vegetation. All areas where clearing and grading and general ground-disturbance would occur need to be surveyed. MM BIO-1 includes surveying brush clearing areas during preconstruction surveys to check for the presence of special-status plants to be avoided and to determine the presence of noxious weeds that would need control strategies. MM BIO-2 involves restoration of vegetation and soils within the proposed project area to preconstruction conditions, immediately following the completion of all construction-related activities at impact sites and within one year post-construction, according to the requirements of wildlife resource agencies' authorizations. This measure (along with MM LU-1) also requires direct coordination with appropriate federal, state and county resource agencies for review and approval of a restoration plan. MM BIO-3 provides mitigation and compensation for special-status plants; these measures include transplanting and re-seeding and/or compensation, and would be carried out in consultation with appropriate agencies (USFWS, BLM, CDFG, and NDOW). Restoration to original conditions using native plants and soils is needed to encourage native revegetation from the associated seedbanks. MMs BIO-2 and BIO-3 provide protection to vegetation greater than that provided by APMs AES-2 and AES-4 by providing the specific details necessary to successfully implement onsite restoration activities. MM BIO-4 recommends that the Invasive Plant Management Plan produced in APM BIO-10 comply with BLM standards to be effective. See Section 3.4.4, "Mitigation Measures," for further details on the mitigation measures proposed.

Jurisdictional Waters, Drainages, and Riparian Areas[5]

~~Based on a preliminary review of the location of intermittent streams as identified by USGS topographical maps, the proposed transmission line would impact several intermittent streams and desert washes.~~

Based on the combination of jurisdictional field surveys, review of NRCS digital hydrologic unit boundary layer data set, recent Jurisdictional Determinations issued by USACE for nearby projects, consultation with USACE staff, and review of high resolution aerial imagery, the proposed transmission line would impact numerous intermittent streams and ephemeral desert washes. Overall, the construction of the project would result in approximately 13.9 acres of temporary and 0.07 acres of permanent impacts to potential waters falling under the jurisdiction of USACE. A few ephemeral washes that drain the Jean Lake and Eldorado Valley Dry Lake watersheds in the northeastern portion of the project were determined to be isolated intrastate playa lakes with no significant nexus to interstate or foreign commerce, and thus not jurisdictional under the USACE. Along the California portion of the proposed project, construction of the project would potentially result in up to a total of approximately 15.5 acres of temporary impacts and up to approximately 0.333 acres of permanent impacts to playa and desert wash riparian habitats that are presumed to fall under the jurisdiction of CDFG.

~~5 NOTE: Pending a jurisdictional delineation, analysis on this section is incomplete.~~

Clearing of vegetation for grading activities (for the substation, existing access/spur roads, new access/spur roads, staging areas, pulling areas, stringing and splicing areas, and tower foundations for the transmission and telecommunications lines) and trenching activities to install the communication line could result in removal of desert wash vegetation and/or filling of jurisdictional areas. Additionally, removal of vegetation could result in increased erosion and sedimentation, resulting in degradation of water quality. The use of access and spur roads that cross desert washes during construction and during routine operation and maintenance could result in riparian vegetation loss and increased erosion. Grading activities would disturb soil associated with the desert washes, thus indirectly impacting the desert wash vegetation by creating opportunities for non-native invasive weed species (e.g., *Tamarix ramosissima*) to colonize the disturbed work areas. Invasive weed species could out-compete native plants for resources such as water and space. Dust generated during construction could reduce the photosynthetic and respiratory activity of desert wash vegetation, which could adversely affect the growth rate and/or fitness of the vegetation. The use of vehicles and equipment to cross these washes could also result in degradation of water quality from the potential introduction of hazardous materials such as fuels and oils.

~~A complete assessment of potential effects to jurisdictional waters, riparian areas, and wetlands caused directly or indirectly by the proposed project cannot be completed until Jurisdictional Delineation surveys are conducted.~~

The following measures would reduce impacts to potential jurisdictional waters:

- Minimal vegetation impacts (APM BIO-2)
- Avoidance of impacts to state and federal jurisdictional wetlands (APM BIO-3)
- Best management practices (APM BIO-4)
- Facility siting (APM BIO-9)
- Hazardous materials and waste handling management (APM HAZ-2)
- Spill prevention, countermeasures, and control plan (APM HAZ-5)
- Avoidance of drainages crossings by construction equipment (APM W-1)
- Erosion control (APMs W-2, W-4, W-9)

If the pending USACE Jurisdictional Determination ~~identifies~~ confirms the ~~presence of~~ jurisdictional status of the waters~~,~~ and riparian areas~~, or wetlands~~ within the proposed project area and these cannot be avoided (APM BIO-3), the adverse impacts will likely be moderate and both short term and long term. MMs BIO-5, BIO-6, and BIO-7 are recommended to reduce the adverse impacts on drainages and jurisdictional areas to minor on a localized scale. MM BIO-5 would require completion of a jurisdictional determination within the boundaries of the project area once the final engineering for the location project-specific features is complete. MM BIO-6 designates practices to minimize the amount of erosion and degradation to existing drainages. MM BIO-7 would require the applicant to develop a Mitigation Monitoring Plan for affected jurisdictional areas, as needed, for submittal to USACE for review and approval.

Wildlife

Clearing and grading or other ground-disturbing activities for project infrastructure (the Ivanpah substation, existing access/spur roads, and new access/spur roads, staging areas, pulling areas, stringing and splicing areas, and tower foundations for the transmission and telecommunications lines) would be potential sources of direct death of wildlife. Collisions with equipment and vehicles could occur for slower-moving species, species that have subsurface burrows, or ground-nesting birds. Nesting birds, bats, and reptiles are very susceptible to visual and noise disturbances caused by the presence of humans, construction equipment, and generated dust. Such disturbances could cause wildlife to alter foraging and breeding behavior and to avoid suitable habitat inside and outside the boundaries of the proposed

project. For instance, nesting birds could abandon nests due to these disturbances, and if night construction were to be conducted, bats would be highly susceptible to night lighting. Many species of wildlife can be impacted by night lighting activities, particularly nocturnal bird, reptile, and bat species. Night lighting can alter foraging, migration, and breeding behaviors of these species. Night lighting can also induce disorientation in animals, thus increasing risk of collision with objects and potential susceptibility to predation.

Wildlife would also be indirectly impacted. As discussed earlier, grading and construction activities would remove and/or modify natural vegetation communities. These vegetation communities provide forage, shelter, and nesting opportunities to non-listed wildlife and multiple special-status wildlife. Loss and degradation of habitat would cause wildlife to rely more heavily on habitat in surrounding areas. The loss and degradation of habitat would have the potential to impact wildlife within the adjacent special management areas, which are the BCCE, Mojave National Preserve, Wee Thump Joshua Tree Wilderness Area, Eldorado-Puite ACEC, Ivanpah DWMA ACEC, and Clark Mountain ACEC (adjacent to the Mountain Pass Substation). Loss of burrows due to proposed project construction, ground vibration, or avoidance behavior would cause wildlife to search for and/or dig new burrows. The searching and/or digging would expend more energy, which could result in an increased susceptibility to disease and predation and lowered reproductive success. Substation infrastructure built could alter wildlife movement, as animals ~~would~~ might avoid construction areas such as those for the microwave tower and other permanent structures. Wildlife movement could also be altered due to construction of the perimeter fence that would exclude most wildlife from the 885-by-850-foot fenced area. The presence of proposed project infrastructure could also indirectly cause death of wildlife by increasing the risk of predation on certain species by native predators such as ravens and raptors due to additional perching and/or nesting habitat created by construction of the microwave tower, perimeter fence, and new transmission towers.

The following measures would help avoid or reduce impacts on wildlife species:

- Preconstruction surveys (APM BIO-1)
- Best management practices (APM BIO-4)
- Biological monitors (APM BIO-5)
- Worker and environmental awareness program (APM BIO-6)
- Facility siting (APM BIO-9)
- Invasive Plant Management (APM BIO-10)
- Minimization of road modifications (APM AES-6)
- Substation lighting control (APM AES-8)
- Muffling of construction equipment (APM NOI-4)
- Minimization of construction equipment idling (APM NOI-5)
- Removal of construction waste and trash (APM W-12)

Adverse, moderate impacts on wildlife species would occur with implementation of the proposed project and the proposed APMs. These impacts would be both short- term and long term and would be localized to the proposed route and substation footprint. To further avoid and reduce impacts, mitigation measures are recommended. MM BIO-1 includes surveying brush clearing areas during preconstruction surveys to allow clearance of the vegetation while preventing causing the inadvertent death of sheltering wildlife. MM BIO-8 reduces night lighting on sensitive habitats in all areas to avoid unnecessary ~~visual~~ disturbance to wildlife. MM BIO-9 ~~prevents~~ minimizes entrapment of wildlife in all steep-walled trenches or excavations. MM BIO-10 includes use of biological monitors throughout construction activities in all construction zones to ensure that wildlife is not harmed or harassed during construction.

Construction activities for project infrastructure are all sources of potential adverse impacts to listed or sensitive wildlife species. The mechanisms of potential impact as described above for non-listed species apply as well for special-status species and include direct and indirect impacts. Potential impacts and avoidance and minimization measures for grouped sensitive species are discussed in detail below.

Reptiles

Fifteen special-status reptile species may occur within the proposed project area. Two of these species were observed, the chuckwalla and the desert tortoise. An additional seven species (side-blotched lizard (*Uta stansburiana*), desert iguana (*Dipsosaurus dorsalis*), long-nosed leopard lizard (*Gambelia wislizenii*), western whiptail (*Cnemidophorus tigris*), zebra-tailed lizard (*Callisaurus draconoides*), common collared lizard (*Crotaphytus collaris*), and sidewinder (*Crotalus cerastes*) were observed on the ISEGS site during biological surveys for that site (~~CEC 2008~~ BLM 2010). The special-status reptiles potentially present within the project area would all be subject to similar types of impacts. Ground-disturbing activities could result in injury and death to slower-moving reptiles or reptiles occupying subsurface burrows. Increased vehicle use on the site during operation and maintenance could also increase the potential for collisions and death. The project would result in loss of habitat due to permanent structures and/or roads and temporary loss of habitat from construction activities. Permanent habitat loss would be small (less than approximately 51 acres) relative to available habitat within the area. Compaction of soils and introduction of exotic plant species due to grading and removal of vegetation during construction, operation, and maintenance activities could result in indirect adverse habitat loss over time.

Desert Tortoise

Construction of the project would cause adverse impacts on desert tortoise and its habitat. These impacts would be both short term and long term, and both localized and extensive. Proposed project ramifications would primarily be confined to project areas, although there is a small potential for impacts to extend to areas outside the project boundary. Desert tortoises maintain large home ranges of from approximately 10 acres up to 200 acres, depending on sex of the individual and on precipitation levels (USFWS 1994, 2008). Individual desert tortoises have been documented to make periodic forays of up to 7 miles at a time (USFWS 2008). Tortoises that maintain burrows in areas adjacent to the project could be impacted if they were to travel into the project area. In general, construction of the project, including clearing and grading and areas where drive-and-crush of vegetation would occur, would result in short-term impacts. Long-term impacts to desert tortoise would occur from permanent loss of habitat (e.g., within the footprint of permanent structures) and increased traffic along the entire ROW. Construction and operations/ maintenance crews might drive vehicles over vegetation within project areas. This would be particularly likely during tower-to-tower stringing activities, unless all cables were installed by helicopter. Impacts caused by disturbance to small areas, such as tower pad sites, would be localized. Although many such areas would be impacted, they would be spaced far enough apart that the impact would not be extensive. Impacts from disturbance to larger areas, such as access roads, spur roads, and the proposed Ivanpah Substation, would be extensive.

Desert tortoises would be susceptible to death or injury from collisions with project vehicles and equipment during clearing and grading, or any activities where vegetation would be crushed. Project-related traffic on access roads and spur roads as well as any construction activities at work sites could also result in the death or injury of desert tortoise through collisions. Desert tortoises could be harmed by inadvertent hazardous materials spills, including equipment fuel and hydraulic fluid leaks. All crew activities, as well as trash and debris associated with construction of the project, would have the potential to attract predators of the desert tortoise, including common ravens and domestic and feral dogs. In addition, both permanent and temporary structures, including fencing, towers, and buildings, would provide common ravens with perches. Handling desert tortoises for relocation, even by approved biologists, could lead the tortoises to void their bladders. Bladder voiding would cause tortoises to lose potentially critical water reserves and in some cases might lead to death. Handling desert tortoises also increases the risk of transmitting upper respiratory tract disease (URTD) from infected individuals to healthy individuals. This condition often leads to death and is one of the reasons for the decline of many desert tortoise populations in the Mojave Desert. Construction

of any new access or spur roads could increase the volume of human recreational traffic, which could indirectly increase the potential for collection or for death by vehicle strike.

Desert tortoise habitat would be lost in project areas where permanent structures, access roads, or spur roads would be located. With a total area of approximately 38.5 acres, the proposed Ivanpah Substation in California would result in the largest project-related loss of desert tortoise habitat in a single area. In all areas of the project where vegetation and soil would be disturbed, but especially in areas that would be cleared or graded, the quality of desert tortoise habitat would be negatively affected. Introduced noxious and invasive plant species could out-compete existing annual vegetation that desert tortoises largely rely on for forage. There is a greater risk for loss of desert tortoise habitat due to increased scope and intensity of wildfires as invasive grasses become established in areas (USFWS 2008). Direct removal of succulent plant species would likewise remove available forage and an important source of moisture. The loss of mature shrub vegetation in cleared and graded areas would reduce the available shelter used by desert tortoises for shade and predator evasion. The proposed transmission alignment would result in a total of 258 acres (230 acres of temporary disturbance and 28 acres of permanent disturbance) of new disturbance to suitable, non-critical habitat for desert tortoise (SCE 2010). The proposed redundant communication line, including all of the segments located in Nevada and California, would result in 12 acres of new disturbance to desert tortoise critical habitat, with all 12 acres being temporary disturbance to suitable desert tortoise habitat.

Vehicles and equipment used during operations and maintenance of the project would make desert tortoises susceptible to death or injury from collision. Such activities, including line inspection and regular maintenance, would also potentially introduce noxious and invasive plant species to project sites, further degrading the quality of desert tortoise habitat in terms of native plant species composition and increasing the risk of wildfires.

Most of the project segments are located within desert tortoise habitat, and a significant proportion of these segments cross designated critical habitat (Figure 3.4-2, Table ~~3.4-6~~ 3.4-8). Desert tortoise sign such as burrows, scat, and bone or shell fragments were observed in almost all areas of the proposed transmission alignment during surveys conducted in 2008, 2009, and 2010 including on the proposed Ivanpah Substation site in California. Live desert tortoises were observed only on the transmission alignment in Nevada and along the existing Jean access road. Although no live desert ~~tortoises~~ tortoise were observed on or near the California segments of the project (excluding the proposed Ivanpah Substation), the nature and amount of desert tortoise sign observed in these areas indicates that tortoises are present here as well. The redundant telecommunications line is almost entirely within desert tortoise habitat~~. While surveys of this area have not currently been reported (pending the 2009 desert tortoise survey report), available literature suggests that desert tortoise is present along this segment of the project.~~ and observations of desert tortoise sign during the surveys indicate that tortoise are present along the lower elevation portions of the route. Desert tortoise densities calculated for the proposed transmission route were found to be approximately 5.2 tortoises per square mile. Desert tortoise density for the proposed BrightSource Solar Energy Project (located just north of the proposed Ivanpah Substation) was estimated to be 2.25 tortoises per square mile. Density estimates for the proposed transmission route are lower than the 2007 density estimates for the adjacent Ivanpah Valley and adjacent Piute-Eldorado Valley monitoring strata (USFWS 2007).

Several areas within the proposed project area are not suitable habitat for desert tortoise, including Roach and Ivanpah lakes (dry), the disturbed and developed areas in and around the town of Primm, Nevada, and likely the higher elevations of the Eldorado–Lugo transmission line in the southern McCullough Range where no desert tortoise sign was observed during the 2009 and 2010 surveys.

The project would cross two areas the USFWS designates as critical habitat for the desert tortoise (Figure 3.4-2), both of which are in the Northeastern Mojave Recovery Unit for the Mojave population of the desert tortoise (USFWS 2008). Impacts such as those caused by ~~grading and~~ clearing and grading in critical habitat would be considered permanent in terms of restoration requirements, mitigation, and compensation. The proposed transmission alignment would cross approximately 8.3 miles of the Piute-Eldorado Critical Habitat Unit in Nevada to the west of the Eldorado Substation. Additionally, 2.1 acres of desert tortoise habitat within the Piute-Eldorado Critical Habitat Unit would be

impacted by establishment of four proposed tensioning sites, four proposed pulling sites, and one proposed helicopter landing pad. The proposed transmission alignment would result in a total of 80 acres (67 acres of temporary disturbance and 13 acres of permanent disturbance) of new disturbance to desert tortoise critical habitat (SCE 2010). ~~These~~ Though the majority of the disturbance would be temporary in nature, ~~but~~ it would be considered permanent as they would be new disturbance areas in the Critical Habitat Unit. Impacts on the unit would be adverse, localized, and both short term and long term, depending on the location and type of construction activity considered.

The proposed redundant telecommunications line along the existing Eldorado–Lugo transmission line, to the south of the Eldorado Substation, would cross approximately 11.8 miles of the Piute-Eldorado Critical Habitat Unit in Nevada~~, to the south of the Eldorado Substation~~. Impacts on this area of the Critical Habitat Unit would be adverse, but due to the lower intensity of construction activities planned along this segment (fiber optic line installation ~~and~~ , tower retrofitting, and pulling and splicing sites), the impacts would be primarily short term and localized. ~~Impacts on critical habitat along this segment of the project would be long term and extensive if a significant length of new access or spur roads were to be constructed to access the existing Eldorado–Lugo transmission line, or if existing tower sites would need to be significantly graded~~. The proposed redundant telecommunications line would be installed underground along Nipton road from the California-Nevada state line to the proposed microwave station north of the town of Nipton and would cross the Ivanpah Critical Habitat Unit in California. This segment of telecommunications line would largely be installed in a narrow trench in the disturbed shoulder of Nipton Road. Impacts on critical habitat for this segment of the project would be adverse, short term, and localized. Construction of the underground proposed telecommunications line from Nipton Road north to the proposed microwave tower site, as well as the microwave tower site itself (approximately 0.23 acres), would be constructed primarily on previously undisturbed lands. Impacts on the Critical Habitat Unit along these segments of the project would be adverse, and both short term and long term, and, due to the small footprint of the microwave tower site and the narrow width of the trench, localized. The proposed redundant communication line, including all of the segments located in Nevada and California, would result in 16 acres of new disturbance to desert tortoise critical habitat, with 15 acres of temporary disturbance and 0.2 acres of permanent disturbance (SCE 2010). Though the majority of the disturbance would be temporary in nature, it would be considered permanent as they would be new disturbance areas in the Critical Habitat Units.

The proposed project would cross two DWMAs that are managed by the BLM as ACECs specifically for desert tortoise. Within the scope of the project area, these ACECs do not completely overlap the critical habitat units discussed above. Only the redundant telecommunications line would cross these ACECs. This line would cross the Piute-Eldorado Valley ACEC in Nevada and the Ivanpah ACEC in California. Impacts on these ACECs would be adverse, localized, and both short term and long term. ~~Impacts on the Piute-Eldorado ACEC along this segment of the project would be long term and extensive if a significant length of new access or spur roads were constructed to access the existing Eldorado–Lugo transmission line.~~

The proposed redundant telecommunications line would be adjacent to the Mojave National Preserve in California. The project is separated from the preserve by Nipton Road on the southern edge of the project area. Nipton Road is a two-lane highway that receives light traffic. The construction planned along this segment of the project would involve installing fiber optic cable in a newly excavated narrow trench in the shoulder of Nipton Road. It is possible, but not likely, that desert tortoises residing in the preserve would cross Nipton Road and ~~become susceptible to death~~ be subject to mortality from collisions with project vehicles and equipment. ~~In~~Therefore, in general, potential impacts on the desert tortoise population of the Mojave National Preserve ~~would be adverse, short term, and localized. No impacts on the desert tortoise populations in the Mojave National Preserve~~ are not anticipated.

