

4.4 Biological Resources

The purpose of this Section is to identify existing biological resources within the Project area, analyze potential biological impacts associated with the development of the proposed Project, and identify mitigation measures that would avoid or reduce the significance of any identified impacts. The analysis below is supported by two survey reports conducted by Circle Mountain Biological Consultants, Inc. (CMBC): *Focused Survey for Desert Tortoise, Habitat Evaluation for Burrowing Owl, and General Biological Resource Assessment* (Biological Technical Report) and *Streambed Delineation*. These reports are included in Appendix F of the Draft EIR. In addition, ESA (Environmental Science Associates) conducted a Rare Plant Survey of the pipeline alignment that is summarized in the Rare Plant Survey Report also included in Appendix F. Thresholds of significance for the impact analysis are derived from Appendix G of the 2011 *CEQA Guidelines*.

4.4.1 Environmental Setting

Regional Setting

The Project is located in San Bernardino County in the southeastern portion of California. San Bernardino County is divided into three distinct regions: the western valley region, the mountain region, and the desert region. The largest of the three, the Desert Planning Region, contains 93 percent of the land area within San Bernardino County (18,735 square miles) and is defined as the area extending north to the boundaries with Kern and Inyo counties, east to the State borders of Nevada and Arizona, and west to the boundary with Los Angeles County. The Desert Planning Region is subdivided into the high desert and the low desert.¹ Major roadway corridors in the Project vicinity include Interstate 40 (I-40), US 66, and SR 62.

The Project area is regionally located in the Sonoran Desert ecological region, Cadiz-Vidal Valley subsection.² This subsection consists mainly of alluvial fans and basin floors in the Cadiz, Palen, Rice, and Vidal Valleys and the lower part of Ward Valley. The climate is very hot and arid. The predominant natural plant communities in this subsection are Creosote bush series and Creosote bush-white bursage series. Black bush series occurs at higher elevations in the Iron Mountains while the Mesquite series occurs on the basin floors. Mixed saltbush series is also common throughout this subsection.

Local Setting

The Project is located in a generally undeveloped region of the eastern Mojave Desert approximately 200 miles east of Los Angeles, 60 miles southwest of Needles, and 40 miles

¹ County of San Bernardino, *County of San Bernardino 2007 General Plan*, April 2007, page I-15.

² Miles, S.R. and C.B. Goudey, *Ecological Subregions of California*, USDA Forest Service Technical Report R5-EM-TP-005, 1997.

northeast of Twentynine Palms. (see Figure 3-1). The Project area consists of an arid landscape with sparsely vegetated mountain ranges and broad valleys, bajadas,³ and scattered dry lakes.⁴ Land uses in the Project vicinity consist of open space and undeveloped natural areas, with scattered, isolated development including salt mining operations on the Bristol and Cadiz Dry Lakes, agricultural operations on Cadiz Property, scattered structures near the communities of Amboy and Cadiz, and utility and transportation corridors crossing large expanses of the desert.

The Fenner Valley is a large northeast to southwest trending valley that intersects Cadiz Valley at the Fenner Gap located between the Marble and Ship Mountains. The Fenner Watershed is within a topographically closed drainage system that includes four main Watersheds: Bristol, Cadiz, Orange Blossom Wash, and Fenner.⁵ These Watersheds are considered one drainage system because all surface and groundwater within these Watersheds drains to a central lowland area (i.e., Bristol and Cadiz Dry Lakes). The Bristol, Cadiz, Orange Blossom Wash, and Fenner basin system is separated from the surrounding drainage basins by topographic divides (generally mountain ranges).

The total area of the Bristol, Cadiz, Orange Blossom Wash, and Fenner groundwater basin system is approximately 2,710 square miles. Fenner Watershed itself is approximately 1,000 square miles. The Fenner Valley is bounded by granitic mountain ranges reaching heights over 7,500 feet. The Fenner Gap is at 900 feet NGVD.

Groundwater ranges from approximately 270 to 400 feet bgs in the northeastern portion of the Project area to 180 feet bgs in the southwest, becoming shallower with proximity to the Dry Lakes.⁶

Ephemeral surface water runoff within the Fenner Watershed flows into Schulyer Wash, which is located within the proposed wellfield and spreading basin areas (see Figure 3-14) and is the principal drainage in the Fenner Valley Watershed. It then flows through Fenner Gap to either the Bristol or Cadiz Dry Lakes.

Vegetation Communities and Wildlife Habitats

Vegetation communities are assemblages of plant species that occur together in the same area, which are defined by species composition and relative abundance. These plant communities can be generally correlated to habitats for wildlife. Four native plant communities would be impacted by the proposed Project. These communities are Mojave creosote bush scrub, Mojave wash scrub, stabilized or partially stabilized desert dunes, and stabilized or partially stabilized desert sand fields. In addition, two non-native plant communities, agriculture and disturbed, occur in the wellfield at the north end of the Project site. These plant communities are described below. Plant communities are described according to Holland's *Preliminary Description of the Terrestrial*

³ A bajada is a broad, sloping depositional deposit caused by coalescing alluvial fans.

⁴ County of San Bernardino, *San Bernardino County 2007 General Plan Program Final Program Environmental Impact Report*, February 2007, page IV-7.

⁵ GEOSCIENCE Support Services, Inc., *Geohydrologic Assessment of the Fenner Gap Area*, April 2010, page 3.

⁶ GEOSCIENCE Support Services, Inc., *Cadiz Groundwater Storage and Dry-Year Supply Program, Environmental Planning Technical Report, Groundwater Resources, Volume 1, Report No. 1163*, November 1999, page 46.

Communities of California (1986), Skinner and Pavlik's *Inventory of Rare and Endangered Vascular Plants of California* (1997), and Sawyer and Keeler-Wolfe's *A Manual of California Vegetation* (1995).

Mojave Creosote Bush Scrub

Mojave creosote bush scrub, dominated by creosote bush (*Larrea tridentata*) and burrobrush (*Ambrosia dumosa*), is characterized by widely spaced, tall shrubs, usually separated by bare ground. This community is found from Death Valley south across the Mojave Desert to the Little San Bernardino Mountains and east to northwest Arizona and southern Nevada. It is the dominant plant community below 3,000 to 4,000 feet amsl in this region.

This plant community occurs on well-drained, secondary soils with very low available water holding capacity on slopes, fans and valleys. If rainfall is sufficient, growth occurs during spring or rarely in summer or fall. Temperature is growth limiting in winter, whereas available moisture is growth-limiting in other seasons. The plants within the community do not rely on the availability of groundwater for survival, but rather rely on infrequent rainfall. Following wet winters, there may be colorful displays of ephemeral annual species in late March and April in the intervening openings between shrubs. Other, less numerous annual species appear following summer thundershowers.

Common species within creosote bush scrub in upland areas, including throughout the wellfield areas, the northern portions of the pipeline alignment north of Old Woman Mountains, and southern reaches of the pipeline alignment south of Danby Lake include creosote bush, burrobrush, cheesebush (*Hymenoclea salsola*), desert tea (*Ephedra californica*), honeysweet (*Tidestromia oblongifolia*), white rhatany (*Krameria grayi*), and big galleta (*Pleuraphis rigida*). Biological soil crusts (cryptobiotic soils) comprise a specialized community within Mojave creosote bush scrub. They form over long periods of time by weaving soil components together to stabilize desert surfaces, which protects the topsoil from water and wind erosion. They are comprised of cyanobacteria, lichen, and moss, which create a fertile layer in which plants are able to grow in arid climates. The protective layer created by soil crusts also absorbs and retains moisture.⁷ The typical distribution of cryptobiotic soil in this habitat type ranges from sparse to dense.

Mojave Wash Scrub

Mojave wash scrub is an open community with a scattered to locally dense overstory of low, shrubby, small-leaved trees. This community occurs on sandy bottoms of wide canyons, incised arroyos of upper bajadas and sandy, braided, shallow washes of the lower bajadas, usually below about 5,000 feet amsl (1,610 meters). It is found throughout the Mojave Desert region.

Mojave wash scrub occurs in washes throughout the proposed Project area. Dominant perennials occurring alongside the well-developed washes include several species of milkweeds (*Asclepias* spp.), sweetbush (*Bebbia juncea*), rayless encelia (*Encelia frutescens*), arrow weed (*Pluchea*

⁷ Belnap, Jayne, *Cryptobiotic Soils: Holding the Place in Place*, <http://geochange.er.usgs.gov/sw/impacts/biology/crypto/>, accessed September 2011.

sericea), desert willow (*Chilopsis linearis* ssp. *arcuata*) (only in a few wellfield areas), bladderpod (*Isomerus arborea*), ditaxis (*Ditaxis neomexicana*), catclaw acacia (*Acacia greggii*), palo verde (*Cercidium floridum*) (south of Old Woman Mountains), smoke tree (*Psoralea argemone*), desert lavender (*Hyptis emoryi*), sandpaper plant (*Petalonyx thurberi*), and Cooper's strangler (*Orobancha cooperi*).

Stabilized or Partially Stabilized Desert Dunes

Stabilized and partially stabilized desert dunes are characterized by desert sand accumulations that are stabilized or partially stabilized by evergreen and/or deciduous shrubs, including creosote bush, scattered low annuals, and perennial grasses. This community occurs below approximately 4,000 feet amsl (1,210 meters). These dunes are able to retain water just below the sand surface, allowing perennial vegetation to survive long drought periods. The community is not reliant on groundwater for survival. The vegetation cover increases as the dunes become progressively more stabilized. This plant community integrates with active desert dunes, stabilized or partially stabilized sand fields, sandier phases of creosote bush scrub, or desert wash scrub.

This community is found east of Danby Dry Lake along the ARZC ROW. Dominant plant species within this community include four-winged saltbush (*Atriplex canescens*), allscale (*Atriplex polycarpa*), desert holly (*Atriplex hymenelytra*), and Torrey's sea-blight (*Suaeda moquinii*).

Stabilized or Partially Stabilized Desert Sand Fields

Stabilized and partially stabilized sand fields are characterized by desert sand accumulations that are now obviously worked into dune formations. This community occurs below approximately 5,000 feet amsl (1,520 meters) elevation on flat sand accumulations throughout the Desert Region. Vegetation cover in this community can vary from sparse cover of widely spaced shrubs and herbs to newly closed shrub canopies. This community is similar to and intergrades with stabilized and partially stabilized desert dunes, but has much reduced sand microrelief. It is often found on the toe of bajada slopes.

This community is found in association with the Desert Dunes listed above, east of Danby Dry Lake along the ARZC ROW. Dominant plant species include Dicoria (*Dicoria canescens*), desert Spanish needles (*Palafoxia linearis*), devil's lantern (*Oenothera deltoides*), plicate coldenia (*Tiquilia plicata*), desert camas (*Zidagenus brevibracteatus*), and desert lily (*Hesperocallis undulata*).

Agriculture

Cadiz Inc. maintains an active agricultural operation on its property within the proposed wellfield area. The agricultural operation presently includes grapes, lemons, and seasonal vegetables, as well as fallow fields and turf. Some of the potential staging areas for Project construction are located within fallow fields.

Disturbed Areas

Disturbed areas occur in the wellfield area. These areas are sparsely vegetated with some native, but primarily non-native, weedy species. These areas are adjacent to existing agriculture in the

proposed wellfield area and may have formerly been row crops. The following invasive species were identified in the area and are indicative of moderately-to-heavily degraded habitats: velvet rosettes (*Psathyrotes ramosissima*), Saharan mustard (*Brassica tournefortii*), tansy (*Descurainia pinnata*), flixweed (*Descurainia sophia*), London rocket (*Sisymbrium irio*), Russian thistle (*Salsola tragus*), red-stemmed filaree (*Erodium cicutarium*), little trumpet (*Eriogonum trichopes*), Jimsonweed (*Datura wrightii*), and puncture vine (*Tribulus terrestris*).

Rocky Substrate

There are three places where substrates along the ARZC ROW are influenced by the proximity of mountainous areas, which in turn support several plant species that are entirely restricted to those areas or nearly so. The two main influences are Ship Mountains to the north and Old Woman Mountains near the center, with Kilbeck Hills in the vicinity of Chubbuck having somewhat less influence. The three cactus species—barrel cactus (*Ferocactus cylindraceus*), silver cholla (*Opuntia echinocarpa*), and beavertail cactus (*Opuntia basilaris*)—are more common in these areas than elsewhere. These species are also present in the wellfield areas along with pencil cholla (*Opuntia ramosissima*). Pencil cholla was not observed within the ARZC ROW.

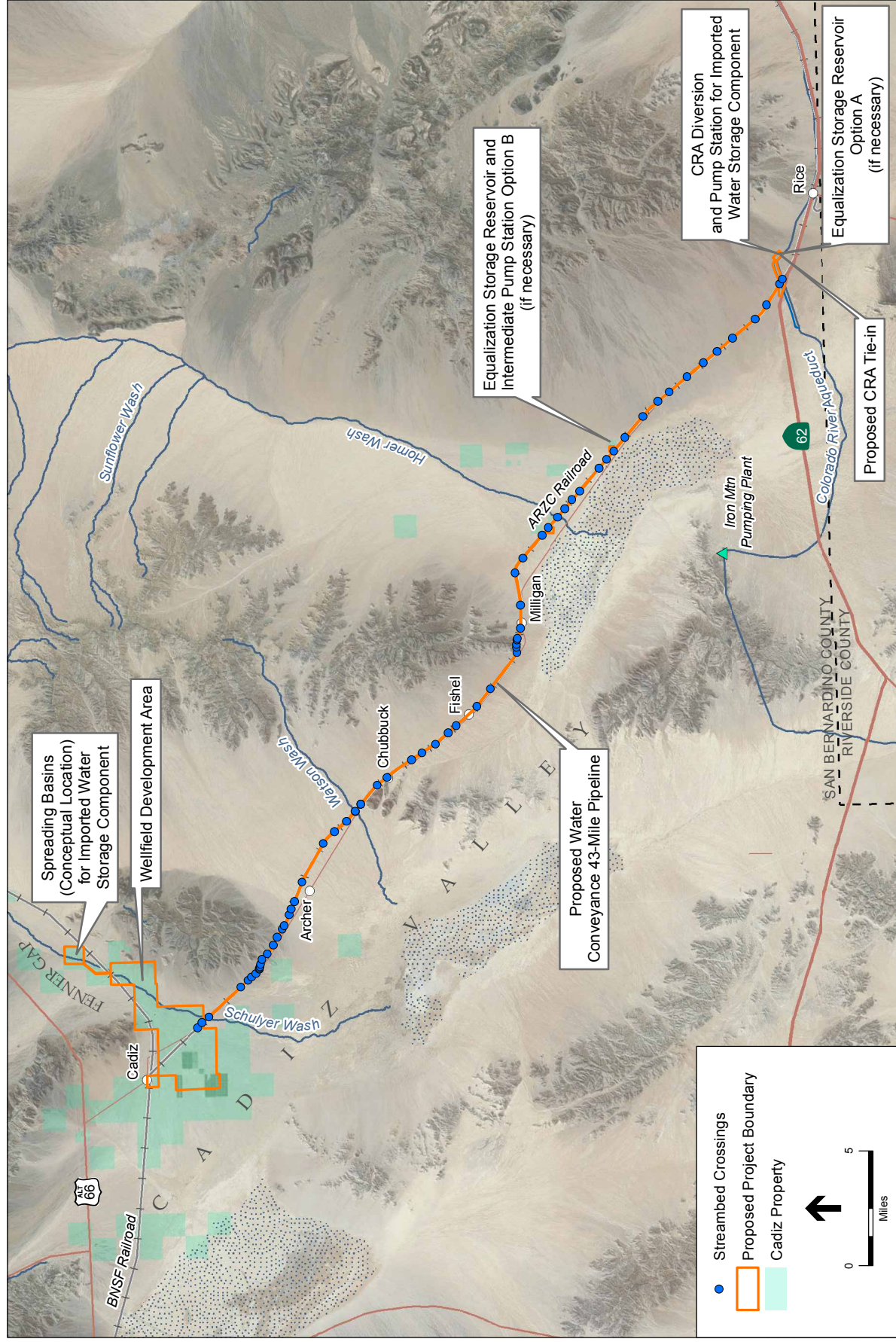
Jurisdictional Resources

Wetlands and Other Waters of the U.S.

A streambed delineation was conducted by CMBC between September 20 and October 17, 2010 in conjunction with focused surveys for desert tortoise, burrowing owl, and other biological resources. The washes were categorized based on substrates and associated plant communities. The most common type of washes are associated with sandy substrates and wash adapted plant species (referred to here as “sandy washes”); a second type of washes are associated with cobble substrates and creosote bush scrub (“cobbly washes”); and a third type of washes are associated with sandy substrates and saltbush scrub (“saltbush washes”). **Figure 4.4-1** identifies the location of the washes along the ARZC ROW.

There are 37 “sandy washes” in the pipeline ROW that are typically wide (10 to 100+ feet), sandy-bottomed streambeds vegetated by wash-adapted species such as smoke trees (*Psoralea argophylla*), wash rabbitbrush (*Chrysothamnus paniculatus*), rayless encelia, cheesebush, and sandpaper plant. They occur along the pipeline alignment north of Ship Mountains, between Ship and Old Woman mountains, and along the southern reaches of the proposed pipeline. With the exception of one crossing that passes through a culvert, all of these washes pass under bridge-like trestles (see Appendix C for all trestle locations along the ARZC railroad).

There are 15 “cobbly washes” in the pipeline ROW that are typically narrow (5 to 60 feet), with rocky-to-cobble substrates. These streambeds are typically vegetated by upland species associated with creosote bush scrub, including creosote bush, burrobush, sweetbush, desert lavender, and Acton encelia (*Encelia actoni*). These washes are either associated with Ship Mountains or Old Woman Mountains, which are responsible for the associated cobble substrates. Most of these crossings pass through one- or two-holed corrugated pipe culverts.



SOURCE: Bing Maps, 2011; ESRI, 2010; Cadiz Inc., 2011; and ESA, 2011

Cadiz Valley Water Conservation, Recovery, and Storage Project
Figure 4.4-1
 Streambed Crossings

Finally, there are 15 “saltbush washes,” in the pipeline ROW that are similar to the “cobbly washes” except they have sandy bottoms and are vegetated by saltbush scrub rather than creosote bush scrub. These are intermediate in widths (10 to 70 feet) and vegetated by allscale, fourwinged saltbush, Torrey’s sea-blight, and indigo bush (*Psoralea emoryi*), among some of the same plants found along red washes. All of these streambed crossings are located east of Danby Lake, and all pass beneath trestles rather than culverts.

