

### **IV.7.3.6 Alternative 4**

The impact analysis for biological resources under Alternative 4 is provided below.

#### ***IV.7.3.6.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 4***

This section provides the Plan-wide assessment of impacts of implementing the DRECP for Alternative 4. This Plan-wide assessment addresses the impacts and mitigation measures from renewable energy and transmission development and impacts of the reserve design.

##### **IV.7.3.6.1.1 Plan-Wide Impacts and Mitigation Measures from Renewable Energy and Transmission Development**

#### **Impact Assessment**

The following provides the Plan-wide assessment of impacts and mitigation measures for renewable energy and transmission development for Alternative 4. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9). Alternative 4 includes DFAs (1,608,000 acres) and transmission corridors where approximately 177,000 acres of ground disturbance related impacts would occur and where operational impacts would occur. As described in Section IV.7.1.1, the reported impact acreage (e.g., acres of impact to natural communities or Covered Species habitat) is based on the overlap of the DFAs and the resource (e.g., mapped natural community or modeled Covered Species habitat) times the proportion of the impacts from Covered Activity development anticipated with the DFA. Alternative 4 includes DRECP Variance Lands, and these areas are not considered impacted or conserved in this analysis. Therefore, the DRECP Variance Lands under Alternative 4 could be available for all forms of renewable energy development and other uses and activities. In Alternative 4, the SAAs from the Preferred Alternative are partial in the Reserve Design Lands and partially in DRECP Variance Lands, and this analysis of Alternative 4 includes conservation within the Reserve Design Lands portion.

***Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.***

The following provides an analysis of the impacts of the development of Covered Activities on natural communities in the Plan Area. Table IV.7-259 shows the impacts to natural communities. An effects summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

### California forest and woodlands

California forest and woodlands are limited to the higher elevations in the Plan Area, where they occur primarily in the Tehachapi Mountains in Kern County and the mountains in southwest San Bernardino County.

Overall, approximately 100 acres (0.1%) of California forest and woodlands would be impacted under Alternative 4. Because California forest and woodlands are located primarily in peripheral portions of the Plan Area with little overlap with DFAs, impacts to these communities are limited in extent and are primarily associated with effects from transmission. Furthermore, CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. Therefore, impacts to this community may have an adverse effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect (COMP-1 and COMP-2).

### Chaparral and coastal scrubs (Cismontane scrub)

Chaparrals in the Plan Area occur in the Tehachapi Mountains and at the base of the San Gabriel Mountains near Antelope Valley in the southern portion of the Plan Area. Coastal scrubs in the Plan Area generally occur east of the Tehachapi Mountains near Mojave, in the southern portion of the Plan Area from Mountain Top Junction east of Highway 138 east to Mojave River Forks Regional Park, in the Fort Irwin area, and in scattered locations west to the Plan Area boundary.

Overall, approximately 2,000 acres (1.5%) of the chaparral and coastal scrubs would be impacted under Alternative 4. Impacts would be primarily from solar development and most impacts would be to Central and South Coastal Californian coastal sage scrub. Most impacts to chaparral and coastal scrubs would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

#### Desert conifer woodlands

The desert conifer woodlands in the Plan Area primarily occur in the Tehachapi Mountains, along the southwestern boundary of the Plan Area to the San Gabriel Mountains, in the Providence and Bullion Mountains, Kingston and Funeral Mountains, and the Clark Mountain Range. All of the desert conifer woodlands in the Plan Area are classified as Great Basin pinyon-juniper woodland.

Overall, approximately 1,000 acres (0.5%) of the desert conifer woodlands would be impacted under Alternative 4. Impacts would be primarily from solar development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea. CMAs would be implemented to address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

#### Desert outcrop and badlands

Desert outcrop and badlands occur throughout much of the Plan Area, but is most prevalent in the eastern and southern portions south of the Piute Valley. All of the desert outcrop and badlands is classified as North American warm desert bedrock cliff and outcrop.

Overall, approximately 12,000 acres (0.7%) of the desert outcrop and badlands would be impacted under Alternative 4. Impacts would be primarily from solar development. Impacts to desert outcrop and badlands are widely distributed with impacts in eight of the ten subareas. However, the majority of impacts to desert outcrop and badlands would occur in the Cadiz Valley and Chocolate Mountains subarea. CMAs would be implemented

to address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. These communities also provide habitat for desert kit fox (Planning Species). Covered Species associated with desert scrub may also be associated with this general community. Therefore, impacts to desert outcrop and badlands may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

### Desert scrubs

Desert scrubs, which comprise more than 70% of the Plan Area, are distributed throughout the Plan Area. There are nine desert scrub natural communities identified in the Plan Area, but the majority of the general community on available lands is comprised of lower bajada and fan Mojavean–Sonoran desert scrub (82% or 10,830,000 acres).

Overall, approximately 93,000 acres (0.7%) of desert scrubs would be impacted under Alternative 4. Impacts would be primarily from solar development, but transmission accounts for approximately 18,000 acres of impacts to desert scrub and wind and geothermal each account for 5-6% of impacts to desert scrub. Most impacts would be to the most prevalent desert scrub community: Lower Bajada and Fan Mojavean–Sonoran desert scrub. Intermontane seral shrubland is the community that would have the greatest proportion of impacts, but only 4% of this community would be impacted (compared with 1% or less for all other desert scrub communities).

The majority of impacts to desert scrub would occur in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas (approximately 65,000 acres), but impacts to desert scrubs are widely distributed; the Piute Valley and Sacramento Mountains the only subarea without impacts to this general community. CMAs would be implemented to address breeding, nesting, or roosting species that would also help reduce adverse effects to desert scrubs. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), Agassiz's desert tortoise (AM-DFA-ICS-3 through AM-DFA-ICS-15, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-

1 through AM-RES-RL-PLANT-3). Furthermore, CMAs would be implemented to address soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs (COMP-1 and COMP-2) would offset the effect.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. These communities also provide habitat for burro deer and desert kit fox (Planning Species). Therefore, impacts to this general community may have a negative effect on these species by removing or degrading suitable habitat; however, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

### Dunes

Dune communities are restricted but scattered across the Plan Area, and include approximately 12 systems in the Mojave Desert and lower Great Basin Desert and 4 systems in the Sonoran Desert, as well as numerous smaller dunes. The largest dune area is located in the East Mesa-Sand Hill portion of the Sonoran Desert. Dune natural communities in the Plan Area are classified as North American warm desert dunes and sand flats.

Impacts to dune communities, except those impacts determined to be unavoidable, would be avoided under Alternative 4 through application of the dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, AM-RES-BLM-DUNE-2, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as landscape-level CMAs for Aeolian processes (AM-LL-3). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Therefore, avoidance of impacts to this general community would benefit these species and compensation CMAs would offset any impacts determined to be unavoidable.

### Grasslands

Grassland communities cover just over 1% of the Plan Area but are scattered throughout the Area. They are most common in the western portion of the Plan Area, especially along the boundary from east of Bakersfield to the southern end of the San Bernardino National Forest.

Overall, approximately 8,000 acres (3.3%) of grassland communities would be impacted under Alternative 4. The majority of impacts to grassland communities would be from solar development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, Swainson's hawk, and Bendire's thrasher. These communities also provide habitat for desert kit fox (Planning Species). Therefore, impacts to this community may have a negative effect on these species by removing or degrading suitable habitat. However, application of species-specific CMAs would help avoid and minimize that effect and compensation CMAs would offset the effect.

### Riparian

Riparian communities cover nearly 6% of the Plan Area but are scattered throughout the Area, but are most common in the southern portion of the Plan Area in the Colorado River area, in the Cadiz and Chocolate Mountains and Imperial Borrego Valley subareas, and along major drainages such as the Mojave, Colorado, and Amargosa Rivers.

Riparian communities include microphyll woodlands, which are important vegetation assemblages often associated with desert washes that are comprised of the Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub natural communities. A subset of these communities would be considered groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 4, microphyll woodlands occur within DFAs primarily in the McCoy Valley area in the Cadiz Valley ecoregion subarea.

Impacts to riparian communities, except those impacts determined to be unavoidable, would be avoided under Alternative 4 through application of the riparian CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub. Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. These communities also provide habitat for burro deer (Planning Species). In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Avoidance of impacts to riparian communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. Application of species-specific CMAs would also benefit species associated with riparian communities. Compensation CMAs would offset any impacts determined to be unavoidable.

### Wetlands

Wetland communities cover nearly 5% of the Plan Area but are scattered throughout the Area, including the Owens River Valley, and around various dry lakes and playas. The largest single contributor to wetlands in the Plan Area is the open water of the Salton Sea (22% of the wetlands). However, several isolated wetlands occur throughout the Plan Area (e.g. Amargosa WSR) and these are important for their tendency to be populated with locally endemic species of plants and animals.

Overall, approximately 11,000 acres (1.2%) of wetland communities, specifically North American warm desert alkaline scrub, herb playa and wet flat, and open water would be impacted under Alternative 4. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep, except those impacts determined to be unavoidable, would be avoided under Alternative 4 through application of the wetland CMAs, including a 0.25-mile setback (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Over half of the impacts to wetland communities would be in DFAs in open water of the Salton Sea in the Imperial Borrego Valley subarea. Of the remaining impacts to wetland communities, the majority would occur from solar development in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas.

CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts to these features (COMP-1 and COMP-2).

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Avoidance of impacts to wetland communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with wetland communities. Compensation CMAs would offset any impacts determined to be unavoidable.

**Table IV.7-259**  
**Plan-Wide Impact Analysis for Natural Communities - Alternative 4**

Natural Community	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>California forest and woodland</i>						
Californian broadleaf forest and woodland	72,000	40	0	0	0	50
Californian montane conifer forest	78,000	60	10	0	20	80
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>						
Californian mesic chaparral	4,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	24,000	0	0	0	10	10
Central and south coastal California seral scrub	1,000	20	0	0	0	30
Central and South Coastal Californian coastal sage scrub	54,000	1,000	200	0	90	2,000
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	0	0	0	10	20
<i>Desert conifer woodlands</i>						
Great Basin Pinyon - Juniper Woodland	287,000	1,000	100	0	100	1,000
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	1,613,000	8,000	600	400	3,000	12,000

**Table IV.7-259**  
**Plan-Wide Impact Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)<sup>1</sup></b>	<b>Solar Impact (acres)<sup>2</sup></b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
<i>Desert Scrub</i>						
Arizonan upland Sonoran desert scrub	57,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	106,000	400	30	0	100	500
Intermontane seral shrubland	74,000	3,000	100	0	60	3,000
Inter-Mountain Dry Shrubland and Grassland	437,000	2,000	100	700	500	3,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	20	0	0	0	20
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	52,000	4,000	5,000	16,000	78,000
Mojave and Great Basin upper bajada and toeslope	1,333,000	3,000	400	0	300	4,000
Shadscale - saltbush cool semi-desert scrub	279,000	4,000	90	300	600	4,000
Southern Great Basin semi-desert grassland	100	0	0	0	0	0
<i>Dunes<sup>3</sup></i>						
North American warm desert dunes and sand flats	282,000	0	0	0	0	0
<i>Grassland</i>						
California Annual and Perennial Grassland	230,000	7,000	300	0	400	7,000
California annual forb/grass vegetation	8,000	300	20	0	0	400
<i>Riparian<sup>3</sup></i>						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	0	0	0	0	0
Mojavean semi-desert wash scrub	30,000	0	0	0	0	0
Riparian	600	0	0	0	0	0

**Table IV.7-259**  
**Plan-Wide Impact Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)<sup>1</sup></b>	<b>Solar Impact (acres)<sup>2</sup></b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	66,000	0	0	0	0	0
<i>Wetland<sup>3</sup></i>						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	2,000	100	0	200	2,000
Open Water	209,000	3,000	0	2,000	600	6,000
Playa	78,000	0	0	0	10	10
Southwestern North American salt basin and high marsh	261,000	3,000	100	0	100	3,000
Wetland	8,000	100	0	0	40	200
<i>Other Land Cover – Developed and Disturbed Areas</i>						
Agriculture	711,000	33,000	500	8,000	6,000	48,000
Developed and Disturbed Areas	447,000	100	0	50	1,000	1,000
Not Mapped	7,000	10	0	0	0	10
Rural	114,000	1,000	10	400	400	2,000
<b>Total</b>	<b>19,040,000</b>	<b>123,000</b>	<b>7,000</b>	<b>17,000</b>	<b>30,000</b>	<b>177,000</b>

1 Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

2 Solar impacts include ground-mounted distributed generation.

3 Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

**Notes:** The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as

detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural communities include natural community alliances with state rarity rankings S1, S2, or S3 (critically imperiled, imperiled, or vulnerable). Of the 51 rare natural community alliances mapped in the Plan Area, 6 rare alliances would be impacted (with more than 5 acres impacted) under Alternative 4, the vast majority of the impact acreage (approximately 4,000 acres) would be comprised of impacts to Joshua tree woodland (*Yucca brevifolia*) occurring in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of, or mitigation for, specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 4 would be adverse and would require mitigation.

***Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.***

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 4 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under Alternative 4 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 11,000 acres of other wetland communities would be impacted under Alternative 4. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions for jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact the jurisdictional waters and wetland they support.

### Playa

Approximately 1% ( 3,000 acres) of playa would be impacted by Covered Activities under Alternative 4. The majority of impacts would be associated with solar (approximately 2,000 acres), with approximately 200 acres of wind impacts, approximately 300 acres of transmission impacts, and 10 acres of geothermal impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes.

Application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

### Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring locations have the potential to occur under Alternative 4 in the following ecoregion subareas: Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, and Pinto Lucerne Valley. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

### Major Rivers

Under Alternative 4, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, changes in hydrological conditions associated with development could adversely impact these rivers. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

### Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

#### ***Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.***

Siting, construction, decommissioning, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities in the Plan Area that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. As described in Section IV.7.2.1, the extent of some of these adverse effects may occur at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the potential adverse effects caused by these factors were evaluated using the overlap of the natural community mapping and the estimated distribution of Covered Activities across subareas.

Under Alternative 4, approximately 8% of the total Plan Area would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 4, the vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants would collectively result in the terrestrial operational impacts shown in Table IV.7-260. These impacts would mostly occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes, subareas. As a result, these subareas would have the greatest potential to result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

**Table IV.7-260  
Plan-Wide Terrestrial Operational Impacts – Alternative 4**

Ecoregion Subarea	Solar Impact <sup>1</sup> (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	38,000	12,000	-	18,000	68,000
Imperial Borrego Valley	31,000	300	16,000	6,000	53,300
Kingston and Funeral Mountains	600	-	-	-	600
Mojave and Silurian Valley	3,000	-	-	600	3,600
Owens River Valley	2,000	-	1,000	900	3,900
Panamint Death Valley	800	-	-	200	1,000
Pinto Lucerne Valley and Eastern Slopes	6,000	6,000	-	2,000	14,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	1,000	-	-	300	1,300
West Mojave and Eastern Slopes	41,000	13,000	-	1,000	55,000
<b>Total</b>	<b>123,000</b>	<b>31,000</b>	<b>17,000</b>	<b>30,000</b>	<b>201,000</b>

<sup>1</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### Dust and Dust Suppressants

Overall, most natural communities and plant Covered Species would be susceptible to degradation as a result of dust, with natural communities containing Mojave desert shrubs particularly susceptible to altered water usage as a result of dust deposition. These natural communities are primarily affected by Covered Activities in the Cadiz Valley and Chocolate Mountains as well as the West Mojave and Eastern Slopes subareas. Plant Covered Species that could also be affected by abrasion, vegetation loss, root exposure, and burial as a result of dust are prevalent near the DFAs. The West Mojave and Eastern Slopes subarea and to a lesser extent the Pinto Lucerne Valley and Eastern Slopes subarea would contain the most impacts to plant Covered Species habitat throughout the Plan Area. Therefore, considering the distribution of DFAs and these sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of

dust-related impacts. Vegetation degradation as a result of dust would also be prevalent in the Cadiz Valley and Chocolate Mountains subarea to a lesser extent.

The application of dust suppressants, which would reduce dust emissions, is a common management practice used during construction and operations and is a Covered Activity under the Plan. The use of dust suppressants has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 4 would implement CMAs that applicable in the DFAs would also serve to reduce vegetation degradation from dust including AM-DFA-ONC-1 and AM-DFA-ONC-2, which would require habitat assessments of natural communities and protection/salvage plans for particular plants found on project sites. CMAs AM-DFA-PLANT-1 through AM-DFA-PLANT-3 would also result in the surveying of plant Covered Species, avoidance and a 0.25 mile setback from plant Covered Species occurrences, and would place an impact caps on suitable habitat for plant Covered Species. Furthermore, various CMAs would reduce potential vegetation degradation from dust created by operation and maintenance of transmission in the reserve design envelope including measures for avoidance of plant Covered Species by substations, setbacks for plant Covered Species, and impact caps on suitable habitat for plant Covered Species (AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). The CMA AM-TRANS-4 would restrict transmission to within designated utility corridors, thereby minimizing the creation of dust from exposed soils as a result of transmission throughout the Plan Area.

The application of dust suppressants can result in chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. As a result, riparian and wetland natural communities are the most likely vegetation to be affected by the use of dust suppressants. These natural communities are most prevalent near DFAs in the Imperial Borrego Valley subarea and to a lesser extent in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. Plant Covered Species near the DFAs in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea would also experience a large degree of vegetation degradation from the use of dust suppressants. As such, the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas would contain the largest potential amount of vegetation degradation because of dust suppressants.

Avoidance and minimization CMAs implemented as part of Alternative 4, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant outside of areas where they are applied. The CMA AM-DFA-RIPWET-1 would

also establish setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities. Therefore, these measures would minimize potential adverse effects of dust suppressants used during siting, construction, and operational Covered Activities.

### Fire and Fire Management

Anthropogenic ignitions of fires that could result from operational and maintenance activities associated with renewable energy facilities could destroy the natural communities found in the Plan Area. Desert scrub natural communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of non-native grasses that can often successfully compete with and overcome native assemblages. The addition of non-native grasses can create a positive feedback loop of increasing fire frequency and intensity, resulting in significant and potentially permanent community type conversion. Within the Plan Area desert scrub natural communities are primarily affected by Covered Activities within the West Mojave and Eastern Slopes and the Cadiz Valley and Chocolate Mountains subareas. Impacts to desert scrub natural communities would also occur to a lesser extent in the Imperial Borrego Valley and Pinto Lucerne Valley and Eastern Slopes subareas. With the distribution of renewable energy development and these natural communities, the greatest magnitude of vegetation degradation as a result of fire would occur in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, target fuels reductions in areas of high incidence of non-native, invasive, species (e.g. salt cedar hot spots) can have a beneficial effect on native habitats. Within the Plan Area the potential impacts from Covered Activities on California forest and woodland natural communities, chaparral and coastal scrubs, and grassland natural communities affected by Covered Activities would occur in the West Mojave and Eastern Slopes subarea. Therefore, with the distribution of renewable energy development and the location of these natural communities that are sensitive to fire management techniques, the primary area of vegetation degradation would be located in the West Mojave and Eastern Slopes subarea. The potential degradation of vegetation due to fire and fire management would vary depending on project-specific factors, such as size of the project footprint and proximity to fire prone areas. However, under Alternative 4 avoidance and minimization CMAs would be implemented to reduce the potential adverse operational effects of fire and fire management. Specifically, AM-PW-12 would require projects to use standard practices for fire prevention/protection that would minimize the amount of vegetation clearing and fuel modification. Additionally AM-RES-RL-ICS-5 would require fire suppression activities to minimize the amount of desert tortoise habitat burned in the reserve design envelope. These measures would minimize the amount of vegetation degradation from fire and fire management during siting, construction, and operational Covered Activities.

## Invasive Plants

The introduction of invasive plants can be caused by siting, construction, and operational Covered Activities including transportation of invasive plants on the undercarriage of vehicles, creation of disturbed areas, and other environmental changes that favor invasive plant growth. Invasive plants can degrade vegetation by increasing the fuel load and the frequency of fires in plant communities and may induce allelopathic effects that hinder the growth or establishment of other plant species. Most vegetation, including natural communities and plant Covered Species, are generally susceptible to the adverse effects of invasive plants. As such, the most vegetation degradation caused by introduction of invasive plants would occur in the areas with the greatest amount of natural community and plant Covered Species impacts due to renewable energy development. Under Alternative 4 this would occur in the West Mojave and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas, would contain most of the impacts to natural communities.

The potential vegetation degradation effects that could result from siting, construction, and operational Covered Activities would be minimized through implementation of avoidance and minimization CMAs under Alternative 4. Specifically, the Plan-wide CMA AM-PW-7 would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants during operations. Additional CMAs would require the use of standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities throughout the Plan Area.

***Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.***

The following provides an analysis of the impacts of the development of Covered Activities on sensitive plants and wildlife and their habitat in the Plan Area, including Covered Species and Non-Covered Species. In addition to the analysis of the loss of sensitive species and their habitat provided here under Impact BR-4, impacts to nesting birds are addressed under Impact BR-5, impacts on wildlife movement are addressed under Impact BR-6, impacts of habitat fragmentation are addressed under Impact BR-7, impacts of increased predation are addressed under Impact BR-8, and impact of operations on avian, bat, and insect species are addressed under Impact BR-9.

The impact analysis under Impact BR-4 includes the following subsections:

- Covered Species Habitat Impact Analysis by Ecoregion Subarea
- Specific Covered Species Impact Analyses
- Indirect and Terrestrial Operational Impact Analysis
- Non-Covered Species Impact Analysis

### Covered Species Habitat Impact Analysis by Ecoregion Subarea

Impacts to plant and wildlife species and their habitat would result from the implementation of Covered Activities. Table IV.7-261 provides the Plan-wide impact analysis for Covered Species habitat. As described in Section IV.7.1.1, the reported impact acreage is based on the overlap of the DFAs and the modeled Covered Species habitat times the proportion of the impacts from Covered Activity development anticipated with the DFA. Most of the impacts to plant and wildlife species and their habitat under Alternative 4 would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas as described below. Impacts to plant and wildlife species and their habitat under Alternative 4 would also occur in the following subareas: Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains. Supplemental impact analysis tables for impacts to Covered Species habitat by ecoregion subarea are provided in Appendix R2.

#### *West Mojave and Eastern Slopes Ecoregion Subarea*

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. Impacts to suitable habitat for amphibians and reptiles would occur in this subarea, including Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander. The siting of the DFAs under Alternative 4 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs requiring avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat (AM-DFA-RIPWET-1 and AM-DFA-DUNE-1) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-261.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and western yellow-billed cuckoo. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, and western yellow-billed cuckoo to less than the acreage reported in Table IV.7-261. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and

setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-261.

Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, Mojave tarplant, and Owens Valley checkerbloom. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-261.

#### *Cadiz Valley and Chocolate Mountains Ecoregion Subarea*

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. Impacted suitable habitat would be mostly desert scrub in this subarea. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. The siting of the DFAs under Alternative 4 largely avoid habitat for Mojave fringe-toed lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-261. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, and western yellow-billed cuckoo. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on California black rail, and western yellow-billed cuckoo to less than the acreage reported in Table IV.7-261.

Impacts to suitable habitat for the following Covered mammals would occur in the Cadiz Valley and Chocolate Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Impacts to suitable habitat for Planning Species burro deer and desert kit fox would also occur in this subarea. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-261.

*Imperial Borrego Valley Ecoregion Subarea*

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind, geothermal, and transmission development. Impacts would occur to desert outcrop and badland, desert scrub, and wetland communities. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under Alternative 4 largely avoid habitat for flat-tailed horned lizard, and CMAs require avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-261.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle (foraging), greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-261. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would total approximately 200 acres. The avoidance and setback provisions for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (about 70 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. In addition, suitable habitat for burro deer and desert kit fox (Planning Species) would also occur in this subarea. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-261.

**Table IV.7-261**  
**Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Amphibian/Reptile</i>						
Agassiz's desert tortoise	9,858,000	34,000	3,000	1,000	7,000	45,000
Flat-tailed horned lizard	758,000	6,000	10	6,000	2,000	14,000
Mojave fringe-toed lizard	1,094,000	14,000	900	-	6,000	21,000
Tehachapi slender salamander	48,000	100	20	-	-	200
<i>Bird</i>						
Bendire's thrasher	2,141,000	4,000	500	700	900	6,000
Burrowing owl	5,269,000	83,000	4,000	12,000	13,000	113,000
California black rail	197,000	2,000	-	900	400	3,000
California condor	1,240,000	21,000	2,000	100	600	23,000
Gila woodpecker	106,000	400	-	100	100	600
Golden eagle–foraging	10,747,000	24,000	2,000	1,000	9,000	36,000
Golden eagle–nesting	4,443,000	2,000	200	20	2,000	4,000
Greater sandhill crane	617,000	29,000	300	8,000	5,000	43,000
Least Bell's vireo	226,000	200	10	20	40	300
Mountain plover	828,000	38,000	600	8,000	5,000	53,000
Southwestern willow flycatcher	317,000	4,000	50	2,000	800	7,000
Swainson's hawk	1,455,000	36,000	1,000	5,000	3,000	45,000
Tricolored blackbird	271,000	10,000	300	30	100	10,000
Western yellow-billed cuckoo	152,000	300	10	-	50	300
Yuma clapper rail	51,000	30	-	10	10	50
<i>Fish</i>						
Desert pupfish	8,000	100	-	50	30	200
Mohave tui chub	300	-	-	-	-	-
Owens pupfish	18,000	40	-	-	30	70
Owens tui chub	17,000	40	-	-	30	70

**Table IV.7-261**  
**Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Mammal</i>						
Bighorn sheep – inter-mountain habitat	3,854,000	4,000	300	100	2,000	6,000
Bighorn sheep – mountain habitat	6,649,000	3,000	500	10	3,000	6,000
California leaf-nosed bat	7,132,000	28,000	2,000	3,000	14,000	46,000
Mohave ground squirrel	2,383,000	22,000	2,000	1,000	2,000	27,000
Pallid bat	16,411,000	69,000	5,000	7,000	22,000	103,000
Townsend's big-eared bat	14,677,000	69,000	5,000	7,000	20,000	102,000
<i>Plant</i>						
Alkali mariposa-lily	119,000	3,000	100	-	70	3,000
Bakersfield cactus	278,000	5,000	500	-	30	5,000
Barstow woolly sunflower	154,000	500	50	-	30	600
Desert cymopterus	205,000	800	10	-	20	900
Little San Bernardino Mountains linanthus	289,000	400	80	-	80	600
Mojave monkeyflower	161,000	700	50	-	100	900
Mojave tarplant	265,000	400	40	70	100	700
Owens Valley checkerbloom	147,000	300	-	40	200	600
Parish's daisy	188,000	700	200	-	200	1,000
Triple-ribbed milk-vetch	8,000	-	-	-	-	-

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

Desert Tortoise

For Agassiz’s desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C).

Under Alternative 4, DFAs occur within TCAs only in the northern Fremont Valley converted to intensive agriculture. DFAs abut TCAs in the following areas: in the West Mojave – 2 ecoregion subunit (the Desert Tortoise Research Natural Area), in the Pinto – 1 ecoregion subunit in upper Lucerne Valley (Ord-Rodman), and in the Cadiz – 1 ecoregion subunit in east Riverside (Chuckwalla). Impacts from anticipated transmission development would occur in the Superior Cronese TCA and Chuckwalla TCA under Alternative 4.

Under Alternative 4, DFAs overlap desert tortoise linkages in the following areas: in the Kingston -1 ecoregion subunit in Pahrump Valley, in the Cadiz – 1 ecoregion subunit in the Chuckwalla to Chemehuevi linkage, in the Pinto – 1 ecoregion subunit in the Ord Rodman to Joshua Tree National Park linkage, and in the West Mojave – 5 ecoregion subunit in the Fremont Kramer to Ord Rodman linkage.

Table IV.7-262 provides an impact analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 15,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 4. Within the Eastern Mojave Recovery Unit, approximately 300 acres of linkage would be impacted under Alternative 4. Within the Western Mojave Recovery Unit, approximately 11,000 acres of TCAs and linkage habitat would be impacted under Alternative 4.

**Table IV.7-262**

**Plan-Wide Impact Analysis for Desert Tortoise Important Areas – Alternative 4**

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	387,000	3,000	<b>300</b>	-	90	4,000
	Linkage	469,000	900	<b>70</b>	-	20	900
	TCA	3,130,000	700	<b>50</b>	-	9,000	10,000
<i>Colorado Desert Total</i>		<i>3,985,000</i>	<i>5,000</i>	<b>400</b>	-	<i>10,000</i>	<i>15,000</i>
Eastern Mojave	Linkage	784,000	300	-	-	-	300
	TCA	2,096,000	-	-	-	-	-

**Table IV.7-262**  
**Plan-Wide Impact Analysis for Desert Tortoise Important Areas – Alternative 4**

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Eastern Mojave Total</i>		<i>2,880,000</i>	<i>300</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>300</i>
Western Mojave	Linkage	1,204,000	8,000	<b>900</b>	-	800	10,000
	TCA	2,313,000	600	<b>50</b>	-	600	1,000
<i>Western Mojave Total</i>		<i>3,517,000</i>	<i>8,000</i>	<i><b>900</b></i>	<i>-</i>	<i>1,000</i>	<i>11,000</i>
<b>Total</b>		<b>10,382,000</b>	<b>14,000</b>	<b>1,000</b>	<b>-</b>	<b>11,000</b>	<b>26,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Approximately 4,143,000 acres of USFWS-designated critical habitat for desert tortoise occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). Although the TCAs include desert tortoise critical habitat, these two areas are not entirely the same geographically. Alternative 4 would result in approximately 11,000 acres (approximately 0.3% of the total critical habitat for desert tortoise in the Plan Area) of impact to desert tortoise critical habitat. Approximately 94% (10,000 acres) of the impacts would occur in the Chuckwalla critical habitat unit and the majority of that impact (9,500 acres) from transmission impacts. Approximately 400 acres of impact from transmission development would occur in the Superior-Cronese critical habitat unit, and approximately 200 acres of impact would occur in the Ord-Rodman critical habitat unit from transmission development. As described in Volume II, transmission impacts assume resources are impacted within the entire right-of-way width that varies by transmission line voltage. Transmission development does not preclude the use of the area by tortoise, but does lead to the potential for increased risk of predation or striking by vehicles associated with access roads to support transmission lines.

CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs (AM-DFA-ICS-7 and AM-DFA-ICS-10). Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-8 and AM-DFA-ICS-9). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and

wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Under Alternative 4, the designated DRECP Variance Lands have the potential to undermine the integrity and long-term conservation value of the conservation strategy for desert tortoise.

#### Flat-tailed Horned Lizard

For flat-tailed horned lizard, flat-tailed horned lizard (FTHL) management areas were identified in the FTHL Rangeland Management Strategy (RMS). The FTHL management areas cover approximately 393,000 acres in the Plan Area (excluding military, Open OHV Areas, and tribal lands) and include the following units: Borrego Badlands, East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin. Approximately 5,000 acres of impact to FTHL management areas would result from Covered Activities under Alternative 4, in the East Mesa, Ocotillo Wells, West Mesa, and Yuha Basin units. Avoidance and minimization CMAs (AM-DFA-ICS-16 and AM-PW-1 through 17) would avoid and minimize impacts to flat-tailed horned lizard. Compensation CMAs would offset habitat loss for flat-tailed horned lizard.

#### Bendire's Thrasher

Bendire's thrasher habitat occurs in scattered locations across the Mojave and Sonoran/Colorado deserts of the Plan Area. As shown in Table IV.7-261, approximately 6,000 acres of impacts to habitat for Bendire's thrasher would occur under Alternative 4. Avoidance and minimization CMAs (AM-DFA-ICS-17 and AM-PW-1 through 17) would avoid and minimize impacts to Bendire's thrasher. Compensation CMAs would offset habitat loss for Bendire's thrasher.

#### California Condor

California condor nesting has not been documented in the Plan Area and condor use of the Plan Area is limited to foraging and temporary roosting. As shown in Table IV.7-261, approximately 23,000 acres of impacts to potential foraging and temporary roosting habitat for California condor would occur throughout the Plan Area. As specified in AM-DFA-ICS-18, take of California condor will be avoided by Covered Activities. Additionally, the other condor CMAs (AM-DFA-ICS-19 through 25) and the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to California condor. Compensation CMAs would offset foraging and temporary roosting habitat loss for California condor.

### Golden Eagle

In addition to the analysis of impacts to nesting and foraging habitat summarized in Table IV.7-261, a territory-based analysis was conducted for golden eagle (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). From the 420 nest locations known from the Plan Area, a total of 161 territories were identified in available lands of the Plan Area. Under Alternative 4, 38 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 4, 71 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment, increased risk of striking hazards, and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

### Desert Bighorn Sheep

For desert bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 4, approximately 6,000 acres of mountain habitat and 6,000 acres of intermountain habitat would be impacted. A majority of these impacts would occur in the Pinto Lucerne Valley and Eastern Slopes ecoregion subarea in the Lucerne Valley area and in the Cadiz Valley and Eastern Slope ecoregion subarea in the intermountain linkage across the I-10 corridor in East Riverside SEZ area. Alternative 4 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat; however, impacts would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

Although the Peninsular bighorn sheep Distinct Population Segment (DPS) is not a Covered Species, approximately 47,000 acres of USFWS-designated critical habitat for the Peninsular bighorn sheep DPS occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Canyon and South Santa Rosa Mountain. Alternative 4 would not result in any impacts to critical habitat for the Peninsular bighorn sheep DPS.

Mohave Ground Squirrel

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C).

Under Alternative 4, impacts to key population centers for Mohave ground squirrel would occur primarily in the Panamint – 1 and Owens – 1 ecoregion subunits. Impacts to Mohave ground squirrel linkages under Alternative 4 would occur primarily in the Owens – 1 ecoregion subunit. Impacts to Mohave ground squirrel expansion areas would occur primarily in the West Mojave – 2, West Mojave – 4, and West Mojave – 6 ecoregion subunits and impacts to the climate change extension areas would occur only in a limited area of the Owens – 1 ecoregion subunit.

Table IV.7-263 provides an impact analysis for these Mohave ground squirrel important areas. The CMAs for Mohave ground squirrel would require avoidance of impacts that affect the viability of linkages (AM-DFA-ICS-36 through AM-DFA-ICS-43). A total of approximately 8,000 acres of impact to key population centers, linkages, expansion areas, and climate change extension areas would occur under Alternative 4. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

**Table IV.7-263  
Plan-Wide Impact Analysis for Mohave Ground Squirrel Important Areas –  
Alternative 4**

Mohave Ground Squirrel Important Area Type	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	507,000	1,000	10	100	500	2,000
Linkage	386,000	500	-	600	400	2,000
Expansion Area	552,000	3,000	90	400	200	3,000
Climate Change Extension	224,000	800	-	80	300	1,000
<b>Total</b>	<b>1,669,000</b>	<b>5,000</b>	<b>100</b>	<b>1,000</b>	<b>1,000</b>	<b>8,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### Dune Covered Species<sup>1</sup>

Dune Covered Species include Mojave fringe-toed lizard. Although Table IV.7-261 shows impacts to Mojave fringe-toed lizard, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from dunes (AM-DFA-DUNE-1 through 3). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-3) would further avoid and minimize impacts to dune Covered Species. Compensation CMAs would offset habitat loss for dune Covered Species.

### Riparian and Wetland Covered Species<sup>2</sup>

Covered Species associated with riparian and wetland habitats include Tehachapi slender salamander, California black rail, Gila woodpecker, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, Yuma clapper rail, Mohave tui chub, Owens pupfish, and Owens tui chub. Although Table IV.7-261 shows impacts to suitable habitat for some of these riparian and wetland Covered Species, impacts to the primary habitat areas used by these species would be avoided through the CMAs that require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1 through 9). Additionally, the Plan-wide and landscape-level avoidance and minimization CMAs (AM-PW-1 through 17 and AM-LL-2) would further avoid and minimize impacts to riparian and wetland Covered Species. Compensation CMAs would offset habitat loss for these species.

Approximately 6,000 acres of USFWS-designated critical habitat for southwestern willow flycatcher occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Amargosa River, Mojave River, and Willow Creek. Alternative 4 would not result in any impacts to critical habitat for southwestern willow flycatcher.

Approximately 800 acres of USFWS-designated critical habitat for desert pupfish occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). These critical habitat units include Carrizo Wash, Fish Creek Wash, and San Felipe Creek. Alternative 4 would not result in any impacts to critical habitat for desert pupfish.

The USFWS proposed to designate yellow-billed cuckoo critical habitat on August 15, 2014 at the time the DRECP Draft EIR/EIS was going to print. As such, the proposed yellow-billed

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<sup>1</sup> Flat-tailed horned lizard and plant Covered Species are also known to be associated with dunes but these species are addressed separately.

<sup>2</sup> Some of the riparian and wetland Covered Species discussed here also use other non-wetland and non-riparian natural communities.

cuckoo critical habitat was not addressed in the Draft EIR/EIS, but will be addressed in the Final EIR/EIS.

### Covered Species associated with Agricultural Lands<sup>3</sup>

Covered Species associated with agricultural lands include burrowing owl, greater sandhill crane, mountain plover, Swainson's hawk, and desert pupfish. As shown in Table IV.7-261, impacts to Covered Species associated with agricultural lands would occur, primarily in the Imperial Valley, Palo Verde Valley, and Antelope Valley. Specific surveys, setbacks, and other CMAs have been developed to avoid and minimize impacts of Covered Activities on these species (AM-DFA-AG-1 through 7). Compensation CMAs would offset habitat loss for these species.

### Bat Covered Species

Bat Covered Species include California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. As shown in Table IV.7-261, impacts to suitable habitat for bat Covered Species would occur throughout the Plan Area; however, impacts to roost sites and areas around roost sites would be avoided and minimized through the CMAs specific to bat species (AM-DFA-BAT-1). Additionally, the Plan-wide avoidance and minimization CMAs (AM-PW-1 through 17) would further avoid and minimize impacts to bat Covered Species. Compensation CMAs would offset habitat loss for these species.

### Plant Covered Species

Plant Covered Species include alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, Desert cymopterus, Little San Bernardino Mountains linanthus, Mojave monkeyflower, Mojave tarplant, Owens Valley checkerbloom, Parish's daisy, and Triple-ribbed milk-vetch. As shown in Table IV.7-261, Alternative 4 would result in impact to suitable habitat for these species; however, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would avoid the direct loss of habitat occupied by these species. Compensation CMAs would offset habitat loss for the plant Covered Species.

Approximately 2,000 acres of USFWS-designated critical habitat for Parish's daisy occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands). The critical habitat unit is the Northeast Slope. Alternative 4 would not result in any impacts to critical habitat for Parish's Daisy.

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<sup>3</sup> Some of the Covered Species discussed here as associated with agricultural lands also use non-agricultural lands.

To avoid and minimize the potential loss of Covered Species from Covered Activities, a range of species-specific CMAs have been developed and are highlighted below:

- CMAs require habitat assessments for all Covered Activities and pre-construction surveys for Tehachapi slender salamander, Mojave fringe-toed lizard, desert tortoise, flat-tailed horned lizard, riparian and wetland bird Covered Species, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, desert kit fox, Mohave ground squirrel, bat Covered Species, and plant Covered Species (see Section II.3.1.2.5.4 and Section II.3.1.2.5.5).
- Setbacks from individual species would be required from active nests of Bendire's thrasher, California condor, elf owl, Gila woodpecker, and golden eagle.
- Covered Activities and other development in areas that potentially affect the amount of sand entering or transported within Aeolian transport corridors will be designed and operated to minimize mortality to Covered Species (AM-LL-3).
- In addition, a bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Covered Activities that are likely to impact bird and bat Covered Species during operation will develop and implement a project-specific Bird and Bat Operational Strategy (BBOS) that meets the approval of the appropriate DRECP Coordination Group (AM-LL-4).
- Covered Activities will include appropriate design features using the most current information from the Flat-tailed Horned Lizard Rangeland Management Strategy (RMS) and RMS Interagency Coordinating Committee (ICC) to reduce mortality.
- If Bendire's thrasher are present, CMAs require biological monitoring to ensure that individuals are not directly affected by operations (i.e., mortality or injury, direct impacts on nest, eggs, or fledglings) (AM-DFA-ICS-15).
- For Covered Activities where ongoing take of eagles is anticipated, and take of eagles will be authorized under DRECP, federal regulations require that any authorized take must be unavoidable after the implementation of advanced conservation practices (ACPs) (AM-DFA-ICS-29). ACPs are "scientifically supportable measures" approved by the USFWS and represent the best available techniques to reduce eagle disturbance and ongoing mortalities to a level where remaining take is unavoidable" (50 CFR 22.3).

### Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute

to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities in the Plan Area that would result in noise, predator avoidance behavior, or light and glare. As described in Section IV.7.2.1, the extent of some of these effects may exist at or beyond the source of these effects, the project footprint, or the project area depending on the type of effect and other environmental considerations. As such, the adverse effects caused by these factors would correspond to the overlap between the location of sensitive wildlife, represented by the Covered Species models, and the likely distribution of Covered Activities across subareas.