The applicant has incorporated measures into the project design in addition to those prescribed for general wildlife that would avoid or minimize impacts on desert tortoise. Those additional APMs are:

- Minimal vegetation impacts (APM BIO-2)
- Desert tortoise measures (APM BIO-11)

Implementation of the proposed project, including the listed APMs, would result in potential impacts on desert tortoise that would be adverse and moderate. These impacts would be both short term and long term, and both localized and extensive. To further avoid and minimize impacts on desert tortoise, a number of additional mitigation measures are recommended. Several general mitigation measures would affect impacts on desert tortoise and most other wildlife as discussed above for general wildlife (also refer to Section 3.4.4, "Mitigation Measures," for full mitigation details). Specific to desert tortoise, MM BIO-11 recommends that water used for dust control not be allowed to pool and that all leaks on water trucks and tanks be repaired immediately. The presence of water on project access roads and work areas could attract desert tortoises to the construction site, increasing the probability of impacts~~.~~. MM BIO-12 requires a number of additional desert tortoise-specific measures to further reduce impacts, including the requirement to receive and accept provisions of the Biological Opinion (USFWS)~~, a~~ and 2081 Incidental Take Permit for California state-listed species (CDFG)~~, and compensation to Clark County for impacts to the MSHCP prior to commencing any construction activities~~. In addition, MM BIO-12 recommends year-round monitoring in desert tortoise habitat, preconstruction clearance surveys ahead of not only vegetation-clearing activities but also of vegetation-crushing activities (such as trucks driving over shrubs), and daily clearance surveys of all active worksites in the morning before crews begin work. The measure recommends extension of the monitoring period because tortoises can be active year-round, including winter months, given warm enough temperatures or large rain events. Tortoises can travel relatively far during a day and often use construction equipment and materials as shelter from the sun and wind. Additionally, desert tortoises previously translocated from the project area may return. For these reasons, biological monitors should clear all active sites before the start of construction activities. MM BIO-12 outlines the biological monitoring reporting process, including daily monitoring reports, reports of harm to desert tortoises, and end-of-project summary reports by an authorized biologist. Lastly, MM BIO-12 outlines additional handling guidelines for the California portions of the project, which are to be adhered to in addition to the most current Desert Tortoise Council handling guidelines.

Gila monster and Chuckwalla

The chuckwalla and the Gila monster would be .susceptible to the same impacts as were discussed for special-status reptiles in general. The chuckwalla was observed in the rocky terrain of the Lucy Gray Range and McCullough Range during the biological surveys. The Gila monster was not observed during the biological surveys. Both lizards prefer habitat characterized by rocky terrain that provides adequate crevices for use as winter hibernacula and summer dens.

APM BIO-14, for general wildlife, would avoid or minimize impacts on these two reptiles. The APM prescribes the use of the current NDOW construction site protocols, which provide protections for both the Gila monster and the chuckwalla. As currently designed, the project would have minor, adverse, short- and long-term, and localized impacts on individuals of these species. ~~No mitigation measures are recommended.~~ Impacts to Gila monster in California would require one mitigation measure to reduce impacts to the species. MM BIO-17 involves reporting locations of observed Gila monster to the CDFG for conservation and population tracking purposes.

Mammals

There is the potential for 17 protected mammal species to occur within the proposed project area (Tables 3.4-.5 and 3.4-6 ~~3.4-3 and 3.4-4~~). ~~Three~~ Two of these species were directly observed during surveys: desert bighorn sheep~~, wild burro,~~ and American badger. Sign for wild burro was also found.

Desert bighorn sheep

Impacts to bighorn sheep from the project would be adverse, moderate, and localized. The preferred habitat for desert bighorn sheep within the project area is found within and adjacent to the project in the Clark Mountain, McCullough, and Highland ranges. Both McCullough Range and Highland Range contain crucial habitat and overwintering habitat. The proposed project through McCullough Pass has the potential to impact lambing areas for bighorn sheep. Construction activities within McCullough Pass would cause visual and noise disturbance that could lead to avoidance of the lambing areas by bighorn sheep, which could result in the loss of a breeding opportunity for that season, or could increase the competition at alternate lambing sites in the area. Visual (including human presence and night lighting) and noise disturbance could also decrease reproductive success through abandonment of the lambing grounds during the lambing season. Construction and operation and maintenance within the McCullough Pass would have adverse, moderate impacts that would be both short and long term.

The transmission route bisects the McCullough Range and the communication line bisects the pass between the McCullough Range and the Highland Range. Construction activities might interfere with the movement of sheep between these areas, and might impede natural colonization and inhibit the annual migration of the bighorn sheep from these overwintering ranges to the summer ranges north of the project. The bighorn sheep need to migrate to the north out of the project area during the summer to access water sources. The closest water source is the "Linda" guzzler, approximately 1.3 miles north of the north McCullough Pass.

The area near the Mountain Pass Substation in the Clark Mountain Range has the potential to support desert bighorn sheep. Though no potential lambing areas are currently documented in the Clark Mountains Range, project-related construction and maintenance might adversely impact sheep by causing avoidance of this area. Avoidance could result in decreased access to foraging habitat and could inhibit daily and seasonal movements.

In addition to the general biological APMs listed above, APM BIO-12 would reduce impacts on desert bighorn sheep protections. Through this APM, the applicant would initiate conversations with BLM and the state wildlife resource agencies to determine appropriate conservation and avoidance measures for the bighorn sheep within the project area. As currently designed, the project would adversely impact bighorn sheep and their suitable habitat within the EITP and in adjacent areas. To minimize these impacts, MM BIO-13 is recommended. MM BIO-13 would protect sheep by imposing seasonal limitations on project construction activities in lambing and wintering areas. Additionally, the applicant would conduct preconstruction surveys and biological monitoring during construction within suitable bighorn sheep habitat (the McCullough Mountains Range and the southern Eldorado Valley between the Highland Range and the southern McCullough Mountains Range). Any occurrences of the desert bighorn sheep in Nevada and California would be reported to NDOW and CDFG, respectively, and construction would be temporarily halted if any bighorn sheep were found to be within 500 feet of construction activities. These measures would help ensure clearance of the sheep from project areas and reduce the magnitude of impacts to the sheep.

Wild Burro

The wild Wild burro sign was observed in the proposed project area in California. This species would be susceptible to visual and noise disturbance and increased human-burro interactions on a dialy basis during construction activities and operation and maintenance, potentially resulting in changing its behavior to avoid the site. This could cause avoidance of suitable habitat and energetic costs to locate other suitable habitat. This would result in adverse short- and long-term impacts through loss of food and suitable habitat.

The general APMs described above for wildlife would help avoid and minimize potential impacts to the burro; no mitigation measures are recommended. Additionally, the burros will likely clear the project areas during active construction. There would be no significant change in the existing conditions of disturbance currently experienced by wild burros in the area during operations and maintenance activities within the ROW. No further mitigation measures are recommended.

American Badger

Suitable habitat for the American badger exists within the project. Badgers are most likely to occur on upper bajadas, where greater plant species diversity and cover provides better habitat for prey species. There was one observation of an American badger near the Eldorado Substation, and badgers were observed during surveys at the nearby ISEGS site (~~CEC 2008~~ BLM 2010). If badgers were present on the proposed project site during construction, there would be the potential for death due to the collapse of occupied burrows during clearing and grading. Visual and noise disturbances could trigger habitat avoidance behavior that could hinder successful foraging and breeding for individuals in the immediate area. Badgers are primarily nocturnal animals, and thus, any night lighting or construction could disturb this species. Loss of forage and nest habitat by proposed project construction would reduce available suitable habitat within the badger's range. However, the amount of permanent habitat lost (~~less than~~ approximately 55 acres ~~51 acres~~) is relatively small compared with the total amount of available suitable badger habitat within this area.

The general APMs described above for wildlife would help avoid and minimize potential impacts to the badger. As currently designed, the project would have moderate, adverse, short- and long-term, localized impacts on individuals of this species. To further reduce impacts, MM BIO-8 and BIO-14 ~~is~~ are recommended. ~~This measure~~ MM BIO-8 would limit the intensity of night lighting and thus reduce potential impacts to the badger. MM BIO-14 would reduce the magnitude of impacts to badgers by using a qualified biologist to conduct preconstruction surveys and establishing a relocation protocol for any active badger burrow identified on the project.

Birds

Construction of the proposed project could cause adverse impacts on avian species, including nesting raptors and birds protected by the MBTA. Impacts on these bird species would typically result from activities that would cause nest abandonment or destruction of chicks or eggs in active nests or death of adults due to collision, or activities that would reduce potential forage and nesting habitat. For most species, the proposed project impacts would be confined to project areas and areas immediately adjacent to the project. For other species such as raptors, project-related impacts could extend up to a mile or more beyond project boundaries, depending on the nature of the site (e.g., urban or rural) and topography.

Active bird nests in shrubs or near the ground would be susceptible to being crushed during clearing and grading operations, and during any activities where vegetation would be crushed. Noise and visual disturbance caused by construction and project-related traffic, including construction at work sites and traffic along project access roads and spur roads, could cause nest abandonment or habitat avoidance by birds nesting on or off site in adjacent areas. Nest abandonment would result in death to chicks and hatching failure of eggs. Alternatively, construction might cause birds to avoid suitable habitat and opt to nest or forage in less suitable habitat. Such impacts could cause energetic costs to these birds and could indirectly contribute to stress, unsuccessful reproductive efforts, or death. Decreased foraging success due to habitat avoidance or removal of foraging habitat could decrease the survival of chicks in nests near the project. Because these impacts could occur at isolated nest sites along the project corridor, and because the project area is relatively small compared with the amount of similar habitat in the region, impacts on nesting birds would be localized.

Construction of new access roads or spur roads could increase the volume of recreational traffic, and, in turn, indirectly increase the potential for nest abandonment due to noise and visual disturbances by humans. Construction of earthen berms or gates to restrict post-construction recreational vehicle access tends to have low success rates, as most off-road vehicles can simply bypass these structures in the relatively flat topography of the desert. Construction of new transmission line towers, or larger ones to replace old towers, could increase the risk of death of adult raptors and larger non-raptor species by collision (APLIC 2006).

Disturbances associated with the operation and maintenance of the project could cause impacts similar to those caused by construction of the project, although operations and maintenance impacts would likely be less intense. Noise and visual disturbances caused by operations and maintenance crews could cause abandonment of active

nests, which would result in the death of chicks or hatching failure of eggs. Raptors often occupy nests built onto transmission line towers or poles. Nest abandonment caused by noise and visual disturbances is likely, as well as increased susceptibility of chicks to death and/or hatching failure of eggs from falls or from being crushed if active nests were moved or disturbed during operations and maintenance. Such impacts could occur to active nests on transmission line towers or other project facilities, but could also occur outside of established access roads, spur roads, and tower sites. The potential for these impacts on nesting birds after the construction phase of the project is relatively small. In general, due to the lower levels of disturbance associated with operation and maintenance activities, post-construction adverse impacts on raptors would be short term and localized. ~~Cumulative mortality by bird strike against towers would be greater during the operations phase, although the potential for this impact would be low.~~ Due to the lower levels of disturbance associated with operations and maintenance activities, any adverse impacts on birds or raptor species would be minor, short term, and localized.

All construction activities and traffic related to the proposed project would have the potential to cause adverse impacts on MBTA-protected birds and nesting bird species; however, construction of certain segments of the project would have a greater potential for impacts than other segments. Installation of the proposed redundant telecommunications line may involve relatively less intensive construction methods. Although a number of existing towers of the existing Eldorado–Lugo transmission line would need to be retrofitted, no new towers would need to be constructed. The redundant telecommunications line would either be attached to existing towers, or, for a short segment near the town of Nipton, California, be installed in a newly excavated narrow trench in a roadside shoulder. Due to the less intensive construction methods associated with the redundant telecommunication line, impacts to MBTA-protected birds and nesting bird species would be less intense than impacts from the construction of the proposed transmission route.

~~No surveys for nesting birds, raptors, or nests were conducted for the proposed project, although the applicant plans to commence raptor and raptor nest surveys in spring 2010. Biologists reported several stick nests in various stages of construction during 2008 field surveys for desert tortoise.~~ No surveys for nesting songbirds or gamebirds were conducted for the proposed project. During the 2008 surveys, biologists observed three red-tailed hawk nests; two of the nest were located to the northeast of the Mountain Pass Substation along the Mountain Pass Alternative and one nest along the proposed project in McCullough Range. Biologist also surveyed for raptor nests during the winter and spring of 2010. No raptor nests were observed; however, one stick nest was observed along the Eldorado–Lugo telecommunication route and was determined to most likely be a common raven nest. During the 2008 field surveys for desert tortoise, biologists reported several stick nests in various stages of construction. These nests were in transmission line towers or poles~~,~~ and were determined to be likely built by common ravens or a raptor species. It is likely that most areas of the proposed project provide suitable nesting habitat for at least some bird species that are protected by the MBTA. Much of the route supports healthy and mature creosote shrubs, interspersed with yucca and cactus species on flats, and acacia and other desert riparian species along the edges of washes. These areas provide suitable nesting habitat for a number of desert-dwelling bird species, including smaller raptor species. The entire project is within the range of a number of raptor species. ~~One~~Two golden eagles ~~was~~ were observed~~—~~one soaring during desert tortoise surveys conducted on the California segment of the transmission alignment and one near the Eldorado Substation during the 2010 raptor survey. Several red-tailed hawks were observed near project areas in both Nevada and California during both the desert tortoise surveys and the raptor survey. The 2010 raptor survey resulted in the observation of one peregrine falcon east of Primm, Nevada; one prairie falcon near the Eldorado Substation; two America kestrels—one near Mountain Pass and one west of McCullough Pass; and one Cooper's hawk north of Highway 164 along the Eldorado–Lugo route. Although a large number of existing transmission lines are present in and near project areas, relatively few potential raptor nests were observed. This may indicate a depressed or naturally low presence of raptors or nesting habitat in the project area. Trees and cliff sides in nearby mountain ranges, including Clark Mountain, the Lucy Gray Range, the Highland Range, and the McCullough Range, likely provide more suitable nesting habitat for raptors than the relatively flat creosote shrub areas that typify project areas. The proposed project crosses ~~two~~ one such mountainous area~~s~~. Golden eagles are known to frequent the north McCullough Pass area of the project. The proposed redundant telecommunications line in the southern McCullough Range would also cross higher elevations that may provide higher quality raptor nesting habitat.

In addition to general APMs for biological resources, the applicant has incorporated a number of measures into the project design to avoid or minimize direct and indirect impacts on bird species, including:

- Avoid impacts to active nests (APM BIO-7)
- Use avian-safe building standards (APM BIO-8)

Implementation of the proposed project with APMs would result in potential impacts on bird species that would be adverse and moderate. These impacts would be both short and long term, and localized. To reduce impacts on MBTA bird species and raptors, a number of additional mitigation measures are recommended. Several general MMs would reduce the impacts on birds and other wildlife (refer to Section 3.4.4, "Mitigation Measures," for full MM details). MM BIO-1 recommends preconstruction surveys ahead of vegetation-clearing equipment at the time of clearing if construction is scheduled to occur during breeding season (late February through early July). If construction occurred during breeding season, new nests or nests that were missed during earlier preconstruction surveys would be detected at this time. Also, ground nesting raptors could enter the project area after preconstruction surveys had been performed; additional preconstruction surveys at the time of vegetation clearing would detect these nests. MM BIO-8 recommends that night lighting be reduced during construction, operations, or maintenance activities in all project areas with sensitive resources, including nesting bird species. MM BIO-10 recommends that biological monitors be present during construction in all construction areas where sensitive biological resources are potentially present, not just in areas where presence has been confirmed. Biological monitors would survey project areas with active construction daily and report all detections of new active nests.

Specific to all MBTA bird species and raptors, MM BIO-15 recommends a number of additional measures to further reduce impacts. MM BIO-15 protects active bird nests on or near project areas by requiring disturbance buffers around nests. Because no standardized disturbance buffers exist for birds in this region, the applicant would consult CDFG or NDOW (depending on the state the nest is in) to determine appropriate buffer sizes. Buffers would remain in effect until all eggs hatched and chicks fledged. For raptors, standardized buffers from the USFWS Utah Field Office are recommended for all raptors with the exception of burrowing owls (discussed below; USFWS 1999). All raptor and raptor nest surveys should use these USFWS buffer guidelines when determining the appropriate survey corridor width. MM BIO-15 outlines reporting procedures if active nests are detected on or near the project area, and authorizes the biological monitor to halt construction activities if it is determined that such activities would disturb nests. Lastly, MM BIO-15 requires consultation with NDOW prior to construction for segments of the project that pass by the Wee Thump Joshua Tree Wilderness area if construction is scheduled to occur during breeding season.

Special-Status Birds

Special-status bird species could occur within the proposed project area; the following were observed during the biological surveys: the golden eagle, peregrine falcon, prairie falcon, western burrowing owl, loggerhead shrike, LeConte's thrasher, and phainopepla. ~~The latter three~~ Many of these species could use the area for foraging and nesting. These birds would be susceptible to visual and noise disturbance as described above, potentially resulting in alteration of foraging behaviors to avoid the site and nest abandonment. Individuals of these species would be at risk if they were using onsite vegetation for nesting, as clearing of vegetation could result in the direct loss of nests and would also remove potential forage habitat. The project would result in direct, short- and long-term loss of food and shelter for special-status birds.

Golden Eagle

Construction and operation of the proposed project could cause adverse impacts on golden eagles and golden eagle habitat. Impacts on this species could result from mortality of adults and/or chicks, hunting and energetic interference, nest abandonment, hatching failure of eggs in active nests, or because the project otherwise led to lowered reproductive success.

The construction of the proposed project may result in 'take' of this species. Project construction and traffic could cause abandonment of potential active nests located in onsite mountain ranges due to the noise and visual disturbances associated with these activities and could thus result in mortality of chicks or hatching failure of eggs. Potential for this impact to occur is less likely as no known active eagle nests have been located with the McCullough Range. However, it is very likely that construction disturbances could cause avoidance of suitable foraging habitat or nesting habitat within the project area. Approximately 443 acres of forage habitat could be affected by construction and approximately 25 acres of potential nesting habitat (i.e., those areas of the proposed project located in mountainous terrain) disturbed. This would not result in a substantial amount of foraging or potential nesting habitat affected within the larger surrounding territory available to the eagle. This impact is expected to be minor and not likely to reduce the success of eagles with known breeding territory within 10 miles of the project. The impacts resulting from construction as described above would be adverse, minor, short- and long-term, and localized.