In summary, there are approximately 70 washes and drainages crossing the pipeline alignment. All of these streams flow east-to-west, and in many places have created washes and washlets along the eastern side of the ARZC railroad. This flow of water impeded by the existing rail line has resulted in enlarged perennial plants on the eastern side of the tracks, including many wash-adapted species associated with the “sandy washes” described above. Where these washes are associated with trestles beneath the train tracks, they serve as focal points for many common and several special-status wildlife species. None of the ephemeral washes are classified as wetlands.

Since the Cadiz Valley is a closed basin draining entirely to dry lake beds that do not have hydraulic connection with navigable waters of the U.S., it is assumed that these washes are not themselves waters of the U.S. However, the USACE is solely responsible for determining jurisdictional status of ephemeral washes.

Consistent with the Project’s conservative approach with protecting existing resources, and in an abundance of caution, a network of observation wells would be utilized to monitor Project impacts, including a new well, Danby-1, which would be installed in the Danby Watershed. This Danby-1 observation well would be used to demonstrate that impacts on groundwater levels do not extend beyond the Cadiz Watershed on the east. This well would provide information on regional groundwater level conditions and is expected to provide additional background monitoring and information groundwater level changes that may be due to climatic variations as well.

Similar to Danby-1 observation well, one new observation well, Piute-1, would be installed in the Piute Wash Watershed, north of the Fenner Watershed, and is tributary to the Colorado River. This new well would be installed on property owned by Cadiz and would also be used as a “background” observation well to monitor undisturbed groundwater levels in an adjacent watershed, to provide information on groundwater level variations due to climatic variations only. In addition, this would serve to demonstrate that the Project would not impact groundwater that is tributary to the Colorado River. Installation of this well would likely require a nationwide permit from the Army Corps of Engineers, which could trigger a Section 7 consultation with the USFWS or other compliance with the Endangered Species Act.

The Piute Wash Watershed is tributary to the Colorado River. Groundwater flow from this Watershed ultimately discharges to the Colorado River, so it is a part of the water resource of the Colorado River. As discussed above, it would be an adverse impact if this groundwater flow was impacted by Project Operations. The Piute-1 observation well would provide data on groundwater levels in this basin. In addition, the Piute-1 well is located approximately equi-distance from the

next southerly well from the proposed Goffs observation well, so this well can be compared to these observations to assess groundwater level differences between these wells, if any.

Common Plant and Wildlife Species

A comprehensive list of plant and wildlife species observed or identified by sign during field surveys of the Project area can be found appended to the Biological Technical Report prepared by CMBC and included in Appendix F1. The tables list 17 reptile, 53 bird, and 13 mammal species, as well as 106 plant species.

Creosote bush and burrobrush were the most abundant plant species observed within the proposed Project areas. Most commonly encountered reptile species included the side-blotched lizard (*Uta stansburiana*) and western whiptail (*Cnemidophorus tigris*).

A diverse group of bird species were observed throughout the proposed Project areas and included several resident species, incidental seasonal visitors or migrants, and species attracted to agricultural areas and water sources. Some common year-round residents observed and likely to nest in the area included the red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius*), chukar (*Alectoris chukar*) (only in mountainous areas), Gambel's quail (*Callipepla gambelii*) (mostly in washes), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), Say's phoebe (*Sayornis saya*), verdin (*Auriparus flavipes*), rock wren (*Salpinctes obsoletus*) (in mountainous areas), and black-throated sparrow (*Amphispiza bilineata*).

All mammal species observed or determined present by sign, with the exception of pallid bats, are considered relatively common to remote desert areas. These included the round-tailed ground squirrel (*Spermophilus tereticaudis*), antelope ground squirrel (*Ammospermophilus leucurus*), various kangaroo rat species (*Dipodomys* spp.), Botta pocket gopher (*Thomomys bottae*), desert wood rat (*Dipodomys deserti*), black-tailed hare (*Lepus californicus*), and Audubon cottontail (*Sylvilagus audubonii*). Predators determined to be present included coyote (*Canis latrans*), kit fox (*Vulpes macrotis*), and bobcat (*Lynx rufus*).

Special-Status Species

Special-status species are plants and animals that are legally protected under state and federal Endangered Species Acts or other regulations and are considered sufficiently rare by the scientific community to qualify for such listing. These species are in the following categories:

- Plants or animals listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (FESA) (50 Code of Federal regulations [CFR] 17.12 [listed plants], 17.11 [listed animals] and various notices in the Federal Register [FR] [proposed species]).
- Plants or animals that are candidates for possible future listing as threatened or endangered under the FESA (61 FR 40, February 28, 1996);

- Plants or animals listed or proposed for listing by the State of California as threatened or endangered under the California ESA Endangered Species Act (CESA) (14 California Code of Regulations [CCR] 670.5);
- Plants listed as rare or endangered under the California Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.);
- Plants that meet the definitions of “rare” and “endangered” under CEQA. CEQA Section 15380 provides that a plant or animal species may be treated as “rare or endangered” even if not on one of the official lists (State CEQA Guidelines, Section 15380);
- Plants considered under the California Native Plant Society (CNPS) to be “rare, threatened, or endangered in California” (Lists 1A, 1B, and 2 in CNPS 2008);
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 in CNPS 2010), which may be included as special-status species on the basis of local significance or recent biological information;
- Animal species of special concern to the California Department of Fish and Game (CDFG); and
- Animals fully protected in California (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Table 4.4-1 lists the special-status wildlife and plant species with the potential to occur within the Project study area or to be affected by Project implementation. Information on the listing status, habitat requirements, and potential for occurrence within the Project study area is also provided. The list of species included in these tables was compiled based on review of a United States Fish and Wildlife Service (USFWS) list of federal endangered or threatened species occurring in San Bernardino County, as well as a search of the California Natural Diversity Database (CNDDB) and CNPS on-line database in December of 2010. The database search included the following 7.5 minute quadrangles: Arica Mountains, Cadiz Summit, Cadiz Lake Northwest, Cadiz Lake Northeast, Chubbuck, Milligan, East of Milligan, Danby Lake, and Sablon. Several special-status species not included in the above-mentioned quads, but listed in CMBC’s Biological Technical Report, have also been added to the table as they have been observed within the Project area during field visits. Other species specifically requested for inclusion by CDFG have also been added.

Table 4.4-1’s “Potential to Occur in the Study Area” category is defined as follows:

- **Low Potential:** The Project site and/or immediate area do not support suitable habitat or only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside of the immediate Project area.
- **Medium Potential:** The Project site and/or immediate area provide suitable habitat for a particular species, and habitat for the species may be affected by the Project.

- **High Potential:** The Project site and/or immediate area provide ideal habitat conditions for a particular species, and/or known populations occur in immediate area or within the potential area of impact.

Special-status Wildlife

The only formally-listed species with a medium to high potential to occur within the proposed Project area is the desert tortoise (*Gopherus agassizii*).

The following is a list of special-status wildlife species that have a medium to high potential to occur within the Project area based on their habitat requirements:

- Mojave fringe-toed lizard (*Uma scoparia*)
- Golden eagle (*Aquila chrysaetos*)
- Long-eared owl (*Asio otus*)
- Burrowing owl (*Athene cunicularia*)
- Mountain plover (*Charadrius montanus*)
- Northern harrier (*Circus cyaneus*)
- Loggerhead shrike (*Lanius ludovicianus*)
- LeConte's thrasher (*Toxostoma lecontei*)
- Pallid bat (*Antrozus pallidus*)
- Southern grasshopper mouse (*Onychomys torridus ramona*)
- Nelson's bighorn sheep (*Ovis canadensis nelsoni*)
- Yuma mountain lion (*Puma concolor browni*)
- American badger (*Taxidea taxus*)

In addition to the above-mentioned, special-status wildlife species, the following species are tracked by CNDDB and/or other agencies and have a medium to high potential to occur within the Project area: Cooper's hawk, sharp-shinned hawk, ferruginous hawk, merlin, and prairie falcon.

TABLE 4.4-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name Common Name	Listing Status: Federal/State/ CNPS	General Habitat	Potential to Occur in the Study Area
Reptiles			
<i>Gopherus agassizii</i> Desert tortoise	FT/CT/--	Inhabits semi-arid grasslands, gravelly desert washes, canyon bottoms and rocky hillsides from near sea level to approximately 3,500 ft. Tortoises north and west of the Colorado River inhabit valleys and on alluvial fans. In the Sonoran Desert of Arizona, however, the tortoises tend to live on steep, rocky hillside slopes in Palo Verde and Saguaro Cactus communities. Mojave and Sonoran deserts of southeastern California, southern Nevada, south through Arizona into Mexico.	High – Suitable habitat is present throughout the study area and tortoise sign has been observed and recorded as occurring throughout the Project area during the 2010 surveys.
<i>Uma scoparia</i> Mojave fringe-toed lizard	--/CSC/--	Found in fine, loose, wind-blown sand in sand dunes, dry lakebeds, riverbanks, desert washes, sparse alkali scrub, and desert scrub. Shrubs or annual plants may be necessary for arthropods found in their diet.	High – Potential habitat present along portions of the ARZC ROW. Species was observed during 2010 field surveys east of Danby Dry Lake within sandfields created by prevailing winds from the west associated with the Dry Lake.
Birds			
<i>Accipiter cooperii</i> Cooper's hawk	--/--/--	Woodlands, generally of open, interrupted, or marginal type. Nests in riparian areas and oak woodlands, forages at woodland edges.	High – Study area does provide suitable habitat. Species was observed during the wellfield surveys, however they are more likely to use the site for foraging rather than nesting.
<i>Accipiter striatus</i> Sharp-shinned hawk	--/--/--	Found in ponderosa pine, black oak, riparian deciduous, mixed conifer, and Jeffrey pine habitats, but prefers riparian areas. North-facing slopes with plucking perches are critical requirements and usually nests within 275 feet of water.	High – Study area provides suitable habitat for foraging and species may incidentally occur, but would not nest in the Project area. Two were observed in agricultural areas during 1999 field surveys.
<i>Aquila chrysaetos</i> Golden eagle	--/CFP/--	Nests on cliffs of all heights and in large trees near open areas. Occurs in rolling foothills, mountain terrain, sage-juniper flats, and rugged open habitats with canyons and escarpments. Preys mostly on small mammals.	Medium – Study area does provide suitable foraging habitat and this species was observed west of the Iron Mountains during field surveys conducted in 1999. Species is not expected to nest in the Project area.
<i>Asio otus</i> Long-eared owl	--/CSC/--	Found in riparian bottomlands grown to tall willows and cottonwoods and belts of like oak paralleling stream courses. Requires adjacent open land productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	Medium – Study area provides suitable habitat for foraging and species may incidentally occur, but would not nest in the Project area. Observed west of Iron Mountain in smoke tree wash during 1999 field surveys.
<i>Athene cunicularia</i> Burrowing owl	--/CSC/--	Found in open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Subterranean nester, dependent upon burrowing mammals, most notably the California ground squirrel.	High – Study area does provide suitable habitat and the species was observed during 2010 field surveys.
<i>Buteo regalis</i> Ferruginous hawk	--/--/--	Found in open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice.	High – Study area provides suitable habitat for foraging and species may incidentally occur, but would not nest in the Project area. Two were observed in agricultural areas during 1999 field surveys.

**TABLE 4.4-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA**

Scientific Name Common Name	Listing Status: Federal/State/ CNPS	General Habitat	Potential to Occur in the Study Area
<i>Buteo swainsonii</i> Swainson's hawk	--/CT/--	Open grasslands, sagebrush flats, desert scrub, low foothills, and fringes of pinyon-juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice.	Low – Study area provides suitable habitat for foraging and species may incidentally occur, but would not nest in the Project area. Study area outside species' known range.
<i>Chaetura vauxi</i> Vaux's swift	--/CSC/--	Habitat consists of open sky over woodlands, lakes, and rivers. Nests in tree cavities.	Low – Study area provides limited suitable habitat and although a single bird was observed passing over the southern portion of the ARZC ROW in late September, Vaux's swifts are not likely to nest in the Project area and minimal foraging habitat is available.
<i>Charadrius alexandrinus nivosus</i> Western snowy plover	FT/CSC/--	Flat sandy beaches, salt flats, and sandy areas with minimal vegetation, nests in sandy depressions. May also nest on gravelly substrate. Has been known to nest near sewage ponds as well.	Low – Although not recorded, study area does provide limited suitable habitat around Danby Lake.
<i>Charadrius montanus</i> Mountain plover	--/CSC/--	Found in short grasslands, freshly plowed fields, newly sprouting grain fields, and sometimes sod farms. Likes short vegetation, bare ground, and flat topography. Prefers grazed areas and areas with burrowing rodents.	Medium – Although not reported in the area, potentially suitable habitat is present in fallow agricultural areas. Not observed during 2010 field surveys.
<i>Circus cyaneus</i> Northern harrier	--/CSC/--	Found in coastal salt and fresh-water march. Nests and forages in grasslands, from salt grass in desert sink to mountain cienegas. Likes to nest on ground in shrubby vegetation, usually at marsh edge. Nests are built of a large mound of sticks in wet areas.	Medium – Study area provides suitable habitat for foraging and species may incidentally occur, but would not nest in the Project area. Observed near Iron Mountains during 1999 field surveys.
<i>Empidonax traillii extimus</i> Southwestern willow flycatcher	FE/CE/--	Riparian woodlands in Southern California, especially in low brushy vegetation in wet areas.	Low – Study area does not provide suitable habitat.
<i>Falco columbarius</i> Merlin	--/--	Found in seacoasts, tidal estuaries, open woodlands, savannahs, edges of grasslands and deserts, farms, and ranches. For roosting in open country, clumps of trees or windbreaks are required.	Medium – Study area provides suitable habitat for foraging and species may incidentally occur, but would not nest in the Project area. Not observed during 2010 field surveys.
<i>Falco mexicanus</i> Prairie falcon	--/--	Prefers open country, especially arid, in summer including alpine tundra to shortgrass prairie and high desert. In winter it is more widespread, ranging to low deserts and occasionally to towns. Nests on cliff ledges, so breeding adults are local during the breeding season.	High – 5 prairie falcons observed along the ARZC ROW and 6 observed during surveys of the wellfields. Prairie falcons were observed chasing mourning doves near the lime orchard in Section 27 and likely depredate birds throughout the Project area, where there is suitable foraging habitat. They likely nest in the Ship and Old Woman Mountains, but would not nest in the immediate Project area.
<i>Lanius ludovicianus</i> Loggerhead shrike	--/CSC/--	Broken woodlands, savannah, pinyon-juniper, Joshua tree, and riparian woodlands as well as desert oases, scrub, and washes. Prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches for hunting.	High – Study area does provide suitable nesting and foraging habitat. Shrike sign was observed during 2010 field surveys. Occurs throughout the Project area, would nest in larger trees particularly alongside washes and is one of several species that may actively seek out railroad trestles for various resources, including perch sites and foraging.

**TABLE 4.4-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA**

Scientific Name Common Name	Listing Status: Federal/State/ CNPS	General Habitat	Potential to Occur in the Study Area
<i>Toxostoma lecontei</i> LeConte's thrasher	--/CSC/--	Inhabits desert flats with sparse bushes, mostly saltbush (<i>Atriplex</i>) or creosote bush.	High - All sandy-bottom, well-developed washes with streamside growth are considered ideal habitats for this species, which will both nest and forage in such habitats. Individual LeConte's thrashers were observed in two places, including 1 along the east side of Danby Lake and 1 at the conceptual spreading basins. The species is very secretive and likely more common than observed.
Mammals			
<i>Antrozous pallidus</i> Pallid bat	--/CSC/--	Usually roosts in small colonies of 20 or more individuals in rock crevices and buildings, but occasionally roosts in caves, mines, and tree cavities. Distributed from south-central British Columbia to central Mexico and frequents arid regions with rocky outcroppings, particularly near water.	High - Suitable habitat is present within the study area along the ARZC ROW. The species was observed during surveys conducted in 1999 and 2010.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	--/CSC/--	Found throughout California in a wide variety of habitats, most commonly in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites are limiting and they are extremely sensitive to human disturbance.	Low - Project area within species range. Not observed during 1995, 1999, or 2010 field surveys.
<i>Euderma maculatum</i> Spotted bat	--/CSC/--	Found in a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.	Low - Project area within species range. Not observed during 1995, 1999, or 2010 field surveys.
<i>Eumops perotis californicus</i> Western mastiff bat	--/CSC/--	Found in many open, semi-arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees, and tunnels.	Low - Observed foraging at Iron and Ship Mountains and Kilbeck Hills during 1999 field surveys. ⁸ Not observed during 2010 field surveys.
<i>Macrotus californicus</i> California leaf-nosed bat	--/CSC/--	Found in Sonoran and Mojave Desert scrub habitats in the Colorado River valley in Southern California, Nevada, and Arizona and throughout western Mexico.	Low - Suitable habitat may be present along the ARZC ROW, however the species has not been observed during field surveys conducted in 1999 and 2010.
<i>Myotis occultus</i> Arizona myotis	--/CSC/--	Found in lowlands of the Colorado River and adjacent desert mountain ranges. Roosts in tree hollows, rock crevices, under bridges, etc.	Low - Project area within species range. Not observed during 1995, 1999, or 2010 field surveys.

⁸ Metropolitan Water District of Southern California and Bureau of Land Management, *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report, Biological Resources*, 1999, pages 43-44.