Under Alternative 4, approximately 8% of the total Plan Area, would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 4 (a total of 177,000 acres of impact), the creation of noise, predator avoidance behavior, as well as light and glare would collectively result in the terrestrial operational impacts shown in Table IV.7-261. These impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Providence and Bullion Mountains subareas. As a result, these subareas would have the greatest potential to create noise, predator avoidance behavior, and light and glare resulting in disturbance of sensitive wildlife.

#### Noise

Noise caused by mechanical equipment, vehicle usage, and human activities during siting, construction, and operations can cause physical damage such as hearing loss as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Birds during the nesting seasons are expected to be particularly sensitive to noise effects from the siting, construction, and operation of renewable energy facilities. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas that would be primarily affected. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could be adversely affected by intense noise (and related vibration that could collapse burrows), and potentially subject to increased predation if noise affects their ability to detect predators. Impacts on the habitat for these Covered Species mostly occurs in the West Mojave and Eastern Slopes subarea, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas.

The disturbance and injury of wildlife from noise-related effects would also be minimized through the implementation of avoidance and minimization CMAs under Alternative 4. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices throughout the entire Plan Area. Additionally, various CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting birds, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36). Therefore, potential disturbance of

wildlife from noise during siting, construction, and operations would be minimized by these measures.

### Predator Avoidance Behavior

As described in Section IV.7.2.1, predator avoidance behavior can occur in some wildlife in response to human activities during operation and maintenance. Predator avoidance behavior can lead to increased physiological stress, reduced suitable foraging habitat, and can affect reproduction. Although different Covered Activities in combination with different wildlife species can generate varying levels of predator avoidance behavior, the adverse effects on wildlife would generally be similar across renewable energy technology types. Therefore, the severity and location of effects resulting from predator avoidance behavior would correspond to the amount and distribution of Covered Activities represented by the DFAs, as previously described.

Different wildlife species may have varying sensitivities to predator avoidance behavior and may experience different magnitudes of responses to Covered Activities. Desert bighorn sheep use visual cues to assess and escape predators and may not utilize foraging habitat or water sources in proximity to Covered Activities. Other species that may experience behavioral changes that reduce foraging opportunities or lead to avoidance of suitable foraging habitat include burro deer, desert kit fox, and nesting bird species. These wildlife species are spread throughout the Plan Area with most occurring in the Cadiz Valley and Chocolate Mountains subarea. To a lesser extent, predator avoidance behavior would also be prevalent in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. As a result these subareas would experience a relatively similar amount of potential predator avoidance behavior.

Under Alternative 4, avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMAs would inform workers of actions that could potentially induce predator avoidance behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, AM-RES-RL-DUNE-2, and AM-RES-RL-ICS-14). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures.

### Light and Glare

Light and glare are created by Covered Activity development which involves both light for security and to avoid aviation collisions and glare from reflective surfaces. Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of

reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, based on the planned renewable energy generation and transmission under Alternative 4, terrestrial operational impacts would mostly occur in the Cadiz Valley and Chocolate Mountains subarea and to a lesser extent in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Similarly, impacts from solar projects throughout the Plan Area would primarily occur in the Cadiz Valley and Chocolate Mountains subarea.

Lighting can act through various biological mechanisms and can result in greatly different adverse effects to individual species. Diurnal predators, such as bats and insectivorous birds may exploit night lighting that increases prey detectability, while nocturnal prey species may reduce their foraging activity in lighted areas. Impacts to habitat for bats from Covered Activities would mainly be located in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas. Migratory birds that fly during the night may be affected by aviation safety lighting on high structures such as met towers and turbines. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas are the subareas primarily affected, containing most of the total Plan-wide impacts to bird Covered Species habitat. Therefore, considering the distribution of potential renewable energy development and impacts on modeled habitat for species sensitive from light and glare the largest magnitude of wildlife disturbance is expected to occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas.

Alternative 4 would implement avoidance and minimization CMAs specifically intended to reduce effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Furthermore, the appropriate siting and design of Covered Activities away from sensitive wildlife habitat would reduce disturbance from lighting and glare. Under Alternative 4, avoidance and minimization CMAs for siting Covered Activities away from wildlife that would be sensitive to the adverse effects of lighting and glare would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2). These measures would minimize potential disturbance of wildlife from lighting and glare.

#### Non-Covered Species Impact Analysis

Potential impacts to Non-Covered Species on BLM Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-264 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g., dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird or amphibian species. The total potential impact to natural communities and habitat across all technology types before application of CMAs is less than 1%, with the exception of grasslands at approximately 3.4% and agricultural/rural land cover at approximately 6% (see Table IV.7-264).

**Table IV.7-264**

**Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte’s phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy’s eriastrum, Cushenbury buckwheat	437,000	1,100	200	0	100	1,400	0.3%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch’s spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte’s thrasher, loggerhead shrike, long-eared owl,	13,329,000	65,500	5,000	6,000	18,000	94,500	0.7%

**Table IV.7-264**

**Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy’s warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte’s phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory’s crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood’s eriastrum, Harwood’s milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-264

Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes <sup>3</sup> / Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat,	1,895,000	8,000	600	400	3,000	12,000	0.6%

**Table IV.7-264**

**Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte’s phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory’s crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood’s eriastrum, Harwood’s milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt’s woody aster, Orocopia sage, Palmer’s jackass clover, Parish’s club cholla, Pierson’s milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson’s monardella, Rusby’s desert-mallow, sand food, Spanish needle onion, Thorne’s buckwheat, Utah beardtongue, white bear poppy, Wiggin’s croton, Palmer’s jackass clover,							

**Table IV.7-264**  
**Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	238,000	7,300	300	0	400	8,000	3.4%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermilion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotis pocketed	1,652,000	5,000	200	0	400	5,600	0.3%

**Table IV.7-264**  
**Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish’s alkali grass, Parish’s phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	825,000	34,000	500	8,500	6,400	49,400	6%

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

<sup>3</sup> Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

<sup>4</sup> This amount assumes the loss of conservation value for all land fragmented by the well fields.

**Notes:** The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

USFWS-designated critical habitat occurs within the Plan Area (excluding military, Open OHV Areas, and tribal lands) for the following Non-Covered Species:

- Approximately 1,000 acres for *Amargosa nitrophila*
- Approximately 4,000 acres for the Amargosa vole
- Approximately 4,000 acres for the Arroyo Toad
- Approximately 300 acres for the Ash Meadows gumplant
- Approximately 600 acres for the Cushenbury buckwheat
- Approximately 1,000 acres for the Cushenbury milk-vetch
- Approximately 100 acres for the Cushenbury oxytheca
- Approximately 14,000 acres for the Lane Mountain milk-vetch
- Approximately 3,400 acres for the Pierson's milk-vetch
- Approximately 47,000 acres for the Peninsular bighorn sheep

Under the Alternative 4, impacts to approximately 20 acres of Lane Mountain milk-vetch critical habitat would have the potential to occur from transmission. This calculation of impacts from transmission is derived from the transmission corridors overlapped with designated critical habitat, thus resulting in an overestimation of actual ground disturbance.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

As additional analysis, Table IV.7-50, in Section IV.7.3.2.1 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. There are a number of species-specific CMA's for Covered Species and natural communities that would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur, e.g., the non-Covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher, therefore, conservation measures implemented for southwestern willow flycatcher would often benefit the yellow-breasted chat. Although the modeled habitat for the Covered Species does not always directly overlap the range of Non-Covered Species requiring similar habitat, this method provides a general additional guide for determining impacts and accounting for conservation measures.

The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and

therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

***Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).***

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

***Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.***

The following provides an analysis of the impacts of the development of Covered Activities on habitat linkages and wildlife movement in the Plan Area. Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

The desert linkage network is a comprehensive and detailed habitat connectivity analysis for the California deserts identified “swaths” of habitat of uniform physical conditions that will interact with uncertain climate changes to maintain habitat for species and species’ movement (Penrod et al. 2012, as cited in Appendix Q). Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea.

Table IV.7-265 shows the impact analysis for the desert linkage network for Alternative 4. Overall, over 29,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in seven different subareas.

In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Chuckwalla Valley portion of a linkage network that extends west and south. Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea; DFAs under Alternative 4 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement if the development of Covered Activities in these DFAs are not sited and designed to maintain wildlife movement. The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. In particular, variance lands in this area lead to uncertainty of securing functional connectivity corridors under Alternative 4.

In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. DFAs are not located in the desert linkage network corridors elsewhere in the Imperial Borrego Valley subarea. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement.

In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area around Barstow to the Calico Mountains and east along and south of the Mojave River. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Panamint Death Valley subarea, there is a DFA in the Searles Valley in a linkage that connects the Searles and Argus Ranges. DFAs are not located in the desert linkage network corridors elsewhere in these ecoregion subareas. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement. Variance lands in these areas leads to uncertainty of securing functional connectivity corridors under Alternative 4.

In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in a portion of the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains in Lucerne Valley; however, no DFAs are located in the habitat linkage between the Ord Mountains and the Granite Mountains across the Highway 18 east of Apple Valley. There are also DFAs in the linkage that connects Black Mountain to the Mojave River. DFAs under this Alternative are sited to avoid and minimize impacts to wildlife movement in this subarea by maintaining movement corridors between the San Bernardino Mountains and the Mojave Desert, including in the Ord Mountains to Granite Mountains linkage area and in the Bighorn Mountain area that connects to Johnson Valley and the Morongo Basin. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement. However, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Therefore, variance lands in this area lead to uncertainty of securing functional connectivity corridors under Alternative 4.

In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale; however, in this area, DFAs under this alternative are sited to avoid the habitat linkage along the Mojave River and the habitat linkage east of Saddleback Buttes along the Los Angeles and San Bernardino county line. DFAs occur in the Brisbane Valley and in the linkages around Barstow. In the Fremont Valley area around California City, DFAs are located in linkages between Edwards Air Force Base the Tehachapi Mountains that could adversely affect wildlife movement; however, an east-west corridor was maintained without DFAs north of California City across Fremont Valley. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs; however, the siting of DFAs, the reserve design, and the CMAs related to wildlife movement and Covered Species would offset the impacts on general terrestrial wildlife movement. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Variance lands in this area lead to uncertainty of securing functional connectivity corridors under Alternative 4.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. The conservation analysis for the desert linkage network is provided under the Impacts of the Reserve Design below. To

avoid and minimize impacts to the desert linkage network beyond what is estimated in Table IV.7-265, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered near Wiley’s Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

**Table IV.7-265  
Plan-Wide Impact Analysis for the Desert Linkage Network – Alternative 4**

<b>Desert Linkage Network by Ecoregion Subarea</b>	<b>Available Lands (acres)<sup>1</sup></b>	<b>Solar Impact (acres)<sup>2</sup></b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
Cadiz Valley and Chocolate Mountains	890,000	11,000	800	-	10,000	22,000
Imperial Borrego Valley	156,000	100	-	80	30	200
Kingston and Funeral Mountains	174,000	-	-	-	-	-
Mojave and Silurian Valley	507,000	900	-	-	300	1,000
Owens River Valley	19,000	200	-	300	200	700
Panamint Death Valley	206,000	500	-	-	80	600
Pinto Lucerne Valley and Eastern Slopes	291,000	2,000	400	-	900	3,000
Piute Valley and Sacramento Mountains	152,000	-	-	-	-	-
Providence and Bullion Mountains	426,000	-	-	-	-	-
West Mojave and Eastern Slopes	860,000	4,000	400	-	300	5,000
<b>Total</b>	<b>3,682,000</b>	<b>19,000</b>	<b>2,000</b>	<b>300</b>	<b>12,000</b>	<b>33,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the

nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### **Migratory Birds**

Migration patterns across the Plan Area are discussed in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors and migratory resources in each subarea.

In Alternative 4, wind generation is a moderate proportion of the overall generation mix, it is would be predominantly located in West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, and Cadiz Valley and Chocolate Mountain ecoregion subareas.

Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino mountain passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB, including the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Further, direct loss of habitat in Antelope Valley would lead to loss of habitat for wintering birds. Wind development would occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area, and north of the I-10. These areas are adjacent to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. Very small quantities of wind would be located in Imperial Borrego Valley.

Solar development would be expected throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountain and Imperial Borrego Valley ecoregion subareas. Alternative 4 would result in new solar PV and solar thermal facilities along the I-10 corridor to the west side of the Colorado River, and in agricultural lands west of Blythe, and in undisturbed lands in McCoy Valley. Anticipated development would result in a 6-fold increase in solar facilities when compared to baseline. This would increase hazards on the migratory linkages for birds between the Colorado River, and the Coachella Valley, and would adversely affect both Covered Species and other migratory birds. Similarly, development in the West Mojave and Eastern Slopes subarea would result in a 4-fold increase in solar facilities; and Pinto Lucerne Valley and Eastern Slopes subarea would be developed where previously it has not been the focus of development. Impacts are likely to occur in DFAs between the Tehachapi and San Bernardino Mountain passes, and dry lakes on Edwards AFB, as well as, the dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake.

Development around the Salton Sea and in the Imperial Valley would be on the southern, western and eastern shores. As discussed in BR-4, impacts from solar development are likely to result in a 3.7-fold increase in solar facilities when compared to baseline impacts. Development would lead to direct loss of foraging habitat for wintering and resident birds in the agricultural lands south of the Salton Sea, and would create facilities across the landscape that mimic open water. Such facilities would adversely affect the behavior migratory birds, and would result increased mortality. Areas most important to migratory waterbirds that are within both geothermal and solar DFAs include the agricultural lands west of Calipatria to the Shoreline of the Salton Sea. Transmission throughout this area is already extensively developed to serve existing geothermal facilities and would likely attract further development. These lands provide foraging for Cattle Egret, White-faced Ibis, Sandhill Crane, Mountain Plover, Whimbrel, Long-billed Curlew throughout winter (Shuford et al 2000). Further, the proximity of these DFAs to the Salton Sea would affect migrating and resident water birds including ducks, geese, pelicans, cormorants, and wading birds that would otherwise be minimally affected development. In particular grebes are known to be attracted to both the reflective surfaces of solar PV facilities and the evaporation ponds used by some geothermal and solar facilities.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

***Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.***

The siting, construction, decommissioning, and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments.

The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. Renewable energy development would be restricted to DFAs under the DRECP; therefore, Alternative 4 would allow the siting of renewable energy development only within approximately 8% of the available lands in Plan Area (1,608,000 acres of DFAs). Of which, siting and construction of renewable energy development would affect less than 1% of the available lands in the Plan Area (approximately 177,000 acres).

In conjunction with DFA siting, the DRECP integrated planning process identified Reserve Design Lands within which renewable energy development would be prohibited and conservation would occur. As described below under Impacts of the Reserve Design, the DRECP Plan-Wide Reserve Design Envelope for Alternative 4 covers 14,478,000 acres of the Plan Area (76% of the available lands in the Plan Area); therefore, 76% of the available lands in the Plan Area would not have the potential to be affected by fragmentation or population isolation impacts from Covered Activities.

In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. Based on the terrestrial intactness analysis developed for the DRECP area, approximately 87% of the DFAs in Alternative 4 are characterized by low or moderately low intactness. Therefore, a majority of the DFAs are in locations with existing habitat fragmentation and population isolation such that development of Covered Activities in these areas would not appreciably contribute to additional effects. However, under Alternative 4, DRECP Variance Lands are included that were not sited to avoid intact landscapes and were not sited to ensure development is constrained to more degraded lands. The inclusion of the DRECP Variance Lands scattered across the landscape under Alternative 4 undermines the intactness and puts larger intact landscapes at risk of dispersed future development.

Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients. Environmental gradients are spatial shifts in physical and ecological parameters across a landscape. Environmental gradients are influenced by factors such as temperature, precipitation, wind, and solar exposure that vary with physical

factors such as elevation, latitude, slope, and aspect. The impact analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

**Elevation:** Under Alternative 4, 99% of the impacts from Covered Activities would occur in DFAs below 4,000 feet, including 61% of the impacts occurring below 1,000 feet and 32% between 2,000 and 4,000 feet. As the majority of impacts occur in DFAs below 4,000 feet, impacts will be greater to natural communities that occur below this elevation such as desert scrub natural communities as compared to natural communities that occur at higher elevations. Approximately 94% of geothermal impacts are at elevations below 1,000 feet, including 63% below sea level. Solar impacts also tend to be concentrated in the lower elevations, with 87% of impacts below 3,000 feet. Wind impacts tend to be at higher elevations, with 59% of impacts at elevations above 2,000 feet. Approximately 16% of transmission impacts would be between 2,000 and 4,000 feet elevation. Habitat fragmentation, population isolation and gene flow impacts would be concentrated at lower elevations, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for lower elevation Covered Species and natural communities in response to climate change. As Alternative 4 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

**Landforms:** Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Under Alternative 4, the vast majority (97%) of impacts within DFAs would occur to plains, with these impacts spread across the different impact types, including 72% from solar, 4% from wind, 10% from geothermal, and 14% from transmission. Habitat fragmentation, population isolation and gene flow impacts would be concentrated in plains, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities associated with plains in response to climate change. As Alternative 4 would impact less than 1% of all available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

**Slope:** Under Alternative 4, total impacts within DFAs would be progressively less with increasing slope. The large majority (93%) of impacts would occur on slopes less than 5%, and 99% of impacts would occur on slopes up to 20%. On slopes less than 20%, impacts would be spread across the different impacts types, including 71% from solar, 4% from wind, 10% from geothermal, and 15% from transmission. Habitat fragmentation, population isolation, and gene flow impacts would be concentrated on slopes less than 20%, which has the potential to reduce the potential for successful species range shifts, contractions, and expansions for Covered Species and natural communities that inhabit lower slopes in response to climate change. As Alternative 4 will impact less than 1% of all

available land within the Plan Area, any impacts to successful species range shifts, contractions, and expansions will be relatively minor.

Aspect: Under Alternative 4, impacts within DFAs would generally be well distributed among the different aspects. Impacts from solar, geothermal, wind, and transmission would have similar distributions across the different aspects compared to overall impacts. By distributing the impacts across all aspects, there is a less potential to interrupt species movement and gene flow for species that occur within any one aspect.

Siting, construction, decommissioning, and operation of the renewable energy and transmission projects has the potential to result in adverse fragmentation and population isolation effects, but these effects are avoided and minimized through the DFAs and reserve design envelope, as well as through the implementation of avoidance and minimization CMAs (AM-LL-1 through AM-LL-4).

***Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.***

Any development to the North of Edwards is likely to affect Mohave ground squirrel. However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Alternative 4 would result 126,000 acres of permanent conversion of natural desert communities with 51,000 acres of impacts (29% of the total ground disturbance) within areas characterized by disturbed land cover types.

Agricultural landscapes in the west Mojave, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains or areas to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species such as tricolored blackbird, and golden eagle, as well as reptiles like the Tehachapi slender salamander and the desert tortoise. Any development in suitable habitat North of Edwards is likely to lead to increased predation on Mohave ground squirrel. Solar development is also likely to occur in already disturbed agricultural landscapes around Lancaster or to the southwest of Edwards AFB. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the BLM Solar SEZ area adjacent to the I-10 corridor and in McCoy Valley. Development would increase predation on species like

desert tortoise and Mojave fringed toed lizard. Impacts in Imperial Valley would predominately occur in agricultural and disturbed lands. However, where projects are sited in natural communities, susceptible Covered Species would include flat-tailed horned lizard, and nesting birds.

The inclusion of DRECP Variance Lands under Alternative 4 has the potential for increased risk of scattered transmission lines and scattered development activities in remote and intact landscapes, which could lead to future increased levels of predation.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

***Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.***

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes the range of impacts to bird and bat species within the Plan Area that occur as a consequence of wind turbine operation. The range of collision rates calculated in Table IV.7-266 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the overlap between the species habitat models and the likely distribution of wind generation across the subareas.

Overall, Alternative 4 would result in a median of 8,000 collisions per year for birds and 36,000 collisions per year for bats across the Plan Area. The expected distribution of wind generation indicates that 43% of all collisions would occur in West Mojave and Eastern Slopes subarea, 18% in Pinto Lucerne Valley and Eastern Slopes, and 38% in the Cadiz and

Chocolate Mountains subarea, with a small percentage occurring in the Imperial Borrego Valley subarea. Collisions would predominately affect species in the northwest of the Plan area, Susceptible species include Bendire's thrasher, burrowing owl, golden eagle, least Bell's vireo, and Swainson's hawk, tricolored blackbird, southwest willow flycatcher, and mountain plover. Collision rates would be lower in the Cadiz and Chocolate Mountains subarea. Susceptible species in this subarea include burrowing owl and mountain plover.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland birds, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle, and plant Covered Species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific BBOS will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

**Table IV.7-266**  
**Plan-Wide Estimated Range of Collision per Year**  
**for Birds and Bats by Subarea – Alternative 4**

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)			Bats (Collisions/Yr)		
		Low	Median	High	Low	Median	High
Cadiz Valley and Chocolate Mountains	586	900	3,000	11,000	1,000	14,000	82,000
Imperial Borrego Valley	13	-	100	200	-	300	2,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	284	400	1,000	5,000	600	7,000	40,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	671	1,000	3,000	13,000	1,000	16,000	94,000
<b>Grand Total</b>	<b>1,554</b>	<b>2,000</b>	<b>8,000</b>	<b>30,000</b>	<b>3,000</b>	<b>36,000</b>	<b>218,000</b>

<sup>1</sup> Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

**Note:** The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

### Solar

Collision with power towers, heliostats and solar arrays, and injury or mortality from exposure to solar flux, are all known impacts of solar generation facilities. While the nature of the impacts remain the same for all alternatives, the distribution of impacts across the plan area varies in relation to the anticipated quantity and location of solar facilities in each alternative. Under Alternative 4 a total of 1,608,000 acres of the Plan Area would be designated as DFAs, of which up to 147,000 acres would be directly impacted by solar development.

In Alternative 4, plan-wide solar development would result in a 4.3-fold increase in collision risks relative to baseline (Appendix O). 31% of the anticipated solar facilities would be in the Cadiz Valley and Chocolate Mountains Region, and 25% would be in the

Imperial Borrego Valley subarea. The West Mojave and Eastern Slopes subarea would support approximately 33% of the solar development, with a further 5% occurring in the Pinto and Lucerne Valley subarea. The remaining 5% would be spread across the rest of the Plan area.

Solar development in Imperial Borrego Valley area would convert agricultural lands, which are important winter foraging areas for mountain plover and greater sandhill crane. Alternative 4 has some of the most restricted DFAs in the Imperial Borrego Valley ecoregion subarea, these restrictions would increase the density of development in the remaining DFAs. In particular, the DFAs in the agricultural lands running from the west of Calipatria to the Shoreline of the Salton Sea represent great potential for development because there is already extensive transmission throughout this area to serve existing geothermal facilities. However, this area also provides foraging for Cattle Egret, White-faced Ibis, Sandhill Crane, Mountain Plover, Whimbrel, Long-billed Curlew throughout winter (Shuford et al 2000). Further, the proximity of the Salton Sea would mean that development could disproportionately affect migrating and resident water birds including ducks, geese, pelicans, cormorants, and wading birds that would otherwise be less affected if development was more spread out.

Impacts in Imperial Borrego Valley and the Cadiz Valley would disproportionately affect wetland species like the Yuma clapper rail, California black rail. In particular mortality of Yuma clapper rail is anticipated across the Plan Area because rail species in general, and clapper rails in particular, have long-distance dispersal capabilities, and tend to be attracted to and collide with reflective surfaces, and appear vulnerable to colliding with fences, during longer-distance movements at night. These conclusions are based on numerous documented fatalities of various rail species (including two clapper rails to date) at different solar project sites currently in construction or recently put into operation in Riverside and Imperial counties.

Due to the close proximity of DFAs to the Colorado River, impacts from solar operations in the Cadiz and Chocolate mountains subarea are also likely to affect riparian birds species associated with the lower Colorado River like southwest willow flycatcher, western yellow-billed cuckoo, Gila woodpecker, and least Bell's vireo and would also affect migratory birds as discussed in BR-6.

Impacts in the western Mojave, along the HWY14 corridor, in Antelope Valley and east of Lancaster may disproportionately affect nesting and foraging Swainson's hawk, and overwintering mountain plover. Whereas, impacts in the Lucerne Valley affect foraging habitat for nesting golden eagle populations, and overwintering Bendire's thrasher. Burrowing owl are less regionally specific, and would be affected in subareas with significant quantities of open agriculture lands. They would especially be affected by

development in Imperial Borrego Valley, which contains the largest population of burrowing owls in California, and in the West Mojave and Eastern Slopes subarea, in the open agricultural lands around Lancaster and Palmdale.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats, which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to migratory birds. Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species.

### Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes and the West Mojave and Eastern Slopes subareas, with 18,000 acres, 6,000 acres, 2,000 acres, 1,000 acres and 6,000 acres of terrestrial impacts anticipated respectively. The remaining 2,000 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller collector lines would present collision and electrocution hazard to bird Covered Species. In particular, lines running perpendicular to migratory corridors or close to bird refuges would represent a greater

hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains, as well as those that would cross the Tehachapi mountain passes. Other anticipated lines in the Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The Bird and Bat Covered Species Operational Actions aims to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project.

A bird mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Bird and Bat Covered Species Operational Actions would include compensatory mitigation to offset the inadvertent mortality to covered avian species. Such compensation would be in accordance with AM-LL-4 and may include ongoing/annual fees. The biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to AM-LL-4.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would be minimized.

The inclusion of the DRECP Variance Lands under Alternative 4, while not analyzed as if they were developed, have the potential to be developed in the future. Due to the remote nature of these lands, transmission lines would likely be needed to support any future development in these areas and the designation of these lands as DRECP Variance Lands has the potential to increase the risk of transmission effects on sensitive species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summarizes the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology that are discussed above. Section IV.7.1.1.2 provides the method used to estimate the operational take for Covered avian and bat species provided here. Based on the location of DFAs and MW distribution, it is expected that take of Covered Species associated with Agricultural habitats would be particularly affected, which would include Covered Species such as burrowing owl, Swainson’s hawk, greater sandhill crane and mountain plover.

**Table IV.7-267  
 Plan-Wide Estimated Total Take for Covered Avian and Bat Species -  
 Alternative 4**

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire’s thrasher	30	20	0	50
Burrowing owl	130	10	20	160
California condor <sup>1</sup>	0	0	0	0
California black rail	40	10	10	50
Gila woodpecker	40	0	0	40
Golden eagle <sup>2</sup>	n/a	n/a	n/a	n/a
Least Bell’s vireo	80	0	0	90
Mountain plover	80	20	20	120
Greater sandhill crane	10	0	10	20
Southwestern willow flycatcher	70	10	0	80
Swainson’s hawk	40	10	0	50
Tricolored blackbird	60	30	0	90
Western yellow billed cuckoo	40	0	0	50
Yuma clapper rail	40	10	10	50
Grand Total Avian Species	660	120	70	850
California leaf-nosed bat	20	50	0	70
Pallid bat	20	80	0	100
Townsend’s big-eared bat	60	20	10	80
Grand Total Bat Species	100	150	10	250

<sup>1</sup> Take for California condor would not be permitted under the DRECP

<sup>2</sup> Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

**Note:** The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the

nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

## **Impact Reduction Strategies and Mitigation**

The implementation of the Plan would result in conservation of some desert lands as well as the development of renewable energy generation and transmission facilities on other lands. There are several ways in which the impacts of the renewable energy development covered by the Plan would be lessened. First, the Plan incorporates specific biological reserve design components and LUPA components for each alternative. Additionally, Covered Activities under the Plan would be required to implement CMAs to avoid and minimize impacts inside and outside the DFAs and CMAs to compensate for the impacts of Covered Activities. Additionally, the implementation of existing laws, orders, regulations and standards would reduce the impacts of project development. If significant impacts would still result after implementation of CMAs and compliance with applicable laws and regulations, then specific mitigation measures are recommended in this section.

### ***Conservation and Management Actions***

The conservation strategy for Alternative 4 (presented in Volume II) defines specific actions that would reduce the impacts of this alternative. The impact assessment above references applicable avoidance, minimization, and compensation CMAs that would reduce and compensate for the impacts of Covered Activities.

For all Covered Activities throughout the Plan Area, the avoidance and minimization Plan-wide CMAs AM-PW-1 through AM-PW-17 would be required to reduce potential adverse effects through the implementation of Plan-wide standard practices. Resource-specific CMAs would be required for Covered Activities impacting specific resources, including the CMAs under AM-DFA-RIPWET, AM-DFA-DUNE, AM-DFA-ONC, AM-DFA-AG, AM-DFA-BAT, AM-DFA-PLANT, AM-DFA-ICS, and AM-DFA-BLMSS. Additionally, all impacts resulting from Covered Activities in the Plan Area would be required to compensate impacts to biological resources (COMP-1 and COMP-2), operational impacts to birds and bats (COMP-3), and impacts to golden eagle (COMP-4 and COMP-5).

### ***Laws and Regulations***

Similar to the No Action Alternative, existing laws and regulations will reduce certain impacts of Covered Activity implementation. Relevant regulations are presented in the Regulatory Setting in Volume III. The requirements of relevant laws and regulations are summarized above for the No Action Alternative in Section IV.7.3.1.1.1.

### ***Mitigation Measures***

After implementation of the CMAs and existing laws and regulations, mitigation measures will be applied to further reduce some of the adverse impacts on biological resources. The biological conservation strategy is an essential part of the project description for the DRECP. Implementation of the DRECP, including the CMAs, would avoid, minimize, and compensate for the impacts of the Covered Activities such that additional mitigation measures are not necessary for all but the following resource impacts.

**Mitigation Measure for Impact BR-1.** Siting and construction of renewable energy and transmission development would result in impacts to rare natural communities. If habitat assessments identify rare natural communities on or within 0.25 miles of a project site, the DRECP shall require the following measure be implemented.

**BR-1a:** Prepare a Rare Natural Community Avoidance and Mitigation Plan that specifically addresses how rare natural communities would be avoided or mitigated for any ground disturbance impacts sited within 0.25 mile of mapped rare natural communities. The Plan shall be prepared as part of the project-specific environmental review.

For avoidance of rare natural communities, the Plan shall demonstrate that the project facilities have been sited or that the project has implemented appropriate site-specific design features to ensure that the effects of the proposed project would not directly impact or contribute to indirect effects on the rare natural communities on or adjacent to the project site. Avoidance of potential indirect effects on rare natural communities relate to dust, fire management, invasive plants, and degradation of ecological processes (i.e., hydrological processes and soil processes).

For impacts to rare natural communities, the Plan shall demonstrate that the compensation used to offset the impacts of the proposed project through CMAs COMP-1 and COMP-2 also offsets the loss of rare natural community alliances through in-kind acquisition or non-acquisition actions that benefit the rare natural community alliance(s) impacted.

#### IV.7.3.6.1.2 Impacts from Reserve Design

The impacts of the reserve design collectively refers to the designation and management of existing conservation areas (i.e., LLPAs and MEMLs), BLM LUPA conservation designations, and reserves established within Conservation Planning Areas. These are considered beneficial impacts for biological resources, and this section serves as a biological resources conservation analysis for this alternative. This section is organized by biological resource at the landscape level, natural community level, and species level.

Overall, of the 14,478,000 acres within the Alternative 4 Reserve Design Lands, 39% is within BLM LUPA conservation designations, 8% in the Conservation Planning Areas, and the remaining 53% are located in existing conservation areas. The SAA from the Preferred Alternative located in the Silurian Valley is not be conserved under Alternative 4 (it is designated as DRECP Variance Lands or is Undesignated). The northern portion of the SAA from the Preferred Alternative located north of Kramer Junction in the West Mojave would be conserved in ACEC under Alternative 4 (the remainder of this SAA is designated as DRECP Variance Lands). Within the Reserve Design Lands, the interagency Plan-wide Conservation Priority Area covers approximately 2,053,000 acres, including 1,847,000 acres of BLM LUPA conservation designations and 196,000 acres of Conservation Planning Areas.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed from the reserve design envelope developed through the reserve design process described in Section I.3.4.4 and Appendix D; however, the extent of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4 differs from the extent of the envelope described in Volume I because it was integrated with the other elements of the alternative.

Overall, the DRECP Plan-Wide Reserve Design Envelope for Alternative 4 includes 90% of the conceptual reserve design envelope described in Volume I. The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 would also include high percentages of the total reserve design envelope in all of the subareas, ranging from 76% in Imperial Borrego Valley to 98% in the Panamint Death Valley subarea.

Areas not included in the DRECP Plan-Wide Reserve Design Envelope for Alternative 4 that are in the reserve design envelope include:

- Portions of Study Area Lands: The DRECP Variance Lands occupy approximately 461,000 acres that were identified in the Plan-wide reserve design envelope that are not in the DRECP Plan-Wide Reserve Design Envelope for Alternative 4, which includes BLM-administered lands throughout the Plan Area. This includes DRECP Variance Lands south of the Chocolate Mountains in eastern Imperial Borrego Valley subarea, in Rice Valley in northern Cadiz Valley and Chuckwalla Mountains subarea, and in the Silurian Valley area of the Kingston and Funeral Mountains and

Mojave and Silurian Valley subareas. The uncertainty regarding conservation and the absence of management or conservation on these DRECP Variance Lands under Alternative 4 is considered an adverse effect of the reserve design envelope due to following:

- Reduction in habitat linkage between Mojave National Preserve and MCGACC 29 Palms and south of Amboy Crater area
- Reduction in the Chuckwalla to Chemehuevi desert tortoise linkage area; leaves everything east of turtle mountains open for activities and uses that could result in habitat fragmentation.
- Potential to isolate Mule Mountains and reduce connectivity between the Mule Mountains and McCoy Valley
- Reduction in the conservation values in the Silurian Valley and Shadow Valley expansion areas
- Reduction in protections and conservation values in the area between Indian Pass and Algodones Dunes
- Reduction in connectivity and increase fragmentation around the Old Woman Spring ACEC
- Increased habitat fragmentation around Granite Mountain
- Portions of the DFAs: Areas in DFAs under Alternative 4 occupy approximately 415,000 acres that were identified in the conceptual reserve envelope that are not be designated as Reserve Design Lands, including the following geographic areas:
  - Palen and Chuckwalla Valley along Interstate 10 in east Riverside County
  - Lucerne Valley area along Highway 247
  - Western and eastern areas of Imperial Valley
  - East and west of Barstow
  - Foothill areas of the Antelope Valley
  - Coso Range area
- Undesignated Areas : Approximately 567,000 acres were not designated as Reserve Design Lands under Alternative 4 that were identified in the conceptual reserve envelope, which is primarily comprised of BLM-administered lands in the Plan Area without BLM LUPA conservation designations over them.

## Landscape

### *Habitat Linkages*

Figures III.7-26 through III.7-36 in Chapter III.7 of Volume III shows the desert linkage network for the Plan Area and in each ecoregion subarea. Table IV.7-268 shows the Plan-wide conservation of the desert linkage network under Alternative 4. Conservation of the desert linkage network totals more than 2.4 million acres (66%).

The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that connects the Ward and Cadiz Valleys through the Old Woman Mountains is almost entirely conserved. The three smaller connections in the Palen Valley are all entirely conserved. Though the majority of the remaining linkages are conserved, there are some DFAs that may interrupt them (see Section IV.7.3.6.1.1). None of the linkages in the Imperial Borrego Valley are entirely conserved. The linkages in the Kingston and Funeral Mountains subarea along Shadow Valley is almost entirely conserved while the remaining linkages in this subarea are only partly conserved. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Design Lands. A section of the single linkage in the Owens River Valley subarea is not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved along the Searles Range, but not between the Searles and Argus Ranges since a portion of the Searles Valley is not conserved. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Design Lands, but most of the remainder of this linkage to the west is conserved. Most of the linkage in the eastern portion of the subarea is in Reserve Design Lands except the westernmost portion. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved, but the southern portion of all of them are except for the linkage that extends into the West Mojave and Eastern Slopes subarea, which is entirely conserved within the Pinto Lucerne Valley and Eastern Slopes subarea. For the most part only the linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea would not be in Reserve Design Lands. The linkages in eastern portion of the Providence and Bullion Mountains subarea would be largely maintained in Reserve Design Lands, but area outside of Reserve Design Lands around the Twentynine Palms Marine Corps Base potentially disrupts linkages in the western portion of the subarea. In the West Mojave and Eastern Slopes subarea the connection between the southern boundary of the Plan Area directly north to the Los Angeles/Kern County line is mostly conserved. Although large portions of the other linkages in this subarea are conserved, none of them are wholly conserved in Reserve Design Lands.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.6.1.1).

The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the habitat linkages within the reserve design envelope.

**Table IV.7-268  
Plan-Wide Conservation Analysis for the Desert Linkage Network – Alternative 4**

<b>Desert Linkage Network by Ecoregion Subarea</b>	<b>Available Lands (acres)</b>	<b>Existing Conservation<sup>1</sup> (acres)</b>	<b>BLM LUPA Conservation Designations<sup>2</sup> (acres)</b>	<b>Conservation Planning Areas<sup>3</sup> (acres)</b>	<b>Total Conservation (acres)</b>	<b>% of Available Lands</b>
Cadiz Valley and Chocolate Mountains	890,000	187,000	384,000	13,000	584,000	66%
Imperial Borrego Valley	156,000	14,000	54,000	400	68,000	44%
Kingston and Funeral Mountains	174,000	28,000	88,000	1,000	118,000	68%
Mojave and Silurian Valley	507,000	179,000	198,000	6,000	383,000	76%
Owens River Valley	19,000	40	12,000	200	12,000	63%
Panamint Death Valley	206,000	109,000	75,000	500	184,000	89%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	123,000	3,000	142,000	49%
Piute Valley and Sacramento Mountains	152,000	14,000	93,000	2,000	110,000	72%
Providence and Bullion Mountains	426,000	144,000	200,000	4,000	348,000	82%
West Mojave and Eastern Slopes	860,000	45,000	380,000	45,000	470,000	55%
<b>Grand Total</b>	<b>3,682,000</b>	<b>736,000</b>	<b>1,606,000</b>	<b>77,000</b>	<b>2,419,000</b>	<b>66%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

<sup>3</sup> Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages

are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

## ***Hydrological Resources***

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 4. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources, is provided below under Natural Communities.

### Playa

Playa totals 322,000 acres in the Plan Area. Overall, 57% (183,000 acres) would be conserved under Alternative 4. Existing Conservation would account for 52% of the conservation, BLM LUPA would account for 47%, and Conservation Planning Areas would account for 1%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

### Seep/Spring

There are 480 seep/spring locations in the Plan Area in the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) in available lands. Overall, 63% (305 locations) of the seep/spring locations would be conserved under Alternative 4. The conservation of seep/spring under Alternative 4 would be more than half in all subareas except for Imperial Borrego Springs 9 (44%, 10 locations), West Mojave and Eastern Slopes (43%, 41 locations) and Owens River Valley (32%, 12 locations). The other subareas include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Kingston and Funeral Mountains (70%, 58 locations), Mojave and Silurian Valley (75%, 20 locations), Panamint Death Valley (93%, 39 locations), Pinto Lucerne Valley and Eastern Slopes (62%, 51 locations), Piute Valley and Sacramento Mountains (75%, 14 locations) and Providence and Bullion Mountains (84%, 56 locations).

Overall, Existing Conservation would account for 63% of the conservation of seep/spring, BLM LUPA conservation designations would account for 34%, and Conservation Planning Areas would account for 3%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through

application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. However, it is likely that most, if not all, that all seep/spring locations and associated Covered Species and hydrological functions would be conserved through adherence to site-specific CMAs. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

### Major Rivers

Overall, 71% of the major rivers would be conserved under Alternative 4, including 87% of the Amargosa River, 42% of the Colorado River, 70% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 34% of the conservation of the major rivers, Existing Conservation would account for 45%, and BLM LUPA conservation designations would account for 21%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be fully avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

### ***Dune and Sand Resources***

Overall, 69% (1,038,000 acres) of dunes and sand resources would be conserved under Alternative 4. At least 50% of dunes and sand resources would be conserved in 8 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Cadiz Valley and Chocolate Mountains at 73% (437,000 acres), Imperial Borrego Valley at 58% (77,000 acres), Kingston and Funeral Mountains at 66% (46,000 acres), Mojave and Silurian Valley at 80% (161,000 acres), Owens River Valley at 52% (4,000 acres), Panamint and Death Valley at 84% (118,000 acres), Pinto Lucerne Valley and Eastern Slopes at 59% (38,000 acres) and the Providence and Bullion Mountains at 59% (146,000 acres). The subarea with lower conservation of dunes and sand resources under Alternative 4 is West Mojave and Eastern Slopes at 33% (12,000 acres), and. Importantly, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be fully avoided through application of the dune avoidance and minimization CMAs.