Project operations and maintenance would also have the potential to cause injury and/or mortality as a result of injuries suffered from accidental collision or electrocution with power lines and the associated structures. The proposed project would upgrade the existing Eldorado–Baker–Cool Water–Dunn Siding–Mountain Pass 115-kV transmission line to a 230-kV transmission line. The risk of collisions and electrocution are likely low from this upgrade as the proposed project would primarily be constructed in the ROW of the existing line to which birds would already be habituated. Additionally, the replacement of lattice towers with tubular poles would potentially reduce perching opportunities for the eagle, thus potentially reducing electrocution risk. Risk would be further reduced as the proposed new transmission lines and poles will be constructed according to APLIC standards (APM BIO-8), which are designed to be avian-safe in accordance with the Suggested Practices for Avian Protection on Power Lines: the State of the Art in 2006 (APLIC 2006). However, collisions and electrocutions could still occur to some individuals during operations. Due to a lack of current data on eagle mortalities from collision and electrocution in the project area, it is currently unknown to what extent such incidents would have on any breeding population of golden eagles in the EITP area. However, a lack of documented mortalities in the area implies that eagles currently co-exist with the existing transmission line infrastructure and that collision risks associated with reconductoring of the line are not expected to be significantly greater than the existing condition. Thus, the impacts resulting from operations as described above would be adverse, minor, short-term, and localized.

To reduce impacts on golden eagles, MM BIO-19 is recommended. MM BIO-19 requires development and implementation of an Avian Protection Plan according to recent USFWS guidance (USFWS 2010). This Plan will outline steps and conservation measures to prevent and reduce impacts on golden eagles and other large raptors. Implementation of this measure would provide compliance with the 'no net loss' standard for golden eagles identified in the Eagle Act Rule, and reduce the overall impacts on the species to adverse and minor.

Burrowing owl

Construction of the proposed project could cause adverse impacts on western burrowing owls and burrowing owl habitat. Impacts on this species would result from nest abandonment or direct death of adults and/or chicks, or hatching failure of eggs in active nests, or because the project otherwise led to lowered reproductive success.

Burrowing owl nests in underground burrows would be susceptible to crushing during clearing and grading, or during any other activity where vegetation would be crushed. This would likely cause the mortality of chicks (and adults if they remained in the burrow) and hatching failure of eggs. Although adult and juvenile owls would likely flee occupied burrows at the threat of on-coming construction equipment, a small potential for death by crushing exists outside of breeding season. As previously discussed, all project construction and traffic could cause abandonment of nearby active nests due to the noise and visual disturbances associated with these activities, and would thus result in mortality of chicks or hatching failure of eggs. These disturbances could cause habitat avoidance if owls avoided using suitable burrows for nesting or avoided high-quality foraging habitat. Burrowing owl nesting and foraging habitat could be lost due to ground disturbance and construction of permanent structures. The impacts resulting from construction as described above would be adverse, moderate, short and long term, and localized.

Disturbances associated with project operations and maintenance would have the potential to cause impacts similar to those caused by construction of the project, although these disturbances are infrequent and thus impacts would likely be less intense. Burrowing owls usually occupy abandoned mammal burrows, which are often found in disturbed areas. Once construction activities were complete, burrowing mammals would be likely to re-colonize project areas, providing new burrows for potential owl nests. Burrowing owls that move onto project areas after construction is complete would be susceptible to vehicle collision or being crushed by operations and maintenance vehicles. The likelihood of this happening is low, given that maintenance activities would be infrequent. Nearby active nests could be abandoned due to the noise and visual disturbances associated with operations and maintenance crews. In general, due to the lower levels of disturbance associated with operations and maintenance activities, any adverse impacts on burrowing owls would be short term, localized, and minor.

The project is situated entirely within the range of the Western burrowing owl, and suitable burrowing owl habitat exists in most of the project area. ~~One burrowing~~ Burrowing owl sign in the form of a pellet was observed during field surveys conducted in 2008 near Transmission Alternative Route C on the California side of the project. Burrowing owls were also observed on the proposed ISEGS site (~~CEC 2008~~ BLM 2010). No protocol-level burrowing owl surveys were conducted in or near any project areas. Suitable burrowing owl habitat exists along most of the proposed project, and it is likely that burrowing owls nest within the project area.

In addition to the general biological APMs, APM BIO-13 would reduce impacts specific to burrowing owls. This APM outlines survey and avoidance measures during both breeding and non-breeding seasons for burrowing owls and their burrows. Implementation of the project with all APMs would result in potential impacts on burrowing owls that would be adverse, moderate, both short and long term, and localized.

To reduce impacts on burrowing owls, additional mitigation measures are recommended. Several general MMs would reduce impacts on burrowing owls, as discussed above for all bird species. Specific to burrowing owls, MM BIO-16 recommends a number of additional measures to further reduce impacts, including the requirement to perform preconstruction surveys within 30 days prior to construction in any given area of the project if construction is scheduled to occur during owl breeding season (February 1 through August 31). APM BIO-13 defines the burrowing owl breeding season as mid-March to August; however, MM BIO-16 recommends assuming a breeding season from February 1 through August 31, as defined by the California Burrowing Owl Consortium (CBOC 1993, CDFG 1995). If an active burrowing owl nest were identified, as determined by a qualified biologist, no activities would occur within approximately 160 feet (50 m) of the burrow until the eggs had hatched and all chicks had fledged. This 50-m disturbance buffer is recommended by the California Burrowing Owl Consortium and has been adopted by the State of California (CBOC 1993, CDFG 1995). There is a small potential for active burrowing owl nests to be present outside of project boundaries, where they would not be collapsed, yet within the 50-m buffer; construction activities in these areas would be delayed until all chicks had fledged. MM BIO-16 outlines the survey and biological monitoring reporting process, including provision of GPS locations of burrows, daily monitoring reports, reports of harm to burrowing owls, and end-of-project summary report by the authorized biologist. Lastly, for the California portions of the proposed project, a Burrowing Owl Mitigation and Monitoring Plan will be submitted to CDFG for review and approval prior to relocation of owls, and the project proponent will compensate for the direct loss of burrowing owl nesting and foraging habitat as outlined by CDFG.

Areas Requiring Special Management ~~Areas~~ Considerations

The project has the potential to directly and indirectly impact biological resources on special management areas within and adjacent to the EITP. The project crosses the Ivanpah DWMA ACEC and the Puite-Eldorado ACEC, both of which contain significant amount of critical habitat for the desert tortoise. Adverse impacts to these ACECs would occur with implementation of the proposed project, as specifically discussed above for desert tortoise. Several BLM wilderness areas, the Wee Thump Joshua Tree Wilderness Area and the South McCullough Wilderness Area, as well

as the Mojave National Preserve, could be impacted by construction and operation. While the project footprint would be outside of the boundaries of these areas, indirect impacts to species utilizing these areas could occur. Impacts on nearby nesting birds, and reptiles and mammals using these areas as migratory corridors, could result from construction noise, increased human presence and traffic, and the use of night lighting. However, these impacts would be expected to be minor, short-term during construction, and localized to the fringe boundaries of these preserves.

The proposed project would be constructed mostly within the boundary of BLM-managed utility corridors; however, less than one mile would cross outside of the corridor into the BCCE conserved land at MP 2 along an existing 70-foot ROW before reconnecting with an adjacent designated corridor to the south and continuing east to the Eldorado Substation. Impacts to the BCCE would include loss of habitat for conserved species through vegetation removal and potential impacts to species from construction and operation-related disturbances (i.e., noise, traffic, night lighting increases). However, because the majority of the line would lie within an existing ROW, significant new disturbance to habitat would not occur. Construction of the EITP along the existing ROW, even though it falls outside of the BLM-designated utility corridor, would also be compatible with the Clark County MSHCP because the primary purpose of the plan is to minimize adverse impacts on natural resources within the BCCE. Impacts to habitat and species from construction and operation could be potentially adverse and significant, and thus mitigation is required. Construction of the proposed project within the BLM-designated utility corridor is an allowable use; however, construction on the portion outside of the utility corridors would require approval from Clark County and Boulder City as required by MM LU-1 (see Section 3.9). This mitigation measure would ensure that all APMs and BMPs (including the use of herbicides) proposed for this project are in compliance with the BCCE agreement by requiring early compliance discussions with Boulder City and Clark County. With incorporation of this mitigation measure, impacts would be minor and short- and long-term.

Construction of the EITP may be in direct conflict with active restoration projects that are funded by the Clark County MSHCP. The EITP could potentially disturb these restoration areas by crushing and/or removal of vegetation, as well as potential propagation of invasive vegetation. APMs BIO-2, -4, -6, and -9 through -11 would provide avoidance and minimization of impacts on these restoration areas. Additionally, MM BIO-2, -3, -4, and -10 and MM LU-1 are needed to reduce adverse impacts on restoration zones to minor and less than significant. These measures require further coordination between the applicant and the appropriate federal, state, and county resource agencies. They also require the applicant to adhere to standard land management policies of these agencies. With incorporation of these mitigation measures, impacts to Clark County MSHCP-funded restoration activities would be minor and less than significant.

NEPA Summary

As currently designed, construction, operations, and maintenance activities associated with the proposed project would have impacts on native vegetation, local wildlife, and special-status plants and wildlife. Incorporation of recommended mitigation measures would reduce impacts on these resources through avoidance and minimization. After mitigation implementation, impacts on native desert vegetation and special-status plants would be minor and localized. Direct and indirect impacts to wildlife would be reduced to minor and localized.

For specific wildlife species, impacts would vary. After incorporation of recommended mitigation, impacts on desert tortoise and suitable and critical habitat for the tortoise due to construction of the project would be adverse, ~~moderate~~ major, both short-term and long-term, and localized. ~~However, if a significant number or length of new access roads and spur roads were necessary for construction of the project, impacts on desert tortoise habitat could be considered major and extensive.~~ As currently designed, the project would have minor adverse, short- and long-term, localized impacts on Gila monster and chuckwalla. Adverse impacts to desert bighorn sheep would be localized and minor, with both short- and long-term impacts with incorporation of mitigation. Mitigation would reduce the adverse impacts on American badger to localized, minor, and short and long term. After mitigation, impacts on MBTA bird species, including raptors, would be adverse, minor, short and long term, and localized. Many of the potential impacts to birds would be avoided altogether if vegetation clearing occurred prior to breeding season. If construction were scheduled

to occur during breeding season, the applicant would clear vegetation before the onset of breeding season. Recommended mitigation for burrowing owl would reduce impacts, which would be adverse and short and long term, to localized and minor.

In summary, the proposed project would significantly affect biological resources in an adverse manner.

CEQA Significance Determinations

IMPACT BIO-1: Direct or indirect loss of listed or sensitive plant species, or a direct loss of habitat for listed or sensitive plant species
Less than significant with mitigation

The proposed project would result in impacts on special-status plants as discussed above in the NEPA summary discussion. However, MMs BIO-1, 2, and 3 would reduce impacts to less than significant because preconstruction surveys would identify the location of any special-status plants so they could be avoided by project activities. If plants could not be avoided, mitigation for impacts would occur in the form of salvage and/or restoration efforts for vegetation and soils.

IMPACT BIO-2: Direct or indirect loss of listed or sensitive wildlife or a direct loss of habitat for listed or sensitive wildlife
~~*Potentially significant*~~ *Significant*

The proposed project would result in impacts on several special-status wildlife species and their habitat as discussed above in the NEPA summary discussion ~~section~~. Those species include reptiles, mammals, and birds, with potential for significant impacts to desert tortoise, desert bighorn sheep, American badger, and burrowing owl. However, MMs BIO-8 through BIO-16 would reduce impacts to less than significant, except for desert tortoise; impacts to desert tortoise and its habitat would be significant even after mitigation. Parameters for preconstruction surveys and the use of biological monitors would be specific to species to prevent impacts on those species. Surveys would identify the location of any special-status wildlife so avoidance measures could be incorporated. If avoidance of direct and indirect impacts to wildlife were not possible, those impacts would be mitigated by species-specific measures detailed in MMs BIO-12 through BIO-16.

~~As mentioned in the NEPA discussion, impacts to the desert tortoise and its habitat would be significant even after mitigation if an extensive amount of new access and/or spur roads were proposed.[6]~~

IMPACT BIO-3: Temporary and permanent losses of native vegetation communities
Less than significant with mitigation

The proposed project would result in impacts on sensitive desert vegetation communities, including cacti and yucca species, as discussed above in the NEPA ~~section~~summary. However, MMs BIO-1 through BIO-3 would reduce impacts to less than significant with the use of preconstruction surveys, avoidance techniques, and post-construction restoration.

IMPACT BIO-4: Introduction of invasive, non-native, or noxious plant species
Less than significant with mitigation

The proposed project would result in impacts on sensitive vegetation and wildlife communities if invasive, non-native, or noxious plant species were introduced and/or spread within the project area as discussed above in the NEPA

~~[6] NOTE: Final impact analysis for the tortoise will be completed pending final survey data and engineering details from the applicant.~~

~~section~~ summary. However, MM BIO-4 would reduce impacts to less than significant with implementation of a rigorous Invasive Management Plan.

IMPACT BIO-5: Adverse effects on drainages, riparian areas, and wetlands
Less than significant with mitigation

The proposed project would result in impacts on jurisdictional waters~~,~~ and drainages, ~~and wetlands,~~ as discussed in the summary of NEPA ~~section~~ impacts above. However, MMs BIO-5 through BIO-7 would reduce impacts to less than significant because the applicant would perform a final jurisdictional determination to identify drainages and wetlands located within the proposed project area. These areas would then be avoided. If avoidance were not possible, drainage crossings would be engineered to reduce degradation and impacts (MM BIO-6) and restoration and compensation measures would be implemented (MM BIO-7).

IMPACT BIO-6: Direct or indirect loss of migratory wildlife species, corridors, or nursery sites
Less than significant with mitigation

The project would result in impacts to the movement corridors, migratory paths, or critical nursery sites for certain species. Impacts would occur to big game corridors (desert bighorn sheep), general wildlife corridors for species such as large reptiles and wild burro, lambing areas for desert bighorn sheep, and critical habitat found within the EITP area that would be potentially used as a movement corridor by desert tortoise. As discussed in the summary of NEPA ~~section~~ impacts, primary impacts to species that would also affect movement corridors and nursery areas would occur from noise and visual disturbances generated during construction, operations, and maintenance. Impacts include stress to animals, potential death, and avoidance of known corridors or nursery sites by species. Some of the proposed project occurs within an existing ROW, and disturbances would be relatively short term due to the linear nature of construction for the transmission and telecommunication lines. Operations and maintenance activities would likewise be short term due to the lower frequency of vehicle and equipment use. Impacts at the proposed Ivanpah Substation would be longer term, as existing natural vegetation would be replaced with impervious surfaces and permanent structures.

Impacts to corridors and nursery sites would be mitigated by numerous proposed mitigation measures (see NEPA discussion and Section 3.4.4 for details). Specifically, MMs BIO-1, BIO-8, BIO-10, and BIO-12 through BIO-16 would provide protection primarily through avoidance of sensitive movement and nursery areas. With the incorporation of mitigation, impacts would be reduced to less than significant.

IMPACT BIO-7: Conflict with the provisions of local ordinances or policies
Less than significant with mitigation

The proposed project could conflict with local tree preservation and riparian protection ordinances. San Bernardino County requires retention of existing native desert vegetation, in particular Joshua trees, Mojave yuccas, and creosote rings. The project could remove existing desert vegetation during construction. The county also requires setbacks from riparian areas and prohibits removal of vegetation within 200 feet of a stream. Impacts to stream riparian vegetation ~~might~~ would occur during construction of the project. The applicant proposes to minimize disturbance to vegetation by flagging and avoiding native plants and by minimizing impacts to streams (APM BIO-2 and BIO-3). However, if sensitive desert and riparian vegetation could not be avoided, the proposed project would result in significant impacts and directly conflict with the San Bernardino County ordinances.

With implementation of MMs BIO-2 and BIO-3, vegetative communities will be restored by the relocation of plants, reseeding, and/or land compensation. If communities cannot be restored, the applicant will compensate in accordance with consultation with appropriate agencies. Implementation of these measures would reduce impacts to less than significant.

~~NO IMPACT. Impacts to the Clark County MSHCP and the BCCE. The proposed project would result in impacts on biological resources (Impacts BIO-1 through BIO-6) on lands under the jurisdiction of the Clark County MSHCP and the BCCE, as the transmission and telecommunication lines cross lands preserved by these plans. Species specifically targeted for conservation and protection by these plans would be potentially impacted by the project.~~

IMPACT BIO-8: Conflict with the Provisions of the Clark County MSHCP
Less than significant with mitigation

The proposed project would result in impacts on biological resources (Impacts BIO-1 through BIO-6) on lands under the jurisdiction of the Clark County MSHCP, as the transmission and telecommunication lines cross lands conserved by these plans. Species specifically targeted for conservation and protection by these plans would be potentially impacted by the project. Additionally, the project intersects numerous areas that have undergone MSHCP mitigation actions by the BLM, such as re-vegetation restoration efforts, noxious weed removal, and fencing associated with desert tortoise protection (see Figures 5-1 and 5-5). These restoration areas could be impacted by vegetation removal and the potential introduction of noxious weeds. These impacts would be long-term and significant, thus mitigation is required to reduce impacts.

The applicant would be required to initiate discussions with Clark County ~~and Boulder City~~ about appropriate fee-based compliance and other mitigation strategies to ameliorate biological impacts on non-federal lands as discussed in MM-LU-1, Section 3.9, "Land Use." This compliance would be directly based on the provisions of the MSHCP ~~and the BCCE. Thus, by complying with these provisions, there would be no impact to habitat conservation plans within the proposed project boundaries. Additionally,~~ Compliance for the MSHCP would cover those biological species protected by the MSHCP. Thus, by complying with these provisions, impacts to the MSHCP within the proposed project boundaries would be reduced to less than significant. The construction of the EITP, as proposed along the existing ROW, would be ~~more~~ compatible with the primary purpose of the MSHCP, which is to minimize adverse impacts on natural resources within the ~~BCCE, than Transmission Alternative Routes A and B, which would disturb more habitat than the proposed route~~ HCP conservation area.

3.4.3.6 No Project / No Action Alternative

Under the No Project Alternative, the proposed project would not be constructed, and impacts associated with the proposed project would not occur. The No Project Alternative would have no adverse impact on existing biological resources in the proposed project area. However, it would not help increase the feasibility of using alternative energy sources, although increase use of alternative energy could have beneficial impacts on biological resources.

3.4.3.7 Transmission Alternative Route A

This alternative would begin at the Eldorado Substation and deviate from the proposed transmission line between milepost (MP) 1 and MP 7 using a new 130-foot ROW adjacent to the existing Los Angeles Department of Water and Power (LADWP) transmission corridor. Critical issues for this alternative include impacts to native vegetation communities, habitat for special-status plants and wildlife, and special management areas. Transmission Alternative Route A would cross the same habitat type (creosote-white bursage scrub) as the proposed project and would result in similar types of impacts but would result in a net increase in the extent and magnitude of direct and indirect impacts associated with placement of new towers and creation of new ROW and spur roads.

Transmission Alternative Route A would ~~reduce the number of total towers needed from five to four~~fall entirely within a BLM designated corridor but would require ~~2.3 miles~~ 5 miles of new ROW. Construction would increase total permanent impacts by ~~8 acres~~ 3.5 acres and temporary impacts by ~~62.2 acres~~ 62.6 acres in previously undisturbed desert habitat. The increase in impacted acreage could result in a net increase in the direct and indirect loss of habitat for listed or sensitive plant species. Direct loss of habitat for special-status species might result from removal of vegetation, grading of soils, or sedimentation during the course of construction. Indirect loss of habitat might result

from introduction and spread of invasive and noxious weeds, loss of native seed banks, changes to the topography and drainage of a site, and dust generation from use of construction equipment and transport of materials. No jurisdictional drainages or washes were identified within Alternative A; thus, there would be no impacts to these systems from this alternative, which is the same as for the proposed project.

The increase in acreage impacts would increase the potential for disturbing wildlife or causing wildlife mortality. The primary impact would be to desert tortoise and desert tortoise habitat, as this alternative passes through previously undisturbed suitable habitat including a section in designated desert tortoise critical habitat (Piute-Eldorado Unit). All impacts from construction activities of this alternative within designated critical habitat would be permanent in terms of restoration requirements, mitigation, and compensation. Although this alternative would decrease the total distance the transmission line would cross the Piute-Eldorado Critical Habitat Unit from approximately 8.3 miles to 7.9 miles (Table 3.4-8 ~~3.4-6~~), the 5 miles of new ROW needed would increase permanent disturbance to tortoise habitat.