**TABLE 4.4-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA**

Scientific Name Common Name	Listing Status: Federal/State/ CNPS	General Habitat	Potential to Occur in the Study Area
<i>Myotis thysanodes</i> Fringed myotis	--/CSC/--	Found in a wide variety of habitats, optimal habitats are pinyon-juniper, valley foothill hardwood, and hardwood-conifer. Uses caves, mines, buildings, or crevices for roosts and maternity colonies.	Low – Suitable habitat present at Ship Mountains. Maternity colony reported 15 miles north of wellfields. ⁹ Not observed during 2010 field surveys.
<i>Myotis velifer</i> Cave myotis	--/CSC/--	Found in lowlands of the Colorado River and adjacent mountain ranges. Requires caves or mines for roosting.	Low – Project area within species range. Not observed during 1995, 1999, or 2010 field surveys.
<i>Nyctinomops femorosaccus</i> Pocketed free-tailed bat	--/CSC/--	Found in a variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, and desert riparian. Prefers rocky areas with high cliffs.	Low – Project area within species range. Not observed during 1995, 1999, or 2010 field surveys.
<i>Nyctinomops macrotis</i> Big free-tailed bat	--/CSC/--	Found in low-lying arid areas in Southern California. Needs high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	Low – Project area within species range. Not observed during 1995, 1999, or 2010 field surveys.
<i>Onychomys torridus ramona</i> Southern grasshopper mouse	--/CSC/--	Found in desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	Medium – Suitable habitat present in all Project areas. Not observed during 2010 field surveys.
<i>Ovis canadensis nelsoni</i> Nelson's bighorn sheep	--/--/--	Preferred habitat of bighorn is primarily on or near mountainous terrain above the desert floor. Females tend to choose particularly steep, safe areas for bearing and initial rearing of lambs.	Medium – Suitable habitat is present within the adjacent mountain ranges. Species may come down to the desert floor to forage during winter months. Species has been reported from Marble, Old Woman, and Turtle Mountains.
<i>Puma concolor browni</i> Yuma mountain lion	--/CSC/--	Found in low elevations in the Colorado River Valley of California. Live in dense bottomland vegetation and also found in adjacent, rocky uplands.	Medium – Suitable habitat present in Ship, Iron, and Old Woman Mountains and Kilbeck Hills. Not previously observed during field surveys.
<i>Taxidea taxus</i> American badger	--/CSC/--	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats. Needs sufficient food, friable soils, and open, uncultivated ground. Preys on burrowing rodents.	High – Suitable habitat is present within the study area, and as part of the burrowing owl habitat assessment conducted in 2010, surveyors collected UTM coordinates for 53 badger digs along the ARZC ROW and 59 digs in the surveyed wellfield areas.
Plants			
<i>Androstaphyllum breviflorum</i> Small-flowered androstaphyllum	--/--/2.2	Found in creosote bush scrub and desert dunes. 255 – 1510 m.	Medium – Suitable habitat present throughout study area. Species was observed west of Iron Mountains during 1995 field surveys.
<i>Arctomecon merriamii</i> White bear poppy	--/--/2.2	Found in rocky soils in creosote bush scrub. 460 – 1500 m.	Low – Study area outside species' range, and study area is below the elevational range for this species.

⁹ Metropolitan Water District of Southern California and Bureau of Land Management, *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report, Biological Resources*, 1999, page 44.

**TABLE 4.4-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA**

Scientific Name Common Name	Listing Status: Federal/State/ CNPS	General Habitat	Potential to Occur in the Study Area
<i>Astragalus insularis</i> var. <i>harwoodii</i> Harwood's milk-vetch	--/--/2.2	Annual herb found in sandy or gravelly soils in desert dunes Mojavean desert scrub. 0 – 710 m. Blooms January-May.	Medium – Suitable habitat is present within the desert dunes in the Mojavean desert scrub habitat within the study area. Species has been observed and recorded within 5 miles of the study area, however none were observed within the study area.
<i>Astragalus lentiginosus</i> var. <i>borreganus</i> Borrego milk-vetch	--/--/4.3	Found in sandy soils in creosote bush scrub. 25 – 255 m.	Medium – Suitable habitat is present in western portion of wellfield area and sandy areas along ARZC ROW, particularly near Danby Lake. Species was observed in 1995 east of Iron Mountain Pumping Plant and Cadiz Lake in sand field areas.
<i>Castela emoryi</i> Crucifixion thorn	--/--/2.3	Deciduous shrub along gravelly washes, slopes, and plains in creosote bush scrub. 85 – 575 m.	Low - As a large shrub occurring in washes, this plant would have been found if present within the ARZC ROW. Not observed during 1995 or 1999 field surveys.
<i>Colubrina californica</i> Las animas colubrina	--/--/2.3	Evergreen shrub found in creosote bush scrub. 10 – 945 m.	Low – As a large shrub occurring in washes, this plant would have been found if present within the ARZC ROW. Not observed during 1995 or 1999 field surveys.
<i>Coryphantha alversonii</i> Alverson's foxtail cactus	--/--/4.3	Found in rocky to cobbly soils in creosote bush scrub. 70 – 1440 m.	Medium – Suitable habitat is present in wellfield area Section 17 and where Ship and Old Woman Mountains approach ARZC ROW. Species observed west of Iron Mountain in 1995.
<i>Cryptantha costata</i> Ribbed cryptantha	--/--/4.3	Found in sandy soils in creosote bush scrub. 55 - 470 m.	Medium – Suitable habitat is present east of Danby Lake near ARZC ROW. Species was found in 1995 at Cadiz Lake and in areas of stabilized dunes, but not along Cadiz Road.
<i>Cryptantha holoptera</i> Winged cryptantha	--/--/4.3	Found in sandy to rocky soils in creosote bush scrub. 95 -1130 m.	Medium – Suitable habitat is present throughout study area. Not observed during 1995 or 1999 field surveys.
<i>Gynanchum utahense</i> Utah vine milkweed	--/--/4.2	Found in dry sandy, gravelly soil in creosote bush scrub. 140 - 1340 m.	Medium – Suitable habitat is present throughout study area. Not observed during 1995 or 1999 field surveys.
<i>Echinocereus engelmannii</i> var. <i>howei</i> Howe's hedgehog cactus	--/--/1B.1	Found in creosote bush scrub. 405 – 730 m.	Low – Study area is below the elevational range for this species.
<i>Eriastrum harwoodii</i> Harwood's eriastrum	--/--/1B.2	Annual herb found on desert dunes. 200 – 915 m. Blooms March-June. Known from fewer than 20 occurrences.	Low – Suitable habitat may be present along the desert dunes.
<i>Linanthus arenicola</i> Sand linanthus	--/--/--	Found in well-aerated sandy soils on the valley floors, particularly near high mountains and along the courses of the larger desert rivers and washes. 121 – 1500 m.	Low – Potentially suitable habitat present east of Danby Dry Lake.
<i>Linanthus maculatus</i> Little San Bernardino Mountains linanthus	--/--/1B.2	Found in sandy soils in creosote bush scrub and in the vicinity of Joshua Tree. 185 – 1840 m.	Low – Study area well outside species' known range.
<i>Matelea parvifolia</i> Spear-leaf matelea	--/--/2.3	Found in dry rocky soils in creosote bush scrub. 415 – 1035 m.	Low – Study area is below the elevational range for this species.

TABLE 4.4-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING IN THE STUDY AREA

Scientific Name Common Name	Listing Status: Federal/State/ CNPS	General Habitat	Potential to Occur in the Study Area
<i>Monardella robisonii</i> Robison's monardella	--/--/1B.3	Found in pinyon-juniper woodland. 575 – 1420 m.	Low – Study area outside species' range and study area is below the elevational range for this species. Suitable habitat not present within ESA 2011 survey area.
<i>Nemacaulis denudata</i> var. <i>gracilis</i> Slender cottonheads	--/--/2.2	Found in sandy slopes above drainage at 475 m.	Medium – Suitable habitat along ARZC ROW and western portion of wellfield area. Found in Arica Mountains in 2010.
<i>Opuntia basilaris</i> var. <i>brachyclada</i> Short-joint beavertail cactus	--/--/1B.2	Found in creosote bush scrub. 405 – 1700 m.	Low – Study area outside species' range and study area is below the elevational range for this species.
<i>Penstemon albomarginatus</i> white-margined beardtongue	--/--/1B.1	Perennial herb found on desert dunes (stabilized) and Mojavean desert scrub (sandy). Blooms March-May. 640 – 1065 m. Known in CA from fewer than 20 occurrences.	Low – Study area does not provide suitable habitat and study area is below the elevational range for this species.
<i>Penstemon stephensii</i> Stephen's beardtongue	--/--/1B.3	Found in carbonate or rocky soils in creosote bush scrub. 1065 – 1745 m.	Low – Study area is below the elevational range for this species.
<i>Physalis lobata</i> Lobed ground- cherry	--/--/2.3	Found in decomposed granite in creosote bush scrub. 470 – 755 m.	Low – Study area is below the elevational range for this species. Suitable substrate not observed within ESA 2011 survey area.
<i>Salvia greatae</i> Orocopia sage	--/--/1B.3	Found in broad alluvial bajadas and fans beside washes in creosote bush scrub. 35 – 760 m.	Low – Suitable habitat may be present within wellfield area Section 17 and where Ship and Old Woman Mountains approach ARZC ROW. Found in Marble Mountains in 1978.
<i>Sphaeralcea rusbyi</i> var. <i>eremicola</i> Rusby's desert-mallow	--/--/1B.2	Found in creosote bush scrub. 920 – 1420 m.	Low – Study area is below the elevational range for this species.

SOURCE: U.S. Fish and Wildlife Service, 2010 *List of Federal Endangered or Threatened Species for San Bernardino County*, 2010; California Department of Fish and Game, Biogeographic Data Branch, California Natural Diversity Database, Rarefind Computer Program (Version 3.1.0), September 5, 2010; California Native Plant Society, *Inventory of Rare and Endangered Plants* <http://www.rareplants.cnps.org/>, accessed November 2010.
KEY:

Federal: (USFWS)

FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government
FC = Candidate for listing by the Federal Government

State: (CDFG)

CE = Listed as Endangered by the State of California
CT = Listed as Threatened by the State of California
CR = Listed as Rare by the State of California (plants only)
CSC = California Species of Concern
CFP = California Fully Protected Species

CNPS: (California Native Plant Society)

List 1A = Plants presumed extinct in California
List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California but more common elsewhere
List 3 = Need more information
List 4 = Plants of limited distribution

0.1 = Seriously endangered in California
0.2 = Fairly endangered in California
0.3 = Not very endangered in California

-- = No Listing

The following is a brief description of the special-status wildlife species identified as having a medium or high potential for occurrence based on nearby occurrences and/or the presence of suitable habitat.

Reptiles

Desert tortoise (*Gopherus agassizii*)

Listed as a state and federally threatened species, the desert tortoise inhabits semi-arid grasslands, gravelly desert washes, canyon bottoms, and rocky hillsides. It is native to the Mojave desert and Sonoran desert of the southwestern United States and northern Mexico. It is a completely terrestrial desert or semidesert species, requiring firm, but not hard, ground for construction of burrows (in banks of washes or compacted sand) or uses shelters among rocks and exposed, eroded caliche layers in walls of washes. The desert tortoise frequents desert oases, riverbanks, washes, dunes, and rocky slopes.¹⁰

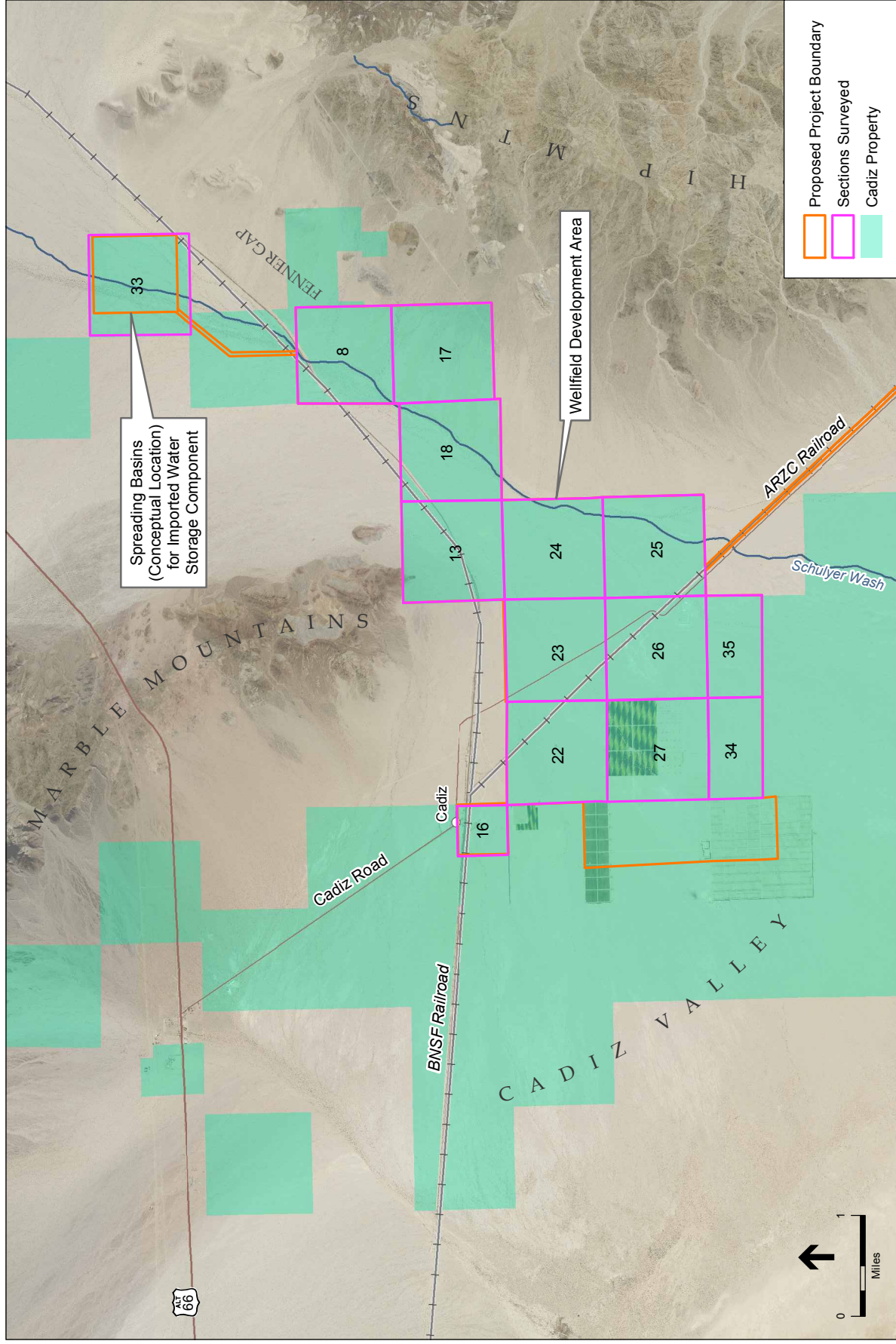
During CMBC's 2010 Desert Tortoise Survey, CMBC found desert tortoise scat, carcasses, and a burrow along the northern portion of the water conveyance pipeline within the ARZC ROW. The burrow found was not considered to be active. All evidence of living tortoises was found between the north end of the ARZC ROW and Old Woman Mountains, with carcasses found to the south.¹¹ Tortoises may be absent or occur in very low densities south of Old Woman Mountains and are not considered common anywhere along the ARZC ROW, apparently occurring in low densities along northern reaches. CMBC concluded that tortoises most likely do not reside along the ARZC ROW, but may occasionally enter into the ARZC ROW portion of the Project.

In the proposed wellfield area, evidence of living tortoises was restricted to Sections 17 and 18, with carcasses found in Sections 8 and 35. **Figure 4.4-2** shows the Sections within the wellfield and conceptual spreading basin area surveyed by CMBC in 2010.¹² The carcass found in Section 35 appears to have died in the early 1940s and was the only tortoise sign found in the central and western portions of the proposed wellfield area. CMBC concludes that tortoises are most likely to be encountered in the eastern portion of the wellfield area (particularly Section 17 and 18, and perhaps Section 8) and least likely to be encountered elsewhere. Though not detected at the conceptual spreading basin area, habitats there are among the least impacted and most suitable, and tortoise(s) may occur there in the future, if not already.

¹⁰ Metropolitan Water District of Southern California and Bureau of Land Management, *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report, Biological Resources*, 1999, page 37.

¹¹ Circle Mountain Biological Consultants, *Focused Survey for Desert Tortoise, Habitat Evaluation for Burrowing Owl, and General Biological Resource Assessment for the Cadiz Valley Water Conservation, Recovery, and Storage Project, San Bernardino County, California*, Unpublished report prepared by Ed LaRue for ESA Southern California Water Group, Los Angeles, November 2010.

¹² Circle Mountain Biological Consultants, *Focused Survey for Desert Tortoise, Habitat Evaluation for Burrowing Owl, and General Biological Resource Assessment for the Cadiz Valley Water Conservation, Recovery, and Storage Project, San Bernardino County, California*, Unpublished report prepared by Ed LaRue for ESA Southern California Water Group, Los Angeles, CA, November 2010, Figure 7.



SOURCE: USDA, 2009; ESRI, 2010; Cadiz Inc., 2011; San Bernardino Co., 2010; and ESA, 2011

Cadiz Valley Water Conservation, Recovery, and Storage Project
Figure 4.4-2
 Sections Surveyed for Desert Tortoise
 Within the Proposed Wellfield Area

The desert tortoise critical habitat finalized in 1994 (See discussion of 1994 critical habitat below under 4.4.2 Regulatory Framework and **Figure 4.4-3**) extends from the north through the upper Fenner Valley and Southward into the Ward Valley. With respect to the Project facilities, the critical habitat ends just north of the wellfield and extends southward but ends before reaching the ARZC ROW. The Groundwater Conservation and Recovery Component of the Project would be located adjacent to but outside of designated critical habitat for the desert tortoise (Figure 4.4-3). However, the observation well within the Piute Wash Watershed would be located within designated critical habitat, and the Imported Water Storage Component would include some facilities, such as the recharge basin, within designated critical habitat.

Mojave fringe-toed lizard (*Uma scoparia*)

The Mojave fringe-toed lizard is a California Species of Concern and a BLM-sensitive species. This species is found in desert regions of Southern California. It uses fine, loose, wind-blown deposits in sand dunes and other sandy habitats. Rodent burrows and bases of shrubs are also used for cover. This species was observed during surveys conducted by CMBC in 2010. Suitable habitat is only present along the pipeline route where loose sandy habitat is present east of Danby Dry Lake.