### ***Environmental Gradients***

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect.

Elevations are characterized by 1,000-foot interval classes ranging from below sea level to 9,000 feet. Approximately 92% of the Plan Area is between sea level and 5,000 feet, 6% is below sea level, and 2% is above 5,000 feet. Under Alternative 4, the majority of available

lands would be conserved at all elevation classes above sea level, ranging from 58% for the 0 to 1,000 feet class to 59% of the 7,000 to 8,000 feet class. The average conservation of elevation classes above sea level would be 68%. The majority of Plan Area lands for each elevation class above sea level will be conserved under Alternative 4 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all elevation classes allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each elevation class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Landforms in the Plan Area include canyons/deeply incised streams, mountain tops/high ridges, open slopes, and plains. Plains are the dominant landform in the Plan Area totaling 13,906,386 acres, or 73% of the Plan Area. Conservation of the plains landform under Alternative 4 would include 65% of plains. As the majority of Covered Species in the Plan Area are associated with plains during part or all of its life cycle, the conservation of the majority of this landform is of benefit to a large number of Covered Species including those Covered Species that spend its entire life cycle within this type of landform, and those Covered Species that utilize it during parts of its life cycle such as for breeding, migration, or wintering. Open slopes make up about 16% of the Plan Area and canyons/deeply incised streams and mountain tops/high ridges each make up about 5% to 6% of the Plan Area.

Conservation of the remaining landforms under Alternative 4 would include 86% of canyons/deeply incised streams, 85% of mountain tops/high ridges, and 83% of open slopes. As the majority of Plan Area lands for all landforms will be conserved under Alternative 4, it optimizes the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all landforms allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of each landform within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Slopes in the Plan Area are characterized by 5% interval classes. Sixty-one percent of the Plan Area lands are on slopes up to 5%, and 87% of the Plan Area lands are on slopes less than 20%. Conservation of the slope classes under Alternative 4 would range from 62% of slopes up to 5% to 93% of slopes over 100%, with 84% of slopes less than 20% conserved under Alternative 4. The vast majority of Plan Area lands within each slope class will be conserved under Alternative 4 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all slope classes allows for the conservation of the greatest range of natural communities and Covered Species

habitats. Conserving the majority of each slope class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

Aspects in the Plan Area include nine classes: north, northeast, east, southeast, south, southwest, west, northwest, and flat. Except for flat, the remaining eight aspects are fairly evenly distributed in the Plan Area, ranging from 9% for northwest aspects to 15% for northeast aspects. Flat terrains account for only 1% of the Plan Area. Under Alternative 4, conservation of aspects would range from 67% for flat terrain to 80% of south aspect. The majority of Plan Area lands for each aspect class will be conserved under Alternative 4 optimizing the potential for successful species range shifts, contractions, and expansions, which may occur in response to climate change. In addition, the conservation of such a high proportion of Plan Area lands across all aspect classes allows for the conservation of the greatest range of natural communities and Covered Species habitats. As a number of plant Covered Species have specific aspect requirements, the conservation of the majority of lands within each aspect class is beneficial to those species. Conserving the majority of each aspect class within the Plan Area will also promote ecological processes and help sustain natural communities and Covered Species.

### **Natural Communities**

Table IV.7-269 shows the conservation to natural communities within the reserve design. A conservation summary by general community is provided below. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

#### ***California forest and woodlands***

Overall, approximately 62,000 acres (41%) of California forest and woodlands would be conserved under Alternative 4. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas and approximately 20 acres would be conserved in the Owens River Valley subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

California forest and woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Bakersfield cactus. Therefore, conservation of California forest and woodlands would provide conservation of suitable habitat for these species.

### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 31,000 acres (28%) of chaparral and coastal scrubs would be conserved under Alternative 4. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Conservation would primarily come from Conservation Planning Areas and BLM LUPA. In addition to conservation of chaparral and coastal scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Chaparral and coastal scrubs provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Parish's daisy, and Bakersfield cactus. Therefore, conservation of chaparral and coastal scrubs would provide conservation of suitable habitat for these species.

### ***Desert conifer woodlands***

Overall, approximately 185,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 4. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains subareas. Conservation of this general community would primarily come from existing conservation (approximately 159,000 acres). In addition to conservation of desert conifer woodlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert conifer woodlands provide habitat for the following Covered Species: Tehachapi slender salamander, golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, bighorn sheep, and Parish's daisy. Therefore, conservation of desert conifer woodlands would provide conservation of suitable habitat for these species.

### ***Desert outcrop and badlands***

Overall, approximately 1,237,000 acres (77%) of desert outcrop and badlands would be conserved under Alternative 4. The majority of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Most of the total conservation of desert outcrop and badlands are in areas of existing conservation. In addition to conservation of desert outcrop and badlands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert outcrop and badlands provide habitat for the following Covered Species: golden eagle, California condor, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and bighorn sheep. Desert outcrop and badlands also provides habitat for desert kit fox (Planning Species). Covered Species associated with desert scrub may also be associated with this general community. Therefore, conservation of desert outcrop and badlands would provide conservation of suitable habitat for these species.

### ***Desert scrubs***

Overall, approximately 9,430,000 acres (71%) of desert scrubs would be conserved under Alternative 4. About half of the conserved acreage would occur in the Kingston and Funeral Mountains, Providence and Bullion Mountains, and Panamint Death Valley subareas. However, conservation of desert scrubs is well distributed with conservation in every subarea of the Plan Area. As the most prevalent desert scrub natural community in the Plan Area, lower bajada and fan Mojavean–Sonoran desert scrub accounts for the majority of the conservation of desert scrub communities. The majority (approximately 5,630,000 acres) of the total conservation of desert scrubs would be in existing conservation areas. In addition to conservation of desert scrubs, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Desert scrubs also provide habitat for desert kit fox and burro deer (Planning Species). Therefore, conservation of desert scrubs would provide conservation of suitable habitat for these species.

### ***Dunes***

Overall, approximately 207,000 acres (73%) of dune natural communities would be conserved under Alternative 4. The majority of the conserved acreage would occur in the Mojave and Silurian Valley, Imperial Borrego Valley, and Panamint Death Valley subareas. The remaining conserved acreage is distributed throughout the remaining subareas. The majority of the total conservation of desert dunes would be in existing conservation. In addition to conservation of desert dunes, application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard and flat-tailed horned lizard. Therefore, conservation of desert dunes would provide conservation of suitable habitat for these species.

### ***Grasslands***

Overall, approximately 52,000 acres (22%) of grasslands would be conserved under Alternative 4. The majority of the conserved acreage would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. As the most prevalent grassland natural community in the Plan Area, California Annual and Perennial Grassland accounts for the vast majority of the conservation of grassland communities. Conservation amongst existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas is relatively well distributed. In addition to conservation of grasslands, CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, Swainson's hawk, and Bendire's thrasher. Grassland communities also provide habitat for desert kit fox (Planning Species). Therefore, conservation of grasslands would provide conservation of suitable habitat for these species.

### ***Riparian***

Overall, approximately 621,000 acres (63%) of riparian communities would be conserved under Alternative 4. The majority of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. As the most prevalent riparian natural community in the Plan Area, Madrean Warm Semi-Desert Wash Woodland/Scrub accounts for the majority of the conservation of riparian communities. Most of the conservation of riparian communities would occur in BLM LUPA conservation designations. In addition to conservation of riparian communities, impacts to riparian communities would not occur under Alternative 4 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

Riparian communities include microphyll woodlands, which include groundwater-dependent vegetation (e.g., mesquite bosques). Under Alternative 1, conservation for microphyll woodland related natural communities would include: 65% of Madrean warm

semi-desert wash woodland/scrub, 57% of Mojavean semi-desert wash scrub, and 65% of Sonoran-Coloradan semi-desert wash woodland/scrub.

Riparian communities provide habitat for the following Covered Species: California black rail, Gila woodpecker, Yuma clapper rail, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, and Tehachapi slender salamander. Riparian communities also provide habitat for burro deer (Planning Species). In addition, species associated with desert scrub are also associated with Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub. Conservation of riparian communities would benefit these species. Furthermore, there are also CMAs to avoid impacts to riparian species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species.

### ***Wetlands***

Overall, approximately 440,000 acres (51%) of wetland communities would be conserved under Alternative 4. About half of the conserved acreage would occur in the Panamint Death Valley and West Mojave and Eastern Slopes subareas with the remaining conserved acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh account for the majority of the conservation of riparian communities. Almost half of the conservation of wetland communities would occur in BLM LUPA conservation designations. In addition to conservation of wetland communities, Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would be avoided under Alternative 4 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback. Also, CMAs for North American warm desert alkaline scrub and herb playa and wet flat, southwestern North American salt basin and high marsh, and other undifferentiated wetland-related land covers (i.e., "Playa", "Wetland", and "Open Water") would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, tricolored blackbird, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, desert pupfish, Mohave tui chub, Owens pupfish, and Owens tui chub. In addition, species associated with desert scrub are also associated with Southwestern North American Salt Basin and High Marsh. Conservation of wetland communities would benefit these

species. Furthermore, there are also CMAs to avoid impacts to wetland species including pre-construction nesting bird surveys for riparian and wetland bird Covered Species.

**Table IV.7-269**  
**Plan-Wide Conservation Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)</b>	<b>Existing Conservation<sup>1</sup> (acres)</b>	<b>BLM LUPA Conservation Designations<sup>2</sup> (acres)</b>	<b>Conservation Planning Areas<sup>3</sup> (acres)</b>	<b>Total Conservation (acres)</b>	<b>% of Available Lands</b>
<i>California forest and woodland</i>						
Californian broadleaf forest and woodland	72,000	1,000	18,000	700	20,000	28%
Californian montane conifer forest	78,000	25,000	15,000	2,000	42,000	53%
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>						
Californian mesic chaparral	4,000	20	600	200	900	22%
Californian pre-montane chaparral	1,000	0	400	10	500	36%
Californian xeric chaparral	24,000	3,000	1,000	3,000	7,000	27%
Central and south coastal California seral scrub	1,000	0	10	30	40	3%
Central and South Coastal Californian coastal sage scrub	54,000	2,000	8,000	2,000	12,000	23%
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	9,000	200	800	10,000	43%
<i>Desert conifer woodlands</i>						
Great Basin Pinyon - Juniper Woodland	287,000	159,000	16,000	10,000	185,000	65%
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	1,613,000	802,000	421,000	13,000	1,237,000	77%
<i>Desert Scrub</i>						
Arizonan upland Sonoran desert scrub	57,000	44,000	2,000	800	47,000	82%
Intermontane deep or well-drained soil scrub	106,000	30,000	50,000	2,000	82,000	77%

**Table IV.7-269**  
**Plan-Wide Conservation Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)</b>	<b>Existing Conservation<sup>1</sup> (acres)</b>	<b>BLM LUPA Conservation Designations<sup>2</sup> (acres)</b>	<b>Conservation Planning Areas<sup>3</sup> (acres)</b>	<b>Total Conservation (acres)</b>	<b>% of Available Lands</b>
Intermontane seral shrubland	74,000	1,000	4,000	2,000	7,000	10%
Inter-Mountain Dry Shrubland and Grassland	437,000	110,000	117,000	6,000	232,000	53%
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	9,000	18,000	900	28,000	37%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	4,561,000	3,154,000	169,000	7,884,000	73%
Mojave and Great Basin upper bajada and toeslope	1,333,000	838,000	186,000	23,000	1,046,000	78%
Shadscale - saltbush cool semi-desert scrub	279,000	38,000	49,000	18,000	104,000	37%
Southern Great Basin semi-desert grassland	100	0	40	0	40	35%
<i>Dunes</i>						
North American warm desert dunes and sand flats	282,000	146,000	56,000	5,000	207,000	73%
<i>Grassland</i>						
California Annual and Perennial Grassland	230,000	23,000	17,000	11,000	51,000	22%
California annual forb/grass vegetation	8,000	400	1,000	200	2,000	20%
<i>Riparian</i>						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	195,000	252,000	8,000	455,000	65%
Mojavean semi-desert wash scrub	30,000	7,000	9,000	2,000	17,000	57%
Riparian	600	20	0	300	300	56%

**Table IV.7-269**  
**Plan-Wide Conservation Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)</b>	<b>Existing Conservation<sup>1</sup> (acres)</b>	<b>BLM LUPA Conservation Designations<sup>2</sup> (acres)</b>	<b>Conservation Planning Areas<sup>3</sup> (acres)</b>	<b>Total Conservation (acres)</b>	<b>% of Available Lands</b>
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	70,000	51,000	4,000	124,000	65%
Southwestern North American riparian evergreen and deciduous woodland	6,000	500	600	2,000	3,000	44%
Southwestern North American riparian/wash scrub	66,000	7,000	8,000	6,000	22,000	34%
<i>Wetland</i>						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	32%
Californian warm temperate marsh/seep	400	0	0	80	80	20%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	136,000	69,000	2,000	207,000	67%
Open Water	209,000	23,000	700	24,000	47,000	23%
Playa	78,000	400	35,000	300	36,000	46%
Southwestern North American salt basin and high marsh	261,000	31,000	108,000	10,000	149,000	57%
Wetland	8,000	30	200	500	700	8%
<i>Other Land Cover</i>						
Agriculture	711,000	6,000	3,000	3,000	12,000	2%
Developed and Disturbed Areas	447,000	3,000	3,000	300	7,000	1%
Not Mapped	7,000	200	100	300	700	10%
Rural	114,000	900	4,000	8,000	13,000	11%
<b>Total</b>	<b>19,040,000</b>	<b>7,279,000</b>	<b>4,678,000</b>	<b>340,000</b>	<b>12,297,000</b>	<b>65%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

<sup>3</sup> Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

## Covered Species Habitat

Table IV.7-270 shows the Plan-wide conservation of Covered Species modeled habitat under Alternative 4 (before the application of CMAs). Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 82% for bighorn sheep mountain habitat.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are either already in Existing Conservation or occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in BLM LUPA conservation designations. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 4 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in every subarea of the Plan Area, but is mainly in existing conservation. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in the same subareas and most of the conservation would occur in BLM LUPA conservation designations.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in BLM LUPA conservation designations. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, more than 20% of suitable habitat is conserved only in the Owens River Valley subarea. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in BLM LUPA conservation designations. Conservation of mountain plover suitable habitat is mostly in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low, especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. At least half of the conservation of Mojave ground squirrel suitable habitat is from BLM LUPA conservation designations. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 74% of suitable habitat for Mojave monkeyflower. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs requiring surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

**Table IV.7-270**  
**Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
<i>Amphibian/Reptile</i>						
Agassiz's desert tortoise	9,858,000	3,711,000	3,179,000	184,000	7,075,000	72%
Flat-tailed horned lizard	758,000	151,000	262,000	4,000	417,000	55%
Mojave fringe-toed lizard	1,094,000	403,000	351,000	13,000	767,000	70%
Tehachapi slender salamander	48,000	300	12,000	500	13,000	27%
<i>Bird</i>						
Bendire's thrasher	2,141,000	1,196,000	384,000	29,000	1,608,000	75%
Burrowing owl	5,269,000	479,000	1,204,000	179,000	1,862,000	35%
California black rail	197,000	21,000	10,000	6,000	37,000	19%
California condor	1,240,000	81,000	180,000	38,000	299,000	24%
Gila woodpecker	106,000	10,000	14,000	2,000	26,000	25%
Golden eagle–foraging	10,747,000	5,518,000	2,736,000	114,000	8,369,000	78%
Golden eagle–nesting	4,443,000	2,689,000	815,000	43,000	3,548,000	80%
Greater sandhill crane	617,000	6,000	2,000	1,000	9,000	1%
Least Bell's vireo	226,000	86,000	35,000	17,000	138,000	61%
Mountain plover	828,000	7,000	5,000	11,000	23,000	3%
Southwestern willow flycatcher	317,000	18,000	30,000	18,000	65,000	20%
Swainson's hawk	1,455,000	24,000	56,000	61,000	142,000	10%
Tricolored blackbird	271,000	11,000	6,000	15,000	32,000	12%
Western yellow-billed cuckoo	152,000	15,000	11,000	23,000	49,000	32%
Yuma clapper rail	51,000	10,000	1,000	2,000	13,000	25%
<i>Fish</i>						
Desert pupfish	8,000	900	300	300	1,000	18%
Mohave tui chub	300	200	-	20	200	79%
Owens pupfish	18,000	600	1,000	3,000	5,000	30%
Owens tui chub	17,000	700	1,000	3,000	5,000	30%

**Table IV.7-270**  
**Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
<i>Mammal</i>						
Bighorn sheep – inter-mountain habitat	3,854,000	1,904,000	1,050,000	24,000	2,978,000	77%
Bighorn sheep – mountain habitat	6,649,000	4,085,000	1,280,000	59,000	5,425,000	82%
California leaf-nosed bat	7,132,000	3,138,000	2,041,000	65,000	5,244,000	74%
Mohave ground squirrel	2,383,000	216,000	863,000	146,000	1,224,000	51%
Pallid bat	16,411,000	6,836,000	4,400,000	275,000	11,511,000	70%
Townsend's big-eared bat	14,677,000	5,879,000	3,853,000	266,000	9,998,000	68%
<i>Plant</i>						
Alkali mariposa-lily	119,000	200	800	8,000	9,000	7%
Bakersfield cactus	278,000	20,000	62,000	4,000	86,000	31%
Barstow woolly sunflower	154,000	3,000	86,000	12,000	101,000	66%
Desert cymopterus	205,000	7,000	83,000	17,000	107,000	52%
Little San Bernardino Mountains linanthus	289,000	87,000	31,000	5,000	122,000	42%
Mojave monkeyflower	161,000	27,000	91,000	700	118,000	74%
Mojave tarplant	265,000	48,000	90,000	3,000	142,000	53%
Owens Valley checkerbloom	147,000	13,000	5,000	17,000	35,000	24%
Parish's daisy	188,000	82,000	40,000	2,000	124,000	66%
Triple-ribbed milk-vetch	8,000	5,000	10	400	5,000	71%

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

<sup>3</sup> Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000;

values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz’s desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-271 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 85% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 4. Within the Eastern Mojave Recovery Unit, 89% of the important areas would be conserved Alternative 4. Within the Western Mojave Recovery Unit, 76% of TCAs and linkage habitat would be conserved under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the linkage habitat for desert tortoise within the reserve design envelope.

**Table IV.7-271  
Plan-Wide Conservation Analysis for Desert Tortoise Important Areas – Alternative 4**

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	387,000	157,000	85,000	4,000	246,000	64%
	Linkage	469,000	126,000	220,000	4,000	350,000	75%
	TCA	3,130,000	1,544,000	1,215,000	16,000	2,775,000	89%
<i>Colorado Desert Total</i>		<i>3,985,000</i>	<i>1,827,000</i>	<i>1,520,000</i>	<i>25,000</i>	<i>3,371,000</i>	<b>85%</b>
Eastern Mojave	Linkage	784,000	421,000	205,000	6,000	633,000	81%
	TCA	2,096,000	1,758,000	162,000	10,000	1,929,000	92%
<i>Eastern Mojave Total</i>		<i>2,880,000</i>	<i>2,179,000</i>	<i>367,000</i>	<i>16,000</i>	<i>2,562,000</i>	<b>89%</b>
<b>Western Mojave</b>	Linkage	1,204,000	391,000	225,000	26,000	642,000	53%
	TCA	2,313,000	1,061,000	967,000	3,000	2,030,000	88%
<i>Western Mojave Total</i>		<i>3,517,000</i>	<i>1,452,000</i>	<i>1,191,000</i>	<i>29,000</i>	<i>2,672,000</i>	<b>76%</b>
<b>Grand Total</b>		<b>10,382,000</b>	<b>5,458,000</b>	<b>3,078,000</b>	<b>69,000</b>	<b>8,606,000</b>	<b>83%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

<sup>3</sup> Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-272 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 71% of key population centers and 67% of linkages would be conserved under Alternative 4. Expansion areas and climate change extension areas would be conserved at 72% and 45% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

**Table IV.7-272  
Plan-Wide Conservation Analysis for Mohave Ground Squirrel  
Important Areas – Alternative 4**

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	507,000	47,000	288,000	25,000	360,000	71%
Linkage	386,000	30,000	206,000	20,000	257,000	67%
Expansion Area	552,000	77,000	270,000	48,000	395,000	72%
Climate Change Extension	224,000	28,000	49,000	24,000	101,000	45%
<b>Total</b>	<b>1,669,000</b>	<b>181,000</b>	<b>814,000</b>	<b>117,000</b>	<b>1,113,000</b>	<b>67%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), which includes BLM and non-BLM inholdings within the designation.

<sup>3</sup> Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish’s daisy. For desert tortoise, approximately 87% of the desert tortoise designated critical habitat would be conserved in Reserve Design Lands under Alternative 4, including 1,517,000 acres in existing conservation areas, 2,082,000 acres in BLM LUPA conservation designations, and 14,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 63% of the southwestern willow flycatcher designated critical habitat would be conserved in Reserve Design Lands under Alternative 4, including 900 acres in existing conservation areas, 70 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 88% of the desert pupfish designated critical habitat would be conserved in Reserve Design Lands under Alternative 4, including 100 acres in existing conservation areas and 500 acres in BLM LUPA conservation designations. For Parish’s daisy, approximately 70% of the Parish’s daisy designated critical habitat would be conserved in Reserve Design Lands under Alternative 4, including 1,000 acres in BLM LUPA conservation designations.

**Non-Covered Species Critical Habitat**

Ten Non-Covered Species have Critical Habitat within the Plan Area. Table IV.7-273 shows the total amount of Critical Habitat and the amount within each Plan Wide reserve designation for Non-Covered Species. These reserve designations would be considered beneficial impacts for biological resources. All or a substantial portion of each species’ Critical Habitat would be within the Reserve Design Lands and within the BLM conservation designations for most species. Critical Habitat for bighorn sheep is predominately within existing conservation and for arroyo toad it would mostly be within Conservation Planning Areas. Critical Habitat for the Pierson’s milk-vetch is managed under the Imperial Sand Dunes Recreation Area Management Plan (RAMP), which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

**Table IV.7-273  
 Critical Habitat within Plan-Wide Reserve Design for Non-Covered Species –  
 Alternative 4**

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa nitrophila	1,000	0	1,000	0	1,000
Amargosa vole	5,000	1,000	3,000	0	4,000
Arroyo toad	4,000	0	20	3,000	3,020

**Table IV.7-273  
Critical Habitat within Plan-Wide Reserve Design for Non-Covered Species –  
Alternative 4**

Common Name	Acres of Critical Habitat within the DRECP	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM Conservation Designations	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Ash Meadows gumplant	300	0	300	0	300
Cushenbury buckwheat	600	0	600	0	600
Cushenbury milk-vetch	1,000	0	1,000	0	1,000
Cushenbury oxytheca	100	0	100	0	100
Lane Mountain milk-vetch	14,000	3,000	11,000	0	14,000
Pierson’s milk-vetch <sup>1</sup>	3,400	3,000	0	400	3,400
Peninsular Bighorn sheep	47,000	41,000	400	300	41,700

<sup>1</sup> Pierson’s milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

**IV.7.3.6.2 Impacts of DRECP Land Use Plan Amendment on BLM Land:  
Alternative 4**

This section addresses two components of effects of the BLM LUPA: the streamlined development of renewable energy and transmission on only BLM land under the LUPA, and the impacts of the amended land use plans themselves.

**IV.7.3.6.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land**

On BLM lands under the LUPA, Alternative 4 includes DFAs (approximately 258,000 acres) and transmission corridors where approximately 56,000 acres of ground disturbance related impacts and operational impacts would occur.

***Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.***

Table IV.7-274 shows the impacts to natural communities under Alternative 4 on BLM Land. An effects summary by general community is provided below in relation to the

Plan-wide effects analysis provided in Section IV.7.3.3.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

#### California forest and woodlands

Overall, approximately 30 acres (0.1%) of California forest and woodlands would be impacted under Alternative 4 on BLM Land, about a third of the Plan-wide effects. Most of this impact would be from transmission effects in the Pinto Lucerne Valley and Eastern Slopes subarea, but some would also be from solar development in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

#### Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 200 acres (1.2%) of chaparral and coastal scrubs would be impacted under Alternative 4 on BLM Land, which is approximately 10% of the Plan-wide effects to this general community. All of the impacts to chaparral and coastal scrubs would be in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas from solar, wind, and transmission development. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address Covered Species (AM-DFA-BAT-1, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-BLM-PLANT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

#### Desert conifer woodlands

Overall, approximately 300 acres (0.6%) of desert conifer woodlands would be impacted under Alternative 4 on BLM Land, which is approximately a third of the Plan-wide effects. Most of the impacts to desert conifer woodlands would be from solar development in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

### Desert outcrop and badlands

Overall, approximately 10,000 acres (0.8%) of desert outcrop and badlands would be impacted under Alternative 4 on BLM Land, which constitutes the majority of the Plan-wide effects. Most of these impacts would be from solar development in the Cadiz Valley and Chocolate Mountains subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

### Desert scrubs

Overall, approximately 42,000 acres (0.6%) of desert scrubs would be impacted under Alternative 4 on BLM Land, which is less than half of the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. These include avoidance, setbacks, and/or suitable habitat impact caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), Agassiz's desert tortoise (AM-DFA-ICS-3 through AM-DFA-ICS-15, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

### Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for dune avoidance and minimization (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, AM-RES-BLM-DUNE-1, and AM-RES-BLM-DUNE-2) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

### Grasslands

Overall, approximately 400 acres (1.4%) of grasslands would be impacted under Alternative 4 on BLM Land, which is only about 5% of the Plan-wide effects. Impacts would occur in the Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and West Mojave and Eastern Slopes subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

### Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under BLM LUPA. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

### Wetlands

Overall, approximately 3,000 acres (1.0%) of wetlands would be impacted under Alternative 4 on BLM Land, which is less than 30% of the Plan-wide effects. Impacts would be primarily to North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh. Impacts would occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied on BLM Land with implementation of the BLM LUPA, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

**Table IV.7-274**  
**BLM LUPA Impact Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)<sup>1</sup></b>	<b>Solar Impact (acres)<sup>2</sup></b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
<i>California forest and woodland</i>						
Californian broadleaf forest and woodland	11,000	10	0	0	0	10
Californian montane conifer forest	34,000	0	0	0	20	20
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>						
Californian mesic chaparral	500	0	0	0	0	0
Californian pre-montane chaparral	300	0	0	0	0	0
Californian xeric chaparral	5,000	0	0	0	0	0
Central and south coastal California seral scrub	20	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	13,000	200	20	0	20	200
Western Mojave and Western Sonoran Desert borderland chaparral	200	0	0	0	0	0
<i>Desert conifer woodlands</i>						
Great Basin Pinyon - Juniper Woodland	50,000	200	30	0	20	300
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	1,203,000	7,000	500	200	3,000	10,000
<i>Desert Scrub</i>						
Arizonan upland Sonoran desert scrub	3,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	69,000	10	10	0	60	80
Intermontane seral shrubland	5,000	10	0	0	10	20
Inter-Mountain Dry Shrubland and Grassland	282,000	800	20	700	400	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	0	0	0	0	0

**Table IV.7-274**  
**BLM LUPA Impact Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)<sup>1</sup></b>	<b>Solar Impact (acres)<sup>2</sup></b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	21,000	2,000	4,000	11,000	39,000
Mojave and Great Basin upper bajada and toeslope	406,000	60	30	0	100	200
Shadscale - saltbush cool semi-desert scrub	101,000	700	50	20	100	900
Southern Great Basin semi-desert grassland	50	0	0	0	0	0
<i>Dunes</i>						
North American warm desert dunes and sand flats	127,000	0	0	0	0	0
<i>Grassland</i>						
California Annual and Perennial Grassland	28,000	300	20	0	90	400
California annual forb/grass vegetation	1,000	50	0	0	0	50
<i>Riparian</i>						
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0
Mojavean semi-desert wash scrub	11,000	0	0	0	0	0
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	400	0	0	0	0	0
Southwestern North American riparian/wash scrub	10,000	0	0	0	0	0
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	0	0	0	0	0

**Table IV.7-274**  
**BLM LUPA Impact Analysis for Natural Communities – Alternative 4**

Natural Community	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Wetland</i>						
Arid West freshwater emergent marsh	10	0	0	0	0	0
Californian warm temperate marsh/seep	0	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	1,000	100	0	100	2,000
Open Water	700	0	0	0	0	0
Playa	26,000	0	0	0	0	0
Southwestern North American salt basin and high marsh	122,000	1,000	80	0	60	2,000
Wetland	100	10	0	0	0	20
<i>Other Land Cover – Developed and Disturbed Areas</i>						
Agriculture	6,000	40	0	10	60	100
Developed and Disturbed Areas	44,000	20	0	20	200	200
Not Mapped	800	0	0	0	0	0
Rural	3,000	10	0	20	10	40
<b>Total</b>	<b>9,432,858</b>	<b>33,339</b>	<b>2,567</b>	<b>5,396</b>	<b>8,143</b>	<b>49,444</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 4 on BLM lands, including impacts to Joshua tree woodland. CMAs would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs

would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 4 would be adverse and would require mitigation.

**Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.**

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to riparian communities would be avoided under Alternative 4 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, would be avoided under Alternative 4 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 4,000 acres of other wetland communities would be impacted under Alternative 4. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainage networks are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Approximately 1% (approximately 2,000 acres) of playa would be impacted by Covered Activities under Alternative 4 on BLM land. Impacts would be associated with solar (approximately 2,000 acres), with 200 acre of wind impacts and 100 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

### Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 4 on BLM land in the following ecoregion subareas: Owens River Valley and Pinto Lucerne Valley and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

### Major Rivers

Under Alternative 4 on BLM land, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers. However, development of the DFAs could indirectly impact these resources through alteration of hydrology. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

### Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

***Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.***

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities on BLM Land that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas on BLM Land.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts on BLM Land would occur in the Cadiz Valley and Chocolate Mountains subarea, as shown in Table IV.7-275. As a result, this subarea would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

**Table IV.7-275  
BLM LUPA Terrestrial Operational Impacts – Alternative 4**

<b>Ecoregion Subarea</b>	<b>Solar Impact<sup>1</sup> (acres)</b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
Cadiz Valley and Chocolate Mountains	27,000	10,000	-	12,000	49,000
Imperial Borrego Valley	2,000	-	4,000	1,000	7,000
Kingston and Funeral Mountains	-	-	-	-	-
Mojave and Silurian Valley	-	-	-	300	300
Owens River Valley	800	-	1,000	500	2,300
Panamint Death Valley	700	-	-	200	900
Pinto Lucerne Valley and Eastern Slopes	200	600	-	800	1,600
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	200	-	-	200	400

**Table IV.7-275  
BLM LUPA Terrestrial Operational Impacts – Alternative 4**

<b>Ecoregion Subarea</b>	<b>Solar Impact<sup>1</sup> (acres)</b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
West Mojave and Eastern Slopes	3,000	800	-	200	4,000
<b>Total</b>	<b>33,000</b>	<b>12,000</b>	<b>5,000</b>	<b>15,000</b>	<b>65,000</b>

<sup>1</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mojave desert shrubs, are susceptible to vegetation degradation from dust. Impacts to these natural communities would mostly occur in the Cadiz Valley and Chocolate Mountains subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea, which contains most of the impacts to plant Covered Species habitat on BLM Land. Therefore, considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes and Eastern Slopes subareas would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized with the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 4 would implement CMAs that would identify and protect or salvage specific plant species, minimizing their exposure to dust. Setbacks and suitable

habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant loads in surface water. These impacts occur in all of the same subareas as the Plan-wide analysis, but would impact fewer acres in each subarea. The largest amount of impacts from Covered Activities, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects, would be located in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas. Plant Covered Species that could also experience vegetation degradation from dust suppressants, would mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 4, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

### Fire and Fire Management

Covered Activities could result in increased flammable invasive annual plants and anthropogenic ignitions of fires that can cause conversion of natural communities and degrade vegetation. Desert scrub natural communities are naturally slow to recover from fire episodes, which can lead to permanent community type conversion. On BLM Land, the impacts to desert scrub natural communities would mainly occur within the Cadiz Valley and Chocolate Mountains subarea.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. However, fire management in the form of fuels management, may benefit natural habitats if conducted in areas of non-native, invasive, species infestations (e.g. salt cedar hot spots). California forest and woodlands, chaparral natural communities, and grassland natural communities would be impacted on BLM Land, under Alternative 4. These impacts from Covered Activities, which correspond to the amount of potential vegetation degradation resulting from fire and fire management, would predominantly occur in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas. Under Alternative 4 avoidance and minimization CMAs would be implemented to reduce the

potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification.

### Invasive Plants

The adverse effects of invasive plants, include increasing the fuel load and the frequency of fires in plant communities and allelopathic effects that hinder the growth or establishment of other plant species. The natural communities and plant Covered Species found on BLM Land are generally at risk of adverse effects from the introduction of invasive plants. Therefore, the most vegetation degradation caused by introduction of invasive plants would occur in the West Mojave and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas. Plant Covered Species found on BLM Land would also experience potential vegetation degradation as a result of Covered Activities. The West Mojave and Eastern Slopes subarea would have the largest amount of impacts to plant Covered Species on BLM Land.

Under Alternative 4 avoidance and minimization CMAs would be implemented to reduce vegetation degradation from invasive plants, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to minimize potential vegetation degradation (AM-PW-15) for all Covered Activities.

***Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.***

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a Non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on BLM-administered lands. Most of the impacts to plant and wildlife species and their habitat under the BLM LUPA would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas.

### Covered Species Habitat Impact Analysis by Ecoregion Subarea

#### *West Mojave and Eastern Slopes Ecoregion Subarea*

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and

wildlife species and their habitat is described in Section IV.7.2. Suitable habitat for amphibians and reptiles would be impacted in this subarea, including Agassiz's desert tortoise and Tehachapi slender salamander. CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on Tehachapi slender salamander to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, Swainson's hawk, and tricolored blackbird. CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on tricolored blackbird to less than the acreage reported in Table IV.7-276. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs requiring surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

#### *Cadiz Valley and Chocolate Mountains Ecoregion Subarea*

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from wind and transmission. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for Mojave fringe-toed lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further

avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover. In addition, compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following Covered mammals would be impacted in the Cadiz Valley and Chocolate Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Suitable habitat for burro deer and desert kit fox (Planning Species) would also be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-276. Compensation CMAs would offset habitat loss for these species.

#### Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from wind, geothermal, and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. The siting of the DFAs under the BLM LUPA largely avoid habitat for flat-tailed horned lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-276.

Impacts would occur to suitable habitat for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle (foraging), greater sandhill crane, mountain plover, southwestern willow flycatcher, and Swainson's hawk. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher and California black rail to less than the acreage reported in Table IV.7-276. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Only minimal impacts (about 60 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Impacts to suitable habitat for desert kit fox would also occur in this subarea. The siting of the DFAs under the BLM LUPA largely avoid habitat for bighorn sheep. The CMAs require avoidance of and

setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-276.

**Table IV.7-276**  
**BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Amphibian/Reptile</i>						
Agassiz's desert tortoise	5,799,000	7,000	600	1,000	5,000	13,000
Flat-tailed horned lizard	428,000	2,000	-	4,000	1,000	7,000
Mojave fringe-toed lizard	731,000	10,000	800	-	4,000	15,000
Tehachapi slender salamander	7,000	20	-	-	-	20
<i>Bird</i>						
Bendire's thrasher	773,000	400	100	30	200	800
Burrowing owl	1,707,000	8,000	600	3,000	3,000	15,000
California black rail	31,000	100	-	200	60	400
California condor	242,000	2,000	100	100	100	2,000
Gila woodpecker	38,000	40	-	-	10	50
Golden eagle--foraging	6,216,000	15,000	1,000	800	7,000	25,000
Golden eagle--nesting	2,421,000	900	80	20	2,000	3,000
Greater sandhill crane	3,000	20	-	10	20	50
Least Bell's vireo	69,000	10	-	10	10	20
Mountain plover	7,000	200	10	-	40	200
Southwestern willow flycatcher	46,000	500	-	700	200	1,000
Swainson's hawk	112,000	2,000	100	400	200	3,000
Tricolored blackbird	13,000	200	10	-	20	200
Western yellow-billed cuckoo	19,000	-	-	-	-	10
Yuma clapper rail	5,000	-	-	-	-	-
<i>Fish</i>						
Desert pupfish	500	-	-	-	-	-
Owens pupfish	4,000	-	-	-	20	20
Owens tui chub	4,000	-	-	-	20	20

**Table IV.7-276**  
**BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Mammal</i>						
Bighorn sheep – inter-mountain habitat	2,243,000	3,000	200	100	1,000	4,000
Bighorn sheep – mountain habitat	3,568,000	200	80	-	2,000	2,000
California leaf-nosed bat	4,444,000	21,000	2,000	2,000	10,000	35,000
Mohave ground squirrel	999,000	3,000	200	1,000	700	5,000
Pallid bat	8,943,000	25,000	2,000	5,000	14,000	47,000
Townsend's big-eared bat	7,599,000	28,000	2,000	4,000	13,000	47,000
<i>Plant</i>						
Alkali mariposa-lily	2,000	20	10	-	-	40
Bakersfield cactus	77,000	600	50	-	-	600
Barstow woolly sunflower	72,000	-	-	-	10	10
Desert cymopterus	67,000	30	-	-	10	30
Little San Bernardino Mountains linanthus	80,000	10	10	-	10	30
Mojave monkeyflower	116,000	30	-	-	90	100
Mojave tarplant	136,000	200	10	60	80	300
Owens Valley checkerbloom	55,000	10	-	-	70	80
Parish's daisy	85,000	90	80	-	50	200
Triple-ribbed milk-vetch	4,000	-	-	-	-	-

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Specific Covered Species Impact Analyses

For Agassiz’s desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-277 provides an impact analysis for these desert tortoise important areas in the BLM LUPA area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 13,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 4. Within the Eastern Mojave Recovery Unit, no habitat would be impacted under Alternative 4. Within the Western Mojave Recovery Unit, approximately 1,000 acres of TCAs and linkage habitat would be impacted under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through 15). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Under Alternative 4, the designated DRECP Variance Lands have the potential to undermine the integrity and long-term conservation value of the conservation strategy for desert tortoise.

**Table IV.7-277  
BLM LUPA Impact Analysis for Desert Tortoise Important Areas – Alternative 4**

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	354,000	3,000	300	-	90	4,000
	Linkage	406,000	800	70	-	20	900
	TCA	1,728,000	600	50	-	8,000	8,000
<i>Colorado Desert Total</i>		<i>2,488,000</i>	<i>5,000</i>	<i>400</i>	<i>-</i>	<i>8,000</i>	<i>13,000</i>
Eastern Mojave	Linkage	728,000	-	-	-	-	-
	TCA	239,000	-	-	-	-	-
<i>Eastern Mojave Total</i>		<i>967,000</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
Western Mojave	Linkage	796,000	300	50	-	200	600
	TCA	964,000	200	20	-	400	700

**Table IV.7-277**  
**BLM LUPA Impact Analysis for Desert Tortoise Important Areas – Alternative 4**

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Western Mojave Total</i>		1,759,000	500	70	-	600	1,000
<b>Total</b>		<b>5,215,000</b>	<b>5,000</b>	<b>500</b>	-	<b>9,000</b>	<b>14,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 146 territories occur wholly or partially within the BLM LUPA area. Under Alternative 4, 30 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 4, 69 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the 2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 4 on BLM land, approximately 2,000 acres of mountain habitat and 4,000 acres of intermountain habitat would be impacted. Alternative 4 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-278 provides an impact analysis for these Mohave ground squirrel important areas in the BLM LUPA area. Approximately 1,000 acres of impact to key population centers would occur in Alternative 4 and approximately 100 acres of impact would occur in climate change extension areas. A total of approximately 1,000 acres of impact to linkage and approximately 1,000 acres of impact to expansion areas would occur under Alternative 4. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

**Table IV.7-278**  
**BLM LUPA Impact Analysis for Mohave Ground Squirrel Important Areas –**  
**Alternative 4**

Mohave Ground Squirrel Important Area Type	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	299,000	700	-	100	300	1,000
Linkage	280,000	400	-	600	400	1,000
Expansion Area	282,000	400	10	400	80	1,000
Climate Change Extension	92,000	-	-	-	100	100
<b>Total</b>	<b>954,000</b>	<b>2,000</b>	<b>10</b>	<b>1,000</b>	<b>800</b>	<b>4,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish’s daisy. For desert tortoise, approximately 9,000 acres of impact designated critical habitat would result from the development of Covered Activities on BLM-administered lands under Alternative 4 located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 4, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish’s daisy would occur from the development of Covered Activities on BLM-administered lands.

### Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities on BLM Land that would result in noise, predator avoidance behavior, or light and glare. Based on the planned renewable energy capacity on BLM Land, most of the terrestrial operational impacts would occur in the Cadiz Valley and Chocolate Mountains subarea, as shown in Table IV.7-275. The Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would also prevalent amounts of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

#### Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Bird Covered Species, in particular during the nesting seasons, are expected to be sensitive to adverse noise effects. The largest amount of impacts to bird Covered Species modeled habitat on BLM Land would be located in the Cadiz Valley and Chocolate Mountains subarea, which would experience approximately 55% of these impacts. Small mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. Overall, impacts on BLM Land to the habitat for these Covered Species would mostly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, and to a lesser extent in the Cadiz Valley and Chocolate Mountains subarea. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains subareas.

The disturbance and injury of wildlife from noise-related effects would be minimized through the implementation of avoidance and minimization CMAs under Alternative 4. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting birds, amphibians, and small mammals; and avoidance of Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

### Predator Avoidance Behavior

The effects of predator avoidance behavior can occur for some wildlife in response to human activities during siting, construction, and operations. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experience different magnitudes of responses to Covered Activities. However, Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout BLM Land. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the Cadiz Valley and Chocolate Mountains subarea, where most of the terrestrial operational impacts on BLM Land are anticipated.

Under Alternative 4, avoidance and minimization CMA's for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Additional CMA's would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Further seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities would be minimized by these measures, which are applicable on BLM Land.

### Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces and would have greater effects on wildlife than other renewable energy technologies. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. As described above, most of the terrestrial operational impacts on BLM Land resulting from development of all technology types of renewable energy would occur in the Cadiz Valley and Chocolate Mountains subarea. The Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would also experience prevalent amounts of terrestrial operational impacts on BLM Land. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. Similarly, impacts from solar projects on BLM Land would primarily occur in the Cadiz Valley and Chocolate Mountains subarea.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities on BLM Land would

mainly be located in the Cadiz Valley and Chocolate Mountains subarea. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the Cadiz Valley and Chocolate Mountains subarea would be primarily affected, containing most of the impacts to bird Covered Species habitat on BLM Land. Therefore, considering the distribution solar and other renewable energy technologies and impacts on modeled habitat for species sensitive light and glare the greatest wildlife disturbance is anticipated to occur in the Cadiz Valley and Chocolate Mountains subarea.

Alternative 4 would implement avoidance and minimization CMAs on BLM Land specifically intended to minimize effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable to BLM Land would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

#### Non-Covered Species

Potential impacts to Non-Covered Species on BLM Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-279 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g. dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird species. The total impact to potential habitat across all technology types is less than 1%, with the exception of the grassland community at approximately 1.8% and within the agriculture/rural land cover areas at approximately 2%.

Critical habitat for the federally-listed Non-Covered Species would essentially be avoided across all renewable energy types.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

Table IV.7-279

BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte’s phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy’s eriastrum, Cushenbury buckwheat	95,000	200	30	0	50	280	0.3%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch’s spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le	7,023,000	23,000	2,000	5,000	12,000	42,000	0.6%

**Table IV.7-279**

**BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Conte’s thrasher, loggerhead shrike, long-eared owl, Lucy’s warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte’s phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory’s crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood’s eriastrum, Harwood’s milkvetch, Inyo County star-tulip, Kelso Creek							

**Table IV.7-279**

**BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes <sup>3</sup> / Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le	1,330,000	7,000	500	200	3,000	10,700	0.8%

**Table IV.7-279**

**BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Conte’s thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte’s phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory’s crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood’s eriastrum, Harwood’s milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt’s woody aster, Orocopia sage, Palmer’s jackass clover, Parish’s club cholla, Pierson’s milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson’s monardella, Rusby’s desert-mallow, sand food,							

**Table IV.7-279**

**BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Spanish needle onion, Thorne’s buckwheat, Utah beardtongue, white bear poppy, Wiggin’s croton, Palmer’s jackass clover, white-margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	29,000	400	20	0	100	520	1.8%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch’s spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell’s vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy’s warbler, northern harrier, redhead, vermilion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa	1,443,000	2,000	200	0	200	2,400	0.2%

Table IV.7-279

BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Preferred Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotis-pocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish’s alkali grass, Parish’s phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	9,000	50	0	30	100	180	2%

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

<sup>3</sup> Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/step would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

<sup>4</sup> This amount assumes the loss of conservation value for all land fragmented by the well fields.

**Notes:** The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

***Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).***

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

***Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.***

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-280 shows the impact analysis for the desert linkage network for Alternative 4 for the BLM LUPA. Overall, over 17,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in seven different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Chuckwalla Valley portion of a linkage network that extends west and south. In the Imperial Borrego Valley, there are DFAs in the northern portion of the desert linkage network that extends along East Mesa from east of the Imperial Valley north toward the Coachella Canal. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Panamint Death Valley subarea, there are DFAs in the

Searles Valley in a linkage that connects the Searles and Argus Ranges. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains. There are also DFAs in the linkage that connects Turtle Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. Farther west in the Plan Area, there are DFAs in the linkages that connect Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-280, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley’s Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4.

**Table IV.7-280  
BLM LUPA Impact Analysis for the Desert Linkage Network – Alternative 4**

<b>Desert Linkage Network by Ecoregion Subarea</b>	<b>Available Lands (acres)<sup>1</sup></b>	<b>Solar Impact (acres)<sup>2</sup></b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
Cadiz Valley and Chocolate Mountains	709,000	10,000	800	-	8,000	19,000
Imperial Borrego Valley	146,000	30	-	50	30	100
Kingston and Funeral Mountains	138,000	-	-	-	-	-
Mojave and Silurian Valley	368,000	-	-	-	200	200
Owens River Valley	15,000	200	-	300	200	600
Panamint Death Valley	112,000	400	-	-	80	500
Pinto Lucerne Valley and Eastern Slopes	168,000	30	30	-	300	400
Piute Valley and	111,000	-	-	-	-	-

**Table IV.7-280**  
**BLM LUPA Impact Analysis for the Desert Linkage Network – Alternative 4**

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Sacramento Mountains						
Providence and Bullion Mountains	377,000	-	-	-	-	-
West Mojave and Eastern Slopes	386,000	300	20	-	100	400
<b>Total</b>	<b>12,650,000</b>	<b>42,000</b>	<b>5,000</b>	<b>2,000</b>	<b>29,000</b>	<b>79,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### Migratory Birds

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR-9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In Alternative 4 wind generation is a moderate proportion of the overall generation mix. BLM managed DFAs are divide between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate Mountain Subareas. Wind development would mostly occur in DFAs to the north of the I-10 and in McCoy Valley, with considerably smaller amounts of development on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include migratory bird corridors between the Colorado River corridor and the Coachella Valley and Salton Sea areas. More minor impacts would occur to routes between the passes of the Tehachapi and San Bernardino mountains, and the temporary lakes and wetland refuges on and to the north of Edwards AFB

Solar development would mostly be constructed throughout the Cadiz and Chocolate Mountain subareas, with smaller quantities in West Mojave and Eastern Slopes and

Imperial Borrego Valley subareas. Alternative 4 would result in considerable quantities of new solar PV and solar thermal generation facilities in the BLM SEZ along the I-10 corridor to the west side of the Colorado River. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River and Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, Pinto Lucerne Valley would occur in DFAs between the passes of the Tehachapi and San Bernardino Mountains, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Development, around the Salton Sea and in the Imperial Valley, would be on the west side of the East Mesa ACEC, and include areas to the west of the Salton Sea that include the Truckhaven geothermal resource area and areas to the east of the Salton Sea in the foothills of the Chocolate Mountains.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. A bird and bat use and mortality monitoring program would be implemented during operations. Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind solar and geothermal projects. CMAs would negate direct loss of riparian and wetlands habitats, result in no directly loss of riparian and wetland habitats. Further, implementation of species specific CMAs would ensure impacts to bird species would be reduced and compensation CMAs would offset habitat loss for these species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions. Application of CMAs would reduce the overall impacts to migratory bird populations.

***Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.***

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less

intact and more degraded areas. However, under Alternative 4, DRECP Variance Lands are included that were not sited to avoid intact landscapes and were not sited to ensure development is constrained to more degraded lands. The inclusion of the DRECP Variance Lands scattered across the landscape under Alternative 4 undermines the intactness and puts larger intact landscapes at risk of dispersed future development. Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 4 within DFAs on BLM Land would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

***Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.***

Higher predator densities and hence high predation rates are a documented effect of increased human development in the Plan Area. The extent to which Covered Activities contribute to increasing predation through phenomena like predator subsidization is linked to the likely extent of Covered Activities in undisturbed parts of desert.

Agricultural landscapes in the west Mojave, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as ravens and coyotes, and support covered predator species such as burrowing owls and Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes are would result in a little increase in predation.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. Alternative 4 would result 50,000 acres of permanent conversion of natural desert communities with 200 acres of impacts (<1% of the total ground disturbance) within areas characterized by disturbed land cover types. All impacts are likely to be within natural communities. Susceptible species across the plan area include desert tortoise, Mojave fringe toed lizard, flat-tailed horned lizard, Mohave ground squirrel. As well as nesting birds such as golden eagle, tricolored blackbird, and Swainson's hawk.

The inclusion of DRECP Variance Lands under Alternative 4 has the potential for increased risk of scattered transmission lines and scattered development activities in remote and intact landscapes, which could lead to future increased levels of predation.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Including, removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of

carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

***Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.***

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

Overall, Alternative 4 would result in a median of 3,000 collisions per year for birds and 14,000 collisions per year for bats across the BLM LUPA DFAs. The expected distribution of wind generation indicates that 88% of all collisions in DFAs on BLM lands would occur in the Cadiz Valley and Chocolate Mountains subarea and 6% of collision, would occur in the Pinto Lucerne Valley and Eastern Slopes subarea, and 6% in West Mojave and Eastern Slopes subareas. Susceptible avian species in Cadiz and Chocolate Mountains would include great sandhill crane, Bendire's thrasher, golden eagle and burrowing owl.

The high rate of collision in the Cadiz Valley and Chocolate Mountains subarea may result in a higher risk of collision for western yellow-billed cuckoo, Yuma clapper rail, mountain plover, southwest willow flycatcher, and burrowing owl, greater sandhill crane, Bendire's thrasher, golden eagle and burrowing owl. Whereas, development in the Pinto and Lucerne Valley subarea would affect golden eagle territories and important Bendire's thrasher habitat. The remaining development in the West Mojave would affect Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, and golden eagle.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5-mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to covered bat species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

**Table IV.7-281**  
**BLM LUPA Estimated Range of Bird and Bat Collisions**  
**per Year by Subarea – Alternative 4**

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr) <sup>1</sup>			Bats (Collisions/Yr) <sup>1</sup>		
		Low	Median	High	Low	Median	High
Cadiz Valley and Chocolate Mountains	512	800	3,000	10,000	1,000	12,000	72,000
Imperial Borrego Valley	0	-	-	-	-	-	-
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	32	-	200	600	100	700	4,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	38	100	200	700	100	900	5,000
<b>Grand Total</b>	<b>581</b>	<b>900</b>	<b>3,000</b>	<b>11,000</b>	<b>1,000</b>	<b>14,000</b>	<b>81,000</b>

<sup>1</sup> Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

**Note:** The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

## Solar

Under Alternative 4, impacts to avian and bat species from solar development based on the planned solar capacity. BLM administered DFAs would see a 3.5-fold increase in collision risks relative to baseline. 82% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 5% in Imperial Borrego Valley, 8% in West Mojave and Eastern Slopes, and the remaining 5 % spread across the rest of the plan area.

The development in the Cadiz and Chocolate Mountains subarea would occur in the solar PEIS SEZ adjacent to the I-10 corridor, and in the McCoy Wash. Species impacted by Covered Activities include: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover.

Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north of Edwards AFB. In these areas, susceptible species would include tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, Burrowing owls and to a lesser extent Swainson's hawk, pallid bat, California leaf-nosed bat, Townsend's big-eared bat.

Minor development in other areas would include Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea. Species impacted would include golden eagle, and Bendire's thrasher. Anticipated impacts in Imperial Borrego Valley would occur in three BLM managed areas: the western foothills of the Chocolate Mountains; land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea species. Birds and bats at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail, pallid bat, California leaf-nosed bat, Townsend's big-eared bat.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the

approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds. Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4) as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations.

### Transmission

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas would be in Cadiz Valley and Chocolate Mountains, and the Imperial Borrego with 12,000 acres, and 1,000 acres of terrestrial impacts anticipated respectively. The remaining 1,400 acres of terrestrial impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the designated BLM/368 transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; as well as collector lines running along the western side of the Salton Sea from the Truckhaven geothermal resource areas. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All avian Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered

Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would: where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would be minimized.

The inclusion of the DRECP Variance Lands under Alternative 4, while not analyzed as if they were developed, have the potential to be developed in the future. Due to the remote nature of these lands, transmission lines would likely be needed to support any future development in these areas and the designation of these lands as DRECP Variance Lands has the potential to increase the risk of transmission effects on sensitive species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summarizes the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above. It is expected that much of the future development would be concentrated in agricultural habitats. This would affect species such as burrowing owl, Swainson’s hawk, greater sandhill crane and mountain plover; estimated take reflects this assumption.

**Table IV.7-282  
BLM LUPA Estimated Total Take for Covered Avian and Bat Species – Alternative 4**

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire’s thrasher	0	0	0	0

**Table IV.7-282**  
**BLM LUPA Estimated Total Take for Covered Avian and Bat Species – Alternative 4**

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Burrowing owl	20	10	10	40
California condor	0	0	0	0
California black rail	10	0	0	10
Gila woodpecker	10	0	0	10
Golden eagle	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	20	10	10	40
Greater sandhill crane	0	0	0	0
Southwestern willow flycatcher	20	10	0	30
Swainson's hawk	0	0	0	0
Tricolored blackbird	10	0	0	10
Western yellow billed cuckoo	10	0	0	10
Yuma clapper rail	10	0	0	10
<b>Grand Total Avian Species</b>	<b>140</b>	<b>30</b>	<b>20</b>	<b>190</b>
California leaf-nosed bat	10	40	0	50
Pallid bat	10	20	0	30
Townsend's big-eared bat	20	0	0	20
<b>Grand Total Bat Species</b>	<b>40</b>	<b>60</b>	<b>0</b>	<b>100</b>

<sup>1</sup> Take for California condor would not be permitted under the DRECP.

<sup>2</sup> Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

**Note:** The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

#### IV.7.3.6.2.2 Impacts of Changes to BLM Land Designations

The BLM LUPA would establish conservation designations on BLM-administered lands under each alternative that would conserve biological resources, including NLCS, ACEC, and wildlife allocations. On BLM-administered lands under Alternative 4, the BLM LUPA would designate approximately 4,431,000 acres of BLM LUPA conservation designations, including 2,639,000 acres of NLCS, 1,518,000 acres of ACEC, and 274,000 acres of wildlife allocation. Additionally, existing conservation areas occur on BLM-administered lands that conserve biological resources. Under Alternative 4, DRECP Variance Lands areas are scattered across the Plan Area including south of the Chocolate Mountains in eastern

Imperial Borrego Valley subarea, in Rice Valley in northern Cadiz Valley and Chuckwalla Mountains subarea, and in the Silurian Valley area of the Kingston and Funeral Mountains and Mojave and Silurian Valley subareas. The DRECP Variance Lands lead to uncertainty about the protection and functionality of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Appendix L provides unit-specific ACEC and NLCS worksheets that identify relevant resources, specific resources goals, objectives, and prescribed management actions. The following provides an analysis of the conservation that would be provided in these BLM LUPA conservation designations on BLM-administered lands, organized by landscape, natural communities, and species.

The BLM LUPA would also establish Special Recreation Management Areas (SRMAs) and would identify lands to be managed to protect Wilderness Characteristics. These BLM LUPA land designations are overlays that specify particular management and uses for specific areas. Unit-specific SRMA worksheets are provided in Appendix L and the CMAs specific to lands managed to protect Wilderness Characteristics are provided as part of the Volume II descriptions of the DRECP alternatives. These land designations may co-occur with the BLM LUPA conservation designations (NLCS, ACECs, and wildlife allocations). Where these land designations do not co-occur with the BLM LUPA conservation designations, they were not included as part of the reserve design envelope and were not included in the conservation analysis for biological resources provided in this section.

## **Landscape**

### ***Habitat Linkages***

Table IV.7-283 shows the conservation of the desert linkage network under Alternative 4 for the BLM LUPA. Conservation of the desert linkage network totals more than 2.4 million acres (66%). The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that connects the Ward and Cadiz Valleys through the Old Woman Mountains is mostly conserved. Though the majority of the remaining linkages are conserved, there are some DFAs that may interrupt them (see Section IV.7.3.6.2.1). None of the linkages in the Imperial Borrego Valley or Kingston and Funeral Mountains subareas are entirely conserved. None of the linkages in the Mojave and Silurian Valley subarea are entirely conserved since the middle portion of the subarea is not in Reserve Lands. Sections of the single linkage in the Owens River Valley subarea are not conserved. The connectivity of the northernmost linkage in the Panamint Death Valley subarea is preserved along the Searles Range, but not between the Searles and Argus Ranges since a portion of the Searles Valley is not conserved. The connection in the China Lake Naval Weapon Center is not conserved in Reserve Lands, and only portions the remainder of this linkage to the west are conserved. In the Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and Piute Valley and Sacramento Mountains subareas, none of the linkages are completely conserved. While none of the linkages in the West

Mojave and Eastern Slopes subarea are wholly conserved in Reserve Lands, the linkage network south of Indian Wells is mostly conserved.

In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.6.2.1).

The DRECP Plan-Wide Reserve Design Envelope for Alternative 4 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network; however, the inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the habitat linkages within the reserve design envelope.

**Table IV.7-283**  
**BLM LUPA Conservation Analysis for the Desert Linkage Network – Alternative 4**

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	295,000	88,000	1,000	584,000	66%
Imperial Borrego Valley	156,000	14,000	53,000	300	-	68,000	44%
Kingston and Funeral Mountains	174,000	28,000	33,000	55,000	-	118,000	68%
Mojave and Silurian Valley	507,000	179,000	49,000	149,000	-	383,000	76%
Owens River Valley	19,000	40	5,000	7,000	-	12,000	63%
Panamint Death Valley	206,000	109,000	38,000	37,000	-	184,000	89%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	53,000	70,000	700	142,000	49%
Piute Valley and Sacramento Mountains	152,000	14,000	78,000	16,000	-	110,000	72%
Providence and Bullion Mountains	426,000	144,000	114,000	86,000	-	348,000	82%

**Table IV.7-283**  
**BLM LUPA Conservation Analysis for the Desert Linkage Network – Alternative 4**

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
West Mojave and Eastern Slopes	860,000	45,000	73,000	298,000	8,000	470,000	55%
<b>Grand Total</b>	<b>3,682,000</b>	<b>736,000</b>	<b>790,000</b>	<b>806,000</b>	<b>10,000</b>	<b>2,419,000</b>	<b>66%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

**Notes:** Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### ***Hydrological Resources***

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 4 on BLM land. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

#### Playa

Playa totals 163,000 acres in the Plan Area. Overall, 53% (86,000 acres) would be conserved under Alternative 4 on BLM land. Existing Conservation would account for 12% of the conservation, NLCSs would account for 32%, ACECs would account for 1%, and wildlife allocations would account for 40%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

### Seep/Spring

There are 177 seep/spring locations in the Plan Area under Alternative 4 on BLM land. Overall, 77% (136 locations) of the seep/spring locations would be conserved under Alternative 4 on BLM land. The conservation of seep/spring under Alternative 4 on BLM land would be more than half in all subareas except in the Imperial Borrego Valley location (33%, 1 location). These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Kingston and Funeral Mountains (67%, 20 locations), Mojave and Silurian Valley (100%, 10 locations), Owens River Valley (52%, 6 locations), Panamint Death Valley (87%, 10 locations), Piute Valley and Sacramento Mountains (83%, 13 locations), Pinto Lucerne Valley and Eastern Slopes (76%, 29 locations), Providence and Bullion Mountains (90%, 17 locations), and West Mojave and Eastern Slopes (77%, 25 locations).

Overall, Existing Conservation would account for 39% of the conservation of seep/spring, NLCs would account for 38%, ACECs would account for 21%, and wildlife allocations would account for less than 1%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

### Major Rivers

Overall, 86% of the major rivers would be conserved under Alternative 4 on BLM land, including 90% of the Amargosa River and 77% of the Mojave River. Existing Conservation would account for 41%, NLCs would account for 40%, and ACECs would account for 20%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

### ***Dune and Sand Resources***

Overall, 72% (706,000 acres) of dunes and sand resources would be conserved under Alternative 4 on BLM land. At least 50% of dunes and sand resources would be conserved in all subareas in the Plan Area that contain substantial acreage of dunes and sand resources, except on the Pinto Lucerne Valley and Eastern Slope at 31% (5,000 acres). These areas include Cadiz Valley and Chocolate Mountains at 79% (417,000 acres), Imperial Borrego Valley at 62% (73,000 acres), Kingston and Funeral Mountains at 65% (29,000 acres), Mojave and Silurian Valley at 72% (31,000 acres), Owens River Valley at 77% (4,000 acres), Panamint and Death Valley at 54% (17,000 acres), Providence and Bullion Mountains at 67% (125,000 acres), and West Mojave and Eastern Slopes at 79%

(7,000 acres). Additionally, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

### ***Environmental Gradients***

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 4 within DFAs on BLM Land would follow the same overall pattern as Plan-wide conservation.

### **Natural Communities**

Table IV.7-284 shows the conservation to natural communities with changes to BLM LUPA Designations on BLM Land. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

#### ***California forest and woodlands***

Overall, approximately 38,000 acres (85%) of California forest and woodlands would be conserved under Alternative 4 on BLM Lands, which is a greater proportion than is conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations with wildlife allocations comprising most of the BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

#### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 11,000 acres (61%) of chaparral and coastal scrubs would be conserved under Alternative 4 on BLM Lands, which is more proportionally than would be conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations, especially ACECs. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Desert conifer woodlands***

Overall, approximately 41,000 acres (82%) of desert conifer woodlands would be conserved under Alternative 4 on BLM Lands, which is more proportionally than would be conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. Conservation would primarily come from existing conservation and most of the BLM LUPA conservation designations are in NLCSs. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Desert outcrop and badlands***

Overall, approximately 960,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 4 on BLM Land, which is about the same proportion of available lands conserved Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Conservation would primarily come from existing conservation and most of the BLM LUPA conservation designations are in NLCSs. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Desert scrubs***

Overall, approximately 5,539,000 acres (79%) of desert scrubs would be conserved under Alternative 4 on BLM Land, which is a greater proportion of available lands than is conserved Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains, Providence and Bullion Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Dunes***

Overall, approximately 86,000 acres (68%) of dunes would be conserved under Alternative 4 on BLM Land, which is a lesser proportion of available lands conserved Plan-wide. About half of the conservation would occur in the Imperial Borrego Valley

subarea. Conservation would primarily come from BLM LUPA conservation designations, which are mostly NLCSs. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

### ***Grasslands***

Overall, approximately 22,000 acres (76%) of grasslands would be conserved under Alternative 4 on BLM Land, which is a greater proportion of available lands compared to that conserved Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations, which are made up of mostly ACECs. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Riparian***

Overall, approximately 421,000 acres (65%) of riparian communities would be conserved under Alternative 4 on BLM Land, which is a slightly greater proportion of available lands than is conserved Plan-wide. Almost half of the conservation would occur in the Cadiz Valley and Chocolate Mountains subarea. Conservation would primarily come from NLCSs. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

### ***Wetlands***

Overall, approximately 189,000 acres (64%) of wetland communities would be conserved under Alternative 4 on BLM Land, which is a greater proportion of available lands than is conserved Plan-wide. Most of the conservation would occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from BLM LUPA conservation designations, which are mostly ACECs. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

**Table IV.7-284**  
**BLM LUPA Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
<i>California forest and woodland</i>							
Californian broadleaf forest and woodland	11,000	600	300	90	8,000	9,000	86%
Californian montane conifer forest	34,000	18,000	4,000	3,000	4,000	29,000	85%
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>							
Californian mesic chaparral	500	0	0	0	300	300	57%
Californian pre-montane chaparral	300	0	10	10	300	300	89%
Californian xeric chaparral	5,000	2,000	200	30	500	3,000	58%
Central and south coastal California seral scrub	20	0	0	10	0	10	76%
Central and South Coastal Californian coastal sage scrub	13,000	2,000	2,000	4,000	0	8,000	62%
Western Mojave and Western Sonoran Desert borderland chaparral	200	20	70	0	0	90	45%
<i>Desert conifer woodlands</i>							
Great Basin Pinyon - Juniper Woodland	50,000	27,000	8,000	5,000	600	41,000	82%
<i>Desert outcrop and badlands</i>							
North American warm desert bedrock cliff and outcrop	1,203,000	566,000	309,000	66,000	19,000	960,000	80%

**Table IV.7-284**  
**BLM LUPA Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
<i>Desert Scrub</i>							
Arizonan upland Sonoran desert scrub	3,000	1,000	400	100	0	2,000	62%
Intermontane deep or well-drained soil scrub	69,000	16,000	15,000	32,000	0	62,000	91%
Intermontane seral shrubland	5,000	10	1,000	2,000	0	3,000	61%
Inter-Mountain Dry Shrubland and Grassland	282,000	86,000	70,000	35,000	70	190,000	68%
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	5,000	7,000	2,000	3,000	17,000	70%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	2,003,000	1,652,000	1,038,000	172,000	4,866,000	80%
Mojave and Great Basin upper bajada and toeslope	406,000	165,000	94,000	78,000	30	338,000	83%
Shadscale - saltbush cool semi-desert scrub	101,000	17,000	31,000	10,000	2,000	60,000	59%
Southern Great Basin semi-desert grassland	50	0	0	40	0	40	82%
<i>Dunes</i>							
North American warm desert dunes and sand flats	127,000	34,000	40,000	9,000	3,000	86,000	68%

**Table IV.7-284**  
**BLM LUPA Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
<i>Grassland</i>							
California Annual and Perennial Grassland	28,000	10,000	4,000	7,000	600	22,000	77%
California annual forb/grass vegetation	1,000	0	200	500	0	700	58%
<i>Riparian</i>							
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	104,000	167,000	54,000	8,000	333,000	66%
Mojavean semi-desert wash scrub	11,000	1,000	2,000	6,000	20	9,000	84%
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	28,000	38,000	8,000	40	74,000	61%
Southwestern North American riparian evergreen and deciduous woodland	400	0	60	50	200	300	72%
Southwestern North American riparian/wash scrub	10,000	600	4,000	900	20	5,000	51%
<i>Wetland</i>							
Arid West freshwater emergent marsh	10	0	0	0	0	0	0%
Californian warm temperate marsh/seep	0	0	0	0	0	0	60%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	13,000	30,000	19,000	15,000	78,000	53%
Open Water	700	0	60	10	0	80	12%

**Table IV.7-284**  
**BLM LUPA Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Playa	26,000	300	100	600	23,000	24,000	94%
Southwestern North American salt basin and high marsh	122,000	2,000	24,000	60,000	0	86,000	71%
Wetland	100	0	0	10	0	10	4%
<i>Other Land Cover</i>							
Agriculture	6,000	0	500	400	0	800	14%
Developed and Disturbed Areas	44,000	200	700	600	200	2,000	4%
Not Mapped	800	0	20	30	0	50	7%
Rural	3,000	0	50	90	10	200	5%
<b>Total</b>	<b>9,471,000</b>	<b>3,101,000</b>	<b>2,506,000</b>	<b>1,442,000</b>	<b>261,000</b>	<b>7,310,000</b>	<b>77%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

**Notes:** Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### Covered Species Habitat

Table IV.7-285 shows the conservation of Covered Species modeled habitat under the Alternative 4 (before the application of CMAs) under the BLM LUPA. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 21% for greater sandhill crane to 91% for triple-ribbed milk-vetch.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert and conserved under Alternative 4 mainly in existing conservation areas and NLCSs. Flat-tailed horned lizard modeled habitat is mainly conserved in the NLCSs. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of wildlife allocations. Furthermore, the siting of the DFAs under Alternative 4 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi

slender salamander, and CMAs requiring avoidance of and setbacks from riparian, wetland, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats.

Conservation of Bendire's thrasher occurs mainly in existing conservation and NLCSSs. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes and agricultural areas in the Imperial Borrego Valley, would primarily be conserved in ACECs and NLCSSs.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea with most of the conserved acreage in NLCSSs and ACECs. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas and NLCSSs. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; the majority of suitable habitat conserved is in ACECs. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Almost half of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in NLCSSs. About half of the conservation of mountain plover suitable habitat is in ACECs under Alternative 4.

Conservation of suitable habitat for desert pupfish is mostly in NLCSSs. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in existing conservation areas and ACECs.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in existing conservation areas and NLCSSs. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. The total percent conservation from BLM LUPA conservation designations for burro deer (63%), desert kit fox (75%), and Mojave ground squirrel (78%) is divided between existing conservation areas, NLCSSs, and ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in existing conservation areas and NLCSSs. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of plant species ranges from 44% of suitable habitat for alkali mariposa-lily to 91% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in existing conservation and BLM LUPA conservation designations varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs requiring surveys for plant Covered Species for all Covered Activities and the CMAs requiring avoidance of, and setbacks from, occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

**Table IV.7-285**  
**BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
<i>Amphibian/Reptile</i>							
Agassiz's desert tortoise	5,799,000	1,869,000	1,581,000	1,189,000	84,000	4,723,000	81%
Flat-tailed horned lizard	428,000	36,000	202,000	36,000	-	274,000	64%
Mojave fringe-toed lizard	731,000	214,000	147,000	61,000	128,000	550,000	75%
Tehachapi slender salamander	7,000	-	700	500	5,000	6,000	82%
<i>Bird</i>							
Bendire's thrasher	773,000	266,000	234,000	118,000	200	619,000	80%
Burrowing owl	1,707,000	144,000	450,000	480,000	37,000	1,112,000	65%
California black rail	31,000	1,000	7,000	2,000	-	10,000	30%
California condor	242,000	37,000	74,000	48,000	18,000	176,000	73%
Gila woodpecker	38,000	700	11,000	2,000	80	13,000	35%
Golden eagle–foraging	6,216,000	2,539,000	1,581,000	868,000	58,000	5,046,000	81%
Golden eagle–nesting	2,421,000	1,334,000	488,000	213,000	42,000	2,077,000	86%
Greater sandhill crane	3,000	-	400	300	-	700	21%
Least Bell's vireo	69,000	28,000	18,000	10,000	1,000	56,000	81%
Mountain plover	7,000	80	900	1,000	-	2,000	32%
Southwestern willow flycatcher	46,000	5,000	6,000	8,000	3,000	23,000	50%

**Table IV.7-285**  
**BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Swainson's hawk	112,000	6,000	10,000	19,000	-	35,000	32%
Tricolored blackbird	13,000	5,000	1,000	2,000	200	9,000	64%
Western yellow-billed cuckoo	19,000	4,000	3,000	3,000	-	9,000	50%
Yuma clapper rail	5,000	30	700	600	-	1,000	24%
<i>Fish</i>							
Desert pupfish	500	20	300	-	-	300	56%
Owens pupfish	4,000	600	80	500	-	1,000	29%
Owens tui chub	4,000	600	80	500	-	1,000	29%
<i>Mammal</i>							
Bighorn sheep – inter-mountain habitat	2,243,000	785,000	606,000	349,000	35,000	1,776,000	79%
Bighorn sheep – mountain habitat	3,568,000	1,821,000	861,000	252,000	92,000	3,026,000	85%
California leaf-nosed bat	4,444,000	1,442,000	1,144,000	659,000	113,000	3,357,000	76%
Mohave ground squirrel	999,000	104,000	165,000	508,000	-	777,000	78%
Pallid bat	8,943,000	3,024,000	2,394,000	1,359,000	223,000	7,000,000	78%
Townsend's big-eared bat	7,599,000	2,330,000	2,025,000	1,214,000	232,000	5,800,000	76%
<i>Plant</i>							
Alkali mariposa-lily	2,000	-	700	-	-	700	44%
Bakersfield cactus	77,000	3,000	33,000	16,000	3,000	55,000	71%
Barstow woolly sunflower	72,000	400	400	63,000	-	64,000	89%
Desert cymopterus	67,000	4,000	1,000	52,000	-	57,000	86%
Little San Bernardino Mountains linanthus	80,000	6,000	24,000	400	20	31,000	38%
Mojave monkeyflower	116,000	23,000	52,000	25,000	-	101,000	87%
Mojave tarplant	136,000	29,000	48,000	27,000	4,000	108,000	79%
Owens Valley checkerbloom	55,000	12,000	2,000	800	-	15,000	27%
Parish's daisy	85,000	34,000	26,000	6,000	60	67,000	78%

**Table IV.7-285**  
**BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Triple-ribbed milk-vetch	4,000	4,000	-	-	-	4,000	91%

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

**Notes:** Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz’s desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-286 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 87% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 4. Within the Eastern Mojave Recovery Unit, 86% of the important areas would be conserved Alternative 4. Within the Western Mojave Recovery Unit, 84% of TCAs and linkage habitat would be conserved under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the linkage habitat for desert tortoise within the reserve design envelope.

**Table IV.7-286**  
**BLM LUPA Conservation Analysis for Desert Tortoise Important Areas – Alternative 4**

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	354,000	156,000	66,000	13,000	-	235,000	66%
	Linkage	406,000	126,000	19,000	73,000	119,000	338,000	83%
	TCA	1,728,000	454,000	879,000	258,000	2,000	1,593,000	92%
<i>Colorado Desert Total</i>		<i>2,488,000</i>	<i>735,000</i>	<i>965,000</i>	<i>344,000</i>	<i>121,000</i>	<i>2,166,000</i>	<i>87%</i>
Eastern Mojave	Linkage	728,000	418,000	174,000	28,000	-	620,000	85%
	TCA	239,000	56,000	82,000	76,000	-	215,000	90%
<i>Eastern Mojave Total</i>		<i>967,000</i>	<i>474,000</i>	<i>257,000</i>	<i>104,000</i>	<i>-</i>	<i>835,000</i>	<i>86%</i>
Western Mojave	Linkage	796,000	387,000	131,000	65,000	70	583,000	73%
	TCA	964,000	129,000	220,000	551,000	-	901,000	93%
<i>Western Mojave Total</i>		<i>1,759,000</i>	<i>517,000</i>	<i>351,000</i>	<i>616,000</i>	<i>70</i>	<i>1,483,000</i>	<i>84%</i>
<b>Grand Total</b>		<b>5,215,000</b>	<b>1,726,000</b>	<b>1,572,000</b>	<b>1,064,000</b>	<b>122,000</b>	<b>4,484,000</b>	<b>86%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

**Notes:** Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-287 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 87% of key population centers and 72% of linkages would be conserved under Alternative 4. Expansion areas and climate change extension areas would be conserved at 90% and 63% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

**Table IV.7-287**  
**BLM LUPA Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 4**

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	NLCS (acres) <sup>2</sup>	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	299,000	18,000	<b>91,000</b>	<b>152,000</b>	-	261,000	87%
Linkage	280,000	24,000	<b>22,000</b>	<b>157,000</b>	-	202,000	72%
Expansion Area	282,000	45,000	<b>50,000</b>	<b>159,000</b>	-	254,000	90%
Climate Change Extension	92,000	14,000	<b>37,000</b>	<b>8,000</b>	-	59,000	63%
<b>Total</b>	<b>954,000</b>	<b>101,000</b>	<b>200,000</b>	<b>476,000</b>	-	<b>777,000</b>	<b>81%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land

<sup>2</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land

**Notes:** Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Overlaps of ACECs or Wildlife Allocations with NLCS designations are reported as NLCS designations. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish’s daisy. For desert tortoise, approximately 92% of the desert tortoise designated critical habitat on BLM-administered lands would be conserved under Alternative 4, including 606,000 acres in existing conservation areas and 1,846,000 acres in BLM LUPA conservation designations. For southwestern willow flycatcher, approximately 95% of the southwestern willow flycatcher designated critical habitat on BLM-administered lands

would be conserved in Reserve Design Lands under Alternative 4, including 300 acres in existing conservation areas and 40 acres in BLM LUPA conservation designations. For desert pupfish, approximately 95% of the desert pupfish designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 4, including 20 acres in existing conservation areas and 400 acres in BLM LUPA conservation designations. For Parish’s daisy, approximately 93% of the Parish’s daisy designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 4, including 900 acres in BLM LUPA conservation designations.

**Non-Covered Species Critical Habitat**

Ten Non-Covered Species have Critical Habitat within BLM LUPA Lands. Table IV.7-288 shows the total amount of Critical Habitat and the amount within each LUPA conservation designation for Non-Covered Species. These conservation designations would be considered beneficial impacts for biological resources. All or a substantial portion of each species’ Critical Habitat in the BLM LUPA Lands would be within one of the conservation designations. Critical Habitat for Pierson’s milk-vetch and bighorn sheep occurs mostly within existing conservation, but mostly within National Conservation Lands for the other species. Critical Habitat for the Pierson’s milk-vetch is managed under the Imperial Sand Dunes RAMP, which provides protections for critical habitat within conservation areas and areas designated as closed to motorized (e.g. off-highway vehicle) use.

**Table IV.7-288  
Critical Habitat within BLM LUPA Conservation Designations for Non-Covered Species – Alternative 4**

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres) <sup>1</sup>	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Amargosa nitrophila	1,000	0	1,000	0	0	1,000
Amargosa vole	4,000	1,000	2,000	0	0	3,000
Arroyo toad	30	0	0	0	0	0
Ash Meadows gumplant	300	0	300	0	0	300
Cushenbury buckwheat	400	0	400	30	0	430
Cushenbury milk-vetch	900	0	800	0	0	800
Cushenbury oxytheca	80	0	80	0	0	80
Lane Mountain milk-vetch	10,000	50	7,000	2,000	0	9,950

**Table IV.7-288**  
**Critical Habitat within BLM LUPA Conservation Designations for Non-Covered Species – Alternative 4**

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres) <sup>1</sup>	ACEC (acres)	Wildlife Allocations (acres)	Total in Conservation
Pierson’s milk-vetch <sup>2</sup>	12,000	12,000 <sup>3</sup>	0	0	0	3,000
Peninsular Bighorn sheep	7,000	5,000	0	400	0	5,400

<sup>1</sup> Existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations), on BLM-administered land  
<sup>2</sup> NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.  
<sup>3</sup> Pierson’s milk-vetch are protected within areas designated as closed to motorized vehicles in the Imperial Sand Dunes RAMP. The ISDRA RAMP is not considered part of the DRECP decision area.

**IV.7.3.6.3 Impacts of Natural Community Conservation Plan: Alternative 4**

The impacts and mitigation measures for renewable energy and transmission development of the NCCP for Alternative 4 would be the same as those defined in Section IV.7.3.6.1 for the Plan-wide analysis.

As described in Section II.3.3 of Volume II, the NCCP would establish conservation designations within the Reserve Design Lands under each alternative. To reflect the conservation that would occur under the NCCP, the NCCP elements of each alternative define the following means of providing conservation within Reserve Design Lands:

- An **NCCP Conceptual Plan-Wide Reserve Design**, which defines the areas that are considered to be the highest priority for biological conservation. These priority conservation areas include both BLM lands and other lands, including private land and nonfederal public land. These priority conservation areas are consistent with those identified in the interagency plan-wide alternatives.
- A **DRECP NCCP Reserve Design**, which nested within the NCCP Conceptual Plan-Wide Reserve Design. The DRECP NCCP Reserve Design identifies those lands within BLM LUPA conservation designations that would be protected, maintained, and managed to preserve their conservation value for Covered Species for at least the duration of the NCCP. Within non-BLM lands, areas identified within the DRECP NCCP Reserve Design would be given a high priority for conservation through the purchase of private lands from willing sellers or placement of conservation easements on public lands. BLM lands and non-BLM Lands included in the DRECP NCCP Reserve Design would receive long-term protection and would be conserved and managed to preserve and enhance habitat for Covered Species.

- **Other conservation actions**, which would occur outside of the DRECP NCCP Reserve Design and NCCP Conceptual Plan-Wide Reserve Design and include the maintenance and management of all of the BLM LUPA conservation designation lands in accordance with the BLM LUPA conservation designations.

Alternative 4 includes DRECP Variance Lands which are not designated as part of reserve design envelope, including areas south of the Chocolate Mountains in eastern Imperial Borrego Valley subarea, in Rice Valley in northern Cadiz Valley and Chuckwalla Mountains subarea, and in the Silurian Valley area of the Kingston and Funeral Mountains and Mojave and Silurian Valley subareas. The loss of conservation in these DRECP Variance Lands under Alternative 4 would undermine the reserve design envelope through the uncertainties about protection and maintenance of conservation value in these areas.

The following provides the conservation analysis for the NCCP.

## **Landscape**

### ***Habitat Linkages***

Table IV.7-289 shows the conservation of the desert linkage network under Alternative 4 for the NCCP. Conservation of the desert linkage network totals more than 2.4 million acres (71%). Approximately 203,000 acres of the desert linkage network would be inside the DRECP NCCP Reserve Design (164,000 acres on BLM Land and 39,000 acres on non-BLM land). Approximately 789,000 acres of the desert linkage network would be inside the NCCP Conceptual Plan-Wide Reserve Design and 894,000 acres would be outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.2.1).