The results of the desert tortoise surveys for this alternative found a greater amount of tortoise sign (e.g., scat, tracks, tortoise, burrow, shell) within Alternative Route A than within the corresponding portion of the proposed project. However, density calculation of desert tortoise for this alternative and all others ~~has not yet been compared with the density of desert tortoise activity along the proposed transmission line route, pending applicant discussions with the USFWS on appropriate methods.~~ could not be calculated due to the absence of live tortoises observed within the 100 percent coverage survey area, which is required to calculate tortoise density based on USFWS 2010 Desert Tortoise Pre-project Survey Guidance document. Although this alternative would increase the acreage of desert tortoise habitat permanently impacted, there would be no change in the duration or severity of impacts as a result of the construction of Alternative Route A. Though no additional listed or sensitive species were identified along this alternative during the biological surveys, there is the potential for listed or sensitive wildlife species to occur during construction or maintenance due to the presence of suitable habitat. ~~Surveys are still ongoing; for instance, burrowing owl and raptor surveys will be conducted in 2010. Thus, pending results, analysis of impacts to these species for this alternative (and for other alternatives) cannot be completed. Although site-specific data is not complete at this time, analysis of potential impacts to listed and sensitive species is still possible without all the data (40 CFR 150.22) and by assuming a high likelihood of species presence. Additionally, the APMs and proposed MMs will be sufficient to reduce impacts to less than significant for these species for this alternative (and for other alternatives).~~ This could be particularly true for burrowing owl and nesting birds, which can move onto a project site from one season to the next if suitable habitat is available. With the exception of desert tortoise, the APMs and proposed MMs would be sufficient to reduce impacts to less than significant for special status wildlife species for this alternative.

~~The alternative would result in impacts on the Clark County MSHCP and the BCCE, as the entire alternative lies outside a pre-existing ROW within lands preserved by these plans. Biological resources and species targeted for conservation and protection by these plans, particularly the desert tortoise, would be potentially impacted by the project. However, MM BIO-1 through BIO-16 would significantly reduce biological impacts. Furthermore, the applicant would be required to initiate discussions with Clark County and Boulder City concerning additional fee-based compliance and mitigation measures to ameliorate biological impacts. This compliance would be directly based on the provisions of the MSHCP and the BCCE. Impacts to provisions of the plans would be reduced to less than significant with the incorporation of results from biological mitigation and compliance discussions.~~

Transmission Alternative Route A would bypass the segment of the proposed transmission line alignment between MP 1 and MP 7 and would be constructed entirely within a BLM-designated utility corridor, thus avoiding potential conflicts with the BCCE and Clark County. However, the alternative would result in impacts on the Clark County MSHCP and the BCCE, similar to the proposed project. Biological resources and species targeted for conservation and protection by these plans, particularly the desert tortoise, would be potentially impacted by the project. However, MM BIO-1 through BIO-18 and MM HAZ-1 would significantly reduce biological impacts by requiring workers to adhere to best practices, which would reduce impacts on the surrounding land uses in the BCCE. Impacts to provisions of the plans would be reduced to less than significant with the incorporation of these measures.

Both the proposed project and Transmission Alternative Route A would result in adverse, localized, short-and long-term impacts to biological resources. ~~Impacts from the proposed project would be minor to moderate, while impacts from Alternative Route A would be moderate. From a CEQA perspective, Transmission Alternative Route A would result in less than significant impacts with the incorporation of proposed mitigation measures.~~ However, impacts to desert tortoise critical habitat from Alternative A would be considered significant, adverse, and long term after mitigation because previously undisturbed designated critical habitat would be permanently removed. Therefore, with respect to biological resources, Transmission Alternative Route A would have greater impacts than the proposed project.

3.4.3.8 Transmission Alternative Route B

Transmission Alternative Route B would begin at the existing Eldorado Substation and would replace MP 1 to MP 2 of the proposed route. Several of the overhead utility lines might have to be modified or relocated to accommodate this alternative.

Alternative Route B would result in types of impacts similar to those of the proposed route but would result in a net increase in the extent and magnitude of direct and indirect impacts associated with placement of new towers and creation of new ROW and spur roads. Alternative Route B would result in an additional ~~3.7 miles of transmission line and~~ 5.6 miles of new ROW, which would increase the acreage of permanent and temporary impacts by ~~10 acres and 129 acres~~ 7.5 acres and 130 acres, respectively, to the native vegetation community. No jurisdictional drainages or washes were identified within Alternative B. This alternative ~~could~~ would result in ~~fewer~~ no crossings of intermittent streams ~~than~~ similar to the proposed project, ~~which~~ and thus there would be ~~a decrease in~~ no change to impacts ~~to~~ on desert wash habitat and wildlife using this habitat.

~~Although the magnitude of impact for the proposed project using Alternative B would be slightly greater than when using Alternative A due to the additional total miles, impact types would be the same for both alternatives.~~ Primary impacts resulting from Alternative B would include loss of habitat for and potential disturbance to wildlife and special-status species. Though no listed or sensitive species were identified along this alternative by the biological surveys, there is the potential for listed or sensitive wildlife species to occur during construction or maintenance due to the presence of suitable habitat.

Compared with the proposed project, Alternative Route B would increase impacts to desert tortoise. As previously discussed for Alternative Route A, the increase in acreage of both permanent and temporary impacts from Alternative Route B would increase the potential for direct and indirect loss of desert tortoise and direct loss of tortoise habitat. Alternative Route B does not pass through designated desert tortoise critical habitat as does Alternative Route A, but suitable habitat for the species is present. The results of the desert tortoise surveys found a similar amount of tortoise sign in Alternative Route B as in the corresponding portion of the proposed project. ~~However, density calculations of desert tortoise in this area can only be estimated and assumed to be similar to those in adjacent critical habitat, pending applicant discussions with the USFWS on appropriate methods for these calculations.~~ However, density calculation of desert tortoise for this alternative and all others could not be calculated due to the absence of live tortoises observed within the 100 percent coverage survey area, which is required to calculate tortoise density based on USFWS 2010 Desert Tortoise Pre-project Survey Guidance document.

~~Transmission Alternative Route B would result in impacts on the Clark County MSHCP and the BCCE, as the entire alternative lies outside a pre-existing ROW within lands preserved by these plans. Biological resources and species targeted for conservation and protection by these plans, particularly the desert tortoise, would be potentially impacted by the project. However, MM BIO-1 through BIO-16 would significantly reduce biological impacts. Furthermore, the applicant would be required to initiate discussions with Clark County and Boulder City about additional fee-based compliance and mitigation measures to ameliorate biological impacts. This compliance would be directly based on the provisions of the MSHCP and the BCCE. Impacts to provisions of the plans would be reduced to less than significant~~

~~with the incorporation of biological mitigation and results of compliance discussions.~~

Similar to Transmission Alternative Route A, Transmission Alternative Route B would bypass the segment of the proposed transmission line that runs north and south near MP 2, outside of the BLM-designated utility corridor, thus avoiding potential conflicts with the BCCE and Clark County. However, biological resources and species targeted for conservation and protection by these plans, particularly the desert tortoise, would be potentially impacted by the project. However, MM BIO-1 through BIO-18 and MM HAZ-1 would significantly reduce biological impacts by requiring worker training and awareness of specific BCCE BMP policies. Impacts to provisions of the plans would be reduced to less than significant with the incorporation of these measures.

Both the proposed project and Alternative Route B would result in adverse, minor to moderate, localized, short- and long-term impacts to biological resources. ~~Overall, there would be no change in the duration or severity of impacts between the proposed project and the alternative.~~ From a CEQA perspective, Transmission Alternative Route B would result in less than significant impacts with the incorporation of proposed mitigation measures. ~~However, impacts on desert tortoise critical habitat would be significant, adverse, and long term after mitigation because previously undisturbed designated critical habitat would be permanently removed.~~ However, the alternative does not offer significant advantages over the proposed route and impacts would be greater than for the proposed project.

3.4.3.9 Transmission Alternative Route C

Transmission Alternative Route C was suggested by BLM to minimize impacts to Ivanpah Dry Lake by rerouting the transmission line off the existing SCE transmission ROW, just before entering the Ivanpah Dry Lake. The line would head north around the dry lake on a new ROW and would extend a total of 5.3 miles.

Alternative Route C would reduce impacts to the dry lake bed such as crushing of saltscrub vegetation bordering the lake and disturbance to wildlife species using the vegetation and/or the lake bed as habitat. There would also be fewer crossings of intermittent streams with this alternative. However, this alternative would result in a net increase in the extent and magnitude of direct and indirect impacts associated with removal of relatively undisturbed, high quality creosote bush habitat for placement of new towers and creation of new ROW, access roads, and spur roads. Compared with the proposed transmission line route, the proposed project using Alternative Route C would result in an additional 0.7 ~~miles~~ acres of transmission line, which would increase the acreage of permanent and temporary impacts by ~~6.5 acres and 79 acres~~ 4 acres and 80 acres, respectively to the native vegetation community and any wildlife or special-status species that use this habitat.

The increase in the acreage of both permanent and temporary impacts due to creation of new ROW and roads and placement of new towers for Alternative Route C would result in a net increase in the extent and magnitude of potential impacts to biological resources. The increase in spatial extent would increase the potential for disturbing wildlife and increasing wildlife mortality, and would increase the potential for direct or indirect loss of listed or sensitive wildlife and their required habitat. Though no listed or sensitive species were identified along this alternative by the biological surveys, there is the potential for listed or sensitive wildlife species to occur during construction or maintenance due to the presence of suitable habitat. The primary issue for this alternative would be greater impacts to the desert tortoise. Compared with the proposed route, this alternative would cross higher quality desert tortoise habitat, as tortoises do not use the dry lake bed for habitat. Similar to use of Alternative Routes A or B, use of this alternative would result in an increase in both permanent and temporary impacts and increase the potential for direct or indirect loss of desert tortoise and direct loss of tortoise habitat. Alternative Route C does not pass through designated desert tortoise critical habitat as does Alternative A, but previously undisturbed suitable habitat for the species is present.

Transmission Alternative Route C would result in impacts on biological resources (Impacts BIO-1 through BIO-6) on lands that fall under the jurisdiction of the Clark County MSHCP, as the transmission and telecommunication lines cross lands preserved by these plans. Species targeted for conservation and protection by these plans would be

potentially impacted by the project. ~~The applicant would be required to initiate discussions with Clark County about appropriate fee-based compliance and other mitigation strategies to ameliorate biological impacts, based on the provisions of the MSHCP. Complying with these provisions would eliminate any potential impact to habitat conservation plans from Transmission Alternative Route C.~~ However, MM BIO-1 through BIO-18 and MM LU-1 would significantly reduce biological impacts by requiring compliance coordination with Clark County and Boulder City. Additionally, MM HAZ-1 would further ensure compliance with specific BCCE BMP policies. Impacts to provisions of the plans would be reduced to less than significant with the incorporation of these measures.

Alternative Route C would result in localized short-term and long-term adverse impacts of minor to moderate intensity to biological resources. ~~Overall, there would be no difference in the duration or severity of impacts between the proposed project and Alternative Route C. From a CEQA perspective, Transmission Alternative Route C would result in less than significant impacts with the incorporation of mitigation, except for desert tortoise, as impacts to the desert tortoise and its habitat would be significant with this Alternative even after mitigation~~. From a CEQA perspective, Transmission Alternative Route C would result in more impacts even with the incorporation of proposed mitigation measures. Therefore, the alternative does not offer significant advantages over the proposed route and impacts would be greater than for the proposed project.

3.4.3.10 Transmission Alternative Route D and Subalternative E

Transmission Alternative Route D and Subalternative E were suggested by BLM to minimize recreational impacts to the Ivanpah Dry Lake. Where feasible, Routes D and E would parallel structure-for-structure the existing LADWP Marketplace–Adelanto 500-kV transmission line through the Ivanpah Dry Lake. The line would be re-routed west and southwest on a new 130-foot ROW around Ivanpah Dry Lake for approximately 3.3 miles before rejoining the existing ROW at MP 30, Tower 203.

Compared with the proposed project, Routes D and E would reduce impacts to the dry lake bed such as crushing the saltscrub vegetation or disturbing wildlife. However, these routes would result in a net increase in the extent and magnitude of direct and indirect impacts from removal of creosote bush habitat for placement of new towers and creation of new ROW and spur roads. Compared with the proposed transmission line route, these routes would result in an additional ~~0.4 miles~~ 0.2 acres of transmission line, which would increase temporary impacts by 60 acres, and ~~increase~~ decrease permanent impacts by ~~1.2 acres~~ 1.3 acres. Overall impacts to native vegetation would increase, as well as the potential for impacts to special-status species. These routes would result in impacts on the pink funnel lily, which was identified during the botanical surveys along Alternative Route D, but is absent from the proposed transmission line route. Numerous jurisdictional drainages or washes were identified within Alternative D and E. However, this alternative would result in fewer crossings of intermittent streams than the proposed project, which would be a decrease in impacts to desert wash habitat and wildlife using this habitat.

The increase in impacts would increase the potential for disturbing wildlife and causing increased wildlife mortality, and would increase the potential for direct or indirect loss of listed or sensitive wildlife and their required habitat. Though no listed or sensitive species were identified along these routes by the biological surveys, there is the potential for listed or sensitive wildlife species to occur during construction or maintenance due to the presence of suitable habitat. Compared with the proposed transmission line route, these routes would cross a slightly greater amount of desert tortoise habitat and therefore would result in a similar potential of impacting desert tortoise.

Transmission Alternative Route D and Subalternative Route E would result in impacts on biological resources (Impacts BIO-1 through BIO-6) on lands that fall under the jurisdiction of the Clark County MSHCP, as the transmission and telecommunication lines cross lands preserved by these plans. Species targeted for conservation and protection by these plans would be potentially impacted by the project. ~~The applicant would be required to initiate discussions with Clark County about appropriate fee-based compliance and other mitigation strategies to ameliorate biological impacts, based on the provisions of the MSHCP. Complying with these provisions would eliminate any potential impact to habitat conservation plans from Transmission Alternative Route D and Subalternative Route E.~~

However, MM BIO-1 through BIO-18 and MM LU-1 would significantly reduce biological impacts by requiring compliance coordination with Clark County and Boulder City. Additionally, MM HAZ-1 would further ensure compliance with specific BCCE BMP policies. Impacts to provisions of the plans would be reduced to less than significant with the incorporation of these measures.

Like the proposed project, these routes would result in minor to moderate, localized, short- and long-term adverse impacts to biological resources. ~~Overall, there would be no difference in the duration, severity, or extent of impacts between the proposed project and the proposed project using these routes. From a CEQA perspective, Transmission Alternative Route D and Subalternative E would result in less than significant impacts with the incorporation of mitigation.~~ From a CEQA perspective, Transmission Alternative Route D and Subalternative E would result in similar duration, severity, or extent of impacts even with the incorporation of proposed mitigation measures. Therefore, the alternative does not offer significant advantages over the proposed route and impacts would be greater than for the proposed project.

3.4.3.11 Telecommunication Alternative (Golf Course)

The Golf Course Telecommunication Alternative would consist of aboveground and underground fiber cable extending from the town of Nipton past the Primm Golf Course to the proposed Ivanpah Substation. The Golf Course Telecommunication Alternative would include two 10-mile segments. One 10-mile segment would proceed from the town of Nipton to I-15 (MP 1 to MP 10) along the north side of Nipton Road, parallel to the northern boundary of the Mojave National Preserve. This 10-mile segment would consist of 1 mile of fiber cable installed aboveground on the existing Nipton 33-kV distribution line immediately west of the town of Nipton, on the north side of Nipton Road. Approximately 9 miles of fiber optic cable would be installed in an underground duct on the north side of Nipton Road. A number of poles would also need replacement along this 10-mile segment. The second 10-mile segment would stretch from the I-15 and Nipton Road intersection to Primm Golf Course, and then west across I-15 to the Ivanpah Substation. This segment would also have aboveground and underground cable. Underground ducts would be placed beneath the golf course and at a point approximately 1.0 mile east of the Ivanpah Substation, where a cable would be installed in an underground duct for approximately 1.0 mile to enter the north side of the Ivanpah Substation.

The Golf Course Telecommunication Alternative would result in a net increase in the extent and magnitude of direct and indirect impacts associated with underground installation of cable and retrofitting, replacement, and/or addition of new distribution line poles. Compared with the proposed telecommunication system, the Golf Course Telecommunication Alternative would result in an additional 20 miles of communication line, of which approximately 10 miles would require underground installation. The 9-mile underground duct along Nipton Road would be installed within the road shoulder and require minimal vegetation clearing. However, the additional land disturbances associated with the other underground segments and with pole replacement would result in a total increase in temporary and permanent losses to the native vegetation. There would also be the potential to introduce and further spread invasive and noxious weeds with any new soil disturbances. Additionally, this alternative would impact the sensitive species Borrego milkvetch, which was identified during botanical surveys along the Golf Course Telecommunication Alternative route but was absent from the proposed telecommunication system route. This alternative would impact numerous ephemeral streams and washes, and any associated riparian habitat. While this telecommunication Alternative was not included in the spring 2010 delineation survey, potential jurisdictional waters intersecting the Golf Course Alternative were identified through a review of topographical maps, review of NRCS digital hydrologic unit boundary layer data set and review of high resolution aerial imagery (see Appendix B-5 for the Jurisdictional Delineation Report).

The substantial increase in the acreage of habitat that would be impacted as a result of this alternative would increase the potential for impacts to special-status plants and special-status wildlife, and would increase the potential for the introduction of invasive, non-native, or noxious plant species. In addition to adverse impacts, this alternative could result in beneficial impacts to raptors in the area, compared with the impacts of the proposed project. More perching and nesting posts would be available to raptors with the increase in the number of towers to be installed.

The additional communication line located between the Town of Nipton and I-15 would cross approximately 12.9 miles of designated desert tortoise critical habitat (Ivanpah Unit), approximately 9.8 miles more than the proposed telecommunication route (Table 3.4-8 ~~3.4-6~~). All the disturbance created within this section of this alternative would be permanent in terms of restoration, mitigation, and compensation requirements. Desert tortoise surveys for this alternative found a greater amount of tortoise sign within the Golf Course Telecommunication Alternative than within the proposed project. Additionally, when compared with the proposed project, this alternative would increase potential impacts on desert tortoise due to the significantly increased impacted critical habitat acreage. However, once final density calculations of desert tortoise are available, they should be used to compare this alternative with the proposed project.

The Golf Course Telecommunication Alternative would result in localized, short-term and long-term, adverse impacts, as would the proposed project. ~~Overall, there would be no difference between the duration, severity, or extent of impacts from the proposed project and impacts of this alternative. From a CEQA perspective, the Golf Course Telecommunication Alternative would result in less than significant impacts with the incorporation of proposed mitigation measures. However, impacts on desert tortoise critical habitat would be considered significant, adverse, and long term even after mitigation because previously undisturbed designated critical habitat would be permanently removed.~~ From a CEQA perspective, the Golf Course Telecommunication Alternative would result in a greater amount and extent of impacts even with the incorporation of proposed mitigation measures. Therefore, the alternative does not offer significant advantages over the proposed route and impacts would be greater than for the proposed project.