Birds

Golden eagle (*Aquila chrysaetos*)

The golden eagle is a raptor species that is fully protected in California. The golden eagle is an uncommon, permanent resident and migrant throughout California (except in the center of the Central Valley where it is a winter visitor). Golden eagles nest in open areas on cliffs and in large trees, often constructing multiple nests in one breeding territory.¹³ They forage in open terrain such as grasslands, deserts, savannahs, and early successional stages of forest and shrub habitats.¹⁴

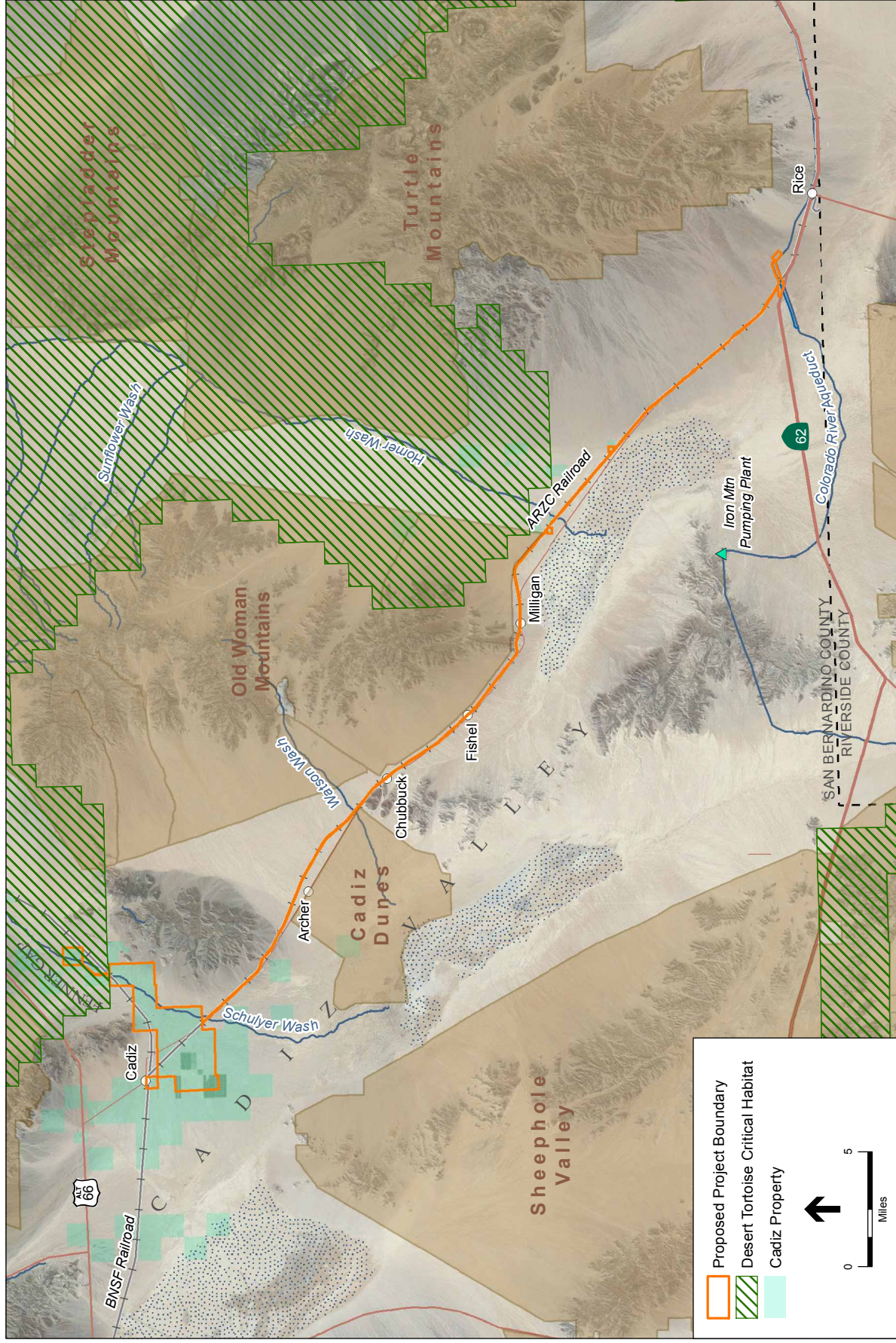
Although in 2010 there was no evidence of the golden eagle, during the 1999 surveys it was observed foraging within the vicinity of the proposed Project area. Therefore, this species may incidentally occur in the area and occasionally forage there, but would not likely nest in the Project area.

Long-eared owl (*Asio otus*)

Listed as a California Species of Concern, the long-eared owl is a raptor species that requires the presence of old nests of crows, hawks, or magpies for breeding. The long-eared owl was observed west of Iron Mountains in a smoke tree wash during field surveys conducted in 1999. And although the study area provides suitable habitat for foraging and this species may incidentally occur, long-eared owls are not expected to nest in the Project area due to the lack of suitable nesting habitat.

¹³ Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds., *California's Wildlife, Vol. 2, Birds*, California Department of Fish and Game, 1990, page 732.

¹⁴ Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds., *California's Wildlife, Vol. 2, Birds*, California Department of Fish and Game, 1990, page 732.



SOURCE: Bing Maps, 2011; ESRI, 2010; Cadiz Inc., 2011; and ESA, 2011

Cadiz Valley Water Conservation, Recovery, and Storage Project
Figure 4.4-3
 Desert Tortoise Critical Habitat

Burrowing owl (*Athene cunicularia hypugaea*)

Listed as a California Species of Concern, western burrowing owls nest in burrows in the ground, often in old ground squirrel burrows or badger dens. They can dig their own burrows but prefer deserted excavations of other animals. They are also known to use artificial burrows. Burrowing owls in northern California are thought to migrate, whereas burrowing owls within central and Southern California are predominantly nonmigratory. They are found in open, dry grasslands, agricultural and range lands, and desert habitats often associated with burrowing animals. They can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. Burrowing owls can be found at elevations ranging from 200 feet below sea level to 9,000 feet. In California, the highest elevation where this species is found is 5,300 feet in Lassen County. The burrowing owl commonly perches on fence posts or on top of mounds outside its burrow. They tend to be opportunistic feeders, feeding primarily on large arthropods, mainly beetles and grasshoppers, as well as small mammals, especially mice, rats, gophers, and ground squirrels. The burrowing owl hovers while hunting, and after catching its prey, returns to a perch on a fence post or the ground. Burrowing owls are primarily crepuscular (active at dusk and dawn), but will hunt throughout a 24-hour period. Nesting season begins in late March or April.

Surveys conducted by CMBC found burrowing owls and burrows with owl sign throughout all proposed Project areas, along the pipeline route, wellfield area, and spreading basin area.

Mountain plover (*Charadrius montanus*)

The mountain plover is listed as a California Species of Concern found in freshly plowed fields, newly sprouting grain fields, and sod farms. This species prefers grazed areas and areas with burrowing rodents.

The mountain plover was not observed during field surveys conducted in the Project areas. However, potential suitable habitat can be found in the wellfield area and potential staging areas where fallow agriculture is present.

Northern harrier (*Circus cyaneus*)

The northern harrier, listed as a California Species of Special Concern, prefers to nest on the ground in shrubby vegetation on nests built of a mound of sticks near wet areas. This species nests and forages in grasslands, from salt grass in desert sinks and coastal and freshwater marshes to mountain meadows. The northern harrier nests on the ground in shrubby vegetation.

This species was observed near the Iron Mountains during field surveys conducted in 1999 by CMBC, but was not observed in 2010. Therefore, the northern harrier may incidentally occur in the Project area and forage there, but is not expected to nest in any of the proposed Project areas.

Loggerhead shrike (*Lanius ludovicianus*)

Loggerhead shrikes, listed as a California Species of Special Concern, breed mainly in shrublands or open woodlands with grass cover and areas of bare ground. They require tall shrubs or trees (also use fences or power lines) for hunting perches, territorial advertisement, and pair maintenance; open areas of short grasses, forbs, or bare ground for hunting; and large shrubs or

trees for nest placement. They also need impaling sites for prey manipulation or storage, which can include sharp, thorny, or multistemmed plants and barbed-wire fences.¹⁵

Loggerhead shrikes hunt by perching on appropriate substrates and scanning the area, taking prey primarily from the ground but occasionally in flight, and often impaling prey for easier manipulation or for storage for later consumption. The diet of loggerhead shrikes varies seasonally and includes arthropods (especially grasshoppers, crickets, beetles, and caterpillars), reptiles, amphibians, small rodents, and birds.

Shrikes were identified by sight and sign during CMBC's surveys. Shrikes were observed along the proposed pipeline route and within the wellfield areas. Since shrikes regurgitate distinctive pellets that can be readily identified in the field, loggerhead shrikes were identified at several locations (including under train trestles and at bundled railroad ties). Loggerhead shrikes apparently occur throughout all proposed Project areas, would nest in larger trees particularly alongside washes, and may actively seek out railroad trestles for various resources, including perch sites and foraging.

LeConte's thrasher (*Toxostoma lecontei*)

LeConte's thrasher, listed as a California Species of Special Concern, is an uncommon resident of the deserts of the American Southwest and northwestern Mexico and inhabits some of the most desolate environments on the continent preferring desert flats with sparse bushes, mostly saltbush (*Atriplex*) or creosote bush.¹⁶

Individual LeConte's thrashers were observed in two places, including one along the east side of Danby Dry Lake and one at the conceptual spreading basins, during field surveys conducted by CMBC in 2010. The species is very secretive and likely more common than observed. Two were reported in Schulyer Wash and one at an undisclosed place in the conceptual spreading basins during surveys conducted in 1999.¹⁷ All sandy-bottom, well-developed washes with streamside growth are considered ideal habitats for this species which will both nest and forage in such habitats. LeConte's thrasher has the potential to occur throughout all proposed Project areas.

Common Raptor Species

Common raptor species, such as the Cooper's hawk (*Accipiter cooperii*), sharp-shinned hawk (*Accipiter striatus*), ferruginous hawk (*Buteo regalis*), merlin (*Falco columbarius*), and prairie falcon (*Falco mexicanus*) are not considered special-status species because they are not rare or protected under the FESA or CESA. However, nests of these species are still protected under the MBTA and Section 3503.5 of the California Fish and Game Code. All species are on CDFG's Watch List and the ferruginous hawk and prairie falcon are also a USFWS Bird of Conservation Concern. The large birch trees located in the northeast corner of the Project area could provide potential nesting habitat for common raptors that occur in the Project region.

¹⁵ Shuford, W.D., and Gardali, T., *California Bird Species of Special Concern*, February 2008.

¹⁶ Sheppard, J. M., *Le Conte's Thrasher (Toxostoma lecontei)*, January 1996.

¹⁷ Circle Mountain Biological Consultants, *Focused Survey for Desert Tortoise, Habitat Evaluation for Burrowing Owl, and General Biological Resource Assessment for the Cadiz Valley Water Conservation, Recovery, and Storage Project, San Bernardino County, California*, Unpublished report prepared by Ed LaRue for ESA Southern California Water Group, Los Angeles, CA, November 2010.

No Cooper's hawks were observed along the proposed pipeline route, but several were observed within the wellfield area. Sharp-shinned hawks and ferruginous hawks have been observed within agricultural fields in the wellfield areas. Prairie falcons were observed along the proposed pipeline route and within the wellfield area. Merlins have not been previously observed at any of the proposed Project areas.

Migratory Birds

A large number of common bird species are migratory and fall under the jurisdiction of the MBTA. A comprehensive list of MBTA species that could occur in the Project study area is too lengthy to provide here, but includes such familiar species as northern mockingbird (*Mimus polyglottos*), mourning dove (*Zenaida macroura*), and western kingbird (*Tyrannus verticalis*). Numerous migratory bird species have the potential to nest within the Project site. The nests of all migratory birds are protected under the MBTA.

Mammals

Pallid bat (*Antrozous pallidus*)

Pallid bats, listed as a California Species of Special Concern, are distributed from south-central British Columbia to central Mexico and frequent arid regions with rocky outcroppings, particularly near water. The gregarious species usually roosts in small colonies of 20 or more individuals in rock crevices and buildings, but occasionally roosts in caves, mines, and tree cavities. It feeds chiefly on large prey that is taken on the ground or perhaps less frequently in flight within a few meters of the ground or from surfaces of vegetation.¹⁸

During surveys conducted in 1999, a pair of pallid bats was observed at an active night roost at a train trestle east of Kilbeck Hills.¹⁹ Based on the 2010 survey, it is believed that pallid bats are much more common in the Project area along the ARZC ROW than previously noted. Surveyors closely inspected approximately 70 train trestles for the presence or evidence of pallid bats. Surveyors observed bats at 13 different trestles located along the entire length of the rail line, and bat guano was observed at 9 additional trestles.

At least four different types of trestles, including cement, wood, a combination of the two, and corrugated culverts, can be found along the ARZC ROW. Pallid bats were mostly observed at the cement and wood trestles, less at the combined type, and never in the corrugated culverts. Surveyors also checked a half-dozen similar trestles along the BNSF line in the wellfield areas but did not find any bats or guano. CMBC concludes that the heavy train traffic on the BNSF line compared to only two or three trips per day on the ARZC line could preclude bats from the BNSF but not the ARZC ROW.

¹⁸ Metropolitan Water District of Southern California and Bureau of Land Management, *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report, Biological Resources*, 1999.

¹⁹ Metropolitan Water District of Southern California and Bureau of Land Management, *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report, Biological Resources*, 1999.¹⁹ California Department of Fish and Game, Natural Diversity Database, *Special Vascular Plants, Bryophytes, and Lichens List*, January 2010, page 71.

Southern Grasshopper Mouse (*Onychomys torridus ramona*)

The Southern grasshopper mouse is found in desert scrub habitats with friable soils that are suitable for digging. It prefers low to moderate shrub cover and feeds almost exclusively on arthropods, especially scorpions and orthopteran insects. Although there is suitable habitat present throughout the Project areas, it was not observed during 2010 field surveys.

American badger (*Taxidea taxus*)

American badgers, listed as a California Species of Special Concern, are carnivorous, eating fossorial rodents, reptiles, insects, earthworms, eggs, birds, and carrion. Their diet shifts in response to prey abundance. Badgers are active year-round, although they do experience periods of torpor during the winter.²⁰ American badgers are present in most shrub, forest, and herbaceous habitats where friable soils are present. They are most abundant in drier, open areas including grasslands, savannahs, and mountain meadows near the timberline. Badgers dig burrows for cover; they frequently use old burrows, but some badgers will dig a new burrow each night during the summer.²¹

American badgers were historically residents of California, except in the humid coastal areas of Del Norte and northern Humboldt Counties.²² Currently, they survive in low numbers in the periphery of the Central Valley, adjacent lowlands of eastern Monterey, San Benito, and San Luis Obispo Counties, and coastal areas south of Mendocino County. They have been extirpated from much of Southern California.²³

No American badgers or primary burrow systems were observed during CMBC surveys in 2010; however, evidence of their foraging (digs) was apparent throughout all the proposed Project areas surveyed.

Nelson's bighorn sheep (*Ovis Canadensis nelsoni*)

Nelson's bighorn sheep prefers habitat primarily on or near mountainous terrain above the desert floor. Bighorn sheep habitat designated by BLM surrounds the proposed Project areas (see **Figure 4.4-4**). They generally avoid the valley floors except to cross from one mountain range to the other. Figure 4.4-4 identifies areas potentially used by bighorn sheep to migrate between mountain habitats.

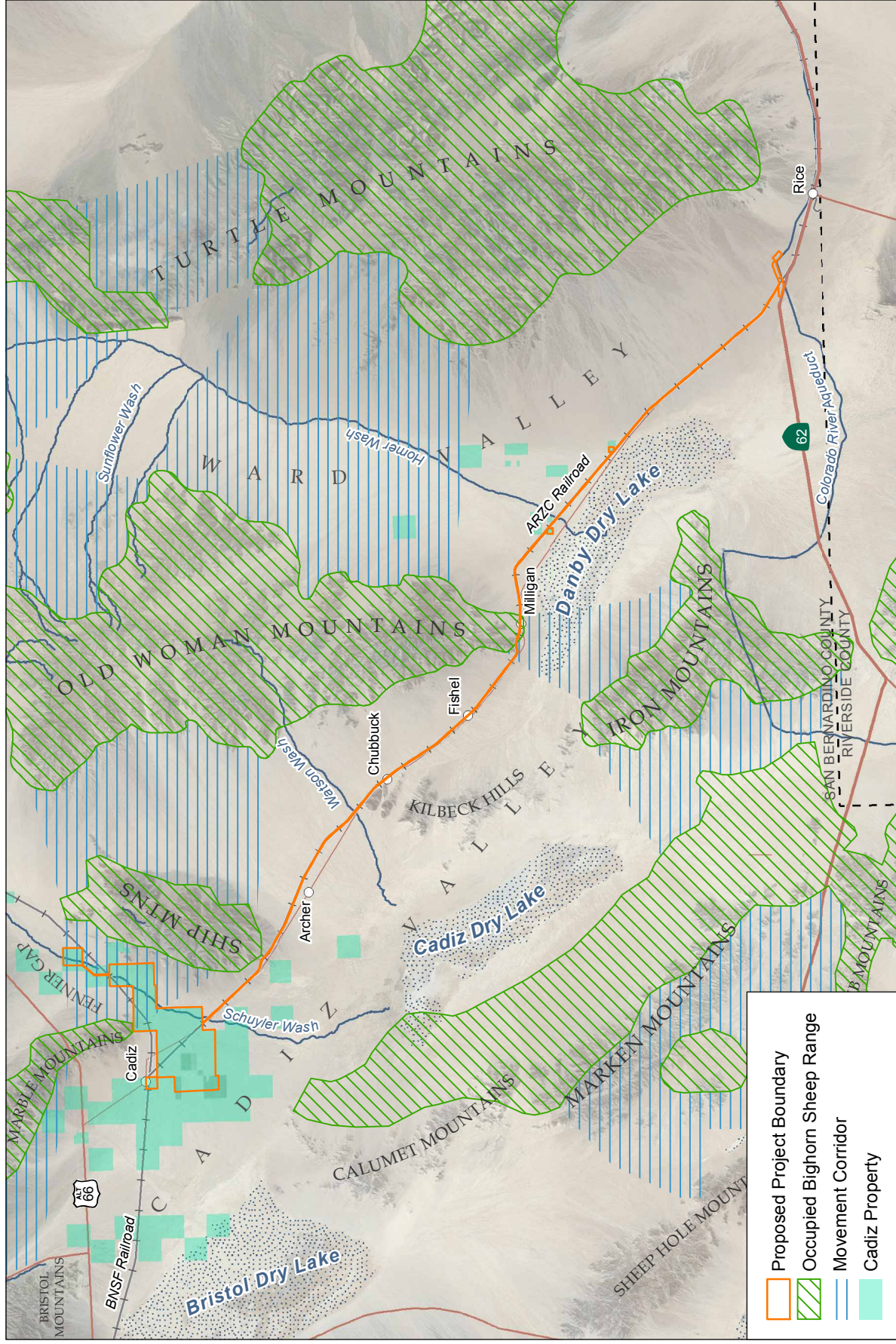
Nelson's bighorn sheep have not been observed during field surveys, but suitable habitat is present within the adjacent and surrounding mountain ranges. This species may enter the Project site and the surrounding desert area while foraging during winter months.

²⁰ Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds., *California's Wildlife, Vol. 2, Birds*, California Department of Fish and Game, 1990.

²¹ Williams, D. F., *Mammalian Species of Special Concern in California*, June 1986, page 59; Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds., *California's Wildlife, Vol. 2, Birds*, California Department of Fish and Game, 1990.

²² Williams, D. F., *Mammalian Species of Special Concern in California*, June 1986, page 59; Zeiner, D.C., W.F. Laudenslayer, Jr., K.E. Mayer, and M. White, eds., *California's Wildlife, Vol. 2, Birds*, California Department of Fish and Game, 1990.