The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the habitat linkages within the reserve design envelope.

**Table IV.7-289**  
**NCCP Conservation Analysis for the Desert Linkage Network – Alternative 4**

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		<i>Inside the DRECP NCCP Reserve Design</i>	<i>Outside the DRECP NCCP Reserve Design</i>	<i>Inside the DRECP NCCP Reserve Design</i>	<i>Outside the DRECP NCCP Reserve Design</i>	<i>BLM LUPA Conservation Designations</i>	<i>Biological Conservation Planning Areas on Non-BLM Lands</i>	
Cadiz Valley and Chocolate Mountains	187,000	<b>23,000</b>	<b>161,000</b>	<b>7,000</b>	<b>38,000</b>	158,000	10,000	584,000
Imperial Borrego Valley	14,000	-	<b>37,000</b>	-	<b>1,000</b>	15,000	700	68,000
Kingston and Funeral Mountains	28,000	-	-	-	-	87,000	3,000	118,000
Mojave and Silurian Valley	179,000	-	<b>51,000</b>	-	<b>15,000</b>	130,000	7,000	383,000
Owens River Valley	40	-	-	-	-	11,000	800	12,000
Panamint Death Valley	109,000	<b>20</b>	<b>32,000</b>	-	<b>2,000</b>	41,000	600	184,000
Pinto Lucerne Valley and Eastern Slopes	16,000	<b>51,000</b>	<b>27,000</b>	<b>15,000</b>	<b>7,000</b>	23,000	4,000	142,000
Piute Valley and Sacramento Mountains	14,000	-	-	-	<b>2,000</b>	92,000	2,000	110,000
Providence and Bullion Mountains	144,000	-	<b>300</b>	-	<b>50</b>	195,000	9,000	348,000

**Table IV.7-289**  
**NCCP Conservation Analysis for the Desert Linkage Network – Alternative 4**

Desert Linkage Network by Ecoregion Subarea	Existing Conservation (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the DRECP NCCP Reserve Design (acres)		Total Conservation (acres)
		<i>Inside the DRECP NCCP Reserve Design</i>	<i>Outside the DRECP NCCP Reserve Design</i>	<i>Inside the DRECP NCCP Reserve Design</i>	<i>Outside the DRECP NCCP Reserve Design</i>	<i>BLM LUPA Conservation Designations</i>	<i>Biological Conservation Planning Areas on Non-BLM Lands</i>	
West Mojave and Eastern Slopes	45,000	<b>89,000</b>	<b>128,000</b>	<b>17,000</b>	<b>84,000</b>	83,000	24,000	470,000
<b>Grand Total</b>	<b>736,000</b>	<b>164,000</b>	<b>436,000</b>	<b>39,000</b>	<b>150,000</b>	<b>833,000</b>	<b>61,000</b>	<b>2,419,000</b>

**Notes:** Conservation acreages reported for Existing Conservation and BLM LUPA conservation designations reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

## ***Hydrological Resources***

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) for Alternative 4 under the NCCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

### Playa

Overall, approximately 183,000 acres would be conserved under Alternative 4 under the NCCP. Approximately 300 acres are within the DRECP NCCP Reserve Design (approximately 40 on BLM land and approximately 300 acres on non-BLM land). Approximately 3,000 acres of the playa acreage conserved is inside NCCP Conceptual Plan-Wide Reserve Design and approximately 84,000 acres are outside the NCCP Conceptual Plan-Wide Reserve Design. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

### Seep/Spring

Overall, 305 locations of the seep/spring locations would be conserved under Alternative 4 under the NCCP. Approximately 16 seep/spring locations are within the DRECP NCCP Reserve Design (9 on BLM land and 7 on non-BLM land). Approximately 40 seep/spring locations are inside NCCP Conceptual Plan-Wide Reserve Design and approximately 774 seep/spring locations are outside the NCCP Conceptual Plan-Wide Reserve Design. Seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

### Major Rivers

None of the major rivers are conserved within the DRECP NCCP Reserve Design. Approximately 667,000 feet of the major rivers (Amargosa, Colorado, and Mojave) are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 126,000 feet of the Amargosa River are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. Major rivers and associated Covered Species, natural communities, and

hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

### ***Dune and Sand Resources***

Approximately half of the dunes and sand resources would be conserved in existing conservation areas under the NCCP. Approximately 12,000 acres are within the DRECP NCCP Reserve Design (approximately 9,000 acres on BLM land and approximately 3,000 acres on non-BLM land). Approximately 80,000 acres of the dunes and sand resources are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 430,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. Dunes and sand resources and associated Covered Species, natural communities, and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

### ***Environmental Gradients***

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 4 under the NCCP would follow the same overall pattern as Plan-wide conservation.

### **Natural Communities**

Table IV.7-290 shows the conservation to natural communities under the NCCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2.

### ***California forest and woodlands***

Overall, approximately 62,000 acres (41%) of California forest and woodlands would be conserved under Alternative 4 under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 200 acres on non-BLM land). Approximately 2,000 acres of California forest and woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 34,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 31,000 acres (28%) of chaparral and coastal scrubs would be conserved under Alternative 4 under the NCCP. Approximately 3,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 1,000 acres on non-BLM land). Approximately 6,000 acres of chaparral and coastal scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 11,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Desert conifer woodlands***

Overall, approximately 185,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 4 under the NCCP. Approximately 2,000 acres are within the DRECP NCCP Reserve Design (approximately 2,000 acres on BLM land and approximately 300 acres on non-BLM land). Approximately 2,000 acres of desert conifer woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 24,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Desert outcrop and badlands***

Overall, approximately 1,237,000 acres (77%) of desert outcrop and badlands would be conserved under Alternative 4 under the NCCP. Approximately 13,000 acres are within the DRECP NCCP Reserve Design (approximately 11,000 acres on BLM land and approximately 2,000 acres on non-BLM land). Approximately 151,000 acres of desert outcrop and badlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 284,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Desert scrubs***

Overall, approximately 9,430,000 acres (71%) of desert scrubs would be conserved under Alternative 4 under the NCCP. Approximately 293,000 acres are within the DRECP NCCP Reserve Design (approximately 230,000 acres on BLM land and approximately 63,000 acres on non-BLM land). Approximately 1,325,000 acres of desert scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 2,476,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Dunes***

Overall, approximately 207,000 acres (73%) of dunes would be conserved under Alternative 4 under the NCCP. Approximately 400 acres are within the DRECP NCCP Reserve Design (approximately 100 acres on BLM land and approximately 300 acres on non-BLM land). Approximately 27,000 acres of dunes are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 33,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

### ***Grasslands***

Overall, approximately 52,000 acres (22%) of grasslands would be conserved under Alternative 4 under the NCCP. Approximately 6,000 acres are within the DRECP NCCP Reserve Design (approximately 5,000 acres on BLM land and approximately 700 acres on non-BLM land). Approximately 14,000 acres of grasslands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 15,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Riparian***

Overall, approximately 621,000 acres (63%) of riparian communities would be conserved under Alternative 4 under the NCCP. Approximately 10,000 acres are within the DRECP NCCP Reserve Design (approximately 8,000 acres on BLM land and approximately 2,000

acres on non-BLM land). Approximately 172,000 acres of riparian are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 171,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

### ***Wetlands***

Overall, approximately 440,000 acres (51%) of wetland communities would be conserved under Alternative 4 under the NCCP. Approximately 21,000 acres are within the DRECP NCCP Reserve Design (approximately 15,000 acres on BLM land and approximately 6,000 acres on non-BLM land). Approximately 82,000 acres of wetlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 169,000 acres are conserved outside the NCCP Conceptual Plan-Wide Reserve Design. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

**Table IV.7-290**  
**NCCP Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
<i>California forest and woodland</i>								
Californian broadleaf forest and woodland	1,000	0	20	0	10	9,000	10,000	20,000
Californian montane conifer forest	25,000	2,000	90	200	0	9,000	6,000	42,000
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>								
Californian mesic chaparral	20	0	0	0	0	300	600	900
Californian pre-montane chaparral	0	0	0	0	0	300	200	500
Californian xeric chaparral	3,000	30	10	0	10	700	3,000	7,000
Central and south coastal California seral scrub	0	0	0	0	0	10	30	40
Central and South Coastal Californian coastal sage scrub	2,000	2,000	2,000	1,000	700	2,000	2,000	12,000

**Table IV.7-290**  
**NCCP Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
Western Mojave and Western Sonoran Desert borderland chaparral	9,000	0	0	0	0	70	900	10,000
<i>Desert conifer woodlands</i>								
Great Basin Pinyon - Juniper Woodland	159,000	2,000	200	300	200	12,000	11,000	185,000
<i>Desert outcrop and badlands</i>								
North American warm desert bedrock cliff and outcrop	802,000	11,000	117,000	2,000	21,000	266,000	17,000	1,237,000
<i>Desert scrub</i>								
Arizonan upland Sonoran desert scrub	44,000	0	0	0	400	2,000	400	47,000
Intermontane deep or well-drained soil scrub	30,000	13,000	27,000	2,000	2,000	8,000	2,000	82,000
Intermontane seral shrubland	1,000	2,000	800	500	1,000	700	1,000	7,000

**Table IV.7-290**  
**NCCP Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
Inter-Mountain Dry Shrubland and Grassland	110,000	22,000	2,000	2,000	3,000	80,000	13,000	232,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	9,000	0	60	0	40	12,000	7,000	28,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	4,561,000	161,000	683,000	56,000	262,000	2,023,000	137,000	7,884,000
Mojave and Great Basin upper bajada and toeslope	838,000	32,000	33,000	3,000	8,000	108,000	25,000	1,046,000
Shadscale - saltbush cool semi-desert scrub	38,000	40	2,000	10	7,000	41,000	17,000	104,000
Southern Great Basin semi-desert grassland	0	0	0	0	0	40	0	40

**Table IV.7-290**  
**NCCP Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
<i>Dunes</i>								
North American warm desert dunes and sand flats	146,000	100	24,000	300	2,000	28,000	5,000	207,000
<i>Grassland</i>								
California Annual and Perennial Grassland	23,000	5,000	2,000	700	6,000	5,000	9,000	51,000
California annual forb/grass vegetation	400	80	400	60	300	200	200	2,000
<i>Riparian</i>								
Madrean Warm Semi-Desert Wash Woodland/Scrub	195,000	200	91,000	20	23,000	137,000	8,000	455,000
Mojavean semi-desert wash scrub	7,000	700	4,000	300	1,000	4,000	1,000	17,000
Sonoran-Coloradan semi-desert wash woodland/scrub	70,000	8,000	24,000	2,000	5,000	15,000	2,000	124,000

**Table IV.7-290**  
**NCCP Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
Southwestern North American riparian evergreen and deciduous woodland	500	10	10	50	1,000	300	500	3,000
Southwestern North American riparian/wash scrub	7,000	0	4,000	0	8,000	800	2,000	22,000
<i>Wetland</i>								
Arid West freshwater emergent marsh	40	0	0	0	800	0	400	1,000
Californian warm temperate marsh/seep	0	0	0	0	0	0	80	80
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	136,000	40	4,000	200	900	61,000	5,000	207,000
Open Water	23,000	0	10	0	1,000	70	23,000	47,000
Playa	400	0	0	0	2,000	24,000	10,000	36,000

**Table IV.7-290**  
**NCCP Conservation Analysis for Natural Communities – Alternative 4**

Natural Community	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
Southwestern North American salt basin and high marsh	31,000	15,000	32,000	5,000	20,000	36,000	8,000	149,000
Wetland	30	0	0	200	20	10	400	700
<i>Other Land Cover</i>								
Agriculture	6,000	80	600	400	2,000	100	3,000	12,000
Developed and Disturbed Areas	3,000	30	400	20	200	1,000	2,000	7,000
Not Mapped	200	0	30	0	30	20	400	700
Rural	900	10	50	100	1,000	100	10,000	13,000
<b>Total</b>	<b>7,279,000</b>	<b>276,000</b>	<b>1,052,000</b>	<b>76,000</b>	<b>382,000</b>	<b>2,887,000</b>	<b>345,000</b>	<b>12,297,000</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

**Notes:** Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

## Covered Species Habitat

Table IV.7-291 shows the conservation of Covered Species modeled habitat under Alternative 4 before the application of CMAs under the NCCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 82% for bighorn sheep mountain habitat.

None of the modeled habitat for flat-tailed horned lizard and Tehachapi slender salamander is inside the DRECP NCCP Reserve Design. Less than 5% each of the total suitable habitats for Agassiz's desert tortoise and Mojave fringe-toed lizard are inside the DRECP NCCP Reserve Design. None of the suitable habitat for Tehachapi slender salamander is inside the NCCP Conceptual Plan-Wide Reserve Design. Flat-tailed horned lizard is the only amphibian/reptile species with a substantial acreage of suitable habitat inside the NCCP Conceptual Plan-Wide Reserve Design. About 44% of the conserved suitable habitat for Mojave fringe-toed lizard is outside the NCCP Conceptual Plan-Wide Reserve Design. All of the conserved suitable habitat for Tehachapi slender salamander outside of existing conservation areas is outside the NCCP Conceptual Plan-Wide Reserve Design. The siting of the DFAs under Alternative 4 largely avoids habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs require avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

California condor has the greatest proportion of its conserved suitable habitat conserved inside the DRECP NCCP Reserve Design compared to other bird species, including California black rail, Gila woodpecker, greater sandhill crane, western yellow-billed cuckoo, and Yuma clapper rail, which have no suitable habitat conserved inside the DRECP NCCP Reserve Design. Conservation of bird species habitat conserved inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 6% of conserved suitable habitat for Bendire's thrasher to 49% of conserved suitable habitat for burrowing owl. Conservation outside of the NCCP Conceptual Plan-Wide Reserve Design ranges from 3% of conserved greater sandhill crane suitable modeled habitat to 53% of conserved California condor suitable modeled habitat. Conservation of bird species associated primarily with wetland and riparian habitats (i.e., California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail) would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

None of the modeled suitable habitat for fish Covered Species is inside the DRECP NCCP Reserve Design. Approximately 10% of the modeled suitable habitat for desert pupfish and

Mojave tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design. While 50% of the conserved suitable habitat for desert pupfish is outside of the NCCP Conceptual Plan-Wide Reserve Design, none of the conserved suitable habitat for Mohave tui chub is outside of the NCCP Conceptual Plan-Wide Reserve Design. About 60% of the conserved suitable habitat for Owens pupfish and Owens tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design and about 30% is outside. Avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only 1-3% of the conserved suitable habitat for bat Covered Species and bighorn sheep is inside the DRECP NCCP Reserve Design while 14% of conserved suitable habitat for Mohave ground squirrel is inside the DRECP NCCP Reserve Design. There is also 59% of the conserved suitable habitat for Mohave ground squirrel inside the NCCP Conceptual Plan-Wide Reserve Design (23% outside). Conserved suitable habitat for bat Covered Species are 6-14% inside the NCCP Conceptual Plan-Wide Reserve Design (19-30% outside). Approximately 6-8% of the conserved suitable habitat for bighorn sheep (inter-mountain and mountain habitat) is inside the NCCP Conceptual Plan-Wide Reserve Design while 19-28% is outside of it. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on these habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Conservation of suitable habitat for plant species inside the DRECP NCCP Reserve Design ranges from 0% for triple-ribbed milk-vetch to 34% for Barstow woolly sunflower. Conservation of suitable habitat for plant species inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 0% for triple-ribbed milk-vetch to 92% for Barstow woolly sunflower. In addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-292 provides a conservation analysis for these desert tortoise important areas under the NCCP, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Overall, approximately 215,000 acres of the desert tortoise important areas are inside the

DRECP NCCP Reserve Design (158,000 acres on BLM land and 57,000 acres on non-BLM land). Approximately 1,163,000 acres of desert tortoise important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 1,985,000 acres are outside of it. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the linkage habitat for desert tortoise within the reserve design envelope.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-293 provides a conservation analysis for these Mohave ground squirrel important areas under the NCCP. Approximately 182,000 acres of the Mohave ground squirrel important areas are inside the DRECP NCCP Reserve Design (144,000 acres on BLM land and 38,000 acres on non-BLM land). Approximately 606,000 acres of Mohave ground squirrel important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 326,000 acres are outside of it. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

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**Table IV.7-291  
NCCP Conservation Analysis for Covered Species Habitat – Alternative 4**

Species	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
<i>Amphibian/Reptile</i>								
Agassiz's desert tortoise	3,711,000	193,000	648,000	62,000	300,000	2,013,000	147,000	7,075,000
Flat-tailed horned lizard	151,000	-	223,000	-	23,000	15,000	4,000	417,000
Mojave fringe-toed lizard	403,000	8,000	10,000	2,000	5,000	318,000	21,000	767,000
Tehachapi slender salamander	300	-	-	-	-	6,000	7,000	13,000
<i>Bird</i>								
Bendire's thrasher	1,196,000	51,000	34,000	11,000	8,000	268,000	41,000	1,608,000
Burrowing owl	479,000	120,000	489,000	41,000	260,000	359,000	113,000	1,862,000
California black rail	21,000	-	5,000	-	5,000	3,000	2,000	37,000
California condor	81,000	40,000	6,000	8,000	5,000	92,000	67,000	299,000
Gila woodpecker	10,000	-	5,000	-	3,000	7,000	300	26,000
Golden eagle–foraging	5,518,000	199,000	587,000	39,000	155,000	1,725,000	145,000	8,369,000
Golden eagle–nesting	2,689,000	57,000	153,000	10,000	25,000	535,000	78,000	3,548,000
Greater sandhill crane	6,000	-	600	-	2,000	60	200	9,000
Least Bell's vireo	86,000	1,000	6,000	900	14,000	21,000	9,000	138,000
Mountain plover	7,000	200	2,000	600	6,000	500	7,000	23,000
Southwestern willow flycatcher	18,000	2,000	3,000	200	15,000	13,000	14,000	65,000
Swainson's hawk	24,000	5,000	11,000	700	36,000	13,000	52,000	142,000
Tricolored blackbird	11,000	2,000	800	300	9,000	1,000	8,000	32,000
Western yellow-billed cuckoo	15,000	20	2,000	-	21,000	3,000	8,000	49,000
Yuma clapper rail	10,000	-	600	-	2,000	700	400	13,000
<i>Fish</i>								
Desert pupfish	900	-	90	-	10	200	300	1,000
Mohave tui chub	200	-	-	-	20	-	-	200
Owens pupfish	600	-	-	-	3,000	600	1,000	5,000
Owens tui chub	700	-	-	-	3,000	500	1,000	5,000
<i>Mammal</i>								
Bighorn sheep – inter-mountain habitat	1,904,000	34,000	164,000	9,000	27,000	794,000	46,000	2,978,000
Bighorn sheep – mountain habitat	4,085,000	68,000	211,000	20,000	35,000	928,000	78,000	5,425,000
California leaf-nosed bat	3,138,000	49,000	372,000	11,000	78,000	1,499,000	96,000	5,244,000

**Table IV.7-291**  
**NCCP Conservation Analysis for Covered Species Habitat – Alternative 4**

Species	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
Mohave ground squirrel	216,000	135,000	317,000	41,000	228,000	220,000	67,000	1,224,000
Pallid bat	6,836,000	250,000	994,000	69,000	356,000	2,738,000	268,000	11,511,000
Townsend's big-eared bat	5,879,000	219,000	860,000	54,000	307,000	2,397,000	281,000	9,998,000
<i>Plant</i>								
Alkali mariposa-lily	200	700	-	70	30	10	8,000	9,000
Bakersfield cactus	20,000	21,000	600	1,000	900	30,000	12,000	86,000
Barstow woolly sunflower	3,000	25,000	37,000	9,000	22,000	2,000	2,000	101,000
Desert cymopterus	7,000	1,000	41,000	1,000	36,000	11,000	9,000	107,000
Little San Bernardino Mountains linanthus	87,000	5,000	-	2,000	-	19,000	9,000	122,000
Mojave monkeyflower	27,000	7,000	67,000	2,000	11,000	4,000	400	118,000
Mojave tarplant	48,000	23,000	2,000	2,000	3,000	53,000	10,000	142,000
Owens Valley checkerbloom	13,000	300	10	10	8,000	2,000	12,000	35,000
Parish's daisy	82,000	13,000	90	4,000	50	20,000	5,000	124,000
Triple-ribbed milk-vetch	5,000	-	-	-	-	-	400	5,000

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

**Notes:** Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

**Table IV.7-292  
NCCP Conservation Analysis for Desert Tortoise – Alternative 4**

Recovery Unit	Desert Tortoise Important Areas	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
			Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
Colorado Desert	High Priority Habitat	157,000	14,000	-	5,000	-	65,000	5,000	246,000
	Linkage	126,000	11,000	-	1,000	-	201,000	11,000	350,000
	TCA	1,544,000	35,000	283,000	6,000	53,000	820,000	33,000	2,775,000
<i>Colorado Desert Total</i>		<i>1,827,000</i>	<i>60,000</i>	<i>283,000</i>	<i>12,000</i>	<i>53,000</i>	<i>1,086,000</i>	<i>49,000</i>	<i>3,371,000</i>
Eastern Mojave	Linkage	421,000	-	-	-	-	202,000	9,000	633,000
	TCA	1,758,000	-	-	-	-	159,000	13,000	1,929,000
<i>Eastern Mojave Total</i>		<i>2,179,000</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>361,000</i>	<i>22,000</i>	<i>2,562,000</i>
Western Mojave	Linkage	391,000	30,000	25,000	14,000	21,000	140,000	20,000	642,000
	TCA	1,061,000	68,000	418,000	31,000	147,000	285,000	20,000	2,030,000
<i>Western Mojave Total</i>		<i>1,452,000</i>	<i>98,000</i>	<i>444,000</i>	<i>45,000</i>	<i>168,000</i>	<i>425,000</i>	<i>41,000</i>	<i>2,672,000</i>
<b>Grand Total</b>		<b>5,458,000</b>	<b>158,000</b>	<b>727,000</b>	<b>57,000</b>	<b>221,000</b>	<b>1,873,000</b>	<b>112,000</b>	<b>8,606,000</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

**Notes:** Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

**Table IV.7-293**  
**NCCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 4**

Mohave Ground Squirrel Important Area Type	Existing Conservation <sup>1</sup> (acres)	BLM LUPA Conservation Designations Inside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Biological Conservation Priority Areas on Non-BLM Lands (acres)		Outside the NCCP Conceptual Plan-Wide Reserve Design (acres)		Total Conservation (acres)
		Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	Inside the DRECP NCCP Reserve Design	Outside the DRECP NCCP Reserve Design	BLM LUPA Conservation Designations	Biological Conservation Planning Areas on Non-BLM Lands	
Key Population Center	47,000	86,000	<b>68,000</b>	<b>20,000</b>	38,000	89,000	13,000	360,000
Linkage	30,000	17,000	<b>71,000</b>	<b>8,000</b>	33,000	91,000	7,000	257,000
Expansion Area	77,000	27,000	<b>111,000</b>	<b>9,000</b>	93,000	71,000	7,000	395,000
Climate Change Extension	28,000	14,000	<b>20</b>	<b>500</b>	9,000	30,000	19,000	101,000
<b>Total</b>	<b>181,000</b>	<b>144,000</b>	<b>250,000</b>	<b>38,000</b>	<b>174,000</b>	<b>281,000</b>	<b>45,000</b>	<b>1,113,000</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs)

**Notes:** Conservation acreages reported reflect application of the conservation percentage assumptions as described in Section IV.7.1.1. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

#### **IV.7.3.6.4 Impacts of General Conservation Plan: Alternative 4**

##### **IV.7.3.6.4.1 General Conservation Plan Impacts and Mitigation Measures from Renewable Energy and Transmission Development**

The impacts of the GCP for Alternative 4 would be similar to those defined in Section IV.7.3.2.1 for the Plan-wide analysis, but they would occur on nonfederal lands only. On nonfederal lands under the GCP, Alternative 4 includes DFAs (approximately 1,332,000 acres) and transmission corridors where approximately 119,000 acres of ground disturbance related impacts and operational impacts would occur.

##### ***Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.***

Table IV.7-294 shows the impacts to natural communities under Alternative 4 under the GCP. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.2.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

##### California forest and woodlands

Overall, approximately 100 acres (0.1%) of California forest and woodlands would be impacted under Alternative 4 within the GCP, about the same as the Plan-wide effects. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

##### Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 1,000 acres (1.8%) of chaparral and coastal scrubs would be impacted under Alternative 4 within the GCP Area, which is approximately half of the Plan-wide effects to this general community. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea, but there would also be impacts in the Pinto Lucerne Valley and Eastern Slopes. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, AM-RES-RL-

BAT-2, AM-DFA-PLANT-1 through AM-DFA-PLANT-3, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

#### Desert conifer woodlands

Overall, approximately 1,000 acres (1.1%) of desert conifer woodlands would be impacted under Alternative 4 under the GCP, which is about the same as the Plan-wide effects. Most of the impacts are from solar development in the West Mojave and Eastern Slopes subarea, but there would also be impacts in the Pinto Lucerne Valley and Eastern Slopes. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address roosting covered bat species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

#### Desert outcrop and badlands

Overall, approximately 2,000 acres (0.7%) of desert outcrop and badlands would be impacted under Alternative 4 under the GCP, which constitutes less than 20% of the Plan-wide effects. Most of the impacts would be in the Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas. Less than 200 acres of impacts to desert outcrop and badlands would occur in other subareas. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

#### Desert scrubs

Overall, approximately 51,000 acres (1.7%) of desert scrubs would be impacted under Alternative 4 under the GCP, which is over half of the Plan-wide effects. Almost half of the impacts to desert scrubs under the GCP are in the West Mojave and Eastern Slopes subarea, but impacts occur in all subareas except for the Piute Valley and Sacramento Mountains subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. These include avoidance, setbacks, and/or suitable habitat impact

caps for flat-tailed horned lizard (AM-RES-RL-ICS-8 and AM-RES-RL-ICS-9 and AM-DFA-ICS-16), Agassiz's desert tortoise (AM-DFA-ICS-3 through AM-DFA-ICS-15, and AM-RES-RL-ICS-1 through AM-RES-RL-ICS-7), Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43 and AM-RES-BLM-ICS-14 through AM-RES-BLM-ICS-17), bat Covered Species (AM-DFA-BAT-1, AM-RES-RL-BAT-1, and AM-RES-RL-BAT-2), and plant Covered Species (AM-DFA-PLANT-1 through AM-DFA-PLANT-3, AM-RES-BLM-PLANT-1, and AM-RES-RL-PLANT-1 through AM-RES-RL-PLANT-3). Furthermore, soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) CMAs would be implemented that would help avoid and minimize these effects and compensation CMAs would offset the effect (COMP-1 and COMP-2).

### Dunes

Application of the CMAs would require avoidance of dune communities to the maximum extent feasible in DFAs so there would be no impacts to dunes under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes the implementation of dune avoidance and minimization CMAs (AM-DFA-DUNE-1 through AM-DFA-DUNE-3, and AM-RES-RL-DUNE-1 through AM-RES-RL-DUNE-3) as well as compensation CMAs that would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

### Grasslands

Overall, approximately 7,000 acres (3.6%) of grasslands would be impacted under Alternative 4 under the GCP, which is about 1,000 acres less than of the Plan-wide effects. Most impacts are from solar development in the West Mojave and Eastern Slope subarea, but would also occur from wind development and transmission and occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would also be applied under the GCP. This includes CMAs that address breeding, nesting, or roosting species (AM-DFA-AG-2), soil resources (AM-PW-10), weed management (AM-PW-11), and fire prevention/protection (AM-PW-12) that would help avoid and minimize these effects as well as compensation CMAs would offset that effect (COMP-1 and COMP-2).

### Riparian

Application of the CMAs would require avoidance of riparian communities to the maximum extent feasible in DFAs so there would be no impacts to riparian communities under the GCP. In addition, the same CMAs that would be applied Plan-wide to reduce impacts to this general community and the plant and wildlife species it supports would

also be applied under the GCP. This includes CMAs for avoidance and minimization from riparian habitat and the Covered Species associated with riparian habitat (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

Wetlands

Overall, approximately 6,000 acres (1.8%) of wetlands would be impacted under Alternative 4 under the GCP, which is over half of the Plan-wide effects. Impacts would be mostly from renewable energy development on open water at the Salton Sea in the Imperial Borrego Valley subarea. The same CMAs that would be applied Plan-wide to reduce impacts to this general community would also be applied under the GCP, including avoidance of Arid West freshwater emergent marsh and Californian warm temperate marsh/seep (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) as well as compensation CMAs (COMP-1 and COMP-2) that would offset the effect.

**Table IV.7-294  
GCP Impact Analysis for Natural Communities - Alternative 4**

Natural Community	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>California forest and woodland</i>						
Californian broadleaf forest and woodland	61,000	30	0	0	0	40
Californian montane conifer forest	44,000	60	10	0	0	70
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>						
Californian mesic chaparral	3,000	0	0	0	0	0
Californian pre-montane chaparral	1,000	0	0	0	0	0
Californian xeric chaparral	19,000	0	0	0	10	10
Central and south coastal California seral scrub	1,000	20	0	0	0	30
Central and South Coastal Californian coastal sage scrub	42,000	1,000	100	0	70	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	0	0	0	10	20
<i>Desert conifer woodlands</i>						
Great Basin Pinyon - Juniper Woodland	104,000	900	100	0	80	1,000

**Table IV.7-294**  
**GCP Impact Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)<sup>1</sup></b>	<b>Solar Impact (acres)<sup>2</sup></b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	220,000	800	10	200	500	2,000
<i>Desert Scrub</i>						
Arizonan upland Sonoran desert scrub	8,000	0	0	0	0	0
Intermontane deep or well-drained soil scrub	24,000	400	30	0	30	400
Intermontane seral shrubland	68,000	3,000	100	0	50	3,000
Inter-Mountain Dry Shrubland and Grassland	152,000	900	90	20	100	1,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	10	0	0	0	20
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	30,000	3,000	900	5,000	39,000
Mojave and Great Basin upper bajada and toeslope	228,000	3,000	300	0	200	4,000
Shadscale - saltbush cool semi-desert scrub	157,000	3,000	40	300	400	4,000
Southern Great Basin semi-desert grassland	70	0	0	0	0	0
<i>Dunes</i>						
North American warm desert dunes and sand flats	34,000	0	0	0	0	0
<i>Grassland</i>						
California Annual and Perennial Grassland	196,000	6,000	300	0	300	7,000
California annual forb/grass vegetation	7,000	300	10	0	0	300
<i>Riparian</i>						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	0	0	0	0	0
Mojavean semi-desert wash scrub	17,000	0	0	0	0	0
Riparian	600	0	0	0	0	0

**Table IV.7-294**  
**GCP Impact Analysis for Natural Communities – Alternative 4**

Natural Community	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	0	0	0	0	0
Southwestern North American riparian evergreen and deciduous woodland	6,000	0	0	0	0	0
Southwestern North American riparian/wash scrub	47,000	0	0	0	0	0
<i>Wetland</i>						
Arid West freshwater emergent marsh	4,000	0	0	0	0	0
Californian warm temperate marsh/seep	400	0	0	0	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	500	30	0	80	600
Open Water	114,000	2,000	0	1,000	400	4,000
Playa	52,000	0	0	0	10	10
Southwestern North American salt basin and high marsh	112,000	1,000	40	0	90	1,000
Wetland	8,000	100	0	0	40	100
<i>Other Land Cover – Developed and Disturbed Areas</i>						
Agriculture	693,000	33,000	400	8,000	6,000	48,000
Developed and Disturbed Areas	399,000	90	0	40	1,000	1,000
Not Mapped	4,000	10	0	0	0	10
Rural	110,000	1,000	10	400	400	2,000
<b>Total</b>	<b>5,420,000</b>	<b>89,000</b>	<b>4,000</b>	<b>11,000</b>	<b>14,000</b>	<b>119,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Rare natural community alliances could be impacted under Alternative 4 on nonfederal lands, including impacts to Joshua tree woodland. CMAs would be implemented to address

breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection that would help avoid and minimize these effects on rare natural communities. Additionally, AM-DFA-ONC-1 and -2 would require inventorying and preserving or transplanting cactus, yuccas, and succulents. While the compensation CMAs would offset the lost habitat acreage of these impacts, the compensation CMAs do not specifically require the replacement of or mitigation for specific rare natural community alliances. After application of the CMAs, impacts to rare natural communities from Alternative 4 would be adverse and would require mitigation.

***Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.***

Siting, construction, decommissioning, and operations of Covered Activities have the potential to result in adverse effects to federal or state jurisdictional waters and wetlands. In the Plan Area, jurisdictional waters and wetlands would likely include the riparian and wetland communities analyzed under Impact BR-1 and may also include other features including playas, seeps/springs, major rivers, and ephemeral drainage networks.

All Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands. Additionally, all impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands would be avoided under Alternative 4 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9).

Approximately 6,000 acres of other wetland communities would be impacted under Alternative 4. See the analysis for the loss of native vegetation provided under BR-1 for a discussion of these potential impacts. All or a portion of the estimated wetland impacts could result in adverse effects to jurisdictional waters and wetlands without compensation. Compensation CMAs would offset any impacts determined to be unavoidable.

Additionally, playas, seeps/springs, major rivers, and ephemeral drainages are waters and wetland features that provide hydrological functions and may be determined to be jurisdictional waters and wetlands. Adverse effects to these features would have the potential to impact jurisdictional waters and wetlands.

Playa

Less than 1% (approximately 500 acres) of playa would be impacted by Covered Activities under Alternative 4 within the GCP. The majority of impacts would be associated with solar (approximately 300 acres), with 30 acres of wind impacts and approximately 200 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, Owens River Valley, Pinto

Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Avoidance of impacts to wetland communities including playas would benefit Covered Species that utilize these communities. In addition, application of species-specific CMAs would help avoid and minimize impacts to species associated with playas (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). CMAs would also require compliance with all applicable laws and regulations pertaining to wetlands and waters, including playas (AM-PW-9 and AM-LL-2). Compensation CMAs would offset impacts to these features (COMP-1 and COMP-2).

### Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur under Alternative 4 within the GCP in the following ecoregion subareas: Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures. Impacts to seep/spring locations and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs, including habitat assessments and avoidance of seeps with 0.25 mile setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Compensation CMAs would offset any impacts determined to be unavoidable (COMP-1 and COMP-2).

### Major Rivers

Under Alternative 4 within the GCP, there would no direct impacts to any of the four major rivers within the Plan Area – Amargosa, Colorado, Mojave, and Owens Rivers, but there could be indirect effects associated with modification of hydrology resulting from development. Riparian CMAs would require avoidance of these features with setbacks (AM-DFA-RIPWET-1).

### Ephemeral Drainages

Ephemeral drainages occur throughout the Plan Area, and some of these features could be determined to state or federal jurisdictional waters. Impacts to ephemeral drainages would likely occur from Covered Activities. Application of riparian avoidance CMAs (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9) would avoid and minimize impacts to a portion of the ephemeral drainages within DFAs. Additionally, all Covered Activities would be required to comply with existing, applicable federal and state laws and regulations related to jurisdictional waters and wetlands.

***Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.***

Siting, construction, and operational Covered Activities would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of Covered Activities within the GCP that would result in dust, fire, and introduction of invasive plants or that would use dust suppressants and implement fire management. The propensity for vegetation to be at risk of degradation was determined by the overlap between natural community models and the likely distribution of Covered Activities across subareas in the GCP.

Based on the planned renewable energy capacity, the greatest amount of terrestrial operational impacts within the GCP would occur in the West Mojave and Eastern Slopes and the Imperial Borrego Valley subareas, as shown in Table IV.7-295. As a result, these subareas would have the greatest potential to degrade vegetation as a result in the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants.

**Table IV.7-295  
GCP Terrestrial Operational Impacts - Alternative 4**

<b>Ecoregion Subarea</b>	<b>Solar Impact<sup>1</sup> (acres)</b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
Cadiz Valley and Chocolate Mountains	11,000	1,000	-	7,000	19,000
Imperial Borrego Valley	28,000	300	11,000	5,000	44,300
Kingston and Funeral Mountains	600	-	-	-	600
Mojave and Silurian Valley	3,000	-	-	300	3,300
Owens River Valley	900	-	100	400	1,400
Panamint Death Valley	200	-	-	-	200
Pinto Lucerne Valley and Eastern Slopes	6,000	5,000	-	1,000	12,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	900	-	-	100	1,000
West Mojave and Eastern Slopes	38,000	13,000	-	1,000	52,000
<b>Total</b>	<b>89,000</b>	<b>19,000</b>	<b>11,000</b>	<b>14,000</b>	<b>133,000</b>

<sup>1</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Terrestrial operational impacts collectively refers to vegetation degradation impacts (BR-3) from dust, dust suppressants, fire, fire management, and invasive plants and wildlife impacts (BR-4) from creation of noise, predator avoidance behavior, lighting and glare. For the purposes of analysis, terrestrial operational impacts were quantified using the project area extent for solar and geothermal, using 25% of the project area for wind, and the right-of-way area for transmission.

Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation, short-term and long-term wind (excluding project area impacts), geothermal project area, and transmission impacts. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### Dust and Dust Suppressants

Natural communities, and in particular natural communities that contain Mojave desert shrubs, are susceptible to vegetation degradation from dust. Impacts to these natural communities would mostly occur in the West Mojave and Eastern Slope subarea. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by Covered Activities within the GCP in the West Mojave and Eastern Slopes subarea. Considering the distribution of Covered Activities that would cause dust as well as the sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea would experience the greatest magnitude of vegetation degradation resulting from dust.

The application of dust suppressants is a common management practice, a Covered Activity under the Plan, and has been shown to effectively reduce dust. Dust-related degradation of vegetation would be further minimized within the GCP through the incorporation of avoidance and minimization CMAs. The Plan-wide avoidance and minimization CMAs would generally identify vegetation in the project area (AM-PW-1), utilize standard practices to minimize the amount of exposed soils (AM-PW-14) and reduce dust caused by soil erosion (AM-PW-10). Additionally, Alternative 4 would implement CMAs that would identify and protect or salvage specific plant species, reducing their exposure to dust. Setbacks and suitable habitat impact caps would also be implemented for plant Covered Species in DFAs and in the reserve design envelope (AM-DFA-PLANT-1 through AM-DFA-PLANT-3).

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes, altered hydrological function, and increased pollutant loads in surface water. The Imperial Borrego Valley subarea would experience most of the impacts to riparian and wetland natural communities in the GCP, which corresponds to the potential greatest magnitude of vegetation degradation from adverse dust suppressant effects. Plant Covered Species, which would also be affected by

the use of dust suppressants would mostly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 4, including AM-PW-9 and AM-PW-10, would utilize standard practices to reduce erosion and runoff of dust suppressant into sensitive vegetation. Setbacks and avoidance requirements for all riparian natural communities and some wetland natural communities that would be implemented as part of the CMAs would minimize potential adverse effects of dust suppressants on these communities (AM-DFA-RIPWET-1).

### Fire and Fire Management

The increased presence of flammable invasive annual plants and anthropogenic ignitions of fires can cause the conversion of natural communities and degrade vegetation. Due to their slower speed of recovery, desert scrub natural communities are more susceptible to natural community conversion from fires. The impacts to desert scrub natural communities within the GCP would primarily occur within the West Mojave and Eastern Slopes subarea.

Under Alternative 4, construction and maintenance of fire breaks and other fire management techniques would impact California forest and woodlands, chaparral natural communities, and grassland natural communities within the GCP. In combination these impacts to woodlands, chaparral, and grasslands, which correspond to the amount of potential vegetation degradation resulting from vegetation removal during fire management, would predominantly occur in the West Mojave and Eastern Slopes subarea and to a lesser extent the Pinto Lucerne Valley and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas.

Avoidance and minimization CMAs would be implemented to reduce the potential adverse effects of fire and fire management, including AM-PW-12 that would require projects to minimize the amount of vegetation clearing and fuel modification under Alternative 4.

### Invasive Plants

Invasive plants can result in vegetation degradation by increasing the fuel load and the frequency of fires in plant communities as well hindering the growth or establishment of other plant species. Overall, the natural communities and plant Covered Species in the GCP are generally at risk of adverse effects from the introduction of invasive plants. The most vegetation degradation caused by the introduction of invasive plants would occur in the West Mojave and Eastern Slopes subarea. Plant Covered Species in the GCP would also experience potential vegetation degradation as a result of Covered Activities with most of the impacts occurring in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs would be implemented to minimize vegetation degradation from invasive plants under Alternative 4, including AM-PW-7 that would ensure the timely restoration of temporarily disturbed areas that could otherwise promote invasive plants. Additional CMAs would use standard practices to control weeds and invasive plants (AM-PW-11) and require the responsible use of herbicides to reduce potential vegetation degradation (AM-PW-15) for all Covered Activities.

***Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.***

Impact BR-4 described at the Plan-wide level provides an impact analysis for Covered Species habitat by ecoregion subarea, specific Covered Species impact analyses, an indirect and terrestrial operational impact analysis for Covered Species, and a Non-Covered Species impact analysis. The following provides an impact analysis for Covered Species on nonfederal GCP lands. Most of the impacts to plant and wildlife species and their habitat under Alternative 4 would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

#### Covered Species Habitat Impact Analysis by Ecoregion Subarea

##### *West Mojave and Eastern Slopes Ecoregion Subarea*

Renewable energy development in the West Mojave and Eastern Slopes subarea would mostly be from solar development, but would also include impacts from wind and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. This subarea provides suitable habitat for amphibians and reptiles that would be impacted, including Agassiz's desert tortoise, Mojave fringe-toed lizard and Tehachapi slender salamander. The siting of the DFAs under the GCP largely avoid habitat for Mojave fringe-toed lizard and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) would further avoid and minimize the impacts on these species to less than the acreage reported in Table IV.7-296. Compensation CMAs would offset habitat loss for these species.

There are impacts to suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, and western yellow-billed cuckoo that would be impacted. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, and western yellow-billed cuckoo to less than the

acreage reported in Table IV.7-296. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2). Compensation CMAs would offset habitat loss for these species.

Suitable habitat for bighorn sheep, desert kit fox, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) that would further reduce the impacts on these habitats used by Mohave ground squirrel, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-296. Compensation CMAs would offset habitat loss for these species.

Suitable habitat for the following plant species would be impacted in the West Mojave and Eastern Slopes subarea: alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. Although modeled suitable habitat for these species may be impacted by Covered Activities in this subarea, the CMAs require surveys for plant Covered Species for all Covered Activities, and the CMAs requiring avoidance of and setbacks from occupied habitat (AM-DFA-PLANT-1 through AM-DFA-PLANT-3) would further reduce the impacts on these species to less than the acreage reported in Table IV.7-296. Compensation CMAs would offset habitat loss for these species.

#### Imperial Borrego Valley Ecoregion Subarea

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy development, but would also include impacts from geothermal, wind, and transmission development. The Imperial Borrego Valley subarea provides suitable habitat for flat-tailed horned lizard that would be impacted. The siting of the DFAs under the GCP largely avoid habitat for flat-tailed horned lizard, and CMAs requiring avoidance of and setbacks from dune habitat (AM-DFA-DUNE-1 through AM-DFA-DUNE-3) will further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-296.

Impacts would occur to suitable habitat (nesting and non-nesting except for golden eagle which is foraging only) for the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail. CMAs require avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on southwestern willow flycatcher, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-296. Additionally, the CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs (AM-DFA-AG-2).

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be total approximately 200 acres. The avoidance and setback provisions for managed wetlands and agricultural drains (AM-DFA-RIPWET-1) would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish.

Only minimal impacts (approximately 10 acres) would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other mammal Covered Species would occur for California leaf-nosed bat, pallid bat, and Townsend’s big-eared bat, as well as for Planning Species desert kit fox. The siting of the DFAs under the GCP largely avoid habitat for bighorn sheep. The CMAs requiring avoidance of and setbacks from riparian habitat and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on these habitats used by California leaf-nosed bat, pallid bat, and Townsend’s big-eared bat to less than the acreage reported in Table IV.7-296.

**Table IV.7-296**  
**GCP Impact Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Amphibian/Reptile</i>						
Agassiz’s desert tortoise	2,248,000	27,000	3,000	30	2,000	32,000
Flat-tailed horned lizard	310,000	4,000	10	2,000	1,000	7,000
Mojave fringe-toed lizard	168,000	4,000	50	-	2,000	6,000
Tehachapi slender salamander	41,000	100	10	-	-	100
<i>Bird</i>						
Bendire’s thrasher	405,000	4,000	400	600	700	5,000
Burrowing owl	3,244,000	75,000	4,000	10,000	9,000	98,000
California black rail	127,000	2,000	-	700	400	3,000
California condor	997,000	19,000	1,000	-	400	21,000
Gila woodpecker	56,000	300	-	100	100	600
Golden eagle–foraging	1,498,000	9,000	800	100	2,000	12,000
Golden eagle–nesting	676,000	1,000	100	-	200	1,000
Greater sandhill crane	601,000	29,000	300	8,000	5,000	43,000
Least Bell’s vireo	104,000	200	10	10	40	200
Mountain plover	811,000	38,000	600	8,000	5,000	52,000

**Table IV.7-296**  
**GCP Impact Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern willow flycatcher	258,000	3,000	50	1,000	700	5,000
Swainson's hawk	1,339,000	34,000	1,000	5,000	3,000	43,000
Tricolored blackbird	257,000	9,000	300	30	100	10,000
Western yellow-billed cuckoo	111,000	300	10	-	50	300
Yuma clapper rail	31,000	30	-	10	-	50
<i>Fish</i>						
Desert pupfish	7,000	100	-	50	30	200
Mohave tui chub	100	-	-	-	-	-
Owens pupfish	13,000	40	-	-	10	50
Owens tui chub	13,000	40	-	-	10	50
<i>Mammal</i>						
Bighorn sheep – inter-mountain habitat	465,000	1,000	80	-	500	2,000
Bighorn sheep – mountain habitat	807,000	3,000	500	10	800	4,000
California leaf-nosed bat	979,000	6,000	70	600	4,000	11,000
Mohave ground squirrel	1,319,000	19,000	2,000	90	1,000	22,000
Pallid bat	3,775,000	44,000	3,000	2,000	7,000	56,000
Townsend's big-eared bat	3,510,000	40,000	3,000	2,000	7,000	52,000
<i>Plant</i>						
Alkali mariposa-lily	117,000	3,000	100	-	60	3,000
Bakersfield cactus	200,000	4,000	500	-	20	5,000
Barstow woolly sunflower	82,000	500	50	-	20	600
Desert cymopterus	137,000	800	10	-	20	800
Little San Bernardino Mountains linanthus	130,000	400	70	-	70	500
Mojave monkeyflower	41,000	700	50	-	20	700
Mojave tarplant	129,000	200	30	-	30	300
Owens Valley checkerbloom	92,000	300	-	40	100	500

**Table IV.7-296**  
**GCP Impact Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Parish’s daisy	72,000	600	100	-	100	800
Triple-ribbed milk-vetch	3,000	-	-	-	-	-

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### Specific Covered Species Impact Analyses

For Agassiz’s desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-297 provides an impact analysis for these desert tortoise important areas in the GCP area, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, approximately 2,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 4. Within the Eastern Mojave Recovery Unit, about 300 acres of linkage habitat would be impacted under Alternative 4. Within the Western Mojave Recovery Unit, about 10,000 acres of TCAs and linkage habitat would be impacted under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages (AM-DFA-ICS-1 and AM-DFA-ICS-3 through 15). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. Under Alternative 4, the designated DRECP Variance Lands have the potential to undermine the integrity and long-term conservation value of the conservation strategy for desert tortoise.

**Table IV.7-297**  
**GCP Impact Analysis for Desert Tortoise Important Areas – Alternative 4**

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	31,000	-	-	-	10	10
	Linkage	63,000	10	-	-	-	10
	TCA	269,000	80	-	-	2,000	2,000
<i>Colorado Desert Total</i>		<i>363,000</i>	<i>90</i>	<i>-</i>	<i>-</i>	<i>2,000</i>	<i>2,000</i>
Eastern Mojave	Linkage	56,000	300	-	-	-	300
	TCA	66,000	-	-	-	-	-
<i>Eastern Mojave Total</i>		<i>122,000</i>	<i>300</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>300</i>
Western Mojave	Linkage	407,000	8,000	<b>900</b>	-	600	9,000
	TCA	392,000	300	<b>30</b>	-	200	500
<i>Western Mojave Total</i>		<i>798,000</i>	<i>8,000</i>	<i><b>900</b></i>	<i>-</i>	<i><b>700</b></i>	<i>10,000</i>
<b>Total</b>		<b>1,283,000</b>	<b>8,000</b>	<b>900</b>	<b>-</b>	<b>2,000</b>	<b>12,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For golden eagle, a territory-based analysis was conducted (see methods and results in the Chapter IV.7 portion of Appendix R2). Using the golden eagle nest database, golden eagle territories were identified and individually buffered by 1 mile (representing breeding areas around known nests) and 4 miles (representing use areas around known nests). A total of 157 territories occur wholly or partially within the GCP area. Under Alternative 4, 23 territories have DFAs or transmission corridors within 1 mile of a nest. Implementation of the CMAs for golden eagles (AM-DFA-ICS-2) would prohibit siting or construction of Covered Activities within 1 mile of an active golden eagle nest; therefore, impacts within 1 mile of these golden eagle territories would be avoided. Under Alternative 4, 61 territories have DFAs or transmission corridors within 4 miles of nest, and the use area of these territories could be impacted through harassment and reduced foraging opportunities by Covered Activities depending of the siting of specific projects. The CMAs for golden eagles (Section II.3.1.2.5) and the approach to golden eagles (see Appendix H) describes how the impact to golden eagles would be avoided, minimized, and compensated. Based on the

2013 analysis, no more than 15 golden eagles per year in 2014 would be allowed to be taken within the Plan Area, which would be reassessed annually.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under Alternative 4 on nonfederal land, approximately 4,000 acres of mountain habitat and 2,000 acres of intermountain habitat would be impacted. Alternative 4 identified DFAs that largely avoid impacts to bighorn sheep mountain and intermountain habitat, and avoidance, minimization, and compensation CMAs have been developed to offset the loss of habitat for bighorn sheep.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-298 provides an impact analysis for these Mohave ground squirrel important areas in the GCP area. Approximately 500 acres of impact within key population centers would occur in Alternative 4 and approximately 4,000 acres of impact would occur in climate change extension areas. A total of approximately 200 acres of impact to linkage and approximately 2,000 acres of impact to expansion areas would occur under Alternative 4. The CMAs would prohibit impacts that affect the viability of linkages (AM-DFA-ICS-36 through AM-DFA-ICS-43). Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

**Table IV.7-298**  
**GCP Impact Analysis for Mohave Ground Squirrel Important Areas –**  
**Alternative 4**

Mohave Ground Squirrel Important Area Type	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	193,000	300	10	-	200	500
Linkage	103,000	100	-	10	50	200
Expansion Area	258,000	2,000	80	-	100	2,000
Climate Change Extension	131,000	800	-	80	200	1,000
<b>Total</b>	<b>684,000</b>	<b>3,000</b>	<b>90</b>	<b>100</b>	<b>500</b>	<b>4,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish's daisy. For desert tortoise, approximately 2,000 acres of impact designated critical habitat would result from the development of Covered Activities on nonfederal lands under Alternative 4 located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 4, no impacts to critical habitat designated for southwestern willow flycatcher, desert pupfish, or Parish's daisy would occur from the development of Covered Activities on nonfederal lands.

#### Indirect and Terrestrial Operational Impact Analysis

Siting, construction, and operational Covered Activities could result in the potential disturbance, injury, and mortality of listed and sensitive wildlife from noise, predator avoidance behavior, as well as light and glare. The degree to which these factors contribute to the disturbance of sensitive wildlife corresponds to the distribution of Covered Activities within the GCP that would result in noise, predator avoidance behavior, or light and glare. Based on the planned renewable energy capacity in the GCP, most of terrestrial operational impacts would occur in the West Mojave and Eastern Slopes and the Imperial Borrego Valley subareas respectively, as shown in Table IV.7-295. As a result, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

#### Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Nesting birds are expected to be particularly sensitive to noise effects. The largest amount of impacts to bird Covered Species habitat in the GCP would be located in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such as the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. The combined impacts in the GCP to the habitat for these Covered Species would mostly occur in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Imperial Borrego Valley and Pinto Lucerne and Eastern Slopes subareas. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Implementation of avoidance and minimization CMAs under Alternative 4 would minimize the disturbance and injury of wildlife from noise-related effects. The CMA AM-PW-13 would reduce noise generated from Covered Activities using standard practices while other CMAs that would avoid and setback Covered Activities from noise-sensitive wildlife including seasonal setbacks for nesting birds; setbacks from riparian and wetland habitat benefitting birds, amphibians, and small mammals; and avoidance of

Mohave ground squirrel's during operations (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-ICS-36).

### Predator Avoidance Behavior

The effects of predator avoidance behavior including wildlife experiencing behavioral changes due to human activities during siting, construction, and operations. Although different wildlife species may have varying sensitivities to predator avoidance behavior and may experience different magnitudes of responses to Covered Activities, these Covered Activities are expected to generally result in predator avoidance and other behavioral changes in most wildlife species that are spread throughout the GCP. Therefore, the most disturbance of wildlife from predator avoidance behavior would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, where most of the terrestrial operational impacts within the GCP are anticipated.

Avoidance and minimization CMAs for siting Covered Activities away from sensitive wildlife habitat would be implemented for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for particular species such as the Mohave ground squirrel (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, AM-DFA-AG-2, and AM-DFA-ICS-36). Under Alternative 4, additional CMAs would inform workers of actions that could potentially affect wildlife behavior and restrict activities that could disturb wildlife and their access to water and foraging habitat (AM-PW-5, AM-PW-13, and AM-RES-RL-DUNE-2). Seasonal restrictions would also be implemented for recreational activities that might affect Bighorn sheep in the reserve design envelope (AM-RES-BLM-ICS-11). The potential disturbance of wildlife from predator avoidance behavior caused by siting, construction, and operational Covered Activities in the GCP would be minimized by these measures.

### Light and Glare

Exposure of wildlife to light and glare can alter wildlife behavior including foraging, migration, and breeding. Solar projects are expected to have greater effects on wildlife compared to other renewable energy technologies because they would produce increased levels of glare due to the large amount of reflective panel or heliostat surfaces. Potential adverse effects associated with light and glare from solar projects, including solar flux and bird collisions from the lake effect are analyzed in BR-9. Most of the terrestrial operational impacts in the GCP resulting from development of all technology types of renewable energy would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Similarly, the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas would experience most of the terrestrial operational impacts from solar projects in the GCP. Therefore, these subareas would have the greatest potential to disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare.

Bats and other diurnal predators may exploit night lighting that increases prey detectability, but would also be attracted to areas of greater development that increase

potential hazards such as collision. Impacts to habitat for bats would as a result of Covered Activities in the GCP would mainly be located in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the West Mojave and Eastern Slopes and Imperial Borrego Valley are the subareas primarily affected, containing most of the impacts to bird Covered Species habitat in the GCP. As such, wildlife disturbance is anticipated to occur primarily in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes as well as the Imperial Borrego Valley subareas.

Alternative 4 would implement avoidance and minimization CMAs within the GCP specifically intended to minimize effects of lighting and glare including AM-PW-14, which would implement standard practices for shielding and reducing the use of lights, as well as AM-DFA-RIPWET-4, which specifically restricts lighting within one mile of riparian or wetland vegetation. Other CMAs applicable in the GCP would implement setbacks for riparian and wetland habitat, wildlife species that inhabit agricultural lands, and for smaller mammals, which would minimize their exposure to light and glare from Covered Activities (AM-DFA-RIPWET-1, AM-DFA-RIPWET-5, and AM-DFA-AG-2).

#### Non-Covered Species

Potential impacts to Non-Covered Species on GCP Land were analyzed as described in Section IV.7.3.2.1. Table IV.7-299 provides an estimation of the impacts to natural communities associated with Non-Covered Species. While estimation of impacts to natural communities likely overestimates the potential impacts to Non-Covered Species habitats, it provides a general range of level of impact.

Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs, so impacts to potential habitat for each of these species is likely greater than would actually occur. For some species, impacts would be minimized through avoidance of the specific natural communities required for those species, e.g. dune-, spring-, or cave-restricted invertebrates, or riparian-obligate bird species. The total impact to potential habitat across all technology types is less than 1%, with the exception the desert scrub/chaparral communities at approximately 1.7%, grassland communities at approximately 3.2%, and within the agriculture/rural land cover areas at approximately 6.1%.

Critical habitat for the federally-listed Non-Covered Species would essentially be avoided across all renewable energy types.

The results of impacts on Non-Covered Species from the creation of noise, predator avoidance behavior, and light and glare would be similar to those described for the Covered Species.

**Table IV.7-299**  
**GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte’s phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy’s eriastrum, Cushenbury buckwheat	209,000	1,000	100	0	100	1,200	0.6%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch’s spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte’s thrasher, loggerhead shrike, long-eared owl,	3,020,000	41,000	4,000	1,000	6,000	52,000	1.7%

**Table IV.7-299**  
**GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare-stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch, Mojave							

**Table IV.7-299**  
**GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes <sup>3</sup> / Desert Outcrop and Badlands	Banded gila monster, barefoot gecko, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Le Conte's thrasher, loggerhead shrike, long-eared owl, northern harrier, Amargosa vole, big free-tailed bat, bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat,	254,000	800	10	200	500	1,500	0.6%

**Table IV.7-299**  
**GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte’s phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory’s crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood’s eriastrum, Harwood’s milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt’s woody aster, Orocopia sage, Palmer’s jackass clover, Parish’s club cholla, Pierson’s milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson’s monardella, Rusby’s desert-mallow, sand food, Spanish needle onion, Thorne’s buckwheat, Utah beardtongue, white bear poppy, Wiggin’s croton, Palmer’s jackass clover, white-margined beardtongue, flat-seeded spurge							

**Table IV.7-299**  
**GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	203,000	6,300	300	0	300	6,600	3.2%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermilion flycatcher, white-tailed kite, yellow-breasted chat, yellow-headed blackbird, yellow warbler, Amargosa vole, Mojave River vole, Arizona myotis, cave myotis, fringed myotis, hoary bat, long-eared myotis-pocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant,	413,000	2,000	100	0	200	2,300	0.6%

**Table IV.7-299**  
**GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 4**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres) <sup>4</sup>	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	803,000	34,000	400	8,500	6,400	49,300	6.1%

<sup>1</sup>Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup>Solar impacts include ground-mounted distributed generation.

<sup>3</sup>Impacts to the dune community, riparian communities, arid west freshwater emergent marsh, and Californian warm temperate marsh/seep would be avoided through implementation of CMAs. Only impacts determined to be unavoidable would occur in these natural communities.

<sup>4</sup>This amount assumes the loss of conservation value for all land fragmented by the well fields.

**Notes:** The natural community classification system is described in Chapter III.7 and follows CDFG 2012. Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

***Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).***

Siting, construction, decommissioning, and operations of renewable energy and transmission projects would result in the removal of vegetation and other nesting habitat and cause increased human presence and noise that has the potential to cause the loss of nesting birds, which would be a violation of the federal Migratory Bird Treaty Act. The potential loss of nesting birds resulting from these activities would be adverse without application of CMAs. Avoidance and minimization CMAs (AM-PW-4, 13, 14; AM-DFA-RIPWET-1, 3, 5; AM-DFA-AG-1 through 6; AM-DFA-ICS CMAs for bird species) include the season restrictions, survey requirements, and setbacks necessary to avoid and minimize the loss of nesting birds.

***Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.***

Species-specific habitat linkages and wildlife movement areas are a component of analysis conducted under Impact BR-4 above. Suitable habitat for each species includes areas of habitat linkages and wildlife movement. Analysis under BR-4 specifically incorporates habitat linkage information for desert tortoise, Mohave ground squirrel, and desert bighorn sheep. In addition to the species-specific analysis of impacts to suitable habitat supporting habitat linkages and wildlife movement for species, landscape level information on habitat linkages (i.e., Desert Linkage Network) and migratory bird movement are analyzed below.

Desert Linkage Network

Table IV.7-300 shows the impact analysis for the desert linkage network for Alternative 4 for the GCP. Overall, over 11,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in mainly six different subareas. In the Cadiz Valley and Chocolate Mountains subarea, DFAs are located in the portion of the desert linkage network that connects the Colorado River to the northern part of the McCoy Mountains. There are also DFAs in the linkage network that extends along the McCoy Mountains and connects south to the Palo Verde Mesa. There are also DFAs in the Chuckwalla Valley portion of a linkage network that extends west and south. In the Mojave and Silurian Valley, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley and in the linkage that connects Barstow to the Calico Mountains. In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. In the Panamint Death Valley subarea, there is a DFA in the Searles Valley in a linkage that connects the Searles and Argus Ranges. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are DFAs in the desert

linkage network that connects the Grapevine Canyon Recreation Lands to the Granite Mountains and the Ord Mountains. There are also DFAs in the linkage that connects Turtle Mountain to the Mojave River. In the West Mojave and Eastern Slopes subarea, there are DFAs in the linkage that connects the area around Baldy Mesa along the southern edge of the Plan Area to Helendale. DFAs also occur in the linkages around Barstow. Farther west in the Plan Area, there are DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-300, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley’s Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4.

**Table IV.7-300  
GCP Impact Analysis for the Desert Linkage Network – Alternative 4**

<b>Desert Linkage Network by Ecoregion Subarea</b>	<b>Available Lands (acres)<sup>1</sup></b>	<b>Solar Impact (acres)<sup>2</sup></b>	<b>Wind Impact (acres)</b>	<b>Geothermal Impact (acres)</b>	<b>Transmission Impact (acres)</b>	<b>Total Impact (acres)</b>
Cadiz Valley and Chocolate Mountains	148,000	1,000	30	-	3,000	4,000
Imperial Borrego Valley	10,000	90	-	30	10	100
Kingston and Funeral Mountains	12,000	-	-	-	-	-
Mojave and Silurian Valley	101,000	900	-	-	90	1,000
Owens River Valley	4,000	50	-	10	30	90
Panamint Death Valley	15,000	70	-	-	-	70
Pinto Lucerne Valley and Eastern Slopes	122,000	2,000	300	-	500	3,000
Piute Valley and Sacramento Mountains	24,000	-	-	-	-	-

**Table IV.7-300**  
**GCP Impact Analysis for the Desert Linkage Network – Alternative 4**

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres) <sup>1</sup>	Solar Impact (acres) <sup>2</sup>	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Providence and Bullion Mountains	49,000	-	-	-	-	-
West Mojave and Eastern Slopes	468,000	4,000	400	-	200	4,000
<b>Total</b>	<b>952,000</b>	<b>7,000</b>	<b>800</b>	<b>30</b>	<b>3,000</b>	<b>12,000</b>

<sup>1</sup> Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.

<sup>2</sup> Solar impacts include ground-mounted distributed generation.

**Notes:** Total reported acres are ground disturbance impacts associated with siting, construction, and decommissioning. The total includes solar and ground-mounted distributed generation project area, wind ground disturbance, geothermal project area, and transmission right-of-way area. The geothermal project area impacts reported here include all associated geothermal facilities including the geothermal well field area, as detailed in the description of Covered Activities provided in Volume II. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### Migratory Bird

Migration patterns and the potential impacts of different technologies are discussed, in the typical impacts section (Section IV.7.2.1.3), with direct habitat loss quantified in BR-4, and operational impacts quantified in BR- 9. The following analysis focuses on the anticipated distribution of different technology types in relation to known migratory corridors, and migratory resources in each subarea.

In Alternative 4 wind generation is a moderate proportion of the overall generation mix nonfederal DFAs. Impacts are mainly focused in the West Mojave and Eastern Slopes, Pinto Lucerne Valley, with fewer impacts in the Cadiz and Chocolate Mountain, and Imperial Borrego Valley subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key bird migration areas affected would include routes between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB, including the North Mojave dry lakes of China Lake, Koehn Lake, Harper Lake and Searles Lake. Further, direct loss of habitat in Antelope Valley would lead to loss of habitat for wintering birds. Small amounts of wind development would occur in the Cadiz and Chocolate Mountains subarea. These areas are near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. Similarly, small amounts of wind development would be expected in Imperial Borrego

Valley is anticipated in Alternative 4 which would affect migratory and overwintering birds associated with the Salton Sea.

Solar development on nonfederal DFAs would be constructed throughout the West Mojave and Eastern Slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. Alternative 4 would result in new PV and solar thermal generation facilities along the I-10 corridor, and to the west side of the Colorado River, in disturbed lands west of Blythe. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River corridor, and the Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, and Pinto Lucerne Valley subareas would occur in DFAs between the passes of the Tehachapi Mountains, the passes of the San Bernardino Mountains, and dry lakes on Edwards AFB, and in the North Mojave. Private lands DFAs, in the Imperial Borrego Valley subarea would primarily be in agricultural lands bordering and to the south of the Salton Sea.

Application of CMAs would require projects to be sited and designed to avoid impacts to occupied habitat and suitable habitat for Covered Species to the maximum extent feasible. Further, siting and construction CMAs would minimize direct loss of riparian and wetland habitats. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Further, proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement a project-specific Bird and Bat Covered Species Operational Actions that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. Siting and construction CMAs would minimize direct loss of riparian and wetlands habitats. Compensation CMAs would offset habitat loss for Covered Species. The compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to the AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimized impacts to migratory birds. Application of CMAs would reduce the overall impacts to migratory bird populations.

***Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.***

As discussed in the Plan-wide analysis, the construction and operation of renewable energy and transmission projects can have the potential to fragment intact and interconnected landscapes resulting in isolated patches of habitat, isolated species populations, reduced

gene flow, and remaining habitat that is more exposed to the edge effects of adjacent developments. The DRECP integrated planning process, as described in Volume II, avoids and minimizes this impact through the siting of DFAs and through the reserve design. In order to minimize habitat fragmentation and population isolation, DFAs were sited in less intact and more degraded areas. However, under Alternative 4, DRECP Variance Lands are included that were not sited to avoid intact landscapes and were not sited to ensure development is constrained to more degraded lands. The inclusion of the DRECP Variance Lands scattered across the landscape under Alternative 4 undermines the intactness and puts larger intact landscapes at risk of dispersed future development. Other measures of fragmentation and population isolation effects include the amount of impacts on environmental gradients such as elevation, landforms, slope, and aspect. The impacts to these four environmental gradients under Alternative 4 within DFAs under the GCP would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

***Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.***

As discussed in the Plan-wide analysis, Covered Activities in undisturbed desert habitat are likely to supplement predators, and increase predation rates on Covered Species. The GCP Alternative 4 would result 71,000 acres of permanent conversion of natural desert communities and with 51,000 acres of impacts (42% of the total ground disturbance) within areas characterized by disturbed land cover types.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed habitats including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. However, much of the development would be expected in disturbed and agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, Bendire's thrasher, Swainson's hawk, as well as small reptiles like the Tehachapi slender salamander, and mammals like the Mohave ground squirrel. Covered Activities associated with solar and wind generation in the Pinto and Lucerne Valley subarea would affect areas in Lucerne Valley to the East of Victorville. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles like desert tortoise. The development in the Cadiz and Chocolate Mountains subarea would be expected in the agricultural and disturbed lands around Blythe. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species. Impacts from solar and geothermal development area anticipated in Imperial Borrego Valley. Impacts would occur in agricultural habitats south and west of the Salton Sea. Increased predation would affect nesting birds, flat-tailed horned lizard, desert tortoise, and nesting birds.

The inclusion of DRECP Variance Lands under Alternative 4 has the potential for increased risk of scattered transmission lines and scattered development activities in remote and intact landscapes, which could lead to future increased levels of predation.

Application of a Common Raven management plan (AM-PW-6), approved by the appropriate DRECP Coordination Group would reduce project activities that increase predator subsidization. Activities include: removal of trash and organic waste; minimize introduction of new water sources including pooling of water from dust control; removal of carcasses from bird and bat collisions; and reduction in new nesting and perching sites where feasible.

The level of impact on Non-Covered Species would be similar to that discussed for the Covered Species.

***Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.***

The impacts of operation activities on avian and bat injury and mortality are analyzed below for wind turbines, solar, and transmission.

Wind Turbine

This section summarizes wind turbine operational impacts to bird and bat species within the private lands DFAs. The range of collision rates calculated in Table IV.7-301 is indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, Alternative 4 would result in a median of 5,000 collisions per year for birds and 23,000 collisions for bats in DFAs on nonfederal lands. The expected distribution of wind generation indicates that 65% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 26% in the Pinto Lucerne Valley and Eastern Slopes subarea, 9% in the Cadiz Valley and Chocolate Mountains subarea, and 1% in the Imperial Borrego Valley subarea.

Development in the West Mojave and Eastern Slopes would impact Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, southwestern willow flycatcher, Swainson's hawk, and tricolored blackbird. Whereas, development in the Pinto and Lucerne Valley subarea would affect golden eagle territories and important Bendire's

thrasher habitat. The remaining wind operations in the Cadiz Valley and Chocolate Mountains region would result in a higher risk of collisions for Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, western yellow-billed cuckoo, and Yuma clapper rail.

Pre-construction CMAs require habitat assessments and pre-construction surveys for covered riparian and wetland bird, burrowing owl, greater sandhill crane, Swainson's hawk, Bendire's thrasher, golden eagle species.

Application of siting CMAs would avoid or minimize the risk to species localities. Setbacks from active nests would be required for Bendire's thrasher, California condor, Gila woodpecker, and golden eagle. In addition, projects would be sited and designed to avoid impacts to occupied habitat, and suitable habitat for Covered Species to the maximum extent feasible. Implementation of bat specific CMAs include 0.5 mile setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied Pallid bat and Townsend's Big eared Bats roosts would reduce impacts to covered bat species.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions would be based on ongoing/annual fees and the biological basis for the fee will be determined by the mortality effects as annually measured and monitored according to the Bird and Bat Covered Species Operational Actions.

Similarly, a Condor Operations Strategy (COS) would be developed on a project-specific basis with the goal of avoiding mortality from operations of wind, solar and geothermal projects. No take for condors will be permitted in the form of kill from project operations. Any actions taken to encourage condors to leave an area that might result in harassment, injury, or mortality to the bird will be conducted by a Designated Biologist.

**Table IV.7-301  
GCP Estimated Range of Bird and Bat Collisions  
per Year by Subarea – Alternative 4**

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr) <sup>1</sup>			Bats (Collisions/Yr) <sup>1</sup>		
		Low	Median	High	Low	Median	High
Cadiz Valley and Chocolate Mountains	74	100	400	1,000	100	2,000	10,000
Imperial Borrego Valley	13	-	100	200	-	300	2,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	252	400	1,000	5,000	500	6,000	35,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	634	1,000	3,000	12,000	1,000	15,000	89,000
<b>Grand Total</b>	<b>973</b>	<b>2,000</b>	<b>5,000</b>	<b>19,000</b>	<b>2,000</b>	<b>23,000</b>	<b>136,000</b>

<sup>1</sup> Method for estimation of annual bird and bat collision rates described in Section IV.7.1.1.2 and discussed in more detail in Section IV.7.2.1.3

**Note:** The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table

### Solar

Under Alternative 4, impacts to avian and bat species from solar development based on the planned solar capacity. The distribution of impacts under the GCP would be similar to that which is found in the Plan-wide analysis. Nonfederal DFAs would see a 4.7-fold increase in collision risks relative to baseline. 12% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 32% in Imperial Borrego Valley, 42% in West Mojave and Eastern Slopes, 10% at Pinto Lucerne Valley and Eastern Slopes, and the remaining 5% spread across the rest of the plan area.

Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains, areas to the north of Edwards AFB, and agricultural land around

Lancaster and in the Antelope Valley. In these areas, susceptible species would include pallid bat, California leaf-nosed bat, Townsend's big-eared bat, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and to a lesser extent Swainson's hawk. Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea would affect nonfederal lands in the western part of Lucerne Valley under the GCP. Species impacted would include the same species as the West Mojave and Eastern Slopes subarea. Development in the Cadiz and Chocolate Mountains subarea under the GCP would occur in the agricultural lands around Blythe. Species habitat impacted by Covered Activities include Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Anticipated impacts in the Imperial Borrego Valley subarea under the GCP would occur in agricultural and natural habitats south and west of the Salton Sea. Birds at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, Yuma clapper rail, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat.

To offset potential impacts, the application of CMAs would require projects to be sited and designed to avoid impacts to occupied and suitable habitat for Covered Species, to the maximum extent feasible. Further, siting and construction CMAs require setbacks from riparian and wetland habitats which would minimize direct loss. Compensation CMAs would offset habitat loss for Covered Species. A bird and bat use and mortality monitoring program would be implemented during operations. Any proposed projects that are likely to impact bird and bat Covered Species during operation would develop and implement project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meet the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions would be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar and geothermal projects. The compensation requirements of AM-LL-4 would be based on ongoing/annual fees and the biological basis for the fee would be determined by the mortality effects as annually measured and monitored according to AM-LL-4. In combination, the application of siting, monitoring, operational and compensation CMAs would minimize impacts to resident and migratory birds.

Bat mortality from solar facilities may occur because of collision or solar flux injury. No DFAs are known to be specifically sensitive areas for bat foraging, and implementation of bat specific CMAs include 500 feet setbacks from all bat maternity roosts and 5% disturbance caps on desert scrub and woodland habitats in the vicinity of occupied pallid bat and Townsend's big-eared bat roosts would reduce impacts to bat Covered Species. Further, the development of Bird and Bat Covered Species Operational Actions (AM-LL-4)

as discussed above would greatly reduce the risk to bat populations. Consequently, application of CMAs would reduce the overall impacts to bat populations

### **Transmission**

The transmission collision and electrocution impacts would occur from generation tie lines (collector lines), new substations, and major transmission lines (delivery lines) that deliver power to major load centers. The distribution of impacts from collector lines would mostly occur within DFAs and be similar in distribution to the generation facilities. Most of the affected areas on nonfederal lands would be in Cadiz Valley and Chocolate Mountains, the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and the West Mojave and Eastern Slopes subareas, with 7,000 acres, 5,000 acres, 1,000 acres, and 1,000 acres of terrestrial impacts anticipated respectively. The remaining 800 acres of impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location. Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

All bird Covered Species may be impacted by additional transmission infrastructure. To ameliorate potential hazards, transmission projects would reduce impacts to Covered Species by implementing Plan-wide, landscape-level, natural community, and Covered Species CMAs where feasible, as discussed under the wind impacts section.

Applicants would develop and implement a project-specific Bird and Bat Covered Species Operational Actions (AM-LL-4) that meets the approval of the appropriate DRECP Coordination Group. The goal of the project-specific Bird and Bat Covered Species Operational Actions will be to avoid and minimize direct mortality of birds and bats from the operation of the specific wind, solar, geothermal, or transmission project. A bird and bat use and mortality monitoring program will be implemented during operations using current protocols and best procedures available at time of monitoring. Further, the compensation requirements in the Bird and Bat Covered Species Operational Actions

would be based on ongoing/annual fees and the mortality effects as annually measured and monitored according to the BBOS will determine the biological basis for the fee.

In addition, transmission projects would implement transmission specific CMAs that would, where feasible, bury electrical collector lines along roads (AM-TRANS-1); fit flight diverters on all transmission projects spanning or within 1,000 feet of water bodies and watercourses (AM-TRANS-2); avoid siting transmission projects that span canyons or are located on ridgelines (AM-TRANS-3); restrict transmission projects to within designated utility corridors (AM-TRANS-4). With the implementation of CMAs impacts to Covered Species would be minimized.

The inclusion of the DRECP Variance Lands under Alternative 4, while not analyzed as if they were developed, have the potential to be developed in the future. Due to the remote nature of these lands, transmission lines would likely be needed to support any future development in these areas and the designation of these lands as DRECP Variance Lands has the potential to increase the risk of transmission effects on sensitive species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summarizes the initial estimates for take of Covered Species by operational activities that would require compensatory mitigation. Take estimates integrate all sources of mortality for each technology discussed above.

**Table IV.7-302  
GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 4**

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire’s thrasher	30	20	0	50
Burrowing owl	110	10	10	130
California condor <sup>1</sup>	0	0	0	0
California black rail	30	0	0	30
Gila woodpecker	30	0	0	30
Golden eagle <sup>2</sup>	n/a	n/a	n/a	n/a
Least Bell’s vireo	50	0	0	50
Mountain plover	60	20	10	90
Greater sandhill crane	10	0	0	10
Southwestern willow flycatcher	40	0	0	40
Swainson’s hawk	30	10	0	40
Tricolored blackbird	50	30	0	80
Western yellow billed cuckoo	30	0	0	30
Yuma clapper rail	30	0	0	30
<b>Grand Total Avian Species</b>	<b>500</b>	<b>90</b>	<b>20</b>	<b>610</b>

**Table IV.7-302**  
**GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 4**

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
California leaf-nosed bat	10	10	0	20
Pallid bat	10	50	0	60
Townsend’s big-eared bat	40	10	10	60
<b>Grand Total Bat Species</b>	<b>60</b>	<b>70</b>	<b>10</b>	<b>140</b>

<sup>1</sup> Take for California condor would not be permitted under the DRECP.

<sup>2</sup> Take of Golden Eagle would be permitted on a project by project basis. Based on the 2013 analysis, no more than 15 golden eagles per year would be authorized for 2014 for any new activity within the Plan Area. Take limits for the DRECP area will be re-evaluated annually based on the amount of ongoing take and population estimates of eagles within the local-area population of eagles.

**Note:** Totals may not sum due to rounding

**IV.7.3.6.4.2 Impacts of the Reserve Design under the General Conservation Plan**

In the nonfederal GCP portion of the Plan Area for Alternative 4, the Reserve Design Lands include existing conservation areas on nonfederal lands (433,000 acres), nonfederal lands within BLM LUPA conservation designations (1,160,000 acres), and Conservation Planning Areas on nonfederal lands (1,148,000 acres). Under Alternative 4, DRECP Variance Lands areas are scattered across the Plan Area including south of the Chocolate Mountains in eastern Imperial Borrego Valley subarea, in Rice Valley in northern Cadiz Valley and Chuckwalla Mountains subarea, and in the Silurian Valley area of the Kingston and Funeral Mountains and Mojave and Silurian Valley subareas. The DRECP Variance Lands lead to uncertainty about the protection and functionality of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. The following provides an analysis of the conservation that would be provided by these areas, organized by landscape, natural communities, and species.

**Landscape**

***Habitat Linkages***

Table IV.7-303 shows the conservation of the desert linkage network under Alternative 4 for the GCP. Conservation of the desert linkage network totals more than 305,000 acres (32%). None of the linkages are entirely conserved under the GCP. However, the majority of the linkage from the southern end of the Plan Area directly north to the Los Angeles/Kern County line in the West Mojave and Eastern Slopes subarea is conserved, as well as the part of the linkage across the Mojave Desert farther north. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs (see Section IV.7.3.2.4.1).

The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the habitat linkages within the reserve design envelope.

**Table IV.7-303  
GCP Conservation Analysis for the Desert Linkage Network – Alternative 4**

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	148,000	2,000	42,000	13,000	57,000	39%
Imperial Borrego Valley	10,000	-	2,000	400	2,000	20%
Kingston and Funeral Mountains	12,000	30	1,000	700	2,000	17%
Mojave and Silurian Valley	101,000	5,000	17,000	6,000	28,000	28%
Owens River Valley	4,000	-	600	200	800	17%
Panamint Death Valley	15,000	6,000	2,000	500	8,000	57%
Pinto Lucerne Valley and Eastern Slopes	122,000	12,000	23,000	3,000	39,000	32%
Piute Valley and Sacramento Mountains	24,000	-	2,000	2,000	4,000	17%
Providence and Bullion Mountains	49,000	4,000	5,000	4,000	13,000	27%
West Mojave and Eastern Slopes	468,000	26,000	80,000	45,000	151,000	32%
<b>Grand Total</b>	<b>952,000</b>	<b>56,000</b>	<b>173,000</b>	<b>76,000</b>	<b>305,000</b>	<b>32%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

<sup>3</sup> Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000;

values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

### ***Hydrological Resources***

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) under Alternative 4 within the GCP. Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources is provided below under Natural Communities.

#### Playa

Playa totals 74,000 acres in the Plan Area. Overall, 21% (15,000 acres) would be conserved under Alternative 4 within the GCP. Existing Conservation would account for 15% of the conservation, BLM LUPA would account for 71%, and Conservation Planning Areas would account for 14%. Additionally, playas and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for playas would require compliance with all applicable laws and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided riparian or wetland natural communities.

#### Seep/Spring

There are 176 seep/spring locations in the Plan Area under Alternative 4 within the GCP. Overall, 52% (29 locations) of the seep/spring locations would be conserved under Alternative 4 within the GCP. The conservation of seep/spring under Alternative 4 would be less than half in all subareas. These include Imperial Borrego Valley (46%, 9 locations), Kingston and Funeral Mountains (17%, 3 locations), Mojave and Silurian Valley (35%, 3 locations), Owens River Valley (17%, 5 locations), Pinto Lucerne Valley and Eastern Slopes (38%, 13 locations), Providence and Bullion Mountains (33%, 3 locations), and West Mojave and Eastern Slopes (26%, 16 locations).

Overall, Existing Conservation would account for 40% of the conservation of seep/spring, BLM LUPA conservation designations would account for 41%, and Conservation Planning Areas would account for 19%. Additionally, seeps and springs and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks. CMAs for seep/spring locations would require compliance with all applicable laws

and regulations pertaining to wetlands and waters. In addition, CMAs would require maintenance of hydrological function of the avoided wetland natural communities.