3.4.3.12 Telecommunication Alternative (Mountain Pass)

The Mountain Pass Telecommunication Alternative would consist of fiber cable that would be located partially aboveground and partially underground from Nipton to Mountain Pass to the Ivanpah Substation. This alternative route would include one 10-mile and one 15-mile segment. The 10-mile segment would be identical to the one described above for the Golf Course Alternative; it would begin at Highway 164 near Nipton and continue to I-15 (MP 1 to MP 10) along the north side of Nipton Road, parallel to the northern boundary of the Mojave National Preserve. The 15-mile segment would begin at I-15 and go to the town of Mountain Pass and then to the Ivanpah Substation. This route would parallel I-15 in an underground duct for approximately 1.0 mile and then continue overhead on the existing Nipton 33-kV distribution line poles west to Mountain Pass and north to the Mountain Pass Substation. From the Mountain Pass Substation, the cable route would turn northeast and proceed on the existing Nipton 33-kV distribution line poles toward the Ivanpah Substation. At the last Nipton line pole, 500 feet of underground conduit would be installed and the cable would enter on the south side of the Ivanpah Substation.

The Mountain Pass Telecommunication Alternative would result in a net increase in the extent and magnitude of direct and indirect impacts associated with underground installation of fiber cable and retrofitting or replacement of distribution line poles. Compared with the proposed telecommunication system, the Mountain Pass Telecommunication Alternative would result in 25 more miles of additional communication line, with 10.5 miles of the line requiring underground installation. Impacts of the 10-mile segment are discussed above for the Golf Course Alternative.

Impacts of the 15-mile segment would include temporary and permanent losses of native vegetation communities, potential loss of special-status plants and wildlife, and potential introduction of noxious weeds. This alternative would cross a more diverse set of vegetation habitat types than the proposed communication line, including Joshua tree woodland and ~~pinion~~ pinyon pine-juniper, thus potentially impacting a more diverse range of plants and wildlife. This alternative would impact three ephemeral drainage features, and any associated riparian habitat. While the Mountain Pass Telecommunication Alternative was not included in the spring 2010 delineation survey, potential jurisdictional waters intersecting the Mountain Pass Alternative were identified through a review of topographical maps, review of NRCS digital hydrologic unit boundary layer data set, and review of high resolution aerial imagery (see Appendix B-5

for the Jurisdictional Delineation Report). Additionally, this alternative would impact numerous sensitive plant species that were identified during the botanical surveys along the Mountain Pass Telecommunication Alternative. The sensitive plant species that occur along this alternative are rough menodora, sky-blue phacelia, *Coryphantha* spp., Clark Mountain buckwheat, black grama, Aven Nelson's phacelia, and nine-awned pappus grass. The increase in the acreage of previously undisturbed habitat that would be impacted as a result of this alternative would increase the potential for introduction of invasive, non-native, or noxious plant species. Special-status wildlife would also be impacted by this alternative.

The alternative route would be directly adjacent to special management areas for desert tortoise and bighorn sheep (Clark Mountain ACEC and CDFG Zone 3 for bighorn sheep; Figure 3.4-4). Although the Clark Mountains Range do not provide suitable lambing habitat for desert bighorn sheep, they do provide suitable habitat for foraging. Thus, compared with the California portions of the proposed route which do not pass into the Clark Mountains Range, this alternative is in closer proximity to areas that would provide additional habitat for the sheep. Therefore, greater impacts from human presence and noise could result from this alternative, although these would be minor because the ~~Clark Mountains are~~ Clark Mountain Range is not crucial breeding habitat for the sheep. Increased disturbance impacts to birds could result from this alternative. Montane bird species use the upper elevations of the Clark Mountains Range for foraging and nesting. The Mountain Pass Substation is adjacent to this area; however, the substation and distribution line already exists and thus any additional impacts from construction noise and human disturbance to nearby nesting birds would be temporary and minor. As discussed for the Golf Course Alternative, this alternative could also have some beneficial impacts not provided by the proposed project on raptors in the area, because additional new towers would be installed.

The Mountain Pass Telecommunication Alternative would cross approximately 12.8 miles of designated desert tortoise critical habitat (Ivanpah Unit); a 9.7-mile increase compared with the proposed telecommunication route (Table 3.4-8 ~~3.4-6~~). This would include the same 10-mile segment that is part of both the Mountain Pass and the Golf Course alternative. The Mountain Pass Telecommunication Alternative would impact approximately 0.08 miles less of critical habitat than would the Golf Course Alternative (Table 3.4-8 ~~3.4-6~~). As previously discussed, all of the disturbance created within this 10-mile section would be permanent in terms of restoration, mitigation, and compensation requirements. Desert tortoise surveys for this alternative found more tortoise sign (e.g., scat, tracks, tortoise, burrow, shell) within the Mountain Pass Telecommunication Alternative than within the proposed project. Additionally, when compared with the proposed project, this alternative would increase the potential of impacting desert tortoise due to the significantly increased amount of critical habitat that would be impacted.

Similar to the proposed project, the Mountain Pass Telecommunication Alternative would result in localized, short-term and long-term, adverse impacts of minor to moderate intensity. This alternative's impacts would be of moderate intensity. Also, the Mountain Pass Telecommunication Alternative would result in adverse short-term and long-term impacts of moderate intensity on desert tortoise and its habitat. From a CEQA perspective, the ~~Mountain Pass~~ Golf Course Telecommunication Alternative would result in ~~less than significant~~ a greater amount and extent of impacts even with the incorporation of proposed mitigation measures. ~~However, impacts on desert tortoise critical habitat would be considered significant, adverse, and long term even after implementation of mitigation because previously undisturbed designated critical habitat would be permanently removed.~~ Therefore, the alternative does not offer significant advantages over the proposed route and impacts would be greater than for the proposed project.

3.4.4 Mitigation Measures

The following measures are recommended to minimize, reduce, and mitigate for impacts to biological resources with implementation of the EITP.

MM BIO-1: Preconstruction Surveys. Preconstruction surveys will be conducted by USFWS-approved biologists according to the most current USFWS protocols, where available by species. These surveys will include surveying brush clearing areas and ground disturbance areas within habitat deemed suitable for sensitive

species by a qualified biologist. As part of the pre-construction surveys, the composition of the vegetation community will be surveyed to establish baseline conditions prior to construction for post-construction restoration efforts. These surveys will be conducted for the presence of special-status plants, the presence of noxious weeds, and the presence of general and special-status wildlife species, to prevent direct loss of vegetation and wildlife and to prevent the spread of noxious plant species. For the noxious weeds survey, the level of effort and extent of the surveys will be outlined by the Invasive Plant Management Plan (MM BIO-4).

MM BIO-2: Reclamation Plan. The applicant will develop a Reclamation, Restoration, and Revegetation Plan (RRRP) prior to adoption of the Final EIR/EIS that will guide restoration and revegetation activities for all disturbed lands associated with construction of the project and the eventual termination and decommissioning of the project. The RRRP will be part of the applicant's final Plan of Development for the project and should address all federal and private land disturbances, including areas where restoration activities have been funded by the Clark County MSHCP and initiated by resource agencies. The RRRP will be developed in consultation with appropriate agencies (BLM, CPUC, CDFG, and Clark County DCP) and be provided to these agencies for review and approval prior to preparation of the Final EIR/EIS. NDOW and the BLM Las Vegas Field Office will be consulted for restoration efforts concerning Nevada State protected cacti and yucca species, which may include preparation of a separate Cactus and Yucca Reclamation Plan. The RRRP will also provide details including but not limited to topsoil segregation and conservation, vegetation treatment and removal, salvage of succulent species, revegetation methods including seed mixes, rates and transplants, and criteria to monitor and evaluate revegetation success. Post-construction monitoring will be performed for 1 to 5 years, depending on the disturbance level and restoration level as outlined in the BLM's 2001 Restoration Plan for Energy Projects in the Las Vegas Field Office.

MM BIO-3: Special-Status Plants Restoration and Compensation. The applicant will mitigate for the loss of special-status plant species within the project area ~~immediately~~ following ~~construction~~ the completion of all construction activities at a particular site and within 1 year of post-construction according to the requirements of resource agency authorizations (e.g., CDFG 2081 permit). Special-status plants will be restored by relocation of plants and/or re-seeding, replacing topsoil with existing topsoil that was removed, and re-grading to pre-existing soil contours. Measures to restore special-status plants will be implemented through the Reclamation Plan (MM BIO-2). Additionally, that plan will provide a matrix showing how the applicant will address each species considered sensitive or special-status in terms of mitigation type (e.g., seed collection, transplanting, fencing certain population, and compensation measures). The CDFG will likely require land compensation and enhancement and endowment fees for the project in addition to restoration. If special-status plant communities cannot be restored, the applicant will provide compensation if required, in consultation with appropriate agencies (USFWS, BLM, CDFG, NDOW, and CPUC). In order to ensure enforceability, documentation of consultations with all appropriate agencies will be provided to the CPUC (the CEQA lead agency).

MM BIO-4: Model Invasive Plant Management Plan on the BLM Las Vegas Office DRAFT Weed Plan. The Invasive Plant Management Plan to be developed (APM BIO-10) will be modeled on the BLM Las Vegas Office DRAFT Weed Plan. The plan will include operation and maintenance activities, as well as construction activities. The content of the plan will include results of the noxious weed inventory, identification of problem areas, preventative measures, treatment methods, agency-specific requirements, monitoring requirements, and herbicide treatment protocol. The plan will include best management practices that require that any biological material brought on-site (e.g., hay bales that may be used for controlling stormwater under APM GEO-2, and native mixes for vegetation in MM BIO-2) will be certified weed-free. The plan will be submitted to both the California and the Nevada resource agencies and to the CPUC for approval prior to construction authorization.

MM BIO-5: Jurisdictional Delineation. Conduct a formal jurisdictional delineation within the boundaries of the project area once final engineering for the location of project-specific features is complete. This will be conducted prior to construction and is required in order to apply for permits, if needed, with USACE, California RWQCBs, and CDFG. A copy of the jurisdictional delineation will be provided to the CPUC.

MM BIO-6: Drainage Crossings Design. If drainages cannot be avoided by infrastructure placement, then the applicant will design drainage crossings to accommodate estimated peak flows and ensure that natural volume capacity can be maintained throughout construction and upon post-construction restoration. This measure is necessary to minimize the amount of erosion and degradation to which drainages are subject.

MM BIO-7: Mitigation Monitoring Plan for Affected Jurisdictional Areas. The applicant will develop a Mitigation Monitoring Plan for affected jurisdictional areas within established riparian areas, as needed, for submittal to the USACE for review and approval. The plan will outline measures to accomplish restoration, provide criteria for restoration success, and/or provide compensation ratios. This measure is needed to compensate for loss of ~~wetlands and~~ waters and riparian vegetation that provide suitable habitat for special-status and sensitive species, and provide important hydrological and water quality functions in the desert environment. Monitoring and reporting, likely for up to 3 to 5 years post-construction, will be required, pending consultation with agencies. A copy of the approved Mitigation Monitoring Plan will be provided to the CPUC and CDFG.

MM BIO-8: Reduce Night Lighting. Night lighting will be reduced in all natural areas to avoid unnecessary visual disturbance to wildlife. Night lighting during construction, operations, and maintenance will be reduced in natural areas using directed lighting, shielding methods, and/or reduced lumen intensity. The applicant will indicate anticipated measures to resource agencies for approval prior to construction. The approved measures will be provided to the CPUC.

MM BIO-9: Cover Steep-walled Trenches or Excavations during Construction. To prevent entrapment of wildlife, all steep-walled trenches, auger holes, or other excavations will be covered at the end of each day. Fencing will be maintained around the covered excavations at night. For open trenches, earthen escape ramps will be maintained at intervals of no greater than 0.25 miles. A biological monitor will inspect all trenches, auger holes, or other excavations a minimum of twice per day during non-summer months and a minimum of three times per day during the summer (hotter) months, and also immediately prior to back-filling. Any wildlife species found will be safely removed and relocated out of harm's way, using suitable tools such as a pool net when applicable. For safety reasons, biological monitors will under no circumstance enter open excavations.

MM BIO-10: Biological Monitors. Biological monitors will be provided throughout construction activities in all construction zones with the potential for presence of sensitive biological resources. A minimum of one monitor per crew is needed for construction crews using heavy equipment (e.g., backhoes, large trucks). One roving monitor will monitor multiple times per day in other active construction zones where heavy equipment is not in use.

MM BIO-11: Water Usage. Water used for fugitive dust control will not be allowed to pool on access roads or other project areas, as this can attract desert tortoises. Similarly, leaks on water trucks and water tanks will be repaired to prevent pooling water.

MM BIO-12: Desert Tortoise Impacts Reduction Measures. To reduce impacts on desert tortoise, the following will be done:

- The applicant cannot begin construction until issuance and acceptance of the USFWS Biological Opinion, the CDFG 2081 permit, and NDOW authorization. ~~Additionally, compliance discussions with Clark County and Boulder City must occur prior to construction that resolve and outline the specific compensation fees or additional mitigation measures needed for loss of desert tortoise habitat.~~ A copy of the USFWS Biological Opinion and documentation of any compliance discussions with Clark County and Boulder City will be provided to the CPUC and the Clark County Desert Conservation Program.
- Construction monitoring will employ a designated field contact representative, authorized biologist(s), and qualified biologist(s) approved by the USFWS, NDOW, and CDFG during the construction phase of the project. BLM will recommend qualified, authorized biologists to the USFWS and will approve all biological monitors.

- Qualified and/or authorized biologists will monitor all construction activities year-round in desert tortoise habitat, regardless of the time of year or weather conditions, as tortoises are often active outside their "active" season.
- ~~Authorized~~ Qualified and/or authorized biologists will conduct preconstruction surveys according to the most current USFWS protocol.
- Authorized biologists will handle desert tortoises following the most current Desert Tortoise Council handling guidelines (~~1999~~ 2009 or newer).
- Prior to commencing desert tortoise relocation activities, authorization will be obtained from NDOW, CDFG, and USFWS. The authorized biologist will not be required to receive approval to move individual desert tortoises during construction.
- Desert tortoise relocations will only occur from an active construction zone to an area that is not under active construction by the EITP project or any other planned project.
- Biological monitors will clear ahead of construction crews in desert tortoise habitat during all clearing and grading activities, or during any activity where undisturbed vegetation would be crushed. In addition, biological monitors will clear ahead of larger, non-rubber-tired equipment when that equipment is being driven on access and spur roads.
- Biological monitors will clear all active work sites located in desert tortoise habitat each morning before construction begins and throughout the day if crews move from ~~tower~~ construction site to construction site.
- Results of biological monitoring and status of construction will be detailed in daily reports by biological monitors. These reports will be submitted to the authorized biologist on a daily basis and to the CFR on a weekly basis (at minimum). The authorized biologist will notify the CFR within 24 hours of any action that involves harm to a desert tortoise, or involves a blatant disregard by construction personnel for the APMs or MMs designed to minimize impacts on desert tortoise or other wildlife. The authorized biologist will submit to the USFWS, NDOW, CDFG, and CPUC a summary of all desert tortoises seen, injured, killed, excavated, and handled at the end of the project or within 2 working days of when desert tortoises are harmed.
- ~~For California portions of the project, in addition to adhering to the most current Desert Tortoise Council handling guidelines, the following guidelines will be adhered to:~~
- No desert tortoise shall be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when the ambient air temperature is above 95 degrees Fahrenheit (35 degrees Celsius). No desert tortoise shall be captured if the ambient air temperature is anticipated to exceed 95 degrees Fahrenheit before handling or processing can be completed. If the ambient air temperature exceeds 95 degrees Fahrenheit during handling or processing, desert tortoises shall be kept shaded in an environment which does not exceed 95 degrees Fahrenheit, and the animals shall not be released until ambient air temperature declines to below 95 degrees Fahrenheit. For ~~translocation~~ relocation, captured tortoises may be held overnight and moved the following morning within these temperature constraints.
- During all handling procedures, desert tortoises must be treated in a manner to ensure that they do not overheat, exhibit signs of overheating (e.g., gaping, foaming at the mouth, hyperactivity, etc.), or are placed in a situation where they cannot maintain surface and core temperatures necessary to their well-being. Desert tortoises must be kept shaded at all times until it is safe to release them. Ambient air temperature must be measured in the shade, protected from wind, and at a height of 2 inches above the ground surface.
- If a desert tortoise voids its bladder as a result of being handled, the animal shall be rehydrated. The process of rehydrating a desert tortoise will take place at the location where the animal was captured (or to be released, for translocated tortoises), and consist of placing the desert tortoise in a tub with a clean plastic disposable liner. The amount of water that is placed in the lined tub shall not be higher than the lower jaw of the animal. Each desert tortoise shall be rehydrated for a minimum of 10 to 20 minutes. During the period

when the desert tortoise is in the tub, the tub will be placed in a quiet protected area. Desert tortoises shall be soaked individually.

- If a desert tortoise is injured as a result of project-related activities, it shall be immediately taken to a CDFG-approved wildlife rehabilitation or veterinary facility. The applicant shall identify the facility prior to the start of ground- or vegetation-disturbing activities. The applicant shall bear any costs associated with the care or treatment of such injured covered species. The applicant shall notify CDFG of the injury immediately unless the incident occurs outside of normal business hours. In that event CDFG shall be notified no later than noon on the next business day. Notification to CDFG shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location, and circumstances of the incident, and the name of the facility where the animal was taken.

- The applicant will produce a Raven Management Plan that is acceptable to the BLM and the CPUC. Details in the plan will include information on procedures, frequency, and recommended season for conducting raven nest surveys, procedures and responsibilities for raven nest removal, USFWS/NDOW/CDFG authorization and/or permitting requirements for conducting raven control, and compensation measures for raven reduction programs in California and Nevada. The plan will be submitted to the BLM and the CPUC at least 60 days prior to construction for review and approval.

MM BIO-13: Desert Bighorn Sheep Impacts Reduction Measures. To reduce impacts on desert bighorn sheep, the following will be done:

- Conduct preconstruction survey for desert bighorn sheep within suitable bighorn sheep habitat within 1 week prior to construction activities in the McCullough ~~Mountains~~ Range, Clark Mountain Range, and the southern portion of the Eldorado Valley between the Highland Range and the Southern McCullough ~~Mountains~~ Range. The occurrence and location of any desert bighorn sheep will be reported to NDOW for sightings in Nevada and reported to CDFG for sightings in California.

- Conduct biological monitoring by a qualified biologist for desert bighorn sheep during duration of construction within suitable bighorn sheep habitat. The occurrence and location of any desert bighorn sheep will be reported to NDOW for sightings in Nevada and reported to CDFG for sightings in California. If bighorn are found to be within 500 feet of construction activities, construction in that area will be stopped until the sheep vacate the project area.

- Avoid all construction activities (with the exception of vehicle use of access roads during emergencies) in lambing areas from January to May in the North McCullough Pass area (approximately MP 9 to MP 12) during the duration of construction and all maintenance events.

MM BIO-14: American Badger Impacts Reduction Measures. To reduce impacts to American badger, the following will be done:

- Qualified biologists will be notified if badgers are observed within the project area during construction activities. Work will immediately be stopped in the area if the biologists find occupied burrows within 100 feet of construction activities during preconstruction surveys.

- Qualified biologists will ensure passive relocation of the occupied burrow by installing one-way trap doors on the burrow. The burrow will be collapsed after the badger vacates.

- During the spring months when young may be present in burrows, burrows must be checked for young before the installation of the one-way trap door. If young are present during relocation efforts, all work will stop within 100 ft of the burrow until the young have left the burrows within the project area.

- Work will be allowed to resume once the ~~burrow~~ badger has relocated outside the 100-foot zone.