²³ Williams, D. F., *Mammalian Species of Special Concern in California*, June 1986, page 59.



SOURCE: Northern and Eastern Colorado Desert Coordinated Management Plan; ESA, 2011

Cadiz Valley Water Conservation, Recovery, and Storage Project
Figure 4.4-4
 Bighorn Sheep Range and
 Movement Corridor

Yuma Mountain Lion (*Puma concolor browni*)

The Yuma Mountain Lion is found in low elevations in the Colorado River Valley of California. It lives in dense bottomland vegetation and also found in adjacent, rocky uplands. Although there is some suitable habitat present in Ship, Iron, and Old Woman Mountains and in the Kilbeck Hills, it has not previously been observed during field surveys. This species may enter the Project area and the surrounding desert area while foraging.

Special-Status Plants

The following is a list of special-status plant species with a CNPS List 2²⁴ status that have a medium to high potential to occur within the Project area based on their habitat requirements:

- Small-flowered endrostephium (*Androstephium breviflorum*)
- Hardwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)
- Slender cottonheads (*Nemacaulis denudata* var. *gracilis*)

In addition to the above-mentioned special-status plant species, the following List 4 species²⁵ have a medium to high potential to occur within the Project area: Borrego milk-vetch, Alverson's foxtail cactus, ribbed cryptantha, winged cryptantha, and Utah vine milkweed. No native plant species that are known to be phreatophytic (relying on groundwater for survival) were found during field surveys within the Project area.

The following is a brief description of the special-status CNPS List 2 species identified as having a medium or high potential for occurrence, based on nearby occurrences and/or the presence of suitable habitat.

Small-flowered endrostephium (*Androstephium breviflorum*)

Small-flowered endrostephium, listed by CNPS as fairly endangered in California, is a perennial bulbiferous herb found on desert dunes and desert scrub. This species blooms between March and April.²⁶

Suitable habitat for this species is present throughout the Project area and was observed west of the Iron Mountains in 1995.

Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*)

Harwood's milk-vetch, listed by CNPS as fairly endangered in California, is an annual herb found on desert scrub below 930 feet and on sandy or gravelly desert dunes. The range of this species extends from Southern California and Arizona, down to Mexico.²⁷

²⁴ Plants rare, threatened, or endangered in California but more common elsewhere.

²⁵ Plants of limited distribution.

²⁶ California Native Plant Society, *Inventory of Rare and Endangered Plants*, <http://www.rareplants.cnps.org/>, accessed June 2011.

²⁷ California Native Plant Society, *Inventory of Rare and Endangered Plants*, <http://www.rareplants.cnps.org/>, accessed June 2011.

Suitable habitat for Harwood's milk-vetch is present within the desert dunes along the proposed pipeline route and the wellfield area. In 2010, this species was observed and recorded within the vicinity of the Project area between Danby Dry Lake and Cadiz Road.

Slender cottonheads (*Nemacaulis denudata* var. *gracilis*)

Slender cottonheads is listed by CNPS as fairly endangered in California and is an annual herb. This species blooming period is March through May, and it can be found on coastal dunes, desert dunes, or Sonoran desert scrub.²⁸

Suitable habitat for this species can be found within the ARZC ROW and along the western portions of the wellfield area. Slender cottonheads were found in the Arica Mountains in 2010.

Sensitive Habitats

Sensitive habitats are designated by CDFG as any area in which plant or animal life or their habitats are either rare or especially valuable or may contain "rare and endangered" species. Sensitive habitats in the Project area include Mojave wash scrub and stabilized or partially stabilized desert dunes or desert sand fields found along the ARZC ROW. These plant communities are considered sensitive by the CDFG.

Wildlife Movement Corridors

Wildlife movement corridors are considered an important ecological resource by various agencies (CDFG, USFWS, United States Forest Service [USFS]) and under CEQA. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range.

Wildlife movement corridors vary greatly in their overall significance. Studies on wildlife movement corridors suggest that major drainages, canyon bottoms and ridgetops, as well as areas that provide important resources for wildlife, are the most important for wildlife movement. In general, two types of corridors exist. Regional corridors allow for movement between large, often widely separated areas. These may connect national forests, mountain ranges or other major wildlife use areas. Local wildlife corridors allow dispersion between smaller, generally more adjacent areas, such as between canyons or ridges or between important resource areas.

BLM has designated several regional wildlife movement corridors connecting occupied bighorn sheep habitat on the Project site and in the Project vicinity (see Figure 4.4-4). A movement corridor connecting occupied bighorn sheep habitat between the Marble Mountains and the Ship Mountains to the southeast traverses the Project spreading basin and wellfield areas. This corridor is bisected by the mainline of the BNSF, Historic Route 66 and other roads. Schulyer Wash, which occurs southeast of the Project spreading basins, is a likely stopping point for wildlife that may be traveling between the Marble and Ship Mountains. Schulyer Wash also appears to be an

²⁸ California Native Plant Society, *Inventory of Rare and Endangered Plants*, <http://www.rareplants.cnps.org/>, accessed June 2011.

important resource to tortoises. Tortoises may use this wash as a travel corridor, and/or they are relying on resources provided by the wash, apparently concentrating their use in this area.

Another regional movement corridor connects occupied bighorn sheep habitat between the Old Woman Mountains and the Iron Mountains to the south. This corridor crosses Danby Dry Lake and is bisected by the ARZC rail line and Cadiz Rice Road. A larger regional movement corridor connects the Iron Mountains and the Calumet Mountains to the west. The power transmission line running north-south across Danby Dry Lake crosses suitable habitat at the southern edge of the Iron Mountains.

4.4.2 Regulatory Framework

The following discussion describes the various federal, State, and local laws and regulations that prescribe consideration of species and habitats that may be found in the proposed Project area.

Federal

Federal Endangered Species Act

The Federal Endangered Species Act (FESA) protects threatened and endangered plants and animals and their critical habitat. Candidate species are those proposed for listing; these species are usually treated by resource agencies as if they were actually listed during the environmental review process. Procedures for addressing impacts to federally listed species follow two principal pathways, both of which require consultation with the USFWS. The first pathway, Section 10(a) incidental take permit, applies to situations where a non-federal government entity must resolve potential adverse impacts to species protected under the FESA. The second pathway, Section 7 consultation, applies to projects directly undertaken by a federal agency or private projects requiring a federal permit or approval.

USFWS produced an updated list of candidate species for listing in June 2002 (Federal Register: Volume 67, Number 114, 50 CFR Part 17). Candidate species are regarded by USFWS as candidates for addition to the “List of Endangered and Threatened Wildlife and Plants.” Although candidate species are not afforded legal protection under the FESA, they typically receive special attention from federal and State agencies during the environmental review process.

The desert tortoise (Mojave population) was listed as Threatened under the FESA in 1990. Critical habitat and a recovery plan, together with a supplement identifying proposed Desert Wildlife Management Areas, were put in place in 1994. The 2011 Revised Recovery Plan was created to resolve key uncertainties about threats and management in order to improve the recovery potential, but it does not modify or expand the 1994 Critical Habitat designation or the Desert Wildlife Management Areas (DWMAs) for the desert tortoise. These DWMAs were designed to provide reserves or protected areas for the desert tortoise. The 1994 Recovery Plan described strategies for recovering the desert tortoise. These strategies included the identification of six recovery units, recommendations for a system of DWMAs within the recovery units, and development and implementation of specific recovery actions. The revised strategy within the 2011 Recovery Plan builds upon the foundation of the 1994 Recovery Plan by emphasizing

partnerships to direct and maintain focus on implementing recovery actions and incorporates a system to track implementation and effectiveness of the recovery actions. The goal of the plan is to recover and eventually delist the desert tortoise from the Threatened species list.²⁹

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It establishes seasons and bag limits for hunted species and protects migratory birds, their occupied nests, and their eggs. Most actions that result in a taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are the possession of a hunting license to pursue specific game birds, legitimate research activities, display in zoological gardens, bird banding, and other similar activities. USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's Animal Damage Control Officer makes recommendations on related animal protection issues.

The Bald Eagle Protection Act

The Bald Eagle Protection Act (16 U.S.C. 668-668c) prohibits anyone without a permit issued by the Secretary of the Interior from "taking" bald and golden eagles, including their parts, nests, or eggs. The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." In addition to immediate impacts, this definition also covers impacts that result from human-induced alterations initiated around a previously-used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits and causes injury, death, or nest abandonment.

Clean Water Act (33 U.S.C. 1344)

The federal Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972 which outlined the basic structure for regulating discharges of pollutants to waters of the United States. The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. The following discussion gives background information as relevant to biological resources.

CWA Sections 404 and 401 regulate the discharge of dredged and fill materials into waters of the United States. Waters of the United States refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands. Applicants must obtain a permit from the U.S. Army Corps of Engineers (USACE) for all discharges of dredged or fill material into waters of the United States, including wetlands, before proceeding with a proposed activity. The USACE defines waters of the United States as those waters having a significant hydraulic connection with navigable waters.³⁰ For small-scale

²⁹ U.S. Fish & Wildlife Service, *Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Gopherus agassizii)*, May 2011.

³⁰ U.S. Army Corps of Engineers, *Revised Guidance on Clean Water Act Jurisdiction Following the Supreme Court Decision in Rapanos v. U.S. and Carabell v. U.S.*, December 2008.

projects affecting small areas, the USACE has established pre-approved Nationwide Permits (NWP) that apply to projects with limited effects. The purpose of the NWP Program is to streamline the evaluation and approval process for certain types of activities that have only minimal impacts to the aquatic environment. (Reissuance of Nationwide Permits, 72 Fed. Reg. at 11,095.³¹) The thresholds for complying with these permits would be verified by the USACE during a permit consultation meeting. The U.S. Environmental Protection Agency (EPA) and USACE created the *Draft Guidance on Identifying Waters Protected by the CWA* in order to clarify and describe how protected waters are identified by the two agencies.³² Based on review of this guidance and due to the isolated nature of the washes and playas in the Cadiz Valley, these waters are likely not considered waters of the United States and therefore not subject to CWA regulations. However, the Piute observation well would be located within the Piute Wash Watershed which is a tributary to the Colorado River.

Rivers and Harbors Act of 1899

The Rivers and Harbors Act regulates projects and activities in navigable waters and harbor and river improvements. Section 10 prohibits the unauthorized obstruction or alteration of any navigable water of the United States. The construction of any structure in or over any navigable water of the United States and any work affecting the course, location, condition, or physical capacity of such waters is unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army.

Executive Order 13112 - Invasive Species

Executive Order 13112 - Invasive Species directs all federal agencies to refrain from authorizing, funding, or carrying out actions or projects that may spread invasive species. The order further directs federal agencies to prevent the introduction of invasive species, control and monitor existing invasive species populations, restore native species to invaded ecosystems, research and develop prevention and control methods for invasive species, and promote public education on invasive species. As part of the proposed action, USFWS and USACE issue permits and are responsible for ensuring that the proposed action complies with Executive Order 13112 and does not contribute to the spread of invasive species.

State

Regional Water Quality Control Board

The State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCBs) (together “Boards”) are the principal state agencies with primary responsibility for the coordination and control of water quality. In the Porter-Cologne Water Quality Control Act (Porter-Cologne), the Legislature declared that the “state must be prepared to exercise its full power and jurisdiction to protect the quality of the waters in the state from degradation...” (California Water Code Section 13000). Porter-Cologne grants the Boards the authority to implement and enforce the water quality laws, regulations, policies, and plans to protect the groundwater and surface waters of the State. Waters of the State determined to be

³¹ U.S. Army Corps of Engineers, Department of Defense, *Federal Register*, Vol.72, No. 47, March 2007.

³² U.S. Environmental Protection Agency, *Draft Guidance on Identifying Waters Protected by the CWA*, May 2011.

jurisdictional would require, if impacted, waste-discharge permitting and/or a Clean Water Act Section 401 certification (in the case of the required USACE permit). The enforcement of the State's water quality requirements is not solely the purview of the Boards and their staff. Other agencies (e.g., the CDFG) have the ability to enforce certain water quality provisions in State law.

California Endangered Species Act

Under the California Endangered Species Act (CESA), CDFG has the responsibility for maintaining a list of endangered and threatened species (Fish and Game Code [- FGC] 2070). Sections 2050 through 2098 of the FGC outline the protection provided to California's rare, endangered, and threatened species. Section 2080 of the FGC prohibits the taking of plants and animals listed under the CESA. Section 2081 established an incidental take permit program for state-listed species. CDFG maintains a list of "candidate species" which are species that CDFG formally notices as being under review for addition to the list of endangered or threatened species.

Pursuant to the requirements of CESA, an agency reviewing a proposed project within its jurisdiction must determine whether any State-listed endangered or threatened species may be present in the project study area and determine whether the proposed project would have a potentially significant impact on such species. In addition, CDFG encourages informal consultation on any proposed project that may impact a candidate species.

Project-related impacts to species on the CESA endangered or threatened list would be considered significant. State-listed species are fully protected under the mandates of the CESA. "Take" of protected species incidental to otherwise lawful management activities may be authorized under FGC Section 2081. Authorization from CDFG would be in the form of an Incidental Take Permit.

California Fish and Game Code

Pursuant to Division 2, Chapter 6, Section 1600-1616 of the California FGC, the CDFG regulates all diversions, obstructions, or changes in the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife. CDFG jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. The CDFG jurisdictional limits closely mirror those of the USACE. Exceptions are CDFG's exclusion of isolated wetlands, the addition of artificial stock ponds and irrigation ditches and the addition of riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status.

Fully Protected Species

Certain species are considered *fully protected*, meaning that the code explicitly prohibits all take of individuals of these species except for take permitted for scientific research. Section 5050 lists fully protected amphibians and reptiles, Section 5515 lists fully protected fish, Section 3511 lists fully protected birds, and Section 4700 lists fully protected mammals.

It is possible for a species to be protected under the California FGC, but not fully protected. For instance, Yuma mountain lion (*Puma concolor*) is protected under Section 4800 et seq., but is not a fully protected species.

Protection of Birds and Their Nests

Eggs and nests of all birds are protected under Section 3503 of the California Fish and Game Code, nesting birds (including raptors and passerines) under Sections 3503.5 and 3513, and birds of prey under Section 3503.5. Migratory non-game birds are protected under Section 3800 and other specified birds under Section 3505.

Stream and Lake Protection

CDFG has jurisdictional authority over streams and lakes and the wetland resources associated with these aquatic systems under California Fish and Game Code Sections 1600 et seq. through administration of lake or streambed alteration agreements. Such agreements do not constitute permits, but rather mutual accords between CDFG and the project proponent. California Fish and Game Code Section 1600 et seq. was repealed and replaced in October of 2003 with the new Section 1600–1616 that took effect on January 1, 2004 (Senate Bill No. 418 Sher). Under the new code, CDFG has the authority to regulate work that would “substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river lake or stream.” CDFG enters into a streambed alteration agreement with the project proponent and can impose conditions to minimize and mitigate impacts to fish and wildlife resources. Because CDFG includes under its jurisdiction streamside habitats that may not qualify as wetlands under the federal CWA definition, CDFG jurisdiction may be broader than USACE jurisdiction.

A project proponent must submit a notification of streambed alteration to CDFG before construction. The notification requires an application fee for streambed alteration agreements, with a specific fee schedule to be determined by CDFG. CDFG can enter into programmatic agreements that cover recurring operation and maintenance activities and regional plans. These agreements are sometimes referred to as Master Streambed Alteration Agreements (MSAAs).

Under Fish and Game Code Section 1602 (Streambed Alteration Agreements), CDFG takes jurisdiction over the stream zone, which is defined as the top of the stream bank or the furthest extent of riparian vegetation. Within the stream zone, waters of the State of California are typically delineated to include the streambed to the top of the bank and adjacent areas that would meet any one of the three wetland parameters in the USACE definition (vegetation, hydrology, and/or soils). Whereas federal jurisdiction requires meeting all three parameters, in practice meeting one parameter, or even the presence (rather than dominance) of wetland plants in an area associated with a jurisdictional streambed would qualify an area as waters of the State of California. CDFG jurisdiction is not limited to navigable waters or tributaries to navigable waters, however, isolated wetlands and wetlands not associated with a streambed are not subject to CDFG jurisdiction.

Raptor Nests

Section 3503.5 of the California Fish and Game Code states that it is “unlawful to take, possess, or destroy any birds in the order Falconiformes (hawks and falcons) or Strigiformes (owls) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.”

Native Plant Protection Act

In addition, the Native Plant Protection Act of 1977 (FGC Section 1900 et seq.) prohibits the taking, possessing, or sale within the state of any plants with a state designation of rare, threatened, or endangered (as defined by CDFG). An exception to this prohibition in the Act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify CDFG and give that state agency at least 10 days to come and retrieve (and presumably replant) the plants before they are plowed under or otherwise destroyed (FGC, Section 1913 exempts from “take” prohibition “the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way.” Project impacts to these species are not considered significant unless the species are known to have a high potential to occur within the area of disturbance associated with construction of the proposed project.

California Native Plant Society

The CNPS maintains a list of plant species native to California that have low numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following identifies the definitions of the CNPS listings:

- List 1A: Plants Believed Extinct.
- List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.
- List 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere.
- List 3: Plants about Which We Need More Information - A Review List.
- List 4: Plants of Limited Distribution - A Watch List.

Local

San Bernardino County Development Code

The State of California Government Code establishes an exemption for “the location or construction of facilities for the production, generation, storage, treatment, or transmission of water....” from county or city building and zoning ordinances. (Gov. Code §§ 53091(d), (e)) The implementation of the Project by SMWD would be covered under this exemption for the construction and operation of facilities that are used to produce, store and transmit water. The following discussion on the County Development Code is provided for context to assess the Project’s consistency with the County policies.

The San Bernardino County Development Code was revised and adopted on 12 April 2007. For discussion of the applicability of the County General Plan and Development Code policies to the Project, see Section 4.10.3, Consistency with Land Use Plans (Land Use and Planning). Chapter 82.11 Biotic Resources (BR) Overlay, Section 82.11.030 states, “When a land use is proposed, or an existing land use is increased by more than 25 percent of disturbed area within a BR Overlay, the land use application shall include a biotic resources report prepared as follows, except where the Director finds that prior environmental studies approved by the County have determined that the site does not contain viable habitat. Chapter 88.01 Plant Protection and Management, Section 88.01.020 states, “The provisions of this Chapter apply to the removal and relocation of regulated trees or plants and to any encroachment (for example, grading) within the protected zone of a regulated tree or plant on all private land within the unincorporated areas of the County and on public lands owned by the County, unless otherwise specified...”

Section 88.01.060 Desert Native Plant Protection states, “This Section provides regulations for the removal or harvesting of specified desert native plants in order to preserve and protect the plants and to provide for the conservation and wise use of desert resources...”