### Major Rivers

Overall, 61% of the major rivers would be conserved under Alternative 4 within the GCP, including 25% of the Amargosa River, 33% of the Colorado River, 67% of the Mojave River, and 70% of the Owens River. Conservation Planning Areas would account for 79% of the conservation of the major rivers, Existing Conservation would account for 8%, and BLM LUPA conservation designations would account for 12%. Additionally, major rivers and associated Covered Species, natural communities, and hydrological functions would be avoided through application of avoidance and minimization CMAs within DFAs and transmission corridors, including resource setbacks.

### ***Dune and Sand Resources***

Overall, 21% (45,000 acres) of dunes and sand resources would be conserved under Alternative 4 within the GCP. Less than 50% of dunes and sand resources would be conserved in all subareas in the Plan Area that contain substantial acreage of dunes and sand resources. These include Cadiz Valley and Chocolate Mountains at 24% (17,000 acres), Imperial Borrego Valley at 30% (3,000 acres), Kingston and Funeral Mountains at 21% (2,000 acres), Mojave and Silurian Valley at 18% (5,000 acres), Owens River Valley at 20% (700 acres), Panamint and Death Valley at 33% (1,000 acres), Pinto Lucerne Valley and Eastern Slopes at 19% (3,000 acres), Providence and Bullion Mountains at 18% (8,000 acres) and the Western Mojave and Eastern Slopes at 19% (5,000 acres). Additionally, dunes and sand resources and associated Covered Species, natural communities and ecological functions would be avoided through application of the dune avoidance and minimization CMAs.

### ***Environmental Gradients***

The conservation analysis addresses four types of environmental gradients in the Plan Area: elevation, landforms, slope, and aspect. The conservation of these four environmental gradients under Alternative 4 within the GCP would follow the same overall pattern as Plan-wide conservation.

### **Natural Communities**

Table IV.7-304 shows the conservation to natural communities under the GCP. A conservation summary by general community is provided below in comparison to Plan-wide conservation discussed in Section IV.7.3.2.1.2. Appendix R2 provides a detailed analysis of natural community conservation by ecoregion subarea.

### ***California forest and woodlands***

Overall, approximately 24,000 acres (23%) of California forest and woodlands would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea. Conservation would primarily come from BLM LUPA conservation designations. In addition to conservation of California forest and woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 11,000 acres (13%) of chaparral and coastal scrubs would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea. In addition to conservation of chaparral and coastal scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Desert conifer woodlands***

Overall, approximately 19,000 acres (18%) of desert conifer woodlands would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas. Conservation would primarily come from Conservation Planning Areas. In addition to conservation of desert conifer woodlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Desert outcrop and badlands***

Overall, approximately 109,000 acres (50%) of desert outcrop and badlands would be conserved under Alternative 4 in the GCP. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Most of the conservation would come from existing conservation. In addition to conservation of desert outcrop and badlands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Desert scrubs***

Overall, approximately 832,000 acres (28%) of desert scrubs would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. About 40% of the conservation would come from BLM LUPA conservation designations and about 26% would come from Conservation Planning areas. The remaining conservation would be from existing conservation. In addition to conservation of desert scrubs, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Dunes***

Overall, approximately 7,000 acres (22%) of dunes would be conserved under Alternative 4 under the GCP. Most of the dunes would be conserved in the Mojave and Silurian Valley, Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, and Kingston and Funeral Mountains subareas. Conservation would primarily come from Conservation Planning Areas. In addition, CMA application would require avoidance of all dunes and prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

### ***Grasslands***

Overall, approximately 24,000 acres (12%) of grasslands would be conserved under Alternative 4 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Almost half of the conservation would be in Conservation Planning Areas. In addition to conservation of grasslands, the same CMAs that would be applied Plan-wide would be implemented to address breeding, nesting, or roosting species, soil resources, weed management, and fire prevention/protection to benefit these natural communities and the species they support.

### ***Riparian***

Overall, approximately 74,000 acres (37%) of riparian communities would be conserved under Alternative 4 under the GCP. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas, but conservation would occur in all subareas. Almost half of the conservation would come from BLM LUPA conservation designations. In addition, CMA application would require avoidance of and setbacks from all riparian communities as well as to other CMAs that would benefit riparian communities beyond simply conservation.

### ***Wetlands***

Overall, approximately 74,000 acres (23%) of riparian communities would be conserved under Alternative 4 under the GCP. Most of the conservation would occur in the Owens River Valley, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations. In addition, CMA application would require avoidance of and setbacks from Arid West freshwater emergent marsh and Californian warm temperate marsh/seep as well as other CMAs that would benefit riparian communities beyond simply conservation.

**Table IV.7-304**  
**GCP Conservation Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)</b>	<b>Existing Conservation<sup>1</sup> (acres)</b>	<b>Nonfederal Inholdings in BLM LUPA Conservation Designations<sup>2</sup> (acres)</b>	<b>Conservation Planning Areas<sup>3</sup> (acres)</b>	<b>Total Conservation (acres)</b>	<b>% of Available Lands</b>
<i>California forest and woodland</i>						
Californian broadleaf forest and woodland	61,000	800	10,000	700	11,000	18%
Californian montane conifer forest	44,000	7,000	4,000	2,000	13,000	29%
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>						
Californian mesic chaparral	3,000	20	400	200	600	17%
Californian pre-montane chaparral	1,000	0	200	10	200	19%
Californian xeric chaparral	19,000	600	600	3,000	4,000	20%
Central and south coastal California seral scrub	1,000	0	0	30	30	2%
Central and South Coastal Californian coastal sage scrub	42,000	300	2,000	2,000	5,000	11%
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	600	100	800	2,000	10%
<i>Desert conifer woodlands</i>						
Great Basin Pinyon - Juniper Woodland	104,000	7,000	2,000	10,000	19,000	18%
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	220,000	68,000	27,000	13,000	109,000	50%

**Table IV.7-304**  
**GCP Conservation Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)</b>	<b>Existing Conservation<sup>1</sup> (acres)</b>	<b>Nonfederal Inholdings in BLM LUPA Conservation Designations<sup>2</sup> (acres)</b>	<b>Conservation Planning Areas<sup>3</sup> (acres)</b>	<b>Total Conservation (acres)</b>	<b>% of Available Lands</b>
<i>Desert Scrub</i>						
Arizonan upland Sonoran desert scrub	8,000	3,000	0	800	4,000	49%
Intermontane deep or well-drained soil scrub	24,000	2,000	3,000	2,000	7,000	29%
Intermontane seral shrubland	68,000	500	1,000	2,000	3,000	5%
Inter-Mountain Dry Shrubland and Grassland	152,000	21,000	12,000	6,000	39,000	25%
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	1,000	6,000	900	8,000	18%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	246,000	285,000	168,000	698,000	31%
Mojave and Great Basin upper bajada and toeslope	228,000	13,000	13,000	22,000	47,000	21%
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	6,000	18,000	25,000	16%
Southern Great Basin semi-desert grassland	70	0	0	0	0	5%
<i>Dunes</i>						
North American warm desert dunes and sand flats	34,000	800	2,000	5,000	7,000	22%

**Table IV.7-304**  
**GCP Conservation Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)</b>	<b>Existing Conservation<sup>1</sup> (acres)</b>	<b>Nonfederal Inholdings in BLM LUPA Conservation Designations<sup>2</sup> (acres)</b>	<b>Conservation Planning Areas<sup>3</sup> (acres)</b>	<b>Total Conservation (acres)</b>	<b>% of Available Lands</b>
<i>Grassland</i>						
California Annual and Perennial Grassland	196,000	8,000	5,000	11,000	23,000	12%
California annual forb/grass vegetation	7,000	400	300	200	900	13%
<i>Riparian</i>						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	3,000	23,000	7,000	34,000	35%
Mojavean semi-desert wash scrub	17,000	3,000	1,000	2,000	6,000	35%
Riparian	600	20	0	300	300	57%
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	11,000	5,000	4,000	19,000	55%
Southwestern North American riparian evergreen and deciduous woodland	6,000	400	300	2,000	2,000	42%
Southwestern North American riparian/wash scrub	47,000	3,000	3,000	6,000	13,000	27%
<i>Wetland</i>						
Arid West freshwater emergent marsh	4,000	40	200	1,000	1,000	33%
Californian warm temperate marsh/seep	400	0	0	80	80	20%

**Table IV.7-304**  
**GCP Conservation Analysis for Natural Communities – Alternative 4**

<b>Natural Community</b>	<b>Available Lands (acres)</b>	<b>Existing Conservation<sup>1</sup> (acres)</b>	<b>Nonfederal Inholdings in BLM LUPA Conservation Designations<sup>2</sup> (acres)</b>	<b>Conservation Planning Areas<sup>3</sup> (acres)</b>	<b>Total Conservation (acres)</b>	<b>% of Available Lands</b>
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	2,000	4,000	2,000	8,000	22%
Open Water	114,000	800	600	14,000	16,000	14%
Playa	52,000	20	11,000	300	11,000	22%
Southwestern North American salt basin and high marsh	112,000	3,000	24,000	10,000	37,000	33%
Wetland	8,000	30	200	500	700	8%
<i>Other Land Cover</i>						
Agriculture	693,000	5,000	2,000	3,000	10,000	1%
Developed and Disturbed Areas	399,000	500	2,000	300	2,000	1%
Not Mapped	4,000	50	60	300	400	10%
Rural	110,000	400	4,000	8,000	12,000	11%
<b>Total</b>	<b>5,420,000</b>	<b>412,000</b>	<b>459,000</b>	<b>327,000</b>	<b>1,198,000</b>	<b>22%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLS) on nonfederal land.

<sup>2</sup> Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

<sup>3</sup> Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

## Covered Species Habitat

Table IV.7-305 shows the conservation of Covered Species modeled habitat under Alternative 4 (before the application of CMAs) GCP. Generally, the percent conservation of Covered Species modeled habitat in available lands is highly variable, ranging from 1% for greater sandhill crane (primarily found in agricultural areas) to 63% for Mohave tui chub.

Conservation percentages are in large part related to the location and types of habitat modeled for the Covered Species. For example, modeled habitat for greater sandhill crane, which is primarily freshwater wetland and agriculture, is limited to the Palo Verde and Imperial valleys and is mostly within DFAs.

Much of the modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that occur in the BLM LUPA conservation designations. Flat-tailed horned lizard modeled habitat is only conserved in the Imperial Borrego Valley, mostly in existing conservation areas. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM LUPA conservation designations. Furthermore, the siting of the DFAs under Alternative 4 largely avoid habitat for Mojave fringe-toed lizard and Tehachapi slender salamander, and CMAs requiring avoidance of and setbacks from riparian habitat, wetland habitat, and dune habitat would further avoid and minimize the impacts on these species.

Conservation of bird species associated primarily with wetland and riparian habitats, including California black rail, least Bell's vireo, southwestern willow flycatcher, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail would be augmented by CMAs requiring avoidance of and setbacks from riparian and wetland habitats. Conservation of Bendire's thrasher occurs in nearly every subarea of the Plan Area, and is mainly in BLM LUPA conservation designations and existing conservation areas. Burrowing owl, widespread, but mainly associated with open areas in the West Mojave and Eastern Slopes would primarily be conserved in BLM LUPA conservation designations and Conservation Planning Areas.

California condor mainly occurs in the West Mojave and Eastern Slopes subarea so the majority of conservation is also in this subarea. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in BLM LUPA conservation designations and existing conservation areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, over 20% of available suitable habitat is conserved only in the Owens River Valley subarea. In addition to conservation of suitable habitat, CMAs would require avoidance of Swainson's hawk nests with setbacks within the DFAs.

Most of the modeled suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley, with much of the conserved acreage in existing conservation. About half of

the conserved acreage of mountain plover suitable habitat is in Conservation Planning Areas in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly in existing conservation areas. Although conservation of desert pupfish is relatively low, especially in the Imperial Borrego Valley subarea, avoidance and setback provisions for managed wetlands and agricultural drains would conserve wetland and riparian features within the agricultural matrix and provide conservation benefits to desert pupfish. Owens pupfish and Owens tui chub are conserved primarily in Conservation Planning Areas.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is mainly in BLM LUPA conservation designations and existing conservation. The siting of the DFAs under Alternative 4 largely avoid habitat for bighorn sheep. About half of the conservation of Mojave ground squirrel suitable habitat is from BLM LUPA conservation designations. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend’s big-eared bat—is widespread and mainly conserved in BLM LUPA conservation designations and existing conservation. In addition to conservation of suitable habitat for covered mammal species, the CMAs require avoidance of and setbacks from riparian and wetland habitat that would reduce impacts on those habitats used by Mohave ground squirrel, California leaf-nosed bat, pallid bat, and Townsend’s big-eared bat.

Conservation of plant species ranges from 7% of suitable habitat for alkali mariposa-lily to 45% of suitable habitat for Barstow woolly sunflower. The proportion of suitable habitat conserved in existing conservation, BLM LUPA conservation designations, and Conservation Planning Areas varies by species. However, in addition to the conservation of modeled suitable habitat, the CMAs require surveys for plant Covered Species for all Covered Activities. In addition, the CMAs requiring avoidance of and setbacks from occupied habitat would further reduce the impacts on these species.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species.

**Table IV.7-305**  
**GCP Conservation Analysis for Covered Species Habitat - Alternative 4**

Species	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
<i>Amphibian/Reptile</i>						
Agassiz's desert tortoise	2,248,000	140,000	325,000	182,000	647,000	29%
Flat-tailed horned lizard	310,000	112,000	20,000	4,000	136,000	44%
Mojave fringe-toed lizard	168,000	3,000	15,000	13,000	31,000	19%
Tehachapi slender salamander	41,000	300	6,000	500	7,000	17%
<i>Bird</i>						
Bendire's thrasher	405,000	35,000	31,000	26,000	92,000	23%
Burrowing owl	3,244,000	73,000	232,000	178,000	483,000	15%
California black rail	127,000	5,000	500	6,000	11,000	9%
California condor	997,000	43,000	41,000	38,000	123,000	12%
Gila woodpecker	56,000	4,000	800	2,000	7,000	12%
Golden eagle–foraging	1,498,000	154,000	225,000	113,000	492,000	33%
Golden eagle–nesting	676,000	108,000	70,000	42,000	221,000	33%
Greater sandhill crane	601,000	5,000	500	1,000	7,000	1%
Least Bell's vireo	104,000	9,000	7,000	17,000	33,000	31%
Mountain plover	811,000	6,000	2,000	11,000	20,000	2%
Southwestern willow flycatcher	258,000	6,000	12,000	17,000	36,000	14%
Swainson's hawk	1,339,000	15,000	27,000	61,000	104,000	8%
Tricolored blackbird	257,000	6,000	2,000	15,000	24,000	9%
Western yellow-billed cuckoo	111,000	2,000	5,000	23,000	31,000	28%
Yuma clapper rail	31,000	3,000	-	2,000	5,000	16%

**Table IV.7-305  
GCP Conservation Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
<i>Fish</i>						
Desert pupfish	7,000	800	10	200	1,000	14%
Mohave tui chub	100	70	-	20	90	63%
Owens pupfish	13,000	-	500	3,000	4,000	30%
Owens tui chub	13,000	-	500	3,000	4,000	30%
<i>Mammal</i>						
Bighorn sheep – inter-mountain habitat	465,000	40,000	58,000	24,000	121,000	26%
Bighorn sheep – mountain habitat	807,000	149,000	73,000	58,000	281,000	35%
California leaf-nosed bat	979,000	137,000	120,000	63,000	320,000	33%
Mohave ground squirrel	1,319,000	51,000	190,000	146,000	387,000	29%
Pallid bat	3,775,000	393,000	416,000	273,000	1,082,000	29%
Townsend's big-eared bat	3,510,000	308,000	374,000	254,000	936,000	27%
<i>Plant</i>						
Alkali mariposa-lily	117,000	200	70	8,000	8,000	7%
Bakersfield cactus	200,000	17,000	10,000	4,000	31,000	16%
Barstow woolly sunflower	82,000	3,000	22,000	12,000	37,000	45%
Desert cymopterus	137,000	2,000	29,000	17,000	49,000	36%
Little San Bernardino Mountains linanthus	130,000	5,000	6,000	5,000	16,000	12%

**Table IV.7-305**  
**GCP Conservation Analysis for Covered Species Habitat – Alternative 4**

Species	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
Mojave monkeyflower	41,000	100	13,000	700	14,000	34%
Mojave tarplant	129,000	19,000	12,000	3,000	34,000	26%
Owens Valley checkerbloom	92,000	200	2,000	17,000	20,000	22%
Parish's daisy	72,000	19,000	8,000	2,000	28,000	39%
Triple-ribbed milk-vetch	3,000	900	10	400	1,000	43%

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

<sup>2</sup> Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

<sup>3</sup> Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Agassiz's desert tortoise, desert tortoise important areas were identified that include tortoise conservation areas (TCAs), desert tortoise linkages, and desert tortoise high priority habitat (see desert tortoise BGOs in Appendix C). Table IV.7-306 provides a conservation analysis for these desert tortoise important areas, organized by desert tortoise Recovery Units: Colorado Desert, Eastern Mojave, and Western Mojave. Within the Colorado Desert Recovery Unit, 36% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 4. Within the Eastern Mojave Recovery Unit, 25% of the important areas would be conserved Alternative 4. Within the Western Mojave Recovery Unit, 35% of TCAs and linkage habitat would be conserved under Alternative 4. CMAs would require avoidance of TCAs, except for impacts associated with transmission or impacts in disturbed portions of TCAs. Additionally, the CMAs would prohibit impacts that affect the viability of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas. The designation of DRECP Variance Lands scattered across the Plan Area under Alternative 4 leads to uncertainty regarding the protection and long-term viability of the linkage habitat for desert tortoise within the reserve design envelope.

**Table IV.7-306**  
**GCP Conservation Analysis for Desert Tortoise Important Areas – Alternative 4**

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	31,000	800	5,000	4,000	10,000	33%
	Linkage	63,000	100	8,000	4,000	12,000	20%
	TCA	269,000	16,000	76,000	16,000	108,000	40%
<i>Colorado Desert Total</i>		<b>363,000</b>	<b>17,000</b>	<b>89,000</b>	<b>24,000</b>	<b>131,000</b>	36%
Eastern Mojave	Linkage	56,000	4,000	3,000	6,000	13,000	23%
	TCA	66,000	6,000	3,000	8,000	18,000	27%
<i>Eastern Mojave Total</i>		<b>122,000</b>	<b>10,000</b>	<b>6,000</b>	<b>15,000</b>	<b>31,000</b>	25%
Western Mojave	Linkage	407,000	2,000	29,000	26,000	57,000	14%
	TCA	392,000	23,000	196,000	2,000	221,000	56%
<i>Western Mojave Total</i>		<b>798,000</b>	<b>25,000</b>	<b>224,000</b>	<b>29,000</b>	<b>278,000</b>	35%
<b>Grand Total</b>		<b>1,283,000</b>	<b>52,000</b>	<b>320,000</b>	<b>68,000</b>	<b>440,000</b>	<b>34%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

<sup>3</sup> Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

<sup>3</sup> Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

For Mohave ground squirrel, Mohave ground squirrel important areas were identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-307 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 44% of key population centers and 50% of linkages would be conserved under Alternative 4. Expansion areas and climate change extension areas would be conserved at 50% and 32% respectively. The CMAs would prohibit impacts that affect the viability of linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel, including Mohave ground squirrel important areas.

**Table IV.7-307  
GCP Conservation Analysis for Mohave Ground Squirrel Important Areas –  
Alternative 4**

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation <sup>1</sup> (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations <sup>2</sup> (acres)	Conservation Planning Areas <sup>3</sup> (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	193,000	14,000	46,000	25,000	84,000	44%
Linkage	103,000	3,000	27,000	20,000	51,000	50%
Expansion Area	258,000	21,000	61,000	48,000	130,000	50%
Climate Change Extension	131,000	13,000	5,000	24,000	41,000	32%
<b>Total</b>	<b>684,000</b>	<b>50,000</b>	<b>139,000</b>	<b>117,000</b>	<b>306,000</b>	<b>45%</b>

<sup>1</sup> Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

<sup>2</sup> Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

<sup>3</sup> Conservation Planning Areas include areas of the reserve design from which reserve areas would be assembled on private and other public land.

**Notes:** Conservation acreages reported for Existing Conservation, BLM LUPA conservation designations, and Conservation Planning Areas reflect application of the conservation percentage assumptions as described in Section IV.7.1.1.2.1. Overlaps of BLM LUPA conservation designations with Existing Conservation are reported in the Existing Conservation acreages. Acreages are reported within available lands, which include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Within the Plan Area, critical habitat has been designated by the USFWS for the following Covered Species: desert tortoise, southwestern willow flycatcher, desert pupfish, and Parish’s daisy. For desert tortoise, approximately 51% of the desert tortoise designated critical habitat on nonfederal lands would be conserved under

Alternative 4, including 30,000 acres in existing conservation areas, 236,000 acres in BLM LUPA conservation designations, and 12,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 60% of the southwestern willow flycatcher designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 4, including 600 acres in existing conservation areas, 30 acres in BLM LUPA conservation designations, and 3,000 acres in Conservation Planning Areas. For desert pupfish, approximately 76% of the desert pupfish designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 4, including 100 acres in existing conservation areas and 100 acres in BLM LUPA conservation designations. For Parish's daisy, approximately 36% of the Parish's daisy designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 4, including 200 acres in BLM LUPA conservation designations.

### **Non-Covered Species Critical Habitat**

Eight Non-Covered Species have Critical Habitat within GCP Lands. Table IV.7-308 shows the total amount of Critical Habitat and the amount within each reserve designation for Non-Covered Species. These reserve designations are considered beneficial impacts for biological resources. All or a substantial portion of each species' Critical Habitat in the GCP Lands would be within one of the conservation designations. Critical Habitat for bighorn sheep occurs mostly within existing conservation and within Conservation Planning Areas for arroyo toad, but mostly within nonfederal inholdings on BLM land for the other species.

**Table IV.7-308**  
**Critical Habitat within GCP Lands for Non-Covered Species –**  
**Alternative 4**

<b>Common Name</b>	<b>Acres of Critical Habitat within GCP Lands</b>	<b>Acres of Critical Habitat in Existing Conservation</b>	<b>Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)</b>	<b>Acres of Critical Habitat in Conservation Planning Areas</b>	<b>Acres in Conservation</b>
Amargosa vole	600	0	300	0	300
Arroyo toad	4,000	0	20	3,000	3,020
Cushenbury buckwheat	200	0	100	0	100
Cushenbury milk-vetch	200	0	100	0	100
Cushenbury oxytheca	30	0	30	0	30
Lane Mountain milk-vetch	2,000	0	2,000	0	2,000
Pierson's milk-vetch	400	0	0	400	400
Peninsular Bighorn sheep	40,000	36,000	0	300	36,300

### IV.7.3.6.5 Impacts Outside of Plan Area

#### IV.7.3.6.5.1 Impacts of Transmission Out of Plan Area

The impacts of Out of Plan Area transmission on biological resources would be the same under all alternatives. These impacts are as described for the No Action Alternative in Section IV.7.3.1.6.1 (Impacts of Transmission Out of Plan Area in No Action Alternative).

#### IV.7.3.6.5.2 Impacts of BLM LUPA Decisions Outside of Plan Area

##### Natural Communities and Other Land Covers

There are 1,057,874 acres of natural communities in BLM LUPA lands outside the plan area. Of these, 166,935 acres would be proposed NLCS lands and 266,345 would be existing and proposed ACECs, for a total of 316,764 acres (accounting for overlapping designations) of natural communities in BLM LUPA conservation under Alternative 4.

**Table IV.7-309**  
**Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area –**  
**Alternative 4**

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation <sup>†</sup>		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	Existing & Proposed ACECs (acres)	
<i>Dune/Rocky, Barren, and Un-vegetated Communities</i>				
Barren	23,402	1,619	2,841	3,139
<i>Forest/Woodland Communities</i>				
Closed-Cone Pine-Cypress	287	0	231	231
Jeffrey Pine	27	0	0	0
Juniper	31,590	691	6,963	6,975
Montane Hardwood	282	0	0	0
Pinyon-Juniper	73,444	7,821	10,085	11,237
Ponderosa Pine	1,445	0	0	0
Sierran Mixed Conifer	120	0	0	0
Subalpine Conifer	189	0	0	0
<i>Grassland Communities</i>				
Annual Grassland	6,353	0	0	0
<i>Riparian/Wetland Communities</i>				
Desert Riparian	205	2	205	205
Desert Wash	22,414	3,492	9,106	9,169

**Table IV.7-309**  
**Estimated Acres of Natural Communities in BLM LUPA Outside of Plan Area –**  
**Alternative 4**

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation <sup>†</sup>		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	Existing & Proposed ACECs (acres)	
Freshwater Emergent Wetland	952	0	0	0
Lacustrine	99	19	19	19
<i>Scrub and Chaparral Communities</i>				
Alkali Desert Scrub	189,771	26,268	10,729	24,156
Chamise-Redshank Chaparral	8,317	2,279	4,117	5,461
Coastal Scrub	12	0	0	0
Desert Scrub	572,907	105,818	208,661	231,431
Desert Succulent Shrub	35,115	2,693	957	3,311
Joshua Tree	21,034	2,091	2,135	2,820
Low Sage	3,035	2,995	895	2,995
Mixed Chaparral	12,821	2,895	5,465	7,209
Sagebrush	48,566	7,989	3,673	8,143
<i>Other Land Covers</i>				
Cropland	3,617	0	0	0
Irrigated Hayfield	421	0	0	0
Urban	1,449	263	263	263
<b>Total</b>	<b>1,057,874</b>	<b>166,935</b>	<b>266,345</b>	<b>316,764</b>

Source: State of California GAP GIS data for vegetation classifications (CDFG 1998).

### Special-Status Species

Many special-status species are known to occur within proposed or existing conservation areas within the BLM LUPA lands outside of the Plan Area. See Table IV.7-310 below for the list of special-status species within conservation areas. Refer to Table IV.7-309 above to see the natural communities present within the conservation areas that provide habitat for these species. Table IV.7-50 provides a cross-walk for the special-status species and the natural communities that provide habitat for these species.

In order to analyze how the preservation and conservation of the BLM LUPA lands outside of the Plan Area will affect the special-status species listed below, the preferred BLM LUPA

conservation land boundaries within the CDCA but outside of the DRECP plan area were applied to the species' occurrence data available from CNDDDB. Based on this analysis, Alternative 4 is expected to beneficially affect the 94 species shown in Table IV.7-310 that are known to occur within the NLCS and ACECs on BLM LUPA lands outside of the Plan Area, and the natural communities that provide habitat for these species shown in Table IV.7-309 above. Under Alternative 4, 57 species, dominated by plant species, are not present within existing and proposed BLM LUPA conservation lands.

**Table IV.7-310  
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4**

Special-Status Species Present	Federal Status <sup>1</sup>	State Status <sup>2</sup>	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
<i>Amphibians/Reptiles</i>			
Agassiz's desert tortoise	FT	ST	Y
Arroyo toad	FE	CSC	Y
Barefoot gecko	BLM	ST	Y
Coast horned lizard	-	CSC	Y
Coachella fringe-toed lizard	FE	SC	Y
Couch's spadefoot	BLM	CSC	N
flat-tailed horned lizard	BLM, FS	CSC	Y
Rosy boa	BLM, FS	-	Y
Sierra Madre yellow-legged frog	FE	SC, CSC	Y
<i>Fish</i>			
desert pupfish	FE	SE	Y
Mohave tui chub	FE	SE	Y
<i>Birds</i>			
burrowing owl	-	CSC	Y
California black rail	BLM, BCC	ST	Y
Crissal thrasher	BLM, BCC	CSC	N
Gray vireo	BLM, BCC	CSC	N
golden eagle	BGEPA	FP	Y
Inyo California towhee	FT	SE	Y
Le Conte's thrasher	BLM	CSC	Y
Least Bell's vireo	FE	SE	N
Loggerhead shrike	BCC	CSC	N
Long-eared owl	BLM	CSC	Y
prairie falcon	BCC	-	Y

**Table IV.7-310  
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4**

Special-Status Species Present	Federal Status <sup>1</sup>	State Status <sup>2</sup>	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Swainson’s hawk	BLM	ST	N
southwestern willow flycatcher	FE	SE	Y
Vermilion flycatcher	-	CSC	N
western snowy plover	FT	CSC	Y
Yellow warbler	BCC	CSC	Y
Yuma clapper-rail	FE, BCC	ST, FP	Y
<i>Mammals</i>			
American badger	-	CSC	Y
big free-tailed bat	-	CSC	N
Hoary bat	-	WBWG	Y
Long-eared myotis	BLM	-	N
Mojave ground squirrel	-	ST	Y
Nelson’s bighorn sheep	BLM	-	Y
Palm Springs pocket mouse	BLM	CSC	Y
pallid bat	BLM	CSC	Y
Peninsular bighorn sheep	FE, BLM	ST, FP	Y
pocketed free-tailed bat	-	CSC	N
Spotted bat	BLM	CSC	Y
Townsend’s big-eared bat	BLM	CSC	Y
Western mastiff bat	BLM	CSC	N
Western small-footed myotis	BLM	-	Y
western yellow bat	-	CSC	N
<i>Plants</i>			
Abrams’ spurge	-	(CRPR 2.2)	N
Amargosa beardtongue	BLM	(CRPR 1B.3 )	Y
annual rock-nettle	-	(CRPR 2.2)	Y
Arizona pholistoma	-	(CRPR 2.3)	Y
Arizona spurge	-	(CRPR 2.3)	Y
Ash Meadows buckwheat	-	(CRPR 2.3)	N
Bailey’s greasewood	-	(CRPR 2.3)	Y
Barneby’s phacelia	-	(CRPR 2.3)	N
black bog-rush	-	(CRPR 2.2)	N

**Table IV.7-310  
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4**

Special-Status Species Present	Federal Status <sup>1</sup>	State Status <sup>2</sup>	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
bristly scaleseed	-	(CRPR 2.3)	N
brown turbans	-	(CRPR 2.3)	Y
California ayenia	-	(CRPR 2.3)	N
California satintail	-	(CRPR 2.1)	Y
California saw-grass	-	(CRPR 2.2)	Y
chaparral sand-verbena	-	(CRPR 1B.1)	Y
Charlotte's phacelia	BLM	(CRPR 1B.2)	Y
Chimney Creek nemacladus	-	(CRPR 1B.2)	N
Coachella Valley milk-vetch	FE	(CRPR 1B.2)	Y
Cove's cassia	-	(CRPR 2.2)	Y
creamy blazing star	-	(CRPR 1B.3)	Y
curly herissantia	-	(CRPR 2.3)	Y
Cushenbury buckwheat	FE	(CRPR 1B.1)	N
Cushenbury oxytheca	FE	(CRPR 1B.1)	N
Death Valley sandpaper-plant	-	(CRPR 1B.2)	Y
Dedecker's clover	-	(CRPR 1B.3)	N
desert beauty	-	(CRPR 2.3)	N
desert spike-moss	-	(CRPR 2.2)	Y
dwarf germander	-	(CRPR 2.2)	N
Emory's crucifixion-thorn	-	(CRPR 2.2)	N
forked buckwheat	-	(CRPR 1B.2)	N
Geyer's milk-vetch	-	(CRPR 2.2)	N
Gilman's buckwheat	-	(CRPR 1B.3)	N
Gilman's cymopterus	-	(CRPR 2.3)	N
Gilman's goldenbush	-	(CRPR 1B.3)	N
glandular ditaxis	-	(CRPR 2.2)	N
Greene's rabbitbrush	-	(CRPR 2.3)	N
hairy stickleaf	-	(CRPR 2.3)	Y
Hall's daisy	-	(CRPR 1B.3)	N
Harwood's milk-vetch	-	(CRPR 2.2)	Y
Hoffmann's buckwheat	-	(CRPR 1B.3)	Y
Holmgren's lupine	-	(CRPR 2.3)	N

**Table IV.7-310  
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4**

Special-Status Species Present	Federal Status <sup>1</sup>	State Status <sup>2</sup>	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Inflated Cima milk-vetch	-	(CRPR 1B.3)	Y
intermontane lupine	-	(CRPR 2.3)	Y
Inyo blazing star	-	(CRPR 1B.3)	Y
Inyo County star-tulip	-	(CRPR 1B.1)	N
Inyo rock daisy	-	(CRPR 1B.2)	Y
jackass-clover	-	(CRPR 2.2)	Y
Jacumba milk-vetch	-	(CRPR 1B.2)	N
July gold	-	(CRPR 1B.3)	N
Kelso Creek monkeyflower	BLM	(CRPR 1B.2)	Y
Kern Plateau bird's-beak	-	(CRPR 1B.3)	N
Kern River evening-primrose	-	(CRPR 1B.3)	Y
King's eyelash grass	-	(CRPR 2.3)	Y
knotted rush	-	(CRPR 2.3)	N
Lancaster milk-vetch	-	(CRPR 1B.1)	N
Las Animas colubrina	-	(CRPR 2.3)	Y
Latimer's woodland-gilia	-	(CRPR 1B.2)	Y
little-leaf elephant tree	-	(CRPR 2.3)	N
long-stem evening-primrose	-	(CRPR 2.2)	N
Mexican hulsea	-	(CRPR 2.3)	Y
Mormon needle grass	-	(CRPR 2.3)	N
Mountain Springs bush lupine	-	(CRPR 1B.3)	Y
Muir's tarplant	-	(CRPR 1B.3)	N
Nevada oryctes	-	(CRPR 2.1)	Y
Nine Mile Canyon phacelia	-	(CRPR 1B.2)	Y
Orcutt's linanthus	-	(CRPR 1B.3)	Y
Orcutt's woody-aster	-	(CRPR 1B.2)	Y
Orocopia sage	BLM	(CRPR 1B.3)	Y
Owen's Valley checkerbloom	BLM	SE (CRPR 1B.1)	Y
Owens Peak lomatium	-	(CRPR 1B.3)	N
Palmer's mariposa-lily	-	(CRPR 1B.2)	N
Panamint daisy	-	(CRPR 1B.2)	Y

**Table IV.7-310**  
**Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4**

Special-Status Species Present	Federal Status <sup>1</sup>	State Status <sup>2</sup>	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
Panamint dudleya	-	(CRPR 1B.3)	Y
Panamint Mountains buckwheat	-	(CRPR 1B.3)	Y
Panamint Mountains lupine	-	(CRPR 1B.2)	Y
Panamint rock-goldenrod	-	(CRPR 2.3)	Y
Parish's daisy	FT	(CRPR 1B.1)	Y
Parish's desert-thorn	-	(CRPR 2.3)	Y
Parry's monkeyflower	-	(CRPR 2.3)	N
Parry's spineflower	-	(CRPR 1B.1)	Y
Pierson's milk-vetch	FT	SE	N
pink fairy-duster	-	(CRPR 2.3)	Y
Pinyon Mesa buckwheat	-	(CRPR 1B.3)	Y
pinyon rockcress	-	(CRPR 2.3)	Y
prairie wedge grass	-	(CRPR 2.2)	Y
pygmy lotus	-	(CRPR 1B.3)	Y
Ripley's aliciella	-	(CRPR 2.3)	Y
Robison's monardella	-	(CRPR 1B.3)	Y
Robbins' nemacladus	-	(CRPR 1B.2)	N
San Bernardino aster	-	(CRPR 1B.2)	Y
San Bernardino milk-vetch	-	(CRPR 1B.2)	Y
San Diego button-celery	FE	SE, (CRPR 1B.1)	Y
sanicle cymopterus	-	(CRPR 1B.2)	N
Santa Rosa Mountains leptosiphon	-	(CRPR 1B.3)	N
Shockley's milk-vetch	-	(CRPR 2.2)	N
Shockley's rockcress	-	(CRPR 2.2)	Y
slender cottonheads	-	(CRPR 2.2)	N
slender-leaved ipomopsis	-	(CRPR 2.3)	Y
southern jewel-flower	-	(CRPR 1B.3)	N
Spanish needle onion	BLM	(CRPR 1B.3)	N
spear-leaf matelea	-	(CRPR 2.3)	Y
spiny-hair blazing star	-	(CRPR 2.1)	Y
sticky geraea	-	(CRPR 2.3)	Y

**Table IV.7-310  
 Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 4**

Special-Status Species Present	Federal Status <sup>1</sup>	State Status <sup>2</sup>	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
sweet-smelling monardella	-	(CRPR 1B.3)	N
triple –ribbed milk-vetch	FE	(CRPR 1B.2)	Y
Wheeler's dune-broom	-	(CRPR 2.2)	N
white-bracted spineflower	-	(CRPR 1B.2)	Y
Wildrose Canyon buckwheat	-	(CRPR 1B.3)	Y
yellow ivesia	-	(CRPR 2.3)	N

**Notes:**

CRPR = California Rare Plant Rank; Y = yes, present; N = not present

<sup>1</sup> Federal Status – FE: Federally Endangered; FT: Federally Threatened; FD: Federally Delisted; FS: Forest Service Sensitive; BLM: Bureau Land Management Sensitive; BCC: Service Bird of Conservation Concern; BGEPA: Bald and Golden Eagle Protection Act.

<sup>2</sup> State Status – SE: California Endangered; ST: California Threatened; SC: California Candidate for listing; CSC: California Species of Concern; FP: Fully Protected; WBWG: Western Bat Working Group species. California Rare Plant Rank (CRPR, formerly known as the CNPS List) - CRPR 1B: Considered rare, threatened, or endangered in California and elsewhere; CRPR 2: Considered rare, threatened, or endangered in California, but more common elsewhere; CRPR 3: Plants which need more information; CRPR 4: Limited distribution – a watch list.

**Critical Habitat for Special-status Species**

Six Special-status Species have Critical Habitat within BLM Lands outside the Plan Area. Table IV.7-311 shows the total amount of Critical Habitat and the amount within each BLM land designation for each species. No Critical Habitat for the least Bell’s vireo would occur within BLM Conservation Designation. The largest portion of Critical Habitat for the remaining species would be within Areas of Critical Environmental Concern, with additional amounts within National Conservation Lands, with both designations providing specific protections for biological resources. Critical Habitat for all species except Coachella Valley fringe-toed lizard and least Bell’s vireo would occur within Special Recreation Management Areas, which would also be managed to protect Critical Habitat.

**Table IV.7-311**  
**Critical Habitat within BLM LUPA Conservation Designations for Special-Status Species – Alternative 4**

Common Name	Acres of Critical Habitat within BLM LUPA Lands	NLCS (acres)	ACEC (acres)	SRMA (acres)	Total in BLM Designations
Coachella Valley milk-vetch	10,000	400	500	1,000	1,900
Inyo California towhee	2,000	20	800	500	1,320
Peninsular Bighorn sheep	317,000	400	9,000	200	9,600
Coachella Valley fringe-toed lizard	12,000	800	2,000	0	2,800
Desert tortoise	173,000	21,000	99,000	55,000	175,000
Least Bell's vireo	600	0	0	0	0

<sup>1</sup> Includes overlapping designations

### **Landscape Habitat Linkages and Wildlife Movement Corridors**

As detailed in Vol. III.7.13.2.4, Landscape Habitat Linkages and Wildlife Movement Corridors, there are important linkages and corridors North of the Plan Area within the Owens Valley, and Inyo Mountains, and Southwest of the Plan Area within and adjacent to the Coachella Valley. The NCLS lands and ACECs proposed for Alternative 4 offer protection at critical locations within these corridors, providing a benefit to Landscape Habitat Linkages and Wildlife Movement Corridors outside of the Plan Area.

#### ***IV.7.3.6.6 CEQA Significance Determination for the Alternative 4***

***Impact BR-1: Siting, construction, decommissioning, and operational activities would result in loss of native vegetation.***

Alternative 4 would result in loss of native vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of the loss of native vegetation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy, plus implementation of

Mitigation Measure BR-1a for rare natural communities, would reduce the adverse effects from the loss of native vegetation to a less than significant impact with mitigation.

***Impact BR-2: Siting, construction, decommissioning, and operational activities would result in adverse effects to jurisdictional waters and wetlands.***

Alternative 4 would result in adverse effects to jurisdictional waters and wetlands. These impacts would occur in saltbush scrub and playa natural communities determined to be jurisdictional and open water areas of the Salton Sea. The adverse effects to jurisdictional waters and wetlands would be avoided and minimized through the implementation existing applicable laws and regulations, through implementation of avoidance and minimization CMAs, and through compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects to jurisdictional waters and wetlands to a less than significant impact.

***Impact BR-3: Siting, construction, decommissioning, and operational activities would result in degradation of vegetation.***

Alternative 4 would result in degradation of vegetation that would be an adverse impact to natural communities and the species these communities support. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas and would predominantly impact desert scrubs, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of vegetation degradation would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of degradation of vegetation to a less than significant impact.