MM BIO-15: Migratory Birds and Raptors Impacts Reduction Measures. To reduce impacts on migratory birds and raptors, the following will be done:

- Biological monitors will monitor and enforce disturbance buffers around all active bird nests (for raptors and species protected by the MBTA) found in project areas during construction. The general bird breeding season for this area is late February to early July. For raptors specifically, the applicant will use the USFWS Utah Field Office Guidelines for Raptor Protection from Human and Land Use Disturbances (1999) to determine appropriate survey areas and disturbance buffers for active nests, except for burrowing owl nests, for which the applicant will be in compliance with the minimum distances outlined by the California Burrowing Owl Consortium Protocol. For all non-raptor bird species, biologists will survey within project areas. Because there are no standardized disturbance buffers for active non-raptor bird nests, SCE will consult with the appropriate agencies (BLM, USFWS, CDFG, and NDOW) on a case-by-case basis when active nests are found in project areas, unless directed to do otherwise by these same agencies.
- Active bird nests will not be moved during breeding season, unless the project is expressly permitted to do so by the USFWS, BLM, CDFG, or NDOW depending on the location of the nest.
- All active nests and disturbance or harm to active nests will be reported within 24 hours to the USFWS, BLM, CDFG, and NDOW upon detection.
- The biological monitor will halt work if it is determined that active nests would be disturbed by construction activities, until further direction or approval to work is obtained from the appropriate agencies.
- Seasonal work stoppages may be required by NDOW for project areas that pass the Wee Thump Joshua Tree Wilderness if construction activities occur within the breeding season. The applicant will consult with NDOW prior to construction.
- As outlined by the *Suggested Practices for Avian Protection on Power Lines* (APLIC 2006), the following avian safe practices will be employed during construction: cover phase conductors with manufactured covers, include perch discouragers on crossarms and on top of poles, exceed the minimal distance between phase conductors to prevent electrocution by perched birds and their wingspan, utilize longer horizontal insulators, suspend phase conductors on pole top and cross arms, install horizontal jumper support to increase the phase-to-ground separation, replace tension members with fiberglass or non-conducting materials, cover tension members with dielectric material, utilize fiberglass poles or switches, and install standard nest discouragers.

MM BIO-16: Burrowing Owl Impacts Reduction Measures. To reduce impacts on burrowing owl, the following will be done:

- A qualified biologist will conduct preconstruction surveys within 30 days prior to construction for burrowing owl within suitable habitat prior to breeding season (February 1 through August 31). All areas within 50 m (approximately 150 feet) of the project area will be surveyed.
- If an active nest is identified, there will be no construction activities within 50 m (approximately 150 feet) of the nest location to prevent disturbance until the chicks have fledged, as determined by a qualified biologist.
- The occurrence and location of any burrowing owl will be documented by biological monitors in daily reports and submitted to the authorized biologist on a daily basis. The authorized biologist will report all incidents of disturbance or harm to burrowing owls within 24 hours to the appropriate resource agencies (USFWS, BLM, NDOW, CDFG).

If burrowing owls are found on site in the California portion of the project, the following additional measures will be included:

1) As compensation for the direct loss of burrowing owl nesting and foraging habitat, the project proponent shall mitigate by acquiring and permanently protecting known burrowing owl nesting and foraging habitat at the following ratio:

(a) Replacement of occupied habitat with suitable habitat at 1.5 x 6.5 acres per pair or single bird;

(b) Replacement of occupied habitat with habitat contiguous with occupied habitat at 2 x 6.5 acres per pair or single bird; and/or

(c) Replacement of occupied habitat with suitable unoccupied habitat at 3 x 6.5 acres per pair or single bird.

2) A Burrowing Owl Mitigation and Monitoring Plan shall be submitted to CDFG for review and approval prior to relocation of owls. The Burrowing Owl Mitigation and Monitoring Plan shall describe proposed relocation and monitoring plans. The plan shall include the number and location of occupied burrow sites and details on adjacent or nearby suitable habitat available to owls for relocation. If no suitable habitat is available nearby for relocation, details regarding the creation of artificial burrows (numbers, location, and type of burrows) shall also be included in the plan. The plan shall also describe proposed off site areas to preserve to compensate for impacts to burrowing owls/occupied burrows at the project site as required under Condition 1. A copy of the approved plan will be provided to the CPUC.

MM BIO-17: Gila Monster Compliance. The most current NDOW construction site protocols for the Gila monster (NDOW 2007) will be followed by the applicant in both Nevada and California portions of the project. To reduce impacts on Gila monster, all locations of Gila monster found within the project area during surveys and construction work will be reported to NDOW and the CDFG.

MM BIO-18: Avian Protection Plan. To reduce impacts on golden eagles and raptors, the applicant shall submit an Avian Protection Plan for approval to the BLM within 6 months of the issuance of any ROW grant for the project. The Plan shall be prepared according to guidance provided by the USFWS (USFWS 2010).The Avian Protection Plan must be implemented within one year from the date of any ROW grant Notice to Proceed.

3.4.5 Whole of the Action / Cumulative Action

~~Below is a brief summary of information related to biological resources in the ISEGS FSA/DEIS prepared by the CEC and the BLM. This section focuses on differences in the ISEGS setting and methodology compared with the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the CEC for ISEGS.~~

Below is a brief summary of information related to biological resources in the BLM's ISEGS Final Environmental Impact Statement (FEIS) and the California Energy Commission's (CEC's) Final Staff Assessment (FSA), Addendum, and Final Decision. This section focuses on differences in the ISEGS setting and methodology compared with the setting and methodology discussed above for the EITP. This section also discloses any additional impacts or mitigation imposed by the BLM and CEC for ISEGS.

3.4.5.1 ISEGS Setting

Overall

The setting of the ISEGS is very similar to the Ivanpah Substation area as described in Section 3.4.1, "Environmental Setting." The ISEGS project is located wholly in California on undisturbed, natural land. This area is surrounded by both undisturbed and developed land, including the Primm Valley Golf Course, I-15, ~~an~~ existing transmission lines, and unpaved roads.

Drainages and Waters of the State

~~Although an~~An assessment of ephemeral and intermittent drainages and Waters of the State (including jurisdictional determination by federal and state agencies) ~~has not been completed~~ was conducted for the EITP~~, the~~ in spring 2010. The general characteristics of the drainages within the EITP area are similar in form and function to those in the ISEGS area. The ISEGS project is sited on a broad bajada that extends from the base of the Clark Mountain~~s~~ Range

to the western edge of Ivanpah Dry Lake. Approximately 2,000 ephemeral washes, which form part of the regional bajada, occur throughout the project area. Within the ISEGS area, the drainages range from small (1 to 4 feet wide) to large (greater than 85 feet). A total of 291 miles of channels cover 198.72 acres. Most of the drainages are small. Based on initial delineations, no wetlands or riparian areas are within the ISEGS project area. The USACE determined that the ISEGS would not discharge dredged or fill material into a Water of the United States or an adjacent wetland, and therefore would not be subject to jurisdiction under Section 404 of the Clean Water Act. However, all of the ephemeral and intermittent drainages are considered Waters of the State of California.

Wildlife

ISEGS supports a wildlife community (reptiles, mammals, and birds) similar to that of the EITP, as well as special-status wildlife species. Table 3.4-9 lists the special-status wildlife species that are known to occur or have the potential to occur within the ISEGS project area. All of the species in Table 3.4-9 were determined to occur or had the potential to occur within the EITP in California (Table 3.4-5) with the exception of the following species: Vaux's swift, gray-headed junco, hepatic tanager, summer tanager, Brewer's sparrow, Bendire's thrasher, Virginia's warbler, and gray vireo.

Vegetation

Compared with the entire EITP project, the ISEGS project is characterized by fewer habitat types because it covers less area and less topography changes. However, because the EITP (for example, the Ivanpah Substation in California) is in the same general geographical location as ISEGS, habitat types are similar for the two projects. Within the ISEGS project area, the dominant habitat is Mojave creosote brush scrub, with small amounts of Mojave yucca-Nevada ephedra scrub and Mojave wash. Overall, the plant community is characterized by a high density and diversity of native succulents and low levels of noxious weeds. The eight species of invasive/noxious weeds that were detected within the ISEGS project area were all found within the EITP area as well. Table 3.4-9 lists the special-status plant species that are known to occur or have the potential to occur within the ISEGS project area. Species in bold in Table 3.4-9 are those that were observed within the ISEGS project area. Out of the 12 special-status plant species that were observed within the ISEGS project area, Clark Mountain agave (*Agave utahensis* var. *nevadensis)*, Utah mortonia (*Mortonia utahensis)*, cave evening-primrose (*Oenothera cavernae)*, and desert portulaca (*Portulaca halimoides*) were not observed during EITP surveys or were determined to be unlikely to occur within the EITP area in California (Table 3.4-5).

Table 3.4-9 Special-Status Species Known or Potentially Occurring in the ISEGS Project Area and Vicinity

Common Name	Scientific Name	Status Fed/State/BLM/CNPS
PLANTS		
Mormon needle grass	*Achnatherum aridum*	__/__/__/2.3
Clark Mountain agave*	*Agave utahensis* var. *nevadensis*	__/__/__/4.2
Desert ageratina	*Ageratina herbacea*	__/__/__/2.3
Coyote gilia	*Aliciella triodon*	__/__/__/2.2
Small-flowered androstephium	*Androstephium breviflorum*	__/__/__/2.23
White bear poppy	*Arctomecon merriamii*	__/__/__/2.2
Mojave milkweed	*Asclepias nyctaginifolia*	__/__/__/2.1
Cima milk-vetch	*Astragalus cimae* var. *cimae*	__/__/__/1B.2
Providence Mountain milk-vetch	*Astragalus nutans*	__/__/__/4.2
Scaly cloak fern	*Astrolepis cochisensis* ssp. *cochisensis*	__/__/__/2.3
Black grama	*Bouteloua eriopoda*	__/__/__/4.2
Red grama	*Bouteloua trifida*	__/__/__/2.3
Alkali mariposa lily	*Calochortus striatus*	__/__/__/1 B.2

Table 3.4-9 Special-Status Species Known or Potentially Occurring in the ISEGS Project Area and Vicinity

Common Name	Scientific Name	Status Fed/State/BLM/CNPS
Purple bird's-beak	*Cordylanthus parviflorus*	__/__/__/2.3
Desert pincushion	*Coryphantha chlorantha*	__/__/__/2.1
Viviparous foxtail cactus*	*Coryphantha vivipara* var. *rosea*	__/__/__/2.2
Winged cryptantha	*Cryptantha holoptera*	__/__/__/4.3
Gilman's cymopterus	*Cymopterus gilmanii*	__/__/__/2.3
Utah vine milkweed	*Cynanchum utahense*	__/__/__/4.2
Naked-stemmed daisy	*Enceliopsis nudicaulis* var. *nudicaulis*	__/__/__/4.3
Nine-awned pappus grass	*Enneapogon desvauxii*	__/__/__/2.2
Limestone daisy	*Erigeron uncialis* var. *uncialis*	__/__/__/1B.2
Forked buckwheat	*Eriogonum bifurcatum*	__/__/__/1B.2
Hairy erioneuron	*Erioneuron piosum*	__/__/__/2.3
Clark Mountain spurge	*Euphorbia exstipulata* var. *exstipulata*	__/__/__/2.1
Wright's bedstraw	*Galium wrightii*	__/__/__/2.3
Pungent glossopetalon	*Glossopetalon pungens*	__/__/__/1B.2
Parish club-cholla	*Grusonia parishii*	__/__/__/2.2
Hairy-podded fine-leaf hymenopappus	*Hymenopappus filifolius* var. *eriopodus*	__/__/__/2.3
Jaeger's ivesia	*Ivesia jaegeri*	__/__/__/1B.3
Knotted rush	*Juncus nodosus*	__/__/__/2.3
Hillside wheat grass	*Leymus salinus* ssp. *mojavensis*	__/__/__/2.3
Plains flax	*Linum puberulum*	__/__/__/2.3
Spearleaf	*Matelea parvifolia*	__/__/__/2.3
Rough menodora	*Menodora scabra*	__/__/__/2.3
Polished blazing star	*Mentzelia polita*	__/__/__/1B.2
Utah mortonia*	*Mortonia utahensis*	__/__/__/4.3
Tough muhly	*Muhlenbergia arsenei*	__/__/__/2.3
Crowned muilla	*Muilla coronata*	__/__/__/4.2
False buffalo-grass	*Munroa squarrosa*	__/__/__/2.2
Cave evening primrose*	*Oenothera cavernae*	__/__/__/2.1
Short-joint beavertail	*Opuntia basilaris* var. *brachyclada*	__/__/__/1B.2
Curved-spine beavertail	*Opuntia curvispina*	__/__/__/2.2
Spiny cliff-brake	*Pellaea truncata*	__/__/__/2.3
White-margined beardtongue	*Penstemon albomarginatus*	__/__/__/1B.2
Rosy two-toned beardtongue	*Penstemon bicolor* ssp. *roseus*	__/__/__/2.3
Limestone beardtongue	*Penstemon calcareous*	__/__/__/1B.3
Death Valley beardtongue	*Penstemon fruticiformis* var. *amargosae*	__/__/__/1B.3
Stephen's beardtongue	*Penstemon stephensii*	__/__/__/1B.3
Thompson's beardtongue	*Penstemon thompsoniae*	__/__/__/2.3
Utah beardtongue	*Penstemon utahensis*	__/__/__/2.3
Aven Nelson's phacelia	*Phacelia anelsonii*	__/__/__/2.3
Barneby's phacelia	*Phacelia barnebyana*	__/__/__/2.3
Sky-blue phacelia	*Phacelia coerulea*	__/__/__/2.3
Parish's phacelia	*Phacelia parishii*	__/__/__/1B.1
Jaeger's phacelia	*Phacelia perityloides* var. *jaegeri*	__/__/__/1B.3
Chambers' physaria	*Physaria chambersii*	__/__/__/2.3
Small-flowered rice grass	*Piptatherum micranthum*	__/__/__/2.3

Table 3.4-9 Special-Status Species Known or Potentially Occurring in the ISEGS Project Area and Vicinity

Common Name	Scientific Name	Status Fed/State/BLM/CNPS
Desert portulaca	*Portulaca halimoides*	__/__/__/4.3
Abert's sanvitalia	*Sanvitalia abertii*	__/__/__/2.2
Many-flowered schkuhria	*Schkuhria multiflora* var. *multiflora*	__/__/__/2.3
Johnson's bee-hive cactus	*Sclerocactus johnsonii*	__/__/__/2.2
Mojave spike-moss	*Selaginella leucobryoides*	__/__/__/4.3
Rusby's desert-mallow	*Sphaeralcea rusbyi* var. *eremicola*	__/__/S/1B.2
WILDLIFE		
Reptiles		
Desert tortoise	*Gopherus agassizii*	FT/ST/__
Banded gila monster	*Heloderma suspectum cinctum*	SC/__/S
Birds		
Burrowing owl	*Athene cunicularia*	FSC/CSC/__
Golden eagle	*Aquila chrysaetos*	FSC/ CSC, FP /S
Vaux's swift	*Chaetura vauxi*	FSC/__/__
Gray-headed junco	*Junco hyemalis caniceps*	FSC/WL/__
Loggerhead shrike	*Lanius ludovicianus*	FSC/CSC/__
Hepatic tanager	*Piranga flava*	FSC/WL/__
Summer tanager	*Piranga rubra*	__/CSC/__
Brewer's sparrow	*Spizella breweri*	BCC/__/__
Bendire's thrasher	*Toxostoma bendirei*	BCC/CSC/S
Crissal thrasher	*Toxostoma crissale*	BCC/CSC/__
Le Conte's thrasher	*Toxostoma lecontei*	BSS/WL/__
Virginia's warbler	*Vermivora virginiae*	BCC/WL/__
Gray vireo	*Vireo vicinior*	BCC/CSC/S
Mammals		
Townsend's big-eared bat	*Corynorhinus townsendii*	__/CSC/S
Pallid bat	*Antrozous pallidus*	__/CSC/S
Long-legged myotis	*Myotis volans*	__/__/S
Nelson's bighorn sheep	*Ovis canadensis nelsoni*	__/—FPS/S
American badger	*Taxidea taxus*	__/CSC/__

Sources: CNDDB 2009 (Ivanpah Dry Lake, State Line Pass, Mesquite Lake, Clark Mountain, Mescal Range, Mineral Hill, Nipton, and Desert USGS quads)
Plants: CNPS 2009, CDFG 2009
Animals: CDFG Special Animals List

Notes:
Bold-face-type denotes species that were observed on or near the proposed project site, or plants observed within a 1-mile buffer of the ISEGS site during the 2007/08 field surveys.
*Found in buffer area surveys only.

Key:
CNPS = California Native Plant Society

Status Codes
BCC = Birds of Conservation Concern (Fish and Wildlife Service); identifies migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that are highest conservation priorities (www.fws.gov/migratorybirds/reports/BCC2002.pdf)
BLM = Bureau of Land Management Sensitive; BLM Manual Section 6840 defines sensitive species as "... those species that are (1) under status review by the FWS/NMFS; or (2) whose numbers are declining so rapidly that Federal listing may become necessary, or (3) with typically small and widely dispersed populations; or (4) those inhabiting ecological refugia or other specialized or unique habitats." <www.blm.gov/ca/pdfs/pa_pdfs/biology_pdfs/SensitiveAnimals.pdf>
FPS = State of California Fully Protected Species
CSC = California Species of Special Concern; species of concern to CDFG because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction

Table 3.4-9 Special-Status Species Known or Potentially Occurring in the ISEGS Project Area and Vicinity

Common Name	Scientific Name	Status Fed/State/BLM/CNPS

FE = Federally listed endangered; species in danger of extinction throughout a significant portion of its range
FT = Federally listed, threatened; species likely to become endangered within the foreseeable future

State
SE = State listed as endangered
ST = State listed as threatened
WL = State watch list

California Native Plant Society
1B = Rare, threatened, or endangered in California and elsewhere
2 = Rare, threatened, or endangered in California but more common elsewhere
3 = Plants for which more information is needed
4 = Limited distribution – a watch list
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)

Applicable Laws, Regulations, and Standards

Due to the similarity of the desert biological resources that would be impacted by the EITP and ISEGS project and the geographical location of both projects, the same laws, regulations, and standards would apply to ISEGS as those listed in the appropriate subsections of Section 3.4.2 for EITP. Since ISEGS would be developed entirely within California on BLM land, the Nevada regulations associated with the EITP would not apply to ISEGS.

3.4.5.2 ISEGS Methodology

CEC's FSA Methodology

In the ISEGS FSA/DEIS, ~~BLM~~ FSA Addendum, and the Final Decision, CEC staff reported on existing conditions and assessed impacts to ~~soil and water~~ biological resources. They evaluated the potential for the project to cause direct and indirect impacts to biological resources and considered compliance with the laws, ordinances, regulations, and standards associated with the project components and location. They also considered whether there would be a significant impact under CEQA using the following impact criteria:

- Would the project impact special-status species, such as state- or federally listed species, state fully protected species, candidates for state or federal listing, and/or species of special concern?
- Would the project interrupt species migration; result in reduction of native fish, wildlife, and plant habitat; or cause a fish or wildlife population to drop below self-sustaining levels?
- Would the project disturb wetlands, marshes, riparian areas, or other wildlife habitat?
- Would the project harass a protected species, even if it did not result in the loss of habitat or reduction in population numbers?

BLM's FEIS Methodology

Under NEPA, the BLM's FEIS assessed the significance of ISEGS's impact on biological resources against NEPA-implementing regulations at 40 CFR 1508.27 (see Section 3.12.3.1). Specifically, the BLM's FEIS evaluated whether the ISEGS project would result in impacts related to the following (BLM 2010):

- Impact analyses typically characterize effects to plant communities as temporary or permanent, with a permanent impact referring to areas that are paved or otherwise precluded from restoration to a pre-project

state. In the Mojave Desert ecosystem the definition of permanent impacts needs to reflect the slow recovery rates of its plant communities. Natural recovery rates from disturbance in these systems depend on the nature and severity of the impact. For example, severe damage involving vegetation removal and soil disturbance can take from 50 to 300 years; complete ecosystem recovery may require over 3,000 years. In this analysis, an impact is considered temporary only if there is evidence to indicate that pre-disturbance levels of biomass, cover, density, community structure, and soil characteristics could be achieved within five years. Acreages provided below for impacts are considered permanent unless noted otherwise.