Section 88.01.060(c) Regulated Desert Native Plants states, “The following desert native plants or any part of them, except the fruit, shall not be removed except under a Tree or Plant Removal Permit in compliance within Section 88.01.050 (Tree or Plant Removal Permits):

- (1) The following desert native plants with stems two inches or greater in diameter or six feet or greater in height:
 - (A) *Dalea spinosa* (smoke tree).
 - (B) All species of the genus *Prosopis* (mesquites).
- (2) All species of the family Agavaceae (century plants, nolinias, yuccas).
- (3) Creosote Rings, 10 feet or greater in diameter.
- (4) All Joshua trees.
- (5) Any part of the following species, whether living or dead:
 - (A) *Olneya tesota* (desert ironwood).
 - (B) All species of the genus *Prosopis* (mesquites).
 - (C) All species of the genus *Cercidium* (palo verdes).”

Section 88.02.040 Dust Control-Desert Region states, “This Section provides regulations for disturbances to fragile desert soils in order to reduce the amount of fugitive dust that may (for long periods of time) adversely affect those who own; possess, control; or use residential parcels of land; and those who are located downwind of a residential parcel of land whose surface is being disturbed.”

- (a) Applicability. The provisions in this Section apply to parcels in the Desert Region that are one acre or greater in size and are utilized for residential purposes.

- (b) Permit requirements. A land use permit shall not be required for grading, land clearing, or vegetation removal activities that comply with Subsection (c) (Dust control standards Desert Region), below. If more extensive grading, land clearing, or vegetation removal activities are proposed than allowed in Subsection (c), the activities shall be require approval of a Site Plan Permit in compliance with Chapter 85.08 (Site Plan Permit).
- (c) Dust control standards Desert Region. Land shall be cleared or natural vegetation shall be removed only in order to provide for the installation of building pads, driveways, landscaping, agriculture, or some other structure or allowed use normally related or accessory to residential uses. No person, except as provided in this Chapter, shall commence with a disturbance of land (e.g., grading or land clearing) without first obtaining approval to assure that said disturbance would not result in a significant increase of fugitive dust. Said approval may be in the form of a development permit.

The State of California Government Code establishes an exemption for “the location or construction of facilities for the production, generation, storage, treatment, or transmission of water...” from county or city building and zoning ordinances. (Gov. Code §§ 53091(d), (e)) The implementation of the Project by SMWD would be covered under this exemption for the construction and operation of facilities that are used to produce, store and transmit water. The following discussion on the County Municipal Code is provided for context to assess the Project’s consistency with the County policies.

4.4.3 Impact and Mitigation Analysis

Significance Criteria

Based on the *CEQA Guidelines*, Appendix G, a project may be deemed to have a significant effect on the environment with respect to biological resources if it would:

- 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 USFWS;
- Have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or wildlife species or with established native resident or migratory native wildlife corridors, or impeded the use of wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

CEQA Guidelines Section 15065, *Mandatory Findings of Significance*, directs lead agencies to find that a project may have a significant effect on the environment if it has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory. An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or ecological context. The definition of “significant,” as applied for this assessment, considers both the local and regional status of each resource. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations.

CEQA Guidelines Section 15206 further specifies that a project shall be deemed to be of statewide, regional, or area-wide significance if it would substantially affect sensitive wildlife habitats including, but not limited to, riparian lands, wetlands, bays, estuaries, marshes, and habitats for rare and endangered species as defined by the Fish and Game Code Section 903.

CEQA Guidelines Section 15380 provide that a plant or animal species, even if not on one of the official lists, may be treated as “rare or endangered” if, for example, it is likely to become endangered in the foreseeable future. Additional criteria to assess significant impacts to biological resources due to the proposed project are specified in *CEQA Guidelines* Section 15382 (Significant Effect on the Environment) “...a *substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.*”

A project-related impact to biological resources could take two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification, or disturbance of natural habitats (i.e., vegetation or plant communities), which in turn, directly affect plant and wildlife species dependent on that habitat. Direct impacts also include the destruction of individual plants or wildlife, which is typically the case in species of low mobility (i.e., plants, amphibians, reptiles, and small mammals). The collective loss of individuals in these manners may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and, hence, population stability. Indirect impacts are considered to be those that involve the effects of increase in ambient levels of sensory stimuli (e.g., noise, light), unnatural predators (e.g., domestic cats and other non-native animals), and competitors (e.g., exotic plants, non-native animals).

Indirect impacts may be associated with the construction and/or eventual habitation/operation of a project; therefore, these impacts may be both short-term and long-term in their duration. These

impacts are commonly referred to as “edge effects” and may result in changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to project sites.

The determination of impacts in this analysis is based on both the features of the proposed Project and the biological values of the habitat and/or sensitivity of plant and wildlife species to be affected. Project design features that avoid or preserve biological resources are taken into consideration and specifically described below prior to the assessment of potential adverse impacts.

Methodology

Biological resources in the Project area were documented using a variety of sources including review of aerial photographs; contacts with technical specialists familiar with survey protocol and the biological resources in the vicinity;³³ review of prior documents and focused surveys;³⁴ review of the CDFG CNDDDB Rare Plant and Animal Species List;³⁵ CDFG List of Special Plants³⁶ and Special Animals;³⁷ CNPS Inventory of Rare and Endangered Plants;³⁸ U.S. Fish and Wildlife Service Birds of Conservation Concern;³⁹ and field surveys.

Habitat mapping was based on aerial photographs and field reconnaissance. Field surveys for plants, birds and mammals, which included protocol level surveys for burrowing owl and desert tortoise, were conducted along the proposed pipeline alignment from September 20 – September 28, 2010. Field surveys, which included protocol level surveys for burrowing owl and desert tortoise, within the wellfield areas and conceptual spreading basin areas were conducted from September 29 through October 17, 2010. A rare plant survey was conducted along the pipeline alignment study area in April 2011.

Survey protocol within the proposed pipeline alignment was conducted as follows: both sides of the ARZC ROW rail line were surveyed out to 100 feet that entailed survey of three transects, spaced at 30-foot intervals on both sides of the railroad tracks. Zone of influence transects were

³³ U.S. Fish and Wildlife Service, *Preparing for Any Action That May Occur Within the Range of the Mojave Desert Tortoise (Gopherus agassizii)*, 2010; California Department of Fish and Game, *Staff Report on Burrowing Owl Mitigation*, Memorandum from C.F. Raysbrook, October 1995.

³⁴ Tierra Madre Consultants, Inc., *Cadiz Valley Rare Plant Surveys*, June 1999; Circle Mountain Biological Consultants, *Cadiz Groundwater Storage and Dry-Year Supply Program: Biological Resources Technical Report: Focused Desert Tortoise Survey and Special-Status Reptile Inventory*, June 1999 and updated October 1999; Metropolitan Water District of Southern California and Bureau of Land Management, *Cadiz Groundwater Storage and Dry-Year Supply Program Environmental Planning Technical Report, Biological Resources*, 1999.

³⁵ California Department of Fish and Game, *California Natural Diversity Data Base*, <http://www.dfg.ca.gov/biogeodata/cnddb/>, accessed 2010.

³⁶ California Department of Fish and Game, Natural Diversity Database, *Special Vascular Plants, Bryophytes, and Lichens List*, January 2010.

³⁷ California Department of Fish and Game, Biogeographic Data Branch of Natural Diversity Database, *Special Animals (883 Taxa)*, July 2009.

³⁸ California Native Plant Society, *Inventory of Rare and Endangered Plants*, <http://www.rareplants.cnps.org/>, accessed February 2010.

³⁹ U.S. Fish and Wildlife Service, Division of Migratory Bird Management, *Birds of Conservation Concern*, December 2002.

surveyed at 655-, 1,310-, and 1,970-foot intervals on both sides of the southern 20 miles. The ¾-mile stretch of the underground CRA between the southern terminus of the ROW and east to where the CRA surfaces was surveyed along 6 transects spaced at 30-foot intervals.

For desert tortoise surveys, protocol first identified by the USFWS in 1992⁴⁰ and recently revised in 2010⁴¹ were followed that recommend transects be surveyed at 30-foot intervals throughout the Project impact area and additionally at 655-foot, 1,310-foot, and 1,970-foot intervals beyond the Project perimeter.

For burrowing owl surveys, the CDFG (1995) survey protocol for burrowing owls was followed that recommends transects be surveyed at 100-foot intervals throughout a given site with five transects spaced at 100-foot intervals surveyed in adjacent areas in potential habitat (i.e., excluding areas substantially developed for commercial, residential, industrial, and other purposes). The transect interval used for this study was ideal for detecting burrowing owls.

For Phase 2 facilities, which are conceptual spreading basin locations, surveys were on a programmatic level. This resulted in surveys of 54 linear miles within each square mile rather than 43 linear miles that would have been covered following the standard protocol for Project level analysis.

With respect to rare plant surveys which were conducted along the pipeline alignment, these were focused on 21 plant species identified through the CNDDDB database search results and other research. Based upon this, it was determined to have a medium potential to occur within the pipeline route study area based on the proximity of the Project to previously recorded occurrences in the region, on-site vegetation and habitat quality, topography, elevation, soils, surrounding land uses, habitat preferences, and geographic ranges of special-status plant species known to occur in the region. For the Phase 2 programmatic analysis, rare plant surveys were not conducted within the conceptual wellfield or spreading basin areas, or within the location of the proposed observation wells. Once the expanded wellfield and spreading basin locations are finalized, rare plant surveys would be conducted to determine the presence or absence of the special-status plant species within the proposed construction areas.

More detailed information on survey methodology is provided in the Focused Survey for Desert Tortoise, Habitat Evaluation for Burrowing Owl, and General Biological Resource Assessment for the Cadiz Biological Resource Assessment for the Cadiz Valley Water Conservation, Recovery, and Storage Project, San Bernardino County, California and Cadiz Valley Water Conservation, Recovery, and Storage Project Rare Plant Survey Report. Both documents can be found within Appendix F of this Draft EIR.

⁴⁰ U.S. Fish and Wildlife Service, *Field Survey Protocol For Any Non-Federal Action That May Occur Within The Range of The Desert Tortoise*, January 1992.

⁴¹ U.S. Fish and Wildlife Service, *2010 List of Federal Endangered or Threatened Species for San Bernardino County*, 2010.

Groundwater Conservation and Recovery Component

Special-Status Wildlife Species

Significance Threshold

Would the proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS?

Impact Analysis

Sensitive biological resources are defined as species under study for classification as threatened or endangered, or as species that have low population densities or a highly restricted range.

According to data current as of 2011, 5 species of special-status plants, and 8 species of special-status wildlife have been recorded by the CNDDDB within the 9-quads surrounding the proposed Project area (Arica Mountains, Cadiz Summit, Cadiz Lake Northwest, Cadiz Lake Northeast, Chubbuck, Milligan, East of Milligan, Danby Lake, and Sablon). No sensitive vegetation communities were listed for the 9-quad radius searched.

There are two distinct areas of impacts which occur during construction of the Project. First, impacts would occur in currently disturbed but undeveloped areas within the conveyance pipeline alignment and within the wellfield manifold network. The pipeline would be installed within a 100-foot wide easement. The entire 100-foot easement could be cleared and graded along the alignment. Second, within the wellfield area, the area of disturbance would be limited to the wellpad areas and utility roads connecting the system (see Table 4.4-2 for wellfield permanent impact acreage for both configurations). The roadways would be approximately 25 feet wide and would contain underground piping and electrical lines. Electric lines may also be overhead. Figures 3-6a and 3-6b identify the wellfield manifold system impact area for both proposed configurations.

Construction

Construction of the Project would result in direct and indirect impacts to wildlife species. Impacts to wildlife could occur directly or as a result of habitat loss. The following sections, divided by facilities areas, discuss the species that could be affected by construction. Following the impact discussion, mitigation measures are defined and evaluated.

Nighttime construction would impact all wildlife species, in particular nocturnal species that forage and are active at night. Construction along the pipeline alignment would occur in segments and Mitigation Measure **AES-1** would restrict lighting during such activities to be pointed downward away from critical habitat or other open space areas, as feasible, to minimize impacts to wildlife species during construction.

Noise from construction would also affect all wildlife species during day and nighttime construction activities. The indirect effects from nighttime lighting and noise would extend for some distance into the open desert following the linear construction activities. Due to the low ambient noise in the desert night, noise from construction may be heard at great distances even though the 45 dBA contour may be 1,500 feet or less from the construction area. Nighttime lights

would be visible from long distances and may attract insects from long distances. The lights and noise would also deter most wildlife. As construction activities moved down the alignment, these affects would move commensurately. At any given location, indirect effects of lighting and noise would occur for between three to eight weeks. Given the amount of open space surrounding the construction zone, most wildlife would avoid the construction zone and would not be adversely affected or limited. Furthermore, noise from the operating railroad under existing conditions has created a noise impact zone along the tracks that would be similar to the construction area of indirect effect.

Table 4.4-2 compiles acreages affected by the pipeline alignment and wellfield. Most of the Project impacts are temporary. Permanent impacts are associated with access roads along the pipeline and wellfield and wellpads for production and observation wells, totaling less than 250 acres. This assumes 25-foot wide roads. The existing active agricultural operations on the Cadiz Ranch for comparison is 1,600 acres, six times greater than the total Project permanent impact.

Reptiles

Desert Tortoise – Pipeline

Protocol-level desert tortoise surveys conducted along the pipeline alignment in September 2010 found no living tortoises within the pipeline route although tortoise sign was found in the northern portion indicating presence in neighboring areas. The survey report is included as Appendix F1. The report notes that tortoises are not common anywhere along the ARZC ROW, but apparently occur in low densities near the northern segments of the ARZC ROW. With respect to Northern segments, the surveys found 4 scat, 3 carcasses, and 1 inactive burrow within the northern portion of the ARZC ROW. However, no tortoise sign was found south of the Old Woman Mountains, and the survey report suggests that south of the Old Woman Mountains, tortoise may be absent or occur in very low densities.

**TABLE 4.4-2
SUMMARY OF IMPACTS**

	Temporary Impacts (acres)	Permanent Impacts (acres)
Wellfield Area (and observation wells in Watersheds)	0	83 (Configuration A) 113 (Configuration B)
North Segment of ARZC ROW	200	67
South Segment of ARZC ROW (very low probability of desert tortoise)	186	62
Observation Wells within Piute Valley Wash Watershed (includes access road)	0	1
Staging Areas (very low probability of desert tortoise)	645	0

SOURCE: ESA, 2011.

Desert Tortoise – CRA Tie-in and Forebay

The CRA tie-in and potential forebay would be located in areas where no tortoise sign was found. Based on survey results, construction in these areas would have minimal impacts to desert tortoise.

Desert Tortoise – Wellfield

Within the proposed wellfield area, evidence of living tortoises was restricted to Sections 17 and 18, with carcasses found in Sections 8 and 35 (Figure 4.4-2). No living tortoises were found within the wellfield study area, but the survey transects conducted in this 12-square mile area were not sufficiently dense to verify complete absence. Rather, the surveys in the wellfield area were designed to give an indication of tortoise density. The survey report concludes that tortoises are present in the surrounding areas at low densities and are more likely to be encountered in the eastern portion of the wellfield area (particularly Section 17 and 18, and perhaps Section 8).

The Project is being accomplished on a design build basis, which provides flexibility to ensure that a conservative approach towards the preservation of resources can be accomplished. With respect to construction of the wellfield, two configurations have been designed which would install a network of permanent access roads connecting each permanently cleared wellpad. This would result in approximately 83 acres of permanent habitat loss for Configuration A, and 113 acres of permanent habitat loss for Configuration B. Table 4.4-2 summarizes the acreage of permanent and temporary habitat impacts that would result from the Project.

Desert Tortoise - Summary of Construction Impacts

Although no living tortoises or active burrows were found within the ARZC ROW or wellfield area, individual tortoises may still be impacted if they entered the Project area during construction activities.

Common ravens are successful desert tortoise predators. Construction trash, power poles, fences, and water sources provide food and areas for raven to perch, facilitating tortoise predation. Limiting construction employee related food trash by designating enclosed disposal locations and limiting structures where raven can perch would help reduce impacts of predation on desert tortoise. Fences surrounding each well pad may provide perching substrates for ravens. Implementation of Mitigation Measure **BIO-3** would reduce potential desert tortoise predation by common ravens and other predatory species (i.e., coyotes) during construction and minimize impacts to less than significant.

Increased noise levels at the proposed Project area could potentially impact wildlife species within the proposed Project site and surrounding areas. Construction related noise would be a temporary occurrence and would be limited to the construction areas. Though 24-hour construction would occur, given the vast open space in the Project area, the construction noise would attenuate to moderate levels within a few hundred feet. Although due to the low ambient baseline condition, temporary construction noise would be audible at long distances, the noise would be at very low levels and not present a high level of disturbance. Therefore impacts from noise would be less than significant.

Implementation of Mitigation Measures **BIO-1 through BIO-4** would minimize potential direct impacts to the extent feasible. Construction of the pipeline within the ARZC ROW would occur largely in areas that are disturbed and used as access roads along the railroad. However, some areas within the easement have moderate to high habitat value. Mitigation Measure **BIO-5** would minimize impacts to habitat values by placing the alignment within the previously disturbed portions of the easement as much as possible. Most of the impacts to habitat along the pipeline would be temporary. Mitigation Measure **BIO-6** would ensure that the construction zone is restored sufficiently to support desert scrub habitat, resulting in a net acreage gain in restored habitat.

None of the temporarily or permanently affected areas are within special conservation areas or designated critical habitat for desert tortoise or areas with high habitat value or high-densities of individuals, except for the observation well within the Piute Wash Watershed, which would be within desert tortoise designated critical habitat. However, compensating at a 1:1 ratio for permanently affected habitat and at a 0.5:1 for temporarily impacted habitat as identified in Mitigation Measure **BIO-7** would ensure that impacts to desert tortoise through habitat reduction resulting from Project construction activities would be less than significant. Cadiz Inc. owns property within desert tortoise critical habitat that may be suitable as compensation. Mitigation Measures **BIO-1 through BIO-7** would reduce potential impacts to desert tortoise to less than significant levels since direct impacts would be minimized.

Mojave Fringe-Toed Lizard

The Mojave fringe-toed lizard was observed within sandfields east of Danby Dry Lake along the ARZC ROW. The sandfields located within the ARZC ROW that would be directly affected by construction are confined to small areas near Danby Dry Lake. Mohave fringe-toed lizards could be found in these areas. The species is not a listed species in the federal or State Endangered Species Acts, but they are recognized as sensitive species by CDFG and BLM. Direct impacts to the species would be considered a significant impact. Implementation of Mitigation Measures **BIO-8** would reduce impacts to the species to a less than significant level.