***Impact BR-4: Siting, construction, decommissioning, and operational activities would result in loss of listed and sensitive plants; disturbance, injury, and mortality of listed and sensitive wildlife; and habitat for listed and sensitive plants and wildlife.***

Alternative 4 would result in an adverse impact to listed and sensitive plants and wildlife and habitat for listed and sensitive plant and wildlife. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. Some of the adverse

effects to plant and wildlife species and habitat would be minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Although the DRECP Variance lands have the potential to undermine the integrity and long-term conservation value of the conservation strategy for desert tortoise and other species under Alternative 4, implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects from the uncertainty of future conservation and management of plants and wildlife and their habitat to a less than significant impact.

Implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects from the loss of plant and wildlife Non-Covered Species and their habitat to a less than significant impact with mitigation.

***Impact BR-5: Siting, construction, decommissioning, and operational activities could result in loss of nesting birds (violation of the federal Migratory Bird Treaty Act and California Fish and Game Code Sections 3503, 3503.5, 3511, and 3513).***

Alternative 4 has the potential to result in an adverse impact resulting from the loss of nesting birds. These impacts have the potential to occur anywhere Covered Activities are implemented. This potential adverse would be avoided and minimized through the implementation of avoidance and minimization CMAs developed to comply with existing applicable laws and regulations related to nesting birds. Implementation of the CMAs would reduce the potential adverse effects of the loss of nesting birds to a less than significant impact.

***Impact BR-6: Siting, construction, decommissioning, and operational activities would adversely affect habitat linkages and wildlife movement corridors, the movement of fish, and native wildlife nursery sites.***

Alternative 4 would result in adverse impacts to habitat linkages and wildlife movement corridors. These impacts to habitat linkages and movement of migratory birds would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. The potential adverse effects to habitat linkages and wildlife movement would be minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be minimized through requiring renewable energy development to occur within DFAs and through the

implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. The inclusion of DRECP Variance Lands in this alternative and the uncertainty of future management of these lands undermines the strength of the DRECP Plan-Wide Reserve Design Envelope for Alternative 4. Although the DRECP Variance lands leads to uncertainty regarding the future protection and long-term viability of habitat linkages within the DRECP Plan-Wide Reserve Design Envelope for Alternative 4, implementation of the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects on habitat linkages and wildlife movement to a less than significant impact.

***Impact BR-7: Siting, construction, decommissioning, and operational activities would result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife.***

Alternative 4 would have the potential to result in adverse impacts of habitat fragmentation and population isolation. The potential adverse effects of habitat fragmentation and population isolation would be avoided and minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope and the Monitoring and Adaptive Management Program. Additionally, impacts of habitat fragmentation and population isolation would be avoided and minimized through requiring renewable energy development to occur within DFAs and through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. Implementation of the DRECP and the CMAs as part of the overall DRECP conservation strategy would reduce the adverse effects of habitat fragmentation and population isolation to a less than significant impact.

***Impact BR-8: Construction of generation facilities or transmission lines would result in increased predation of listed and sensitive wildlife species.***

Alternative 4 would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. As part of the overall DRECP conservation strategy, implementation of a Common Raven management actions (AM-PW-6) would reduce the adverse effects to Covered and Non-Covered Species to a less than significant impact.

***Impact BR-9: Operational activities would result in avian and bat injury and mortality from collisions, thermal flux or electrocution at generation and transmission facilities.***

Alternative 4 would result in loss of avian and bat Covered Species that would be an adverse impact to avian and bat populations. These impacts would be concentrated in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas. The adverse effects of avian

and bat injury and mortality would be avoided and minimized through the implementation of avoidance and minimization CMAs and compensation CMAs established to offset the impacts of Covered Activities. These CMAs would contribute to the overall DRECP conservation strategy, which includes conservation within Reserve Design Lands and a coordinated Monitoring and Adaptive Management Program. Implementation of the CMAs as part of the overall DRECP conservation strategy, Bird and Bat Covered Species Operational Actions would reduce the adverse effects to a less than significant impact.

The level of impact on avian and bat Non-Covered Species would be as discussed for the Covered Species.

#### ***IV.7.3.6.7 Comparison of Alternative 4 with Preferred Alternative***

Chapter IV.27 presents a comparison of all action alternatives and the No Action Alternative across all disciplines. This section summarizes the comparison of Alternative 4 with the Preferred Alternative.

##### **IV.7.3.6.7.1 Alternative 4 Compared with Preferred Alternative for Plan-Wide DRECP**

Alternative 4 would concentrate renewable energy development into over 1.6 million acres of DFAs (7% of the Plan Area) as compared to the approximately 2 million acres of DFAs (9% of the Plan Area) under the Preferred Alternative. Under both Alternative 4 and the Preferred Alternative, 87% of the DFAs are characterized by low terrestrial intactness. Alternative 4 would result in approximately 0.4 million acres less conservation acreage within Reserve Design Lands, and the BLM LUPA conservation designations vary considerably between these alternatives. Alternative 4 BLM LUPA conservation designations would include 38% ACEC designations, 54% NLCS designations, and 8% wildlife allocation designations, whereas the Preferred Alternative BLM LUPA conservation designations would include 32% ACEC designations, 65% NLCS designations, and 3% wildlife allocation designations. The following provides a comparative analysis for specific biological resources.

#### **Impacts to Natural Communities**

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

##### ***California forest and woodlands***

Overall, approximately 100 acres of California forest and woodlands would be impacted under both Alternative 4 and the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from transmission in the Pinto Lucerne Valley and

Eastern Slopes subarea, but greater impacts from solar development in the West Mojave and Eastern Slopes subarea.

### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 2,000 acres of chaparral and coastal scrubs would be impacted under both Alternative 4 and the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from wind and transmission in the Pinto Lucerne Valley and Eastern Slopes but fewer impacts from solar development in the West Mojave and Eastern Slopes subarea under Alternative 4.

### ***Desert conifer woodlands***

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under both Alternative 4 and the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar and transmission in the Pinto Lucerne Valley and Eastern Slopes and from transmission in the West Mojave and Eastern Slopes subareas.

### ***Desert outcrop and badlands***

Overall, approximately 12,000 acres of desert outcrop and badlands would be impacted under Alternative 4, compared to 10,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountains, Owens River Valley, and Panamint Death Valley, mostly from solar and transmission. However, there are fewer impacts in the Imperial Borrego Valley, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

### ***Desert scrubs***

Overall, approximately 93,000 acres of desert scrubs would be impacted under Alternative 4, compared to 92,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountains, Owens River Valley, Panamint Death Valley, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas, mostly from solar and transmission. There are fewer impacts in the Imperial Borrego Valley, Kingston and Funeral Mountain, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes.

### ***Dunes***

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 4 since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would

prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

### ***Grasslands***

Overall, approximately 8,000 acres of grasslands would be impacted under Alternative 4, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater total impacts in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas.

### ***Riparian***

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 4 since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

### ***Wetlands***

Overall, approximately 11,000 acres of wetlands would be impacted under Alternative 4, compared to 10,000 acres under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 4 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Compared to the Preferred Alternative, there are fewer impacts mostly in the West Mojave and Eastern Slopes subarea with fewer impacts from transmission to North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat in this subarea under Alternative 4. However, there are more impacts to open water at the Salton Sea in the Imperial Borrego Valley subarea under Alternative 4. There are also more impacts in the Cadiz Valley and Chocolate Mountains, mostly to Southwestern North American salt basin and high marsh and North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat. There are also greater impacts to Southwestern North American salt basin and high marsh in the Panamint Death Valley subarea. The differences to the other subareas are not as great.

### **Conservation of Natural Communities**

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

### ***California forest and woodlands***

Overall, approximately 62,000 acres (41%) of California forest and woodlands would be conserved under both Alternative 4 and the Preferred Alternative. Compared to the Preferred Alternative, more California forest and woodland is conserved in the West Mojave and Eastern Slopes subarea, but less is conserved in the Pinto Lucerne Valley and Eastern Slopes subarea.

### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 31,000 acres (28%) of chaparral and coastal scrubs would be conserved under both Alternative 4 and the Preferred Alternative.

### ***Desert conifer woodlands***

Overall, approximately 185,000 acres (65%) of desert conifer woodlands would be conserved under Alternative 4, compared to 186,000 acres (65%) under the Preferred Alternative. Compared to the Preferred Alternative, there is less conservation, mostly from BLM LUPA Conservation Planning Designations, in the Pinto Lucerne Valley and Eastern Slopes subarea.

### ***Desert outcrop and badlands***

Overall, approximately 1,237,000 acres (77%) of desert outcrop and badlands would be conserved under Alternative 4, compared to 1,295,000 acres (80%) under the Preferred Alternative. Although conservation between these subareas is similar overall, the distribution of conservation varies. Compared to the Preferred Alternative, there is greater conservation of this general community only in the Mojave and Silurian Valley subarea. There is less conserved acreage in the remaining subareas except the West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Panamint Death Valley subareas where conservation of desert outcrop and badlands is roughly the same for both alternatives. The greatest differences between the alternatives are in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas.

### ***Desert scrubs***

Overall, approximately 9,430,000 acres (71%) of desert scrubs would be conserved under Alternative 4, compared to 9,729,000 acres (74%) under the Preferred Alternative. Only the West Mojave and Eastern Slopes subarea has greater conservation of desert scrubs under Alternative 4 compared to the Preferred Alternative. The largest difference is in the Cadiz Valley and Chocolate Mountains subarea.

### ***Dunes***

Overall, approximately 207,000 acres (73%) of dunes would be conserved under Alternative 4, compared to 209,000 acres (74%) under the Preferred Alternative. The most substantial differences between the alternatives are fewer BLM LUPA conservation designations in the Mojave and Silurian Valley, Providence and Bullion Mountains, and Cadiz Valley and Chocolate Mountains subareas under Alternative 4 compared to the Preferred Alternative. Imperial Borrego Valley is the only subarea with greater conservation under Alternative 4.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

### ***Grasslands***

Overall, approximately 52,000 acres (22%) of grasslands would be conserved under Alternative 4, compared to 54,000 acres (22%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation of grasslands in the West Mojave and Eastern Slopes subarea and more conservation in the Pinto Lucerne Valley and Eastern Slopes subarea.

### ***Riparian***

Overall, approximately 621,000 acres (63%) of riparian communities would be conserved under Alternative 4, compared to 715,000 acres (72%) under the Preferred Alternative. The most substantial difference between the alternatives is much less conservation in BLM LUPA conservation designations in the Imperial Borrego Valley subarea. No subareas have greater conservation of riparian communities under Alternative 4 than under the Preferred Alternative.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

## ***Wetlands***

Overall, approximately 440,000 acres (51%) of wetlands would be conserved under Alternative 4, compared to 433,000 acres (50%) under the Preferred Alternative. There is more conserved acreage of wetlands in the Providence and Bullion Mountains and West Mojave and Eastern Slopes subareas. All of the other subareas have fewer or about the same conserved acres of wetland communities under Alternative 4.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

## **Impacts to Covered Species**

Overall, there are fewer impacts to suitable habitat for Covered Species under Alternative 4 compared to the Preferred Alternative. Less suitable habitat for Covered Species would be impacted under Alternative 3 in four subareas: Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas with the greatest difference in the Imperial Borrego Valley subarea.

More suitable habitat for Covered Species would be impacted under Alternative 4 compared to the Preferred Alternative for two of the four amphibian/reptile Covered Species—Mojave fringe-toed lizard and Tehachapi slender salamander—but the difference in impacts to Tehachapi slender salamander suitable habitat are minimal. Alternative 4 would result in less impact to desert tortoise important areas as compared to the Preferred Alternative. Six of the covered bird species have greater impacts to their suitable habitat under Alternative 4 including some birds associated with riparian/wetland areas (i.e., least Bell's vireo, tricolored blackbird, western yellow-billed cuckoo) and birds associated with other habitats (Bendire's thrasher, California condor, golden eagle). Suitable habitat for all of the covered fish species except Mohave tui chub, which would not be impacted under either alternative, would have greater impacts under Alternative 4, but the impacts would not differ by more than 60 acres for any of the species. Suitable habitat for bighorn sheep (both mountain and inter-mountain), California leaf-nosed bat, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted more under Alternative 4 than under the Preferred Alternative. Alternative 4 would result in greater impacts to Mohave ground squirrel important areas compared to the Preferred Alternative. Only three of the ten covered plant species would have greater impacts under Alternative 4 compared to the Preferred Alternative, including alkali mariposa-lily, Bakersfield cactus, and Owens Valley checkerbloom. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

## **Impacts to Non-Covered Species**

Overall, Alternative 4 could result in greater potential impacts to suitable habitat for nearly half of the Non-Covered Species evaluated as compared to the Plan-wide Preferred Alternative.

More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative compared to the Alternative 4 for the spring- and cave-restricted invertebrates evaluated. However, under both alternatives, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be impacted under Alternative 4 for fewer amphibian/reptile species compared to the Preferred Alternative. Most of the bird Non-Covered Species have greater potential impacts to suitable habitat under Alternative 4 as compared to the Preferred Alternative. Both of the fish Non-Covered species could potentially have greater impacts under the Preferred Alternative; however, implementation of CMAs would preclude development within the habitat for the fish, thus further protecting this species under either Alternative. Greater potential impacts to suitable habitat for more than half the mammal Non-Covered Species could occur under Alternative 4 as compared to the Preferred Alternative. Less than half of the plant Non-Covered Species could have greater potential impacts under Alternative 4 compared to the Preferred Alternative.

## **Conservation of Covered Species**

Overall, there is less conservation of Covered Species habitat under Alternative 4 compared to the Preferred Alternative. There is less conservation in BLM LUPA conservation designations under Alternative 4, but more conservation in Conservation Planning Areas. Compared to the Preferred Alternative there is only greater conservation of suitable habitat for Covered Species in the West Mojave and Eastern Slopes subarea under Alternative 4.

More suitable habitat for the following species would be conserved under Alternative 4 compared to the Preferred Alternative: flat-tailed horned lizard, California black rail, greater sandhill crane, Mohave ground squirrel, Barstow woolly sunflower, desert cymopterus, Bakersfield cactus, and Mojave tarplant. For the remaining species, more or about the same acreage of suitable habitat would be conserved under the Preferred Alternative.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

## **Impacts to the Desert Linkage Network**

Overall, more acres of the desert linkage network would be impacted under Alternative 4 compared to the Preferred Alternative. The biggest differences between the Alternatives would be in the Cadiz Valley and Chocolate Mountains subarea.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-265, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

## **Conservation of the Desert Linkage Network**

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 4. Some areas with more conservation under the Preferred Alternative compared to Alternative 4 include the Cadiz Valley and Chocolate Mountains subarea, the linkage along East Mesa in the Imperial Borrego Valley, the Chuckwalla Valley, Palo Verde Mesa, Vidal Valley, Silurian Valley, and near Squaw Mountain. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

## **Operational Impacts**

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 4 would result in slightly larger levels of terrestrial operational impacts in the Plan Area when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 4. The degradation of vegetation and disturbance of wildlife during operations in Alternative 4 would be more heavily distributed in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas, while the Preferred Alternative would have a larger distribution of terrestrial operational impacts in the Imperial Borrego Valley subarea. Both the Preferred Alternative and Alternative 4 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would

implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Alternative 4 would result in an estimated 2,300 fewer bird collisions and 10,700 fewer bat collision with wind turbines than the Preferred Alternative. However, this would result in a 5,212 acres increase in solar development, with a proportional increase in the associated operational impacts. The distribution of solar impacts would weighted towards Cadiz and Chocolate Mountains and away from Imperial Borrego Valley when compared to the Preferred Alternative. Alternative 4 would result in a reduction of operational impacts from solar in all subareas. However, impacts from transmission would be similar throughout the plan area, with only transmission impacts in Pinto Lucerne Valley being greater than the Preferred Alternative.

#### **IV.7.3.6.7.2 Alternative 4 Compared with Preferred Alternative for the BLM Land Use Plan Amendment**

Alternative 4 would concentrate renewable energy development in approximately 258,000 acres of DFAs on BLM-administered lands as compared to the approximately 367,000 acres of DFAs on BLM-administered lands under the Preferred Alternative. Alternative 4 would designate 4.4 million acres of BLM LUPA conservation designations on BLM-administered lands, including 2.6 million acres of NLCS, 1.5 million acres of ACEC, and 274,000 acres of wildlife allocation, whereas the Preferred Alternative would designate 4.9 million acres of BLM LUPA conservation designations on BLM-administered lands, including 3.5 million acres of NLCS, 1.4 million acres of ACEC, and over 18,000 acres of wildlife allocation under the Preferred Alternative. The following provides a comparative analysis for specific biological resources.

#### **Impacts to Natural Communities**

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

##### ***California forest and woodlands***

Overall, approximately 30 acres of California forest and woodlands would be impacted under Alternative 4 for the BLM LUPA, compared to 40 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from transmission in the Pinto Lucerne Valley and Eastern Slopes subarea.

##### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 200 acres of chaparral and coastal scrubs would be impacted under Alternative 4 for the BLM LUPA, compared to 300 acres under the Preferred Alternative.

Compared to the Preferred Alternative, there are fewer impacts from solar and transmission in the Pinto Lucerne Valley and Eastern Slopes. There are also fewer impacts from solar and transmission development in the West Mojave and Eastern Slopes subarea.

### ***Desert conifer woodlands***

Overall, approximately 300 acres of desert conifer woodlands would be impacted under Alternative 4, compared to 400 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar and transmission in the Pinto Lucerne Valley and Eastern Slopes, and fewer impacts from solar in the West Mojave and Eastern Slopes subareas.

### ***Desert outcrop and badlands***

Overall, approximately 10,000 acres of desert outcrop and badlands would be impacted under Alternative 4 for the BLM LUPA, compared to 8,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountains. There are fewer impacts in the remaining impacted subareas with the largest difference in the Imperial Borrego Valley subarea.

### ***Desert scrubs***

Overall, approximately 42,000 acres of desert scrubs would be impacted under Alternative 4 for the BLM LUPA, compared to 46,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountains. Impacts are about the same or less in the remaining impacted subareas under Alternative 4, especially the Imperial Borrego Valley subarea.

### ***Dunes***

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 4 for the BLM LUPA since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

### ***Grasslands***

Overall, approximately 400 acres of grasslands would be impacted under Alternative 4 for the BLM LUPA, compared to 500 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development and transmission in the Cadiz Valley and Chocolate Mountains. However, total impacts are fewer under this Alternative primarily because there are fewer impacts from solar in the

West Mojave and Eastern Slopes subarea. There are also fewer impacts in the Pinto Lucerne Valley and Eastern Slopes subarea.

### ***Riparian***

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 4 for the BLM LUPA since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

### ***Wetlands***

Overall, approximately 3,000 acres of wetlands would be impacted under Alternative 4, compared to 4,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley and Chocolate Mountain and Panamint Death Valley subareas. There are fewer impacts primarily in the West Mojave and Eastern Slopes subarea, but other subareas have the about the same or fewer impacts. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 4 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

### **Conservation of Natural Communities for the BLM LUPA**

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

#### ***California forest and woodlands***

Overall, approximately 38,000 acres (86%) of California forest and woodlands would be conserved under both Alternative 4 and the Preferred Alternative for BLM LUPA. Compared to the Preferred Alternative, there is more conservation of California forest and woodlands in ACECs and less conservation in NLCS areas under Alternative 4.

#### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 11,000 acres (62%) of chaparral and coastal scrubs would be conserved under both Alternative 4 and the Preferred Alternative for the BLM LUPA. Overall, there is less conserved acreage in NLCS areas.

### ***Desert conifer woodlands***

Overall, approximately 41,000 acres (82%) of desert conifer woodlands would be conserved under both Alternative 4 and under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is less conservation in NLCS areas, but more conservation in ACECs under Alternative 4.

### ***Desert outcrop and badlands***

Overall, approximately 960,000 acres (80%) of desert outcrop and badlands would be conserved under Alternative 4, compared to 1,017,000 acres (85%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is less or about the same conservation of this general community in all of the Plan Area's subareas except the Mojave and Silurian Valley subarea. The greatest difference between the alternatives in terms of conservation of desert outcrop and badlands is in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas.

### ***Desert scrubs***

Overall, approximately 5,539,000 acres (79%) of desert scrubs would be conserved under Alternative 4, compared to 5,835,000 acres (83%) under the Preferred Alternative for the BLM LUPA. Only the West Mojave and Eastern Slopes subarea has more conservation under Alternative 4 than under the Preferred Alternative. The largest difference between the alternatives is in the Cadiz Valley and Chocolate Mountains subarea.

### ***Dunes***

Overall, approximately 86,000 acres (68%) of dunes would be conserved under Alternative 4, compared to 89,000 acres (70%) under the Preferred Alternative for the BLM LUPA. The largest differences are in more acreage of dunes conserved in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Owens River Valley subareas under the Preferred Alternative compared to Alternative 4. Overall, there is more conservation of dunes in wildlife allocations (wholly located in the Cadiz Valley and Chocolate Mountains) under Alternative 4, but less conservation in NLCS areas and ACECs.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

### ***Grasslands***

Overall, approximately 22,000 acres (76%) of grasslands would be conserved under Alternative 4, compared to 23,000 acres (80%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is less conservation in the Pinto Lucerne Valley and Eastern Slopes subarea in NLCS areas. All other subareas with conservation, including the Imperial Borrego Valley, Mohave and Silurian Valley, Panamint Death Valley, and West Mojave and Eastern Slopes subareas are roughly equal in total conservation compared to the Preferred Alternative. Overall, there is less conservation of grasslands in NLCS areas and more in ACECs and wildlife allocations under Alternative 4.

### ***Riparian***

Overall, approximately 421,000 acres (65%) of riparian communities would be conserved under Alternative 4, compared to 515,000 acres (80%) under the Preferred Alternative for the BLM LUPA. The most substantial difference between the alternatives is much less conservation in the ACECs in the Imperial Borrego Valley subarea. All subareas have less total conservation under Alternative 4.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

### ***Wetlands***

Overall, approximately 189,000 acres (64%) of wetlands would be conserved under Alternative 4, compared to 184,490 acres (62%) under the Preferred Alternative. There is more conserved acreage of wetlands in the West Mojave and Eastern Slopes and Providence and Bullion Mountains subareas. All of the other subareas have the same or fewer conserved acres of wetland communities. Overall, there are fewer conserved acres in NLCS and ACECs areas and more conservation in wildlife allocations.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

### **Impacts to Covered Species**

Overall, there are lesser impacts to suitable habitat for Covered Species under Alternative 4 compared to the Preferred Alternative for the BLM LUPA. The only subareas where more suitable habitat for Covered Species would be impacted under Alternative 4 would be the Cadiz Valley and Chocolate Mountains, Owens River Valley, and Panamint Death Valley subareas. Compared to the Preferred Alternative, Alternative 4 would have less impacts to suitable habitat for 24 Covered Species. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

### **Impacts to Non-Covered Species**

Overall, Alternative 4 only has the potential for greater impacts to suitable habitat for a few Non-Covered Species as compared to the BLM LUPA Preferred Alternative.

More suitable habitat for Non-Covered Species has the potential to be impacted under the Preferred Alternative compared to the Alternative 4 for the spring- and cave-restricted invertebrates evaluated. However, under both alternatives, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats. More suitable habitat for Non-Covered Species could be impacted under the Preferred Alternative compared to Alternative 4 for all amphibian/reptile species. The majority of bird Non-Covered Species would have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 4. Both of the fish Non-Covered species could potentially have greater impacts under the Preferred Alternative; however, implementation of CMAs would preclude development within the habitat for the fish, thus further protecting this species under either Alternative. Greater potential impacts to suitable habitat for all of the mammal Non-Covered Species could occur under the Preferred Alternative as compared to Alternative 4. Only 1 of the 61 plant Non-Covered Species could have greater potential impacts under Alternative 4 compared to the Preferred Alternative.

### **Conservation of Covered Species**

Overall, there is less conservation of Covered Species habitat under Alternative 4 compared to the Preferred Alternative. There is much less conservation in NLCS areas under Alternative 4, but more conservation in ACECs and wildlife allocations. The only subarea with wildlife allocations under the Preferred Alternative is the West Mojave and Eastern Slopes subarea, but wildlife allocations are included in four of the subareas under Alternative 4. There is only greater conservation of Covered Species habitat in the West Mojave and Eastern Slopes subarea under Alternative 4 compared to the Preferred

Alternative. The greatest difference between alternatives among the remaining subareas would be in the Cadiz Valley and Chocolate Mountains subarea.

More suitable habitat for the following species would be conserved under Alternative 4 compared to the Preferred Alternative: flat-tailed horned lizard, California black rail, California condor, greater sandhill crane, mountain plover, Mohave ground squirrel, Bakersfield cactus, Mojave tarplant, and Barstow woolly sunflower. For the remaining species, more or roughly the same amount of suitable habitat would be conserved under the Preferred Alternative.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

### **Impacts to the Desert Linkage Network**

Overall, more acres of the desert linkage network would be impacted under Alternative 4 compared to the Preferred Alternative for the BLM LUPA, but impacts are not considerably different. The difference in impacts to the desert linkage network for the BLM LUPA are least between Alternative 4 and the Preferred Alternative compared to all other Alternatives and the Preferred Alternative.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-280, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate 10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

### **Conservation of the Desert Linkage Network**

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 4 for the BLM LUPA. Some areas with more conservation under the Preferred Alternative compared to Alternative 4 include the Cadiz Valley and Chocolate Mountains subarea, the linkage along East Mesa in the Imperial Borrego Valley, the Chuckwalla Valley, Palo Verde Mesa, Vidal Valley, Silurian Valley, and near Squaw Mountain. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

## Operational Impacts

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 4 would result in a slightly smaller amount of terrestrial operational impacts when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 4. The degradation of vegetation and disturbance of wildlife during operations in Alternative 4 would be more heavily distributed in the Cadiz Valley and Chocolate Mountains subarea on BLM Land, whereas the Preferred Alternative would have a greater distribution of terrestrial operational impacts within the Imperial Borrego Valley subarea on BLM Land. Both the Preferred Alternative and Alternative 4 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

Operational impacts of Alternative 4 on bird and bat Covered Species would result in an estimated 1,000 fewer bird collisions and 5,000 fewer bat collision with wind turbines than the Preferred Alternative. Differences would be especially marked in Pinto and Lucerne Valley and Cadiz Valley and Chocolate Mountains subareas. There would also be a 3,399 acres decrease in solar development, with a proportional decrease in the associated operational impacts. The distribution of solar impacts would be weighted towards Cadiz and Chocolate Mountains and away from Imperial Borrego Valley and other areas, when compared to the Preferred Alternative. Impacts follow similar patterns to the solar development namely there would be a significant increase in transmission impacts in Cadiz Valley and Chocolate Mountains coupled with a reduction in impacts elsewhere within the Plan area.

### **IV.7.3.6.7.3 Alternative 4 Compared with Preferred Alternative for NCCP**

The impacts of the NCCP for Alternative 4 are the same as those defined in Section IV.7.3.2.1 for the Plan-wide analysis. As a result, the comparison of Alternative 4 with the Preferred Alternative for the NCCP is the same as described above for Plan-wide DRECP.

### **IV.7.3.6.7.4 Alternative 4 Compared with Preferred Alternative for the GCP**

Alternative 4 would allow renewable energy development on approximately 1.3 million acres of DFAs on nonfederal lands as compared to the approximately 1.6 million acres of DFAs on nonfederal lands under the Preferred Alternative. Under Alternative 4, the

Reserve Design Lands would include approximately 2.7 million acres on nonfederal lands, including 434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.1 million acres within Conservation Planning Areas. This compares to the Preferred Alternative that includes approximately 2.7 million acres of Reserve Design Lands on nonfederal lands, including 434,000 acres within existing conservation areas, 1.2 million acres within BLM LUPA conservation designations, and 1.1 million acres within Conservation Planning Areas. The following provides a comparative analysis for specific biological resources.

### **Impacts to Natural Communities**

A summary of the differences between effects under this Alternative and the Preferred Alternative is provided below.

#### ***California forest and woodlands***

Overall, approximately 100 acres of California forest and woodlands would be impacted under Alternative 4 under the GCP, compared to 80 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development in the West Mojave and Eastern Slopes subarea.

#### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under both Alternative 4 and the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there are greater impacts from solar in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. However, there are fewer impacts from wind and transmission in the Pinto Lucerne Valley and Eastern Slopes subarea and from transmission in the West Mojave and Eastern Slopes subarea.

#### ***Desert conifer woodlands***

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under Alternative 4, compared to 900 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas, but fewer impacts from transmission and wind in those subareas.

#### ***Desert outcrop and badlands***

Overall, approximately 2,000 acres of desert outcrop and badlands would be impacted under Alternative 4, compared to 1,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Cadiz Valley

and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, Owens River Valley, and Panamint Death Valley subareas, with the greatest difference being in the Cadiz Valley and Chocolate Mountains subarea. There are fewer impacts in the Providence and Bullion Mountains subarea under Alternative 4 under the GCP than under the Preferred Alternative.

### ***Desert scrubs***

Overall, approximately 51,000 acres of desert scrubs would be impacted under Alternative 4 under the GCP, compared to 46,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar development and fewer impacts from wind overall. The Imperial Borrego Valley and Owens River Valley are the only subareas with geothermal effects under Alternative 4 under the GCP, which exceed those of the Preferred Alternative. GCP impacts from transmission are roughly the same under Alternative 4 compared to the Preferred Alternative. The largest difference between the alternatives is in greater impacts from solar in the West Mojave and Eastern Slopes subarea.

### ***Dunes***

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 4 under the GCP since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

### ***Grasslands***

Overall, approximately 7,000 acres of grasslands would be impacted under Alternative 4, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas under Alternative 4.

### ***Riparian***

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 4 under the GCP since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North

American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

### ***Wetlands***

Overall, approximately 6,000 acres of wetlands would be impacted under Alternative 4 under the GCP, compared to 5,000 acres under the Preferred Alternative. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 4 since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

Compared to the Preferred Alternative, there are greater impacts in all impacted subareas. The largest difference is in more impacts to open water at the Salton Sea in the Imperial Borrego Valley subarea under Alternative 4. Total impacts from transmission are slightly more under the Preferred Alternative.

### **Conservation of Natural Communities for the GCP**

A summary of the differences between conservation under this Alternative and the Preferred Alternative is provided below.

#### ***California forest and woodlands***

Overall, approximately 24,000 acres (23%) of California forest and woodlands would be conserved under both Alternative 4 and the Preferred Alternative for the GCP.

#### ***Chaparral and coastal scrubs (Cismontane scrub)***

Overall, approximately 11,000 acres (13%) of chaparral and coastal scrubs would be conserved under both Alternative 4 and the Preferred Alternative for the GCP.

#### ***Desert conifer woodlands***

Overall, approximately 19,000 acres (18%) of desert conifer woodlands would be conserved under both Alternative 4 and the Preferred Alternative for the GCP.

#### ***Desert outcrop and badlands***

Overall, approximately 109,000 acres (50%) of desert outcrop and badlands would be impacted under Alternative 4, compared to 110,000 acres (50%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is less conservation of this general community in the Owens River Valley subarea from BLM LUPA conservation designations. There is about the same conserved acreage in the remaining subareas.

### ***Desert scrubs***

Overall, approximately 832,000 acres (28%) of desert scrubs would be conserved under Alternative 4, compared to 833,000 acres (28%) under the Preferred Alternative for the GCP. The largest difference between the alternatives is in more conservation under Alternative 4 in the West Mojave and Eastern Slopes subarea, but there is also more conservation of desert scrubs in the Kingston and Funeral Mountains subarea. Of the remaining subareas with less conservation under Alternative 4, the Mojave and Silurian Valley, Owens River Valley, and Pinto Lucerne Valley and Eastern Slopes subareas have the largest difference between the two alternatives.

### ***Dunes***

Overall, approximately 7,000 acres (21%) of dunes would be conserved under both Alternative 4 and the Preferred Alternative for the GCP. There is more conservation of dunes in the Imperial Borrego Valley and Pinto Lucerne Valley and Eastern Slopes subareas, and less in the Owens River Valley subarea under Alternative 4 compared to the Preferred Alternative.

In addition to conservation, impacts to dune communities would be minimized under both alternatives since application of the CMAs would require that dune communities be avoided to the maximum extent feasible in DFAs. In addition, CMA application would prohibit Non-Covered Activities within Aeolian transport corridors, except as needed to maintain existing development or improve land management capabilities.

### ***Grasslands***

Overall, approximately 24,000 acres (12%) of grasslands would be conserved under both Alternative 4 and the Preferred Alternative for the GCP.

### ***Riparian***

Overall, approximately 74,000 acres (37%) of riparian communities would be conserved under both Alternative 4 and the Preferred Alternative for the GCP. Although very similar overall, the distribution and conservation components between the alternatives differs. The most substantial difference between the alternatives is less conservation in the Owens River Valley subarea. There is less conservation from BLM LUPA conservation designations overall and more conservation from Conservation Planning Areas under Alternative 4.

In addition to conservation, impacts to riparian communities would be avoided under both alternatives since application of the CMAs would require that riparian communities be avoided to the maximum extent feasible in DFAs. In addition, setbacks from riparian

communities would be required that range from 200 feet for Madrean warm semi-desert wash woodland/scrub, Mojavean semi-desert wash scrub, and Sonoran-Coloradan semi-desert wash woodland/scrub to 0.25 mile for Southwestern North American riparian evergreen and deciduous woodland and Southwestern North American riparian/wash scrub.

### ***Wetlands***

Overall, approximately 74,000 acres (23%) of wetlands would be impacted under Alternative 4, compared to 72,000 acres (22%) under the Preferred Alternative for the GCP. There is more conserved acreage of wetlands primarily in the Providence and Bullion Mountains and West Mojave and Eastern Slopes subareas. There is less conserved acreage primarily in the Owens River Valley from BLM LUPA conservation designations.

In addition to conservation, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under both alternatives since application of the CMAs would require that these communities be avoided to the maximum extent feasible in DFAs, including a 0.25-mile setback.

### **Impacts to Covered Species Habitat**

Overall, there are greater impacts to suitable habitat for Covered Species under Alternative 4 compared to the Preferred Alternative for the GCP. The only subareas where less suitable habitat for Covered Species would be impacted under Alternative 4 would be the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and Kingston and Funeral Mountains subareas. More suitable habitat for Covered Species would be impacted under Alternative 4 compared to the Preferred Alternative except for the following species: burrowing owl, California black rail, Gila woodpecker, greater sandhill crane, mountain plover, southwestern willow flycatcher, Mojave monkeyflower, and Mojave tarplant. However, CMA application would further avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1.

### **Impacts to Non-Covered Species**

Overall, Alternative 4 only has the potential for greater impacts to suitable habitat for the Non-Covered Species as compared to the GCP Preferred Alternative.

Potential impacts to dune-restricted species would be the same for both Alternatives. In addition, application of CMAs and general siting design would further protect spring-, cave-, and dune-restricted species by avoiding renewable development in these habitats under both alternatives. More suitable habitat for Non-Covered Species could be impacted under Alternative 4 compared to Preferred Alternative for the majority of amphibian/reptile species. All of the bird Non-Covered Species have greater potential impacts to suitable

habitat under Alternative 4 as compared to the Preferred Alternative. Greater potential impacts to suitable habitat for the majority of mammal Non-Covered Species could occur under Alternative 4 as compared to the Preferred Alternative. More than half of the plant Non-Covered Species could have greater potential impacts under Alternative 4 compared to the Preferred Alternative.

### **Conservation of Covered Species Habitat**

Overall, there is less conservation of Covered Species habitat under Alternative 4 compared to the Preferred Alternative for the GCP. There is more conservation in Conservation Planning Areas but less conservation in BLM LUPA conservation designations under Alternative 4. There is greater conservation of Covered Species habitat in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas under Alternative 4 compared to the Preferred Alternative. Of the remaining subareas, the largest difference between the alternatives is in the Owens River Valley subarea.

More suitable habitat for the following species would be conserved under Alternative 4 compared to the Preferred Alternative: Agassiz's desert tortoise, flat-tailed horned lizard

Mojave fringe-toed lizard, burrowing owl, California black rail, Gila woodpecker, greater sandhill crane, mountain plover, Yuma clapper rail, desert pupfish, California leaf-nosed bat, Mohave ground squirrel, alkali mariposa-lily, Bakersfield cactus, Barstow woolly sunflower, desert cymopterus, Mojave monkeyflower, and Mojave tarplant. For the remaining species, more or about the same suitable habitat would be conserved under the Alternative 4.

In addition to conservation of suitable habitat for Covered Species, compensation CMAs would offset habitat loss for all Covered Species under both alternatives. CMAs also require avoidance and minimization of Covered Species in DFAs and CMAs would be applied in the Reserve to benefit Covered Species.

### **Impacts to the Desert Linkage Network**

Overall, more acres of the desert linkage network would be impacted under Alternative 4 compared to the Preferred Alternative for the GCP. The biggest differences between the Alternatives would be in the Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Mojave and Silurian Valley subareas.

To avoid and minimize impacts to the desert linkage network beyond what is presented in Table IV.7-300, Covered Activities will be sited and designed to maintain the function of wildlife connectivity in the following linkage and connectivity areas: (1) across Interstate

10 centered on Wiley's Well Road to connect the Mule and McCoy mountains, (2) across Interstate 10 to connect the Chuckwalla and Palen mountains, (3) across Interstate 10 to connect the Chuckwalla Mountains to the Chuckwalla Valley east of Desert Center, and (4) the confluence of Milpitas Wash and Colorado River floodplain. In addition, the Riparian and Wetland Natural Communities and Covered Species CMAs will contribute to maintaining and promoting habitat connectivity and wildlife movement.

### **Conservation of the Desert Linkage Network**

Overall, there is greater conservation of the desert linkage network under Alternative 4 compared to the Preferred Alternative for the GCP. The biggest difference in acreage would be in the West Mojave and Eastern Slopes subarea. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

### **Operational Impacts**

The operation of renewable energy would result in the degradation of vegetation through the creation dust, use of dust suppressants, exposure to fire, implementation of fire management techniques, and the introduction of invasive plants as well as the disturbance of wildlife due to noise, predator avoidance behavior, and light and glare. Alternative 4 would result in slightly greater levels of terrestrial operational impacts when compared with the Preferred Alternative. Additionally, the distribution of vegetation degradation and wildlife disturbance as a result of operational impacts would be distributed differently under the Preferred Alternative and Alternative 4. The degradation of vegetation and disturbance of wildlife during operations in Alternative 4 would be more heavily distributed in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas than in the Preferred Alternative; however, the Preferred Alternative would distribute more terrestrial operational impacts in the Imperial Borrego Valley subarea within the GCP. Both the Preferred Alternative and Alternative 4 would direct renewable energy development to DFAs that are designed to minimize impacts to biological resources and both would implement CMAs to avoid, minimize, and compensate for operational impacts from vegetation degradation and wildlife disturbance.

For the GCP, the differences in size and distribution of impacts found in the Preferred Alternative and the No Action alternative would reflect the distribution of impacts identified in the Plan wide analysis. The notable exception would be in the Cadiz and Chocolate Mountains subarea, in which a high proportion of DFAs are within BLM jurisdiction.

Implementation of the Preferred Alternative would result in lower rates of collisions and fewer terrestrial impacts associated with wind than the No Action Alternative because the anticipated technology mix includes less wind and therefore fewer turbines and less

ground disturbance. Compared to the No Action Alternative, the Preferred Alternative impacts from wind would be less concentrated, they would be spread across the Cadiz and Chocolate Mountains, Pinto Lucerne Valley, and West Mojave and Eastern Slopes subareas rather than concentrated in the latter.

As stated, impacts in the West Mojave and Eastern Slopes, and the Imperial Borrego Valley subareas would be considerably lower in the Preferred Alternative. Conversely, anticipated impacts in other subareas would be higher. In particular, in the Pinto Lucerne Valley and Eastern Slopes, and in the Cadiz Valley and Chocolate Mountains subareas impacts would be greater than the No Action alternative. The shift in distribution of impacts would result in more impacts to the following species: California black rail, Gila woodpecker, greater sandhill crane, western yellow-billed cuckoo, and Yuma clapper rail

When compared to the No Action Alternative, the anticipated quantity of solar across the plan in the Preferred Alternative would be greater and therefore likely impacts to, both terrestrial and aerial, Covered Species would be proportionally greater. Impacts in the West Mojave, where opportunities for wind development would be reduced, would lead to increased impacts from solar generation. In contrast, effects in the Eastern Mojave, north of the I-15 corridor, bordering Nevada and in the Providence and Bullion Mountain subarea would be considerably lower those anticipated from the No Action Alternative. Impacts in the Imperial Borrego Valley subarea would be similar between alternatives.

Implementation of applicable CMAs discussed in IV.7.3.2.1 to reduce impacts to migratory birds would systematically minimize adverse effects of generation projects. Whereas the No Action alternative would rely on project by project mitigation to minimize impacts.

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