3.4.5.3 ISEGS Impacts

The CEC and BLM ~~and CEC~~ staff determined that construction, operation, and decommissioning of the ISEGS project could impact biological resources, particularly on special-status plant species. Where impacts were identified, ~~they~~ the CEC and BLM staff proposed mitigation measures to reduce impacts to less than significant levels.

The CEC and BLM have published the impacts discussed below related ~~to the~~ biological resources ~~for the ISEGS project. Section 3.4.5.4 contains the CEC- and BLM-proposed mitigation measures~~ for the ISEGS project.

~~**Construction Impacts**~~

CEC's FSA/DEIS / FSA Addendum / Final Decision Impact Conclusions

CEC staff determined that construction, operation, and decommissioning of the ISEGS project could impact biological resources. Where impacts were identified, they proposed Conditions of Certification/ mitigation measures to reduce impacts to less than significant levels.

The CEC has published the following impacts in the FSA/DEIS, FSA Addendum, and the Final Decision related to the biological resources for the ISEGS project. Section 3.4.5.4 contains the CEC- proposed Conditions of Certification mitigation measures for the ISEGS project.

The constructed ISEGS project would permanently impact ~~3,712.7 acres~~ 3,297 acres and temporarily impact ~~321.0 acres~~ 241.6 acres.

The construction of the ISEGS project would change the structure and species composition of the native vegetation community due to clearing and mowing the vegetation. Construction activities would result in conditions that would favor more disturbance-tolerant species and the site would be more vulnerable to invasive/noxious weed species. ~~BLM and~~ CEC staff determined that the direct and indirect impacts to the native vegetation community from construction would be significant.

Construction would directly impact eight special-status plant species, and the impact to ~~five~~ six of these species (small-flowered androstephium, Mojave milkweed, desert pincushion, nine-awed pappus grass, Parish's club cholla, and Rusby's desert-mallow) would be significant. The impact to the remaining ~~three~~ two special-status species (~~small-flowered androstephium,~~ Utah vine milkweed~~,~~ and desert portulaca) would be less than significant. To avoid impacts to special-status plant species, ~~BLM and~~ CEC staff concluded in the ISEGS FSA/DEIS that the ~~ISEGS~~ project's layout should be reconfigured to avoid areas that support the highest density and diversity of these plant species. The applicant filed its Biological Mitigation Proposal ("Mitigated Ivanpah 3") on February 11, 2010, which designates three areas that would be removed from the project footprint. The Biological Mitigation Proposal reduces the total project area by 476 acres with much of the acreage containing individuals of the special-status plant species of concern (Mojave milkweed, desert pincushion, nine-awed pappus grass, Parish's club cholla, and Rusby's desert-mallow). Considering the level of complete avoidance and on-site minimization that would be accomplished for special-status plants as proposed in the Mitigated Ivanpah 3 Alternative, CEC staff has concluded that implementation of staff's proposed Condition of Certification BIO-18 is needed to complement the applicant's proposal and reduce impacts to special-status plant species to less-than-significant levels if the protection goals and other mitigation measures

described above are to be achieved. The Final Decision refers to this staff recommendation; however, it is uncertain whether potentially significant impacts to two of the special-status plant species located on the project site but not in one of the protected areas will be mitigated to insignificant levels. Therefore, the CEC may find the project may have a significant impact on Mojave milkweed and desert pincushion due to the loss of a portion of their habitat.

Construction traffic would result in increased wind-caused erosion of the soil, which could result in degradation and loss of plants by burial and abrasion and interruption of the natural processes of nutrient accumulation, and could allow the loss of soil resources.

Vegetation clearing and grading associated with ISEGS construction would directly affect wildlife by removal and crushing of shrubs and herbaceous vegetation, resulting in loss and fragmentation of cover, breeding, and foraging habitat for wildlife.

Construction would eliminate nesting habitat as well as directly impact nests, eggs, and young of migratory/special-status birds. With implementation of the Conditions of Certification (BIO-11, BIO-15, BIO-16, BIO-17), the impacts to migratory and sensitive species birds would be less than significant.

Construction would result in the loss of American badger foraging and denning habitat and would fragment and reduce the quality of the foraging and denning habitat adjacent to the ISEGS project. ~~BLM and~~ CEC staff concluded that this loss of foraging and denning habitat would be a substantial contributor to the cumulative loss of the Ivanpah Valley's American badger population. Construction could also crush or entomb individuals, resulting in their injury or death. The ISEGS FSA/DEIS concluded that through implementation of Condition of Certification BIO-17, the impact to the American badger would be reduced to less than significant.

The construction of the ISEGS project would reduce the availability of seasonal foraging habitat and impact the movement corridors of Nelson's bighorn sheep. Through implementation of BMPs and creation of a water source (Condition of Certification BIO-19) in the eastern Clark Mountains or in the State Line Hills, the ISEGS FSA/DEIS concluded that impact to Nelson's bighorn sheep would be less than significant.

Construction could result in the loss of habitat and the direct mortality of the banded Gila monster. Though no banded Gila monsters were observed during the biological surveys, suitable habitat is present within the ISEGS project area, and therefore Gila monsters were assumed to be present. Condition of Certification BIO-11 requires that concurrent with the desert tortoise clearance survey, a biologist perform a preconstruction survey for Gila monsters in the project area, and implement appropriate impact avoidance and minimization measures if detected. The ISEGS FSA/DEIS concluded that with the implementation of BMPs and the compensatory mitigation ~~for desert tortoise~~ stated in BIO-17 and BIO-19, the impact to banded Gila monster would be less than significant.

Construction would result in the loss of approximately ~~4,073 acres~~ 3,582+ acres of desert tortoise habitat and the applicant would therefore be required to translocate at least 25 desert tortoise individuals. The translocation process would result in reduced survivorship for the translocated individuals. The construction of the ISEGS would create fragmentation and loss of connectivity within the surrounding desert tortoise habitat due to the fencing surrounding the perimeter of the project area. The increased road traffic due to construction would also increase the road kill hazard to desert tortoise. Construction would also increase raven and coyote presence and would increase desert tortoise predation levels. The ISEGS FSA/DEIS concluded that even with implementation of the recommended mitigation measures, impacts to desert tortoise would be significant.

Construction would impact ~~198 acres~~ 175 acres of ephemeral drainages within the ISEGS project area. Minimizing impacts to the drainages during construction activities and providing offsite in-kind compensation (the applicant would acquire and enhance property that contained ~~198 acres~~ 175 acres of ephemeral drainages similar to the ISEGS project) would make impacts to the ISEGS project area's ephemeral drainages less than significant, according to the ISEGS FSA/DEIS conclusions.

Noise from construction activities could temporarily impact wildlife immediately adjacent to the ISEGS project by reducing the foraging and nesting behavior. However, the increased noise would be short in duration and proper mitigation would be implemented to further reduce any detrimental impact to the adjacent wildlife. The ISEGS FSA/DEIS concluded that the increased noise levels at the perimeter of the ISEGS project would not substantially impact wildlife resources.

Operational Impacts

Operational impacts from implementation of ISEGS were determined to be similar to those outlined above under "Construction." In summary, impacts would occur on vegetation and special-status plants from increased dust generation and the potential spread of noxious weeds, and on desert tortoise and other special-status wildlife species from increased road traffic, noise and disturbance, and general degradation of habitat. The operation of ISEGS would result in increased noise levels during the daytime operational hours. The increased noise levels would be much lower than the noise resulting from construction activities, and the applicant would implement noise-reducing measures as outlined in the Application for Certification. The ISEGS FSA/DEIS concluded any increase in noise levels due to operational activities would not substantially impact wildlife resources.

Potential impacts to wildlife resources that are unique to the operation of ISEGS would include impacts to birds due to collision with new structures, risk of burns to birds that flew into the reflected sunlight between the heliostats and the power towers, and effects of continuous human disturbance and lighting alteration. The ISEGS FSA/DEIS concluded that implementation of mitigation measures would reduce these listed impacts and therefore the ISEGS project would not substantially impact wildlife resources.

BLM's FEIS Impact Conclusions

Similar to the CEC conclusions, the BLM determined that construction, operation, and decommissioning of the ISEGS project could impact biological resources. Where impacts were identified, identified mitigation measures would be implemented during all appropriate phases of the project. The Mitigated Ivanpah 3 alternative was developed to reduce the overall surface footprint of the project, specifically in an area of high quality native habitat characterized by numerous ephemeral washes. This area contains special status species, including desert tortoise. Further, the reduction in surface disturbance along the northern portion of the ISEGS project would reduce the encroachment on potential movement corridors by big game, particularly bighorn sheep.

Construction Impacts

Potential impacts to sensitive plant species from surface disturbance-related activities may include the loss of individuals as a result of crushing from construction vehicles and equipment. Because surface disturbance would be distributed over a relatively large geographic area and within an ecological-specific niche, population-level impacts to sensitive plant species may occur. Impacts may include the long-term loss of potentially suitable habitat until closure/decommissioning and native vegetation has been reestablished. Prior to construction, specified plants species within any project-related surface disturbance areas would be salvaged and relocated to either the 7-acre Rare Plant Transplantation Area or the 59-acre Succulent Nursery Area. Pending further consultation and BLM and Energy Commission review and concurrence, additional construction-related mitigation may be required. To the maximum extent practical, plant species of concern located within the heliostat fields would be avoided and protected during construction through the use of fencing to avoid inadvertent encroachment. Monitoring of these extant plant species of concern within the heliostat fields would be conducted.

Indirect impacts may include the introduction or spread of noxious weeds and invasive plant species. Noxious weed control through use of biological, mechanical, chemical, or various alternative methods may also indirectly impact species individuals and may alter potentially suitable habitat through changes in vegetation community cover and composition.

In terms of special status plant species, construction activities would have limited impacts to Rusby's desert mallow. Dust from construction activities may stress plants within the construction area. Plant avoidance and protection areas within the heliostat fields would be fenced during construction to avoid inadvertent encroachment. Dust from construction activities may stress plants within the construction area. Fencing would be removed following construction and an alternative marking material (e.g., posts or stakes) would be installed for operations to indicate the areas where avoided plants are located. This mitigation measure attempts to preserve ecological connectivity between the 433-acre northern portion of Ivanpah Unit 3, the smaller Rusby's desert mallow avoidance and protection areas, and other areas of undisturbed contiguous habitat, allowing seed dispersal, pollinator movement, and other ecological processes to occur. Rusby's desert mallow plant avoidance and protection areas within the heliostat fields would be monitored to ensure the areas remain protected.

Many impacts to wildlife resources would be incrementally reduced by the amount of habitat eliminated from disturbance in the Mitigated Ivanpah 3 alternative. If banded Gila monsters are present they may be harmed during clearing, grading and trenching activities or may become entrapped within open trenches and pipes. Construction activities could also result in direct mortality, injury, or harassment of individuals as a result of encounters with vehicles or heavy equipment. Mitigation Measure BIO-11 requires that concurrent with the desert tortoise clearance survey, a biologist perform a preconstruction survey for Gila monsters in the project area, and implement appropriate impact avoidance and minimization measures if detected. Construction of the Mitigated Ivanpah 3 Alternative would disturb acreage that might provide cover, foraging, and breeding habitat for banded Gila monsters. Mitigation Measure BIO-17, the compensatory mitigation plan, could offset the loss of habitat for this species, minimizing potential impacts on the species.

The Mitigated Ivanpah 3 Alternative would have direct, adverse impacts to 3,640 acres of desert tortoise habitat, which would require state and federal endangered species "take" authorizations. The preservation of 433 acres of high quality habitat along the northern portion of the Ivanpah 3 site would maintain a larger expanse of undisturbed habitat and retain important ecological functions, including connectivity with other undisturbed desert tortoise habitat. In addition to the direct loss of tortoise habitat, the proposed project would also fragment and degrade adjacent habitat and could promote the spread of invasive plants and desert tortoise predators (ravens). The Mitigated Ivanpah 3 Alternative was selected and approved by the BLM and CEC; thus, the ROW terms and conditions and the Conditions for Certification identified for the proposed action would be enforced on the Mitigated Ivanpah 3 Alternative. BLM will also require the implementation of any USFWS mitigation identified in the Biological Opinion. As a result, residual impacts to desert tortoise may affect individuals but is unlikely to adversely affect the viability of desert tortoise populations.

Power plant construction would eliminate nesting habitat and result in direct and cumulative impacts to migratory birds, including a number of special status bird species confirmed to be present at the site (golden eagle, burrowing owl, loggerhead shrike, Crissal thrasher, and Brewer's sparrow) due to habitat loss or injury/fatality of individuals. Burrowing owl, loggerhead shrike, Crissal thrasher, and Brewer's sparrow were observed on the ISEGS site and suitable nesting and foraging habitat was identified. Loggerhead shrike, Crissal thrasher, and Brewer's sparrow are likely to be year-round residents in the area. Bendire's thrasher was not found during surveys but potential habitat exists on the site. If construction occurs during the breeding season, construction activities may result in the loss of active resident and migratory bird nests or young, a violation of the federal Migratory Bird Treaty Act and Fish and Game Code section 3503. The applicant has proposed mitigation measures to avoid and minimize impacts to nesting birds that have been incorporated into mitigation measures BIO-11, BIO-15, and BIO-16. Implementation of the applicant-proposed mitigation measures and Mitigation Measure BIO-22 for a MBTA Conservation Agreement would avoid direct impacts to nests, eggs, or young of migratory birds, and would minimize the impacts of construction disturbance to nesting birds.

The proposed project would account for the loss of up to 3,640 acres of golden eagles' available foraging habitat. This minimal amount of loss would not be considered large enough to affect the breeding success of eagles in the project vicinity. There is a potential risk to birds from collisions with mirrors and towers or from burns from flying into the

beam from heliostats to towers although information regarding these impacts is limited. Due to limited information, Mitigation Measure BIO-23 would require the conduct of surveys to collect data on bird and bat mortality. Should adverse impacts to these species be identified as a result of those surveys, additional mitigation could be developed to address those impacts.

Pallid and Townsend's big-eared bats have been reported within the project area. Because pallid bats roost in rock crevices and trees as well as caves and mine shafts, the species may experience some loss of roosting habitat. Townsend's big-eared bats primarily roost in caves and mines; therefore, construction activities would not impact roost sites for this species. Both species would experience loss of foraging habitat of up to 3,640 acres associated with the construction of the Mitigated Ivanpah 3 Alternative. Construction impacts to special-status bats would be comparable to construction impacts for other bat species.

Construction of the ISEGS project would disturb 3,630 acres of potential American badger habitat. Based on home range sizes, the project site could potentially support three or more individuals. Construction activities could kill or injure American badgers by crushing them with heavy equipment or could bury them within a den, particularly since badgers are nocturnal and undergo torpor in winter months. Construction activities could also result in disturbance or harassment of individuals. Mitigation Measure BIO-11 requires that concurrent with the desert tortoise clearance survey, a qualified biologist would perform a preconstruction survey for badger dens in the project area, including areas within 250 feet of all project facilities, utility corridors, and access roads. If badgers are detected within the fenced ISEGS project site during desert tortoise clearance surveys, the applicant shall develop and implement a trapping and relocation plan in consultation with the CEC staff and CDFG. Badgers are highly territorial, so displaced or relocated badgers could suffer some increased mortality rates due to displacement if surrounding areas or relocation sites are at carrying capacity.

Bighorn sheep primarily occupy mountainous terrain for habitat, using alluvial fans and washes as seasonal foraging habitat and mountain valleys as movement corridors between mountain ranges. Nelson's bighorn sheep are known to occur in the nearby Clark Mountain Range and could use the ISEGS project site as foraging habitat and possibly as a migratory corridor. However, sufficient project-specific information on use of the site by Nelson's bighorn sheep to identify specific areas that might provide foraging habitat or movement corridors was not provided. Mitigation Measure BIO-24 would prohibit the use of barbed wire fence on the northern perimeter of the Ivanpah 3 site, unless required for security reasons.

Operational Impacts

Direct and indirect impacts to plant communities and individual species from routine operational activities would be similar to those described for construction impacts. In addition, potential impacts to plant species from operational activities may include the loss of individuals as a result of shading caused by heliostat placement. Sensitive plant species may be directly impacted by trampling, partial, or full removal as a result of vegetation maintenance and indirectly impacted as a result of altering potentially suitable habitat through changes in vegetation community cover and composition. Maintenance activities would increase vehicular traffic and increase the potential for dispersal of noxious and invasive weeds.

Operational impacts related to wildlife resources would include increased noise, human presence, and light to the area. Sources of noise during operations would be from mechanical equipment, vehicle traffic, and activities in the maintenance facility.

If the banded Gila monster is present within the Mitigated Ivanpah 3 alternative project area, adverse impacts to individuals are probable. Mitigation Measure BIO-17, the compensatory mitigation plan, could offset the loss of habitat for this species.

Operational impacts to the desert tortoise would be comparable to those experienced by other reptiles within the project area as described above for wildlife resources. Implementation of the applicant-committed mitigation

measures, the BLM Mitigation Measures, and USFWS Mitigation Measures from the Biological Opinion would minimize impacts to desert tortoise in the Mitigated Ivanpah 3 Alternative area. Mitigation Measure BIO-17, the compensatory mitigation plan, could offset the loss of habitat for this species.

Long-term loss of nesting and foraging habitat for these special-status bird species would adversely affect local populations of these species within the Ivanpah Valley. However, impacts would be incrementally less than the proposed action due to the preservation of 433 acres of high quality habitat along the northern portion of the Ivanpah 3 site. Project facilities may cause injuries and mortalities due to collisions, heat-related effects, and disorientation. Mitigation Measure BIO-17, the compensatory mitigation plan, could offset the loss of habitat for these species.

Golden eagles do not nest within the project area and while operation of the project would affect 3,270 acres, this loss would not substantially affect the overall amount of foraging habitat in the area. Operational impacts to golden eagles would be monitored and addressed as outlined in Mitigation Measure BIO-28.

Operational impacts to special-status bat species would include loss of foraging and roosting habitat; collision with communications towers, transmission lines, and other elevated structures; risk of heat-related injuries attributable to the reflected and focus beams of solar radiation between the heliostats and the power towers; attraction to nighttime lighting; increased dust; increased noise and increased human activity that disrupts normal behavior; hazards within movement corridors, hampering normal movement between foraging habitat and water sources; and habitat fragmentation. Although habitats adjacent to the project may support some displaced animals, species that are at or near carrying capacity could suffer some increased mortality rates due to displacement.

The Mitigated Ivanpah 3 Alternative would permanently remove approximately 3,270 acres of foraging and denning habitat for American badgers and would fragment and reduce the value of foraging and denning habitat adjacent to the project site. This habitat loss and degradation could adversely affect American badger populations within the Ivanpah Valley. However, compared to the proposed project, the preservation of the 433 acres of high quality habitat along the northern portion of the Ivanpah 3 site would maintain ecological connections to other nearby undisturbed habitats. Mitigation Measure BIO-17, the compensatory mitigation plan, could offset the loss of habitat for this species.