Birds

Raptors such as Cooper's hawk and prairie falcon may forage in the area but are not likely to nest within the Project area. Some foraging habitat could be lost to Project development in the wellfield area. However, no nest sites are located near the Project construction zone. Therefore, impacts are considered less than significant and no mitigation is required.

The golden eagle may incidentally occur in the Project area and occasionally forage there, but the species would not be expected to nest anywhere in the proposed Project area. Impacts to the golden eagle are considered less than significant and no mitigation is required.

The snowy plover is a listed species that may frequent the Danby Dry Lake. Construction of the proposed Project would not directly affect any portion of snowy plover habitat. The Danby Dry Lake is sufficiently large to provide habitat to snowy plover miles from the construction activities. Construction of the Project including the pipeline would not adversely affect the snowy plover.

LeConte's thrasher and loggerhead shrike were both observed during surveys conducted at the proposed Project facility sites. These species are associated with washes in the area such as Schulyer Wash. They are both likely to nest during the spring and have young present throughout the summer months. Mitigation Measure **BIO-9** would help reduce impacts to both species to a less than significant level by restricting the construction period outside of the breeding season and requiring buffer zones where necessary to avoid impacts.

Burrowing owls, burrows, and sign were found throughout the proposed Project site along the pipeline route and the wellfield area. Construction activities would be considered a significant impact to the species. Implementation of Mitigation Measures **BIO-10** would reduce potential impacts to a less than significant level.

The MBTA and the California Fish and Game Code consider the loss of active nests (nests with eggs or young) of all native bird species as unlawful by prohibiting the possession and destruction of birds, nests, and/or their eggs. Consequently, the loss or abandonment of nests of common bird species as a result of construction-related activities is considered a potentially significant impact and would conflict with State and federal laws. Implementation of Mitigation Measure **BIO-9** would reduce potential impacts to nesting migratory birds to a less than significant level.

Mammals

American badger sign was found throughout the proposed Project site including the wellfield area and ARZC ROW. Mitigation Measure **BIO-11** would ensure that impacts to this species would be reduced to a less than significant level.

Nelson's bighorn sheep are known to inhabit the higher elevations of the surrounding mountains. Figure 4.4-4 identifies designated bighorn sheep movement corridors that cross the Project construction areas. Movement through these corridors could be temporarily affected by construction activities. Along the ARZC ROW, construction would be limited to a few linear miles during the day time. Daily access to the construction zones would increase activities in the remote desert along the entire alignment. Nighttime construction could potentially impact wildlife movement between mountain ranges at night due to lighting and noise disturbances. The pipeline alignment would be constructed in segments and though 24-hour construction could occur, it would be localized to a specific segment, allowing for wildlife movement around the impacted area.

Conservation groups and wildlife agencies have installed man-made watering features⁴² throughout the mountain ranges surrounding the proposed Project. These watering features would not be impacted by the Project. See discussion of springs within Section 4.9, Hydrology and Water Quality.

The proposed wellfield would be located within a BLM-designated bighorn sheep movement corridor. Construction at the wellfield would involve grading roads and wellpads, drilling wells,

⁴² California Department of Fish and Game, *Bighorn Sheep Management Plan: South Bristol Mountains Management Unit*, 2010.

and installing underground electric and water pipelines. Electric lines may also be overhead. The new 25-foot wide roadways would not be paved or fenced. Once constructed, they would not impede wildlife movement.

No linear fencing or linear barriers would be installed as part of the Project that would impede movement by wildlife. Fences would surround well pads and potentially other structures along the pipeline ROW. However, these would not truncate habitat or create linear barriers that would impede wildlife movement. Wildlife would be able to navigate around these fences with ample space even for larger mammals such as the bighorn sheep. Temporary construction exclusion fencing would follow the construction activities but would not result in permanent barriers to wildlife movement. Well drilling would occur 24-hours a day for several weeks for each well. During these activities, construction activity would be continual and would deter wildlife in the immediate vicinity. However, the distances between well sites would leave ample room for wildlife movement from one side of the valley to the other. Construction of the proposed Project would not affect the habitat or movement of the bighorn sheep.

Pallid bats and/or pallid bat sign were observed at 22 of the 70 trestles at the washes along the ARZC ROW. The bats are thought to reproduce locally, though surveys were not conducted at a time when it could be determined whether or not trestles are being used as maternity roosts and/or winter hibernacula. Winter and spring surveys would determine trestle use and dictate mitigation measure requirements to avoid certain seasons depending on local usage. Implementation of Mitigation Measures **BIO-12** and **BIO-13** would reduce potential impacts to pallid bats to a less than significant level.

Operation

Once the pipeline is installed, maintenance activities would be minimal, resulting in minimal impacts to wildlife. If a forebay is constructed, the open water could attract wildlife including ravens and coyotes that are known to prey on desert tortoise. In addition, fencing surrounding the forebay would provide perching substrates for ravens. However, the forebay would be located in areas where no tortoises were identified in the 2010 surveys. In addition, the forebay would be located near the open CRA which is a constant source of water in the desert. Therefore, the addition of standing water in the forebay and the surrounding fence would not increase viability of ravens and coyotes due to the proximity to an already existing water source, and there would be a less than significant impact.

The wellfield area would consist of a network of well pads connected by service roads. The area is not considered to be critical habitat and has not been identified as potential conservation habitat for desert tortoise. However, daily maintenance trips could encounter desert tortoise periodically. This is similar to existing conditions where agricultural operations require periodic trips on remote roads within and near the developed lands. The likelihood of encountering desert tortoise within the proposed wellfield area is similar to existing conditions. Mitigation Measure **BIO-3** would establish a Desert Tortoise Avoidance and Protection Plan that would provide standard operating procedures to implement whenever a desert tortoise is observed in the Project area over the duration of the Project. Since the Project may affect the federally and State listed desert

tortoise, formal consultation with the USFWS would be required to comply with the federal and State Endangered Species Acts.

Overhead power lines may be constructed within the wellfield, interconnecting each wellpad along the service roads. The power lines and power poles may provide a perching substrate for raven and other bird species with the potential to prey on desert tortoise.

Operating the proposed Project would not affect other wildlife such as snowy plover, burrowing owls, raptors, nesting birds, lizards, and mammals including rodents, badgers, and bighorn sheep. Operational activities would consist of infrequent driving on access roads and well pads. The activity in the desert would not be less intensive than existing agricultural operations. Surrounding wildlife would not be significantly affected by the noise and vehicle use. The wellfield area would be located near the existing agricultural development areas. Nighttime lighting would be minimized and would not change the existing conditions substantially. Mitigation Measure **AES-2** would reduce any lighting impacts to a less than significant level. With implementation of mitigation measures including **BIO-3**, the Desert Tortoise Avoidance and Protection Plan, impacts from operations would be less than significant.

Mitigation Measures

Desert Tortoise

BIO-1: Immediately prior to construction activities, pre-construction surveys shall be conducted to document all locations of burrows and desert tortoise sightings within all proposed disturbance areas that provide potential habitat for the species. The survey protocol shall be established in coordination with USFWS.

BIO-2: A chain-link or tortoise fence (one-inch by two-inch welded wire mesh attached to the chain-link fence, with approximately two feet above-ground and one foot buried below ground) shall be installed to exclude small wildlife species from entering the active work areas in areas of documented occurrences of special-status ground dwelling wildlife as determined during pre-construction surveys by a qualified biologist or as directed by USFWS. When crossing drainages, these temporary fences must be designed and maintained to allow storm water runoff to flow past the construction site.

BIO-3: A Desert Tortoise Avoidance and Protection Plan shall be developed and adopted in consultation with the USFWS and CDFG prior to construction. Elements of the plan shall include, but are not limited to the following:

- A step-by-step protocol to be implemented whenever a desert tortoise is observed by construction or operational personnel.
- A pre-determined and pre-approved off-site relocation area if there is a need to relocate individual species during the course of Project construction.
- Flagging and delineation requirements for located burrows and areas with tortoise activity.
- An education program for all construction employees.

- Enforcement of speed limits and checking under vehicles for tortoise prior to leaving Project areas.
- Biological monitoring requirements for all ground disturbance activities.
- To prevent increased use of the Project areas by common ravens and coyotes, implementation of measures such as trash management, removal of unnatural sources of standing water, and other means. Drilling mud pits and water discharges will be controlled to minimize the duration of standing water at any one drilling site.

BIO-4: If a desert tortoise is observed in the construction zone, construction activities shall be halted in the vicinity. A pre-approved qualified biologist, authorized by USFWS and/or CDFG to handle desert tortoise, shall be contacted immediately. Work shall only continue once the authorized biologist determines there is no risk to the desert tortoise.

BIO-5: The pipeline shall be installed within previously disturbed areas of the easement to the extent feasible. During construction, previously undisturbed areas within the pipeline alignment that are not needed for construction shall be staked and flagged to prevent construction equipment access or disturbance in these areas. The cordoned off areas shall be flagged and monitored by a qualified biologist during construction activities.

BIO-6: A special-status species and sensitive habitat restoration plan shall be prepared and approved by the USFWS and CDFG prior to construction for unavoidable temporary impacts on special-status plants and sensitive habitats. The plan would include, at a minimum, the following measures:

- A salvage and replacement program for the top 12 inches of surface material and topsoil. The program shall identify soil preparation requirements, including grain size specifications that shall need to be engineered or amended on site to match to the greatest extent feasible the existing surface soil conditions.
- A salvage and replanting program for perennial special-status species.
- An invasive plant species maintenance, monitoring, and removal program.
- Success criteria that establishes yearly thresholds for growth and reestablishment of habitat.
- A five-year maintenance and monitoring plan to ensure successful implementation of the restoration plan.

BIO-7: A habitat compensation plan would be prepared and implemented that includes at a minimum the following measure:

- Purchase of compensatory mitigation lands or credits at a USFWS and CDFG approved conservation bank at a minimum 1:1 ratio for permanent habitat loss and 0.5:1 for temporary habitat loss (or that required by the USFWS and CDFG permit conditions) for preservation in perpetuity.

Mojave Fringe-toed Lizard

BIO-8: Prior to construction, surveys for Mojave fringe-toed lizard shall be conducted by a qualified biologist within the sand dunes and sand fields habitats within the ARZC ROW. If Mojave fringe-toed lizards are identified in the construction zone, the area shall be fenced during construction as described in **BIO-2** to prevent lizards from entering the construction site. Once fenced, a qualified biologist shall trap the area for lizards and release captured lizards into adjacent suitable habitat.

MBTA

BIO-9: If construction and vegetation removal is proposed for the bird nesting period of February 1 through August 31, then pre-construction surveys for nesting bird species shall begin 30 days prior to construction disturbance with subsequent weekly surveys, the last one being no more than three days prior to work initiation. The surveys shall include habitat within 300 feet (500 feet for raptors) of the construction limits. Active nest sites located during the pre-construction surveys shall be avoided and a non-disturbance buffer zone established dependent on the species and in consultation with USFWS and CDFG. This buffer zone shall be delineated in the field with flagging, stakes, or construction fencing. Nest sites shall be avoided with approved non-disturbance buffer zones until the adults and young are no longer reliant on the nest site for survival as determined by a qualified biologist.

Burrowing Owl

BIO-10: A burrowing owl survey shall be conducted pursuant to the *Burrowing Owl Survey Protocol and Mitigation Guidelines* of the California Burrowing Owl Consortium (1993) or per the *Staff Report on Burrowing Owl Mitigation* prepared by CDFG (1995). At a minimum, this survey shall include the following:

- A pre-construction survey conducted by a qualified biologist within 30 days of the start of construction. This survey shall include two early morning surveys and two evening surveys to ensure that all owl pairs have been located.
- If pre-construction surveys are undertaken during the breeding season (February 1st through July 31st) active nest burrows should be located within 250 feet of construction zones and an appropriate buffer around them (as determined by the Project biologist) shall remain excluded from construction activities until the breeding season is over.
- During the non-breeding season (August 15th through January 31st), resident owls may be relocated to alternative habitat. Owls shall be encouraged to relocate from the construction disturbance area to off-site habitat areas and undisturbed areas of the Project site through the use of one-way doors on burrows. If ground squirrel burrows, stand pipes, and other structures that have been documented during pre-construction surveys as supporting either a nesting burrowing owl pair or resident owl are removed to accommodate the proposed Project, these structures and burrows shall be relocated or replaced on or adjacent to the Project site. Relocated and replacement structures and burrows shall be sited within suitable foraging habitat within one-half

mile of the Project area. Suitable development-free buffers shall be maintained between replacement nest burrows and the nearest building, pathway, parking lot, or landscaping. The relocation of resident owls shall be in conformance with all necessary State and federal permits.

American Badger

BIO-11: A qualified biologist shall conduct focused pre-construction surveys no more than two weeks prior to construction for potential American badger dens. If no potential American badger dens are present, no further mitigation is required. If potential dens are observed, the following measures are required to avoid potential adverse effects to the American badger:

- If the qualified biologist determines that potential dens are inactive, the biologist shall excavate these dens by hand with a shovel to prevent badgers from re-using them during construction.
- If the qualified biologist determines that potential dens may be active, the entrances of the dens shall be blocked with soil, sticks, and debris for three to five days to discourage use of these dens prior to Project disturbance. The den entrances shall be blocked to an incrementally greater degree over the three- to five-day period. After the qualified biologist determines that badgers have stopped using active dens within the Project boundary, the dens shall be hand-excavated with a shovel to prevent re-use during construction.
- Construction activities shall not occur within 30 feet of active badger dens.

Pallid Bat

BIO-12: Prior to construction activities, winter and spring surveys shall be conducted to determine the nature of trestle use by pallid bats. Surveys shall follow the appropriate site-specific protocol as determined in coordination with CDFG.

BIO-13: If a special-status natal bat roost site is found within the limits of construction during pre-construction surveys, the roosts shall be staked, flagged, fenced, or otherwise clearly delineated. Roosts shall be avoided with non-disturbance buffer zones established by a qualified biologist in consultation with the USFWS and CDFG until the site is no longer in active use as a natal roost.

Implement Mitigation Measures **AES-1** and **AES-2**.

Significance Conclusion

Less than significant with mitigation.

Special-Status Plant Species

Significance Threshold

Would the proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS?

Impact Analysis

Construction

Rare plant surveys conducted in April 2011 found no federally or State-listed species within the Project construction area. The list of plant species potentially present in the Project construction area (defined above) provided in Table 4.4-1 includes no federally or State-listed plant species. However, several CNPS-list species are included in Table 4.4-1. Mitigation Measure **BIO-14** would reduce any unknown impacts to special-status plant species within areas of the Project, to a less than significant level.

The Project may encounter areas where cryptobiotic soils occur, particularly in the wellfield areas that are relatively undisturbed. Encountering these soil types is less likely along the pipeline corridor due to previous disturbance within the ARZC ROW. The surface crusting exhibited by these soils is created by cyanobacteria, lichen, and moss that weave fibers through upper soil particles to establish a cohesion that serves to bind the soils together even after the plants die.⁴³ Once the surface crust is broken, the soil cohesion disintegrates. As shown in Table 4.4-2, disturbed areas in the wellfield would be permanently converted to access roads and wellpads. No temporary disturbance areas would occur in the wellfield. Along the pipeline, some temporarily disturbed areas would occur. Much of this area is already disturbed by the access road that parallels the railroad. Due to the limited area affected, the Project would not substantially deplete cryptobiotic soils in the region. Impacts to these soil types would be less than significant.

Operation

Phraeatophytic vegetation utilizes deep roots to access groundwater for survival in arid locations. In the marginal areas around the Dry Lakes, few plant species can tolerate the highly alkaline soils. Some plant species have special tap-roots that can reach depths of over 30 feet below the ground surface. Groundwater depths in the wellfield area are over 100 feet below ground surface. At the eastern edge of the Bristol Dry Lake, depth to groundwater generally exceeds 60 feet below ground surface. The salt bush identified at these margin areas could not reach groundwater at these depths. Therefore, it is assumed that they rely entirely on surface moisture and would not be impacted by any change in groundwater levels as a result of the Project.⁴⁴ No phraeatophytic vegetation has been observed around the edge of the Bristol Dry Lake.

Around the northern edge of the Cadiz Dry Lake groundwater levels may be less than 30 feet below ground surface. The Schulyer Wash terminates within sand dunes in this area. The sand

⁴³ Belnap, Jayne, *Cryptobiotic Soils: Holding the Place in Place*, <http://geochange.er.usgs.gov/sw/impacts/biology/crypto/>, accessed September 2011.

⁴⁴ Hydrobio, *Vegetation, Groundwater Levels and Potential Impacts from Groundwater Pumping Near Bristol and Cadiz Playas, San Bernardino, California*, September 2011, pages 1-7.

dunes may retain some of the surface water runoff more readily than the surrounding soils and provide greater opportunity for vegetation to take hold. However, as observed in site visits conducted HydroBio personnel for the Project,⁴⁵ vegetation in this area is sparse and does not exhibit robust growth or abundance that would occur if groundwater was accessible to plant root systems.

In areas beneath the actual Bristol and Cadiz Dry Lakes where groundwater levels are shallow—less than ten feet below ground surface—no phreatophytic plants have been observed. As a result, any drop in groundwater levels as a result of extraction of groundwater would have no affect on the overlying vegetation. Accordingly, operation of the Project would not result in direct and indirect impacts to locally protected or special-status plant species.

Mitigation Measures

BIO-14: Prior to construction, construction zone limits shall be marked by a qualified biologist and shall be staked, flagged, fenced, or otherwise clearly delineated to ensure that the construction zone is limited to minimize impacts on special-status plant species. These limits shall be identified on the construction drawings. No earth-moving equipment shall be allowed outside demarcated construction zones unless pre-approval is obtained from a qualified biologist.

Significance Conclusion

Less than significant with mitigation.

Sensitive Habitat

Significance Threshold

Would the proposed Project have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS?

Impact Analysis

Mojave wash scrub and stabilized desert dunes/desert sand fields are designated as sensitive communities by CDFG. These plant communities occur in isolated segments along the pipeline route near Danby Dry Lake⁴⁶ and some limited areas that encroach into the ROW could be impacted during construction of the Groundwater Conservation and Recovery Component. Mitigation Measures **BIO-5** and **BIO-6** would reduce any impacts to less than significant.

The pipeline would be buried underground, with air blow-off valves located approximately every half mile visible aboveground along the route, in addition to periodic fire suppression valves.

⁴⁵ Hydrobio, *Vegetation, Groundwater Levels and Potential Impacts from Groundwater Pumping Near Bristol and Cadiz Playas, San Bernardino, California*, September 2011, pages 1-7.