One of the primary objectives of the Mitigated Ivanpah 3 Alternative was to increase the availability of seasonal forage for Nelson's bighorn sheep on the alluvial fan, though the project area represents a small fraction of the total available habitat. Furthermore, the Mitigated Ivanpah 3 Alternative would preserve 433 acres of high quality habitat along the northern portion of the Ivanpah 3 site. This modification would enlarge the available movement corridor for bighorn sheep and other big game between the Clark Mountain Range and the Stateline Hills. This modification would reduce direct and indirect impacts associated with human encroachment, such as increased stress from dust and human activity. Stress has been shown to increase frequency of disease in some populations. Loss of surface water sources also may diminish the viability of existing populations. The project is unlikely to affect seeps and springs located in the Clark Mountain Range and the bighorn sheep that use these water sources. Implementation of Mitigation Measure BIO-19 would create a new water source in the eastern part of the Clark Mountain Range or in the Stateline Hills outside of designated wilderness. This artificial water source would supplement existing supplies and likely shift foraging opportunities into other areas within the lower elevations of the mountains, away from areas of the bajada lost to ISEGS facilities and the zone of disturbance on the north. This water source would also serve to attract the bighorn during seasonal movements and keep them in the mountainous portion of the wildlife corridor.

Decommissioning Impacts

Upon decommissioning of the ISEGS generation plant, generation facilities and equipment would be removed from the site, and the site would be re-contoured and reclaimed to mirror the natural setting. Direct and indirect impacts to biological resources from closure/decommissioning activities would be similar to those described for construction impacts. Reestablishment of desert vegetative communities would take decades and may differ in composition than

the pre-disturbance vegetative community. Permanent changes in the vegetative communities would alter the ecosystem's ability to sustain the same type and numbers of species currently found at the site.

In addition, potential impacts to CNPS plant species from closure/decommissioning activities may include the loss of individuals during structure removal and subsequent revegetation. If biological, mechanical, chemical, or various alternative methods are used to control noxious weed species during closure, direct and indirect impacts may include partial or full plant removal and indirectly alter potentially suitable habitat through changes in vegetation community cover and composition. Long-term restoration of the project area likely would result in a greater frequency of noxious and invasive weeds as well as lower density and diversity of native plant species, including sensitive plant species.

The ability of Rusby's desert mallow to recolonize the area would be improved in the Mitigated Ivanpah 3 Alternative, relative to the original proposed project, due to the preservation of ecological connectivity with other areas of undisturbed, contiguous native plant communities, allowing seed dispersal, pollinator movement, and other ecological processes to occur.

Because reestablishment of desert vegetative communities would take decades and may differ in composition than the pre-disturbance vegetative community, these permanent changes in the vegetative communities would alter the ecosystem's ability to sustain the same type and numbers of wildlife species currently found at the site (including desert tortoise, special-status bird species, American badger, and bighorn sheep). The ability of wildlife to recolonize the area would be improved in the Mitigated Ivanpah 3 Alternative due to the preservation of ecological connectivity with other areas of undisturbed, contiguous native habitat. The ability of individual species to eventually recolonize the reclaimed area will depend on the proximity of other populations, connectivity of habitats, and the mobility of the species. Terrestrial species with small home ranges will not colonize as quickly, if at all, compared to flying organisms or wildlife with large home ranges. The degree of habitat fragmentation within the region also will affect wildlife species ability to recolonize the reclaimed area. Long-term restoration of the project area likely would result in a lower density and diversity of wildlife species, compared to the original intact ecosystem.

Based on the low probability of occurrence within the site, the Mitigated Ivanpah 3 Alternative would not likely adversely affect banded Gila monster.

While reestablishment of desert vegetative communities would take decades and may differ in composition compared to the pre-disturbance vegetative community, the reclamation of the project site would incrementally increase the amount of foraging habitat available to golden eagles and special-status bat species in the region. The absence of structures would reduce injuries and fatalities due to collision and heat-related impacts to special-status bat species.

3.4.5.4 ISEGS Conditions of Certification / Mitigation Measures

~~The ISEGS FSA/DEIS recommends that the following Conditions of Certification be required by the CEC and the BLM to lessen impacts to biological resources if the project is approved:~~

The following Conditions of Certification related to biological resources are required by the CEC for the ISGES project:

BIO-1 requires the project applicant to assign at least one Designated Biologist to the project.

BIO-2 requires that the Designated Biologist perform surveys during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, or closure activities.

BIO-3 requires the applicant's BLM- and Compliance Project Manager (CPM)-approved Designated Biologist to submit a resume with at least three references and contact information for the proposed Biological Monitors to BLM's Authorized Officer and the CPM.

BIO-4 requires that the Biological Monitors assist the Designated Biologist in conducting surveys and in monitoring of mobilization, ground disturbance, grading, construction, operation, and closure activities. The Designated Biologist must remain the contact for the applicant, BLM's Authorized Officer, and the CPM.

BIO-5 requires the applicant's construction/operation manager to act on the advice of the Designated Biologist and Biological Monitor(s) to ensure conformance with the biological resources Conditions of Certification.

BIO-6 requires the applicant to develop and implement an ISEGS-specific WEAP and to secure approval for the WEAP from USFWS, CDFG, BLM's Authorized Officer, and the CPM. The WEAP must be administered to all onsite personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP must be implemented during site mobilization, ground disturbance, grading, construction, operation, and closure.

BIO-7 requires the applicant to develop a Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) and submit two copies of the proposed BRMIMP to the BLM Authorized Officer and the CPM (for review and approval), and to implement the measures identified in the approved BRMIMP. The BRMIMP must incorporate avoidance and minimization measures described in final versions of the Desert Tortoise Translocation Plan; the Raven Management Plan; the Closure, Revegetation and Rehabilitation Plan; the Burrowing Owl Mitigation and Monitoring Plan; and the Weed Management Plan.

BIO-8 requires the applicant to undertake appropriate measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to desert tortoise. Methods for clearance surveys, fence installation, tortoise handling, artificial burrow construction, egg handling and other procedures must be consistent with those described in Guidelines for Handling Desert Tortoise during Construction Projects (Desert Tortoise Council 1999) or more current guidance provided by CDFG and USFWS. The project owner must also implement all terms and conditions described in the Biological Opinion prepared by USFWS.

BIO-9 requires the applicant to develop and implement a final Desert Tortoise Relocation/Translocation Plan that is consistent with current USFWS-approved guidelines and meets the approval of the BLM, USFWS, CDFG, and the CEC staff. The final plan must be based on the draft Desert Tortoise Relocation/Translocation Plan prepared by the applicant (dated May 2009) and must include all revisions deemed necessary by the BLM, USFWS, CDFG, and the CEC staff.

BIO-10 requires the applicant to provide CEC and BLM representatives with reasonable access to the project site and mitigation lands under the control of the project owner and to otherwise fully cooperate with the CEC's and BLM's efforts to verify the project owner's compliance with, or the effectiveness of, mitigation measures set forth in the Conditions of Certification. The project owner must hold the Designated Biologist, the CEC, and the BLM harmless for any costs the project owner incurs in complying with the management measures, including stop work orders issued by BLM's Authorized Officer, the CPM, or the Designated Biologist.

BIO-11 requires the applicant to implement all feasible measures to avoid or minimize impacts to biological resources.

BIO-12 requires the applicant to implement a Raven Management Plan that is consistent with the most current USFWS-approved raven management guidelines and that meets the approval of the BLM, USFWS, CDFG, and the CEC staff.

BIO-13 requires the applicant to implement a Weed Management Plan that meets the approval of the BLM and the CEC staff. The draft Weed Management Plan submitted by the applicant would provide the basis for the final plan, subject to review and revisions from the BLM and CEC staff, USFWS, and CDFG.

BIO-14 requires the applicant to develop and implement a revised Closure, Revegetation, and Rehabilitation Plan in cooperation with BLM and CEC staff, USFWS, and CDFG to guide site restoration and closure activities, including methods proposed for revegetation of disturbed areas immediately following construction and rehabilitation, and revegetation upon closure of the facility. This plan must address preconstruction salvage and relocation of succulent vegetation from the site to either an onsite or a nearby nursery facility for storage and propagation of material to reclaim disturbed areas. In the case of unexpected closure, the plan should assume restoration activities could possibly take place prior to the anticipated lifespan of the plant.

BIO-15 requires the applicant to conduct preconstruction nest surveys if construction activities would occur from February 1 through August 31.

BIO-16 requires the applicant to implement burrowing owl impact avoidance and minimization measures.

BIO-17 requires the applicant to fully mitigate for habitat loss and potential take of desert tortoise. The applicant would provide compensatory mitigation at a 3:1 ratio for impacts to ~~4,073~~ 3,582 acres or the area disturbed by the final project footprint. At least two-thirds of the 3:1 mitigation to satisfy the CEC's Complementary Mitigation Measures would be achieved by acquisition, in fee title or in easement, of no less than ~~8,146~~ 7,164 acres of land suitable for desert tortoise. The project owner would provide funding for the acquisition, initial habitat improvements, and long-term management endowment of these CEC-complementary compensation lands. The remaining third of the 3:1 compensatory mitigation, to satisfy BLM's mitigation requirements and the balance of the CEC's mitigation requirements, would be developed in accordance with BLM's desert tortoise mitigation requirements as described in the document Northern and Eastern Mojave Desert Management Plan (BLM 2002a). BLM's compensatory mitigation plan, serving as one-third of the 3:1 mitigation ratio required to satisfy CESA, would include acquisition of up to ~~4,073~~ 3,582 acres of land within the Eastern Mojave Recovery Unit, or desert tortoise habitat enhancement or rehabilitation activities that meet BLM, CDFG, USFWS, and CEC approval, or some combination of the two.

BIO-18 requires the applicant to implement measures to avoid and minimize impacts to special-status plant species. Due to the wide distribution throughout the project site, the impacts to Mojave milkweed and desert pincushion cannot be sufficiently reduced by the applicant's proposed avoidance alone. The majority of Mojave milkweed and desert pincushion occur outside the areas proposed for complete impact avoidance. Furthermore, the occurrences for which complete avoidance could not be achieved represent a substantial proportion of the remaining state occurrences. Therefore, CEC staff includes a Mojave milkweed compensatory mitigation component into BIO-18 and retains the on-site impact minimization for desert pincushion in the applicant's special-status plant mitigation plan. A summary of mitigation measures includes:

- On–site plant avoidance/minimization areas includes at a minimum, the removal of the three areas totaling 476 acres and labeled "Rare Plant Mitigation Area" in the ISEGS project description from the project footprint. Impact minimization shall be conducted throughout the site and impact minimization within the solar field shall consist of protecting small perimeters around Mojave milkweed, desert pincushion, and Rusby's desert-mallow plants.
- Protection of 75 percent of small-flowered androstephium, Mojave milkweed, desert pincushion, nine-awed pappus grass, Parish's club cholla, and Rusby's desert-mallow within the project area.
- Identification and establishment of special-status plant protection areas.
- Protection of adjacent occurrences, development and implementation of a special-status plant protection and monitoring plan, development of a special-status plant remedial action plan, seed collection, gas pipeline revegetation and monitoring, surveys on acquired and public lands, security of implementation of plans, and acquisition of off-site occurrence of Mojave Milkweed or adjacent land.

BIO-19 requires the applicant to compensate for project impacts to Nelson's bighorn sheep by financing, constructing, and managing an artificial water source in the eastern part of the Clark Mountain Range or in the State Line Hills outside of designated Wilderness.

BIO-20 requires the applicant to implement measures to avoid, minimize, and mitigate for impacts to ephemeral drainages. The compensation measures include acquisition of off-site desert washes with at least 175 acres of state jurisdictional waters.

BLM Mitigation Measures

In addition to the CEC Conditions of Certification, the BLM proposes additional mitigation measures and standard ROW grant terms and conditions. The BLM required mitigation measures are the same as the CEC Condition of Certification for BIO-8, BIO-9, BIO-12, BIO-13, BIO-14, and BIO-17. The following mitigation measures required by BLM were identified after the CEC hearing process was completed.

BIO-21 requires that the applicant shall consult with USFWS, BLM, and CDFG to obtain lists of special-status plant species that have the potential for occurrence on the project area. Based on these species' lists provided by these agencies, the BLM shall consider whether further field surveys shall be conducted during the appropriate season and within suitable habitat in the project area utilizing survey protocols appropriate for the species' of interest. If special-status plant species occurrences are identified, the preferred mitigation would consist of avoidance, whenever practical. If not feasible for special-status species, off-site mitigation would be negotiated with the BLM.

BIO-22 requires that the applicant prepare a MBTA Conservation Agreement in coordination with the USFWS, BLM, and CDFG. This Plan would identify procedures to minimize or eliminate impacts to MBTA species.

BIO-23 requires that the applicant shall conduct visual biweekly surveys for bird and bat mortalities throughout the project site. In addition to the photodocumentation of bird mortalities (Item #14 in BIO-11), mortalities and injuries to bats and other wildlife shall be photodocumented. Additionally, data would document the species affected and any overt signs of injury resulting in death (e.g., scorched feathers). This information would be compiled and provided to the BLM at quarterly intervals for the first three years, then annually thereafter, unless otherwise requested by the BLM. The BLM would maintain the authority to require additional mitigation of the applicant in the future to reduce collision or heat-related injuries.

BIO-24 requires that the applicant shall not use barbed wire fence on the northern perimeter of the Ivanpah 3 site, unless required for security reasons, in order to minimize potential impacts to Nelson's bighorn sheep.

BIO-25 requires that the applicant shall monitor and control noxious and invasive weeds within 100 feet of the artificial water source. Control of weeds shall be coordinated with BLM staff and shall consist of removal by mechanical methods, rather than herbicides.

BIO-26 requires that the applicant shall implement all mitigation identified by the USFWS in the Biological Opinion.

BIO-27 requires that the project owner implement the Closure, Revegetation, and Rehabilitation Plan, Revision 3, dated July 6, 2010, with the following modifications.

- The long-term soil stockpiles, will be no higher than 6 feet.
- The Preliminary Seeding Plan for Short-Term Disturbed Areas will be based upon the species list provided in Table 7-1 of the plan and may be modified at the time of decommissioning based on seed availability.
- Concrete will be removed to a minimum depth of 6 feet unless it is shown that a particular area is prone to flood hazards and a greater depth for concrete removal should be required. All concrete removed shall be

hauled off the project site and disposed of in an approved facility. Crushed concrete will not be used as backfill on the site during decommissioning.

- Succulents salvaged during project construction will not be sold by the applicant. Should excess succulents be removed that connot be transplanted in the Succulent Nursery Area, their disposition will be managed by the BLM.

BIO-28 requires compliance with Eagle Act. USFWS believes that this project can reach the "no net loss" standard for golden eagles identified in the Eagle Act Rule if the applicant submits and implements an Avian Protection Plan. The holder shall submit an Avian Protection Plan for approval of the Authorized Officer within 6 months of the issuance of any ROW grant for the project. The Avian Protection Plan must be implemented within one year from the date of any ROW grant Notice to Proceed.

3.4.5.5 Combined Impact of EITP and ISEGS

In combination with ISEGS, the EITP would incrementally contribute to the projected loss of natural vegetation and sensitive natural communities within the project impact area. Together, the EITP and ISEGS would disturb and/or remove approximately 4,025 acres of desert vegetation, including temporary and permanent impacts to several special-status plants. The EITP has a relatively small construction footprint despite its linear extent, is limited in duration (18 months), and requires a maximum of 190 construction workers. Most of the elements of the EITP would be constructed within an existing ROW where the native vegetation has already been disturbed. However, the construction of the Ivanpah Substation, as part of both EITP and ISEGS, would require a large swath of habitat disturbance/removal in previously undisturbed, higher quality desert vegetation. ISEGS would have a relatively large construction footprint, would require 4 years of construction, and require a relatively large workforce. The geographic and temporal extent of impacts from EITP in combination with ISEGS would result in substantial impacts in the project area.

The construction of ISEGS and EITP would result in the same type of impacts to protected plant species as described for each project individually. The following seven sensitive plant species were determined to occur within the construction footprint of both projects: small-flowered androstephium, Mojave milkweed, desert pincushion, nine-awed pappus grass, Parish's club cholla, Rusby's desert-mallow, and Utah vine milkweed. Construction impacts to these seven special plant species resulting from EITP would be less than significant due to the relatively small construction footprint and the ability of the project to avoid areas containing high concentrations of sensitive plant species. The inclusion of ISEGS with EITP would result in an increase in the extent of the adverse impacts during construction to these sensitive plant species due to high concentration of six of these species within the ISEGS construction footprint and the approximately additional 3,539 acres of desert habitat that would be impacted. Therefore, together ISEGS and EITP would result in significant impacts to small-flowered androstephium, Mojave milkweed, desert pincushion, nine-awed pappus grass, Parish's club cholla, and Rusby's desert-mallow.

The construction of ISEGS and EITP would result in adverse impacts to several sensitive wildlife species such as, but not exclusively, migratory birds, golden eagle, American badger, Nelson's bighorn sheep, Gila monster, and desert tortoise. The two projects together would result in similar impacts to sensitive wildlife species as is described for each project individually, however the addition of ISEGS to EITP would result in an increase in the extent and intensity of the impacts due to the approximately additional 3,539 acres of wildlife habitat that would be removed. Except for the impacts to desert tortoise, the combination of EITP and ISEGS would not result in significant impacts to sensitive wildlife species following the implementation of appropriate species-specific mitigation measures outlined for both proposed projects.

ISEGS and EITP together would adversely impact desert tortoise and desert tortoise habitat. Each project individually was determined to result in significant impacts even with implementation of the recommended mitigation measures; therefore, the combination of the ISEGS and EITP would result in significant, unavoidable impacts to desert tortoise

and desert tortoise habitat. The construction of the EITP was determined to result in significant impacts to desert tortoise due to the portions of the project that would result in permanent and temporary impacts to designated critical habitat. The addition of the ISEGS to the EITP would not result in an increase of impacts to designated critical habitat but would result in an overall increase in the total amount of desert tortoise habitat that would be permanently impacted. ISEGS would result in the loss of 3,582+ acres and would require the translocation of all tortoises that are determined to occur within the proposed fenced area of the project. The addition of ISEGS to EITP would collectively result in increased road traffic due to construction, thus increasing the road kill hazard to desert tortoise. The additional construction would also increase raven and coyote presence and would increase desert tortoise predation levels. Mitigation compensation required of both projects for the desert tortoise would minimize and offset adverse impacts to the species.

Operational impacts from implementation of ISEGS together with EITP were determined to be similar to those outlined above under construction. The addition of ISEGS would increase the intensity and spatial extent of the impacts that would occur on vegetation and special-status plants from larger amounts of habitat removal, increased dust generation, and the potential spread of noxious weeds. Additionally, impacts on desert tortoise and other special-status wildlife species would occur from both projects resulting from increased road traffic, noise, human presence and disturbance, and general degradation of habitat. The addition of ISEGS to EITP would result in increased noise levels during the daytime operational hours. Potential impacts to wildlife resources that would be unique to the operation of ISEGS would include impacts to birds due to collision with new structures, risk of burns to birds that flew into the reflected sunlight between the heliostats and the power towers, and effects of continuous human disturbance and lighting alteration. ISEGS implementation of additional mitigation measures addressing these unique impacts would reduce these listed impacts; therefore, the combination of EITP and ISEGS would not substantially impact wildlife resources. With all APMs and mitigation measures in place, the combination of operation of the two projects would not result in a substantial increase in impacts to wildlife and plant resources compared to the operation of EITP as an individual project.

Together, impacts from the two projects would have short- and long-term contributions of less-than-significant impacts with mitigation to impacts on biological resources in the project area. The exception would be impacts to desert tortoise, which would be significant even after mitigation due mainly to construction of ISEGS and EITP. See also Section 5.3.5.4, “Cumulative Impact Analysis,” for a discussion of cumulative impacts of biological resources from ISEGS and EITP as a Whole of the Action / Cumulative Action analysis.

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