⁴⁶ Circle Mountain Biological Consultants, *Focused Survey for Desert Tortoise, Habitat Evaluation for Burrowing Owl, and General Biological Resource Assessment for the Cadiz Valley Water Conservation, Recovery, and Storage Project, San Bernardino County, California*, Unpublished report prepared by Ed LaRue for ESA Southern California Water Group, Los Angeles, CA, November 2010, Figure 8.

Much of the pipeline alignment is previously disturbed. Some marginal sand dune habitat may be affected along the edges of the easement, but the Project would avoid the mature stabilized dune habitats closer to Danby Dry Lake. Some wash habitat would be affected within each of the drainages crossed by the pipeline ROW, particularly in areas on the east side of the railroad tracks where more habitat occurs due to the lack of a service road and due to the detention of runoff created by the elevated railroad tracks.

The proposed wellfield is located within a common creosote scrub habitat, although some wash habitat may be encountered within the Schulyer Wash area. Mitigation Measure **BIO-5** would ensure that the pipeline is installed within the previously disturbed portion of the easement. Well pads and access roads would be located in areas to avoid these habitats where feasible. Mitigation Measure **BIO-6** would ensure that temporarily affected areas are restored to pre-construction conditions or better. Once constructed, the Project would have no affect on sensitive habitats.

Mitigation Measures

Implement Mitigation Measures **BIO-5** and **BIO-6**

Significance Conclusion

Less than significant with mitigation.

Wetlands

Significance Threshold

Would the proposed Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact Analysis

There are approximately 70 streambed crossings perpendicular to the approximately 43-linear mile proposed pipeline and CRA connection. These washes would be impacted by pipeline installation. The Project would impact approximately 10 acres of these washes combined, none of which exhibit wetland characteristics. Two major wash systems, including Schulyer Wash, and associated minor tributaries run northeast-to-southwest through the wellfield area and may be affected by construction of extraction wells and associated interconnecting pipelines. Site restoration required by Mitigation Measure **BIO-15** would ensure that streambeds along the washes and within the wellfield were returned to pre-construction contours, and any impacts would be reduced to less than significant.

In compliance with existing regulations, a California Fish and Game Code 1602 Streambed Alteration Agreement would be required. Terms of this agreement are expected to include measures to divert flows during construction, measures to minimize erosion, measures to minimize discharge of contaminants through proper storage of chemicals and vehicle maintenance, and site restoration performance standards.

Mitigation Measures

BIO-15: A Waters of the State Mitigation Plan shall be prepared to include with RWQCB and CDFG permit applications. Conditions of the Mitigation Plan shall include at a minimum the following measures:

- measures to divert flows during construction,
- measures to minimize construction footprint within washes,
- measures to minimize erosion,
- measures to minimize discharge of contaminants through proper storage of chemicals and vehicle maintenance, and
- post-construction site restoration performance standards.

Significance Conclusion

Less than significant with mitigation.

Wildlife Movement

Significance Threshold

Would the proposed Project interfere substantially with the movement of any native resident or wildlife species or with established native resident or migratory native wildlife corridors, or impede the use of wildlife nursery sites?

Impact Analysis

Under existing conditions, wildlife traverses the open valleys unimpeded except for the linear transportation and utility corridors that traverse the valleys. Nelson's bighorn sheep are known to traverse the valley areas connecting their preferred ranges within higher elevations. The BLM has designated several regional wildlife movement corridors connecting occupied bighorn sheep habitat. As shown in Figure 4.4-4, these designated movement areas overlay the Project area.

Movement corridors can be affected by linear structures such as highways, walls, and fences. Open-space is crucial for the survival and movement of wildlife species. The proposed Project would modify some of this land by constructing roadways and fenced well pads, but it would not restrict wildlife movement within the area. The areas between well pads would be maintained to provide unimpeded movement through the valley. The proposed pipeline route would result in temporary impacts along the already existing ROW and adjacent to railroad tracks during construction, but would not further restrict wildlife movement once construction is complete. The pipeline would be constructed in segments. Temporary exclusion fencing installed as mitigation would be erected in segments and would not impede movement across the valley. Once installed, no linear fencing would be installed that could impede wildlife movement. Therefore, no significant impact to wildlife movement would occur. Wellfield construction would be located near already existing agricultural practices and though the well pads would be fenced, as described above, it would not inhibit wildlife movement. Operational and construction related impacts to wildlife movement would be considered less than significant.

Mitigation Measures

None required.

Significance Conclusion

Less than significant.

Local Policy or Ordinance**Significance Threshold**

Would the proposed Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Impact Analysis

For discussion of the applicability of the County General Plan and Development Code policies to the Project, see Section 4.10.3, Consistency with Land Use Plans (Land Use and Planning). The following species are known to occur on or adjacent to the Project area and are covered under the San Bernardino County Desert Native Plant Protection Ordinance: Harwood's milk-vetch, barrel cactus, silver cholla, beavertail cactus, pencil cholla, desert holly, catclaw acacia, palo verde, and smoke tree. These species may be impacted by Project construction and/or operation. The San Bernardino County Desert Native Plant Protection Ordinance identifies certain species as special-status: smoke tree (*Dalea spinosa*), mesquites (*Prosopis* spp.), all species of the family Agavaceae (i.e., yucca, century plant, and nolina), creosote rings (10 feet or greater in diameter), and all Joshua trees.⁴⁷ Smoke trees have been identified within the ARZC ROW. Impacts to these species would be considered less than significant with implementation of Mitigation Measures **BIO-16** and **BIO-17**.

Mitigation Measures

BIO-16: Prior to commencement of ground disturbance activities for any component of the proposed Project, a qualified biologist/arborist shall provide an inventory of the number and size of protected species within the proposed Project's impact areas. The biologist/arborist shall mark any smoke tree (*Dalea spinosa*), mesquites (*Prosopis* spp.), all species of the family Agavaceae (i.e., yucca, century plant, and nolina), creosote rings (10 feet or greater in diameter), and Joshua trees within the construction zone. Removal of these plants shall be avoided if possible.

BIO-17: If avoidance of the species listed in **BIO-16** is not possible, these species shall be moved or replanted.

Significance Conclusion

Less than significant with mitigation.

⁴⁷ County of San Bernardino, *County of San Bernardino 2007 General Plan*, April 2007.

Habitat Conservation Plan

Significance Threshold

Would the proposed Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

Impact Analysis

With the adoption of the Northern & Eastern Colorado Desert Coordinated Management Plan (NECO),⁴⁸ all lands that are outside Desert Wildlife Management Areas (DWMA), including the proposed Project area, are characterized as Category 3 Habitat, which is the lowest priority management area for viable populations of the desert tortoise.

The site is not within desert tortoise critical habitat, which was designated in 1994⁴⁹ nor is it within a DWMA as recommended in the Desert Tortoise (Mojave Population) Recovery Plan⁵⁰ and formally adopted in December 2002 as a result of NECO.⁵¹ The southwestern boundary of the Chemehuevi DWMA coincides with the southwestern extent of Ward Valley, which approaches the ARZC ROW from the northeast. No portions of the Project area are in either Chemehuevi critical habitat or the associated DWMA.

The proposed Project would not conflict with conservation or other policies outlined therein. Furthermore, the Project would not conflict with other conservation-based policies contained in adopted conservation plans for San Bernardino County or the proposed Project area. Therefore no conflict would occur and impacts are considered to be less than significant.

Mitigation Measures

None required.

Significance Conclusion

Less than significant.

Imported Water Storage Component

This component is analyzed on a programmatic basis.

⁴⁸ Bureau of Land Management, *Final Environmental Impact Statement for the Proposed Northern & Eastern Colorado Desert Coordinated Management Plan, an amendment to the California Desert Conservation Area Plan 1980 and Sikes Act Plan with the CDFG*, 2002.

⁴⁹ U.S. Fish and Wildlife Service, *Endangered and Threatened Wildlife and Plants: Determination of Critical Habitat for the Mojave Population of the Desert Tortoise*, *Federal Register* 55(26):5820-5866, Washington, D.C., 1994.

⁵⁰ U.S. Fish and Wildlife Service, *Desert Tortoise (Mojave Population) Recovery Plan*, 1994, page 73 plus appendices.

⁵¹ Bureau of Land Management, *Final Environmental Impact Statement for the Proposed Northern & Eastern Colorado Desert Coordinated Management Plan, an amendment to the California Desert Conservation Area Plan 1980 and Sikes Act Plan with the CDFG*, 2002.

Special-status Wildlife Species

Significance Threshold

Would the proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any wildlife species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS?

Impact Analysis

The Imported Water Storage Component would expand the wellfield and construct recharge basins within the Fenner Gap. Figure 3-14 shows the conceptual location of these facilities. The exact location for these facilities has not been determined. In addition, a pump station would be constructed near the CRA. No additional construction would occur along the ARZC ROW. Desert tortoise was not identified as being present in the southern portion of the pipeline alignment where the pump station and CRA diversion structures would be installed as part of the Imported Water Storage Component. Therefore, impacts to desert tortoise in these areas is unlikely.

Nighttime construction impacts to wildlife species from noise and light would be similar to those of the Groundwater Conservation and Recovery Component but to a lesser extent since construction areas would be limited. Implementation of Mitigation Measures **AES-1** and **AES-2** would reduce lighting impacts to a less than significant level during construction and operations.

Desert tortoises were not observed at the conceptual spreading basin area during the 2010 surveys. However, habitat in this area was determined by CMBC to be more suitable for tortoises than the wellfield area. Furthermore, the area proposed for the recharge basin (Figure 3-14) is located within desert tortoise critical habitat, although the area does not currently support high-densities of individuals. Approximately 437 acres within designated critical habitat would be impacted by Project construction (see Figure 4.4-3). Implementation of Mitigation Measures **BIO-1 through BIO-4** would minimize potential direct impacts. Mitigation Measure **BIO-6** would ensure that the construction zone is restored sufficiently to support desert scrub habitat.

The recharge basins would provide water sources for raven and other predators that could prey on tortoise. However, the basins would not be full for more than a few weeks of the year, and would not present a permanent water source for ravens. Fencing surrounding the spreading basins would also provide a perching substrate for raven. Impacts to wildlife species would be similar to the Groundwater Conservation and Recovery Component. Implementation of Mitigation Measures **BIO-1 through BIO-13** would minimize impacts to sensitive species to less than significant.

Compensation ratios for impacts to tortoise in critical habitat may be greater than for the Groundwater Conservation and Recovery Component. Only one observation well and access road associated with the first phase of the Project would be located within the designated critical habitat areas. In the event that location is utilized for the recharge basin, permanent compensation of property in critical habitat would ensure that the Project's impacts to desert tortoise would be adequately mitigated. Mitigation Measure **BIO-18** would require a compensation plan that recognizes the effect to critical habitat.

The Existing Natural Gas Pipeline element consists of a 200-mile natural gas pipeline that traverses through the Cadiz Property north through Barstow and to Wheeler Ridge near Bakersfield, California. The segment extending from the Cadiz Property to Barstow is a 100-mile segment. Construction activities to convert the pipeline would be located within the existing right-of-way along the pipeline. However, the construction of the pump stations would require up to a two-acre site of disturbance and a five foot-by-five foot square concrete pad for the air valves that could impact habitat for special-status species. The existing pipeline rights-of-way are currently disturbed; however, the construction of the pump stations could disturb vegetation and wildlife habitat. Biological surveys would be required to quantify the value of the properties affected. Implementation of Mitigation Measures **BIO-1 through BIO-13** and **BIO-18** would reduce this impact to less than significant.

Mitigation Measures

BIO-18: Imported Water Storage Component. A habitat compensation plan for preservation in perpetuity for habitat at a 1:1 minimum ratio would be prepared and implemented for loss of habitat within a designated critical habitat area for desert tortoise. The mitigation ratios would be established by USFWS.

Implement Mitigation Measures **AES-1, AES-2, and BIO-1 through BIO-13.**

Significance Conclusion

Less than significant with mitigation.

Special-Status Plant Species

Significance Threshold

Would the proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any plant species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS?

Impact Analysis

The Imported Water Storage Component would expand the wellfield and construct recharge basins within the Fenner Gap. Figure 3-14 shows the conceptual location of these facilities. Construction of the recharge basins and expanded wellfield may result in direct and/or indirect impacts to plant species listed in Table 4.4-1. Of the species with a medium or high potential of occurring in the proposed Project area, several have known occurrences within one-mile of the proposed Project area.

Once the expanded wellfield, spreading basin, and existing natural gas pipeline appurtenances locations are finalized, Rare Plant surveys would be conducted to determine the presence or absence of the special-status plant species with a medium to high potential to occur within the proposed construction areas of the Imported Water Storage Component. Mitigation Measure **BIO-14** would reduce impacts to special-status plant species to a less than significant level.

Mitigation Measures

Implement Mitigation Measure **BIO-14**.

Significance Conclusion

Less than significant with mitigation.

Sensitive Habitat**Significance Threshold**

Would the proposed Project have a substantial adverse impact on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS?

Impact Analysis

The Imported Water Storage Component would expand the wellfield, extend the conveyance pipeline, and construct recharge basins within the Fenner Gap. Figure 3-14 shows the conceptual location of these facilities. The expanded wellfield and recharge basins would not affect riparian habitat or other sensitive habitat areas identified by CDFG or USFWS. Once precise locations for facilities are determined, biological surveys would be conducted to evaluate the sensitivity of the habitats in the area. The wellfield and recharge basin area is dominated by Mojave creosote bush scrub. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Significance Conclusion

Less than significant

Wetlands**Significance Threshold**

Would the proposed Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Impact Analysis

The Imported Water Storage Component would expand the wellfield and construct recharge basins within the Fenner Gap. Figure 3-14 shows the conceptual location of these facilities. None of the facilities to be constructed under the Imported Water Storage Component would affect federally protected wetlands. The expanded wellfield, recharge basins and existing natural gas pipeline appurtenances would be located outside the wash areas within Mojave creosote bush scrub habitat. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Significance Conclusion

Less than significant.

Wildlife Movement

Significance Threshold

Would the proposed Project interfere substantially with the movement of any native resident or wildlife species or with established native resident or migratory native wildlife corridors, or impede the use of wildlife nursery sites?

Impact Analysis

The Imported Water Storage Component would expand the wellfield and construct recharge basins within the Fenner Gap. Figure 3-14 shows the conceptual location of these facilities. The BLM has designated several regional wildlife movement corridors connecting occupied bighorn sheep habitat in the Project vicinity. The expanded wellfield and recharge basins would be located within the bighorn sheep movement corridor connecting the neighboring mountain ranges (Figure 4.4-4). However, the Project would not construct linear barriers that would impede movement across the valley. Although each well pad and the spreading basin would be fenced, wildlife movement would not be inhibited across the valley. Once constructed, the facilities would be infrequently visited and would not create a disturbance to wildlife movement. Impacts would be considered less than significant and no mitigation is required.

Mitigation Measures

None required.

Significance Conclusion

Less than significant.

Local Policy or Ordinance

Significance Threshold

Would the proposed Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Impact Analysis

The Imported Water Storage Component would expand the wellfield and construct recharge basins within the Fenner Gap. Figure 3-14 shows the conceptual location of these facilities. As described above with the Groundwater Conservation and Recovery Component, the following species are known to occur on or adjacent to the Project area and are covered under the San Bernardino County Desert Native Plant Protection Ordinance: Harwood's milk-vetch, barrel

cactus, silver cholla, beavertail cactus, pencil cholla, desert holly, catclaw acacia, palo verde, and smoke tree. These species are unlikely to occur within the wellfield and recharge basin area. The San Bernardino County Desert Native Plant Protection Ordinance identifies certain species as having special status: smoke tree (*Dalea spinosa*), all mesquites (*Prosopis* spp.), all species of the family Agavaceae (i.e., yucca, century plant, and nolina), creosote rings (10 feet or greater in diameter), and all Joshua trees.⁵² For discussion of the applicability of the County General Plan and Development Code policies to the Project, see Section 4.10.3, Consistency with Land use Plans (Land Use and Planning). Impacts to these species would be considered less than significant with implementation of Mitigation Measures **BIO-16** and **BIO-17**.

Mitigation Measures

Implement of Mitigation Measures **BIO-16** and **BIO-17**.

Significance Conclusion

Less than significant with mitigation.

Habitat Conservation Plan

Significance Threshold

Would the proposed Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?

Impact Analysis

The Imported Water Storage Component would expand the wellfield and construct recharge basins within the Fenner Gap. Figure 3-14 shows the conceptual location of these facilities. As similarly described above for the Groundwater Conservation and Recovery Component, the site is not located within a DWMA established in the NECO Plan. The proposed Project would not conflict with conservation or other policies outlined therein. Furthermore, the Project would not conflict with other conservation-based policies contained in adopted conservation plans for San Bernardino County or the proposed Project area. The Project would be located entirely within private property or disturbed railroad easement.

Although the proposed recharge basin would be located within the Chemehuevi designated critical habitat for desert tortoise, compensation for the property with other property in critical habitat as required in Mitigation Measure **BIO-18** would adequately mitigate the loss of habitat. Therefore, there would be no conflict with existing habitat conservation planning efforts. Impacts are considered to be less than significant.

Mitigation Measures

Implement Mitigation Measure **BIO-18**.

⁵² County of San Bernardino, *County of San Bernardino 2007 General Plan*, April 2007.

Significance Conclusion

Less than significant with mitigation.

Mitigation Measure Summary Table

Table 4.4-3 presents the impacts and mitigation summary for Biological Resources.

**TABLE 4.4-3
IMPACTS AND MITIGATION SUMMARY**

Proposed Project Impact	Mitigation Measure	Significance Conclusion
Groundwater Conservation and Recovery Component		
Special-status Wildlife Species	AES-1, AES-2, and BIO-1 through BIO-13	Less than significant with mitigation
Special-status Plant Species	BIO-14	Less than significant with mitigation
Sensitive Habitat	BIO-5 and BIO-6	Less than significant with mitigation
Wetlands	BIO-15	Less than significant with mitigation
Wildlife Movement	None required	Less than significant
Local Policy or Ordinance	BIO-16 and BIO-17	Less than significant with mitigation
Habitat Conservation Plan	None required	Less than significant
Imported Water Storage Component		
Special-status Wildlife Species	AES-1, AES-2, BIO-1 through BIO-12, and BIO-18	Less than significant with mitigation
Special-status Plant Species	BIO-14	Less than significant with mitigation
Sensitive Habitat	None required	Less than significant
Wetlands	None required	Less than significant
Wildlife Movement	None required	Less than significant
Local Policy or Ordinance	BIO-16 and BIO-17	Less than significant with mitigation
Habitat Conservation Plan	BIO-18	Less than significant with mitigation