

IV.7.3.4 Alternative 2

The impact analysis for biological resources under Alternative 2 is provided below.

IV.7.3.4.1 Plan-Wide Impacts of Implementing the DRECP: Alternative 2

This section provides the Plan-wide assessment of impacts of implementing the DRECP for Alternative 2. This Plan-wide assessment addresses the impacts and mitigation measures from renewable energy and transmission development and impacts of the reserve design.

IV.7.3.4.1.1 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 2. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9). Alternative 2 includes DFAs (2,473,000 acres) and transmission corridors where approximately 169,000 acres of ground disturbance related impacts and 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 2 includes Future Assessment Areas (FAAs), and these areas are not considered impacted or conserved in this analysis. In Alternative 2, the SAAs from the Preferred Alternative are DFAs, and this analysis of Alternative 2 includes impacts within those lands.

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.7-153 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 300 acres (0.2%) of California forest and woodlands would be impacted under Alternative 2. 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 diminish 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 1,000 acres (1.2%) of the chaparral and coastal scrubs would be impacted under Alternative 2. Impacts would be primarily from solar development. Most impacts would be to Central and South Coastal Californian coastal sage scrub. Most impacts to chaparral and coastal scrubs would occur in the Western Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea. 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 (0.4%) of the desert conifer woodlands would be impacted under Alternative 2. Impacts would be primarily from solar development. Most impacts to desert conifer woodlands would occur in the Western Mojave and Eastern Slopes subarea, but some 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.

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 diminish that 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 are classified as North American warm desert bedrock cliff and outcrop.

Overall, approximately 9,000 acres (0.5%) of the desert outcrop and badlands would be impacted under Alternative 2. Impacts would be primarily from solar and transmission development. Impacts to desert conifer woodlands are concentrated in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. 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.

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 (COMP-1 and COMP-2) would help diminish that 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 92,000 acres (0.7%) of desert scrubs would be impacted under Alternative 2. Impacts would be primarily from solar development, but transmission accounts for approximately 17,000 acres of impacts to desert scrub and wind and geothermal account for 11,000 acres and 7,000 acres of impacts to desert scrub, respectively. 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 about 3% 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 Western Mojave and Eastern Slopes and Imperial Borrego Valley subareas (53%), but impacts to desert scrubs are widely distributed; the Piute Valley and Sacramento Mountains subarea is the only subarea without impacts to this general community. CMAs would be implemented to 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 4; AM-DFA-ICS-5 and 6 (Alternative 2), AM-DFA-ICS-7 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 would be minimized under Alternative 2 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 5,000 acres (2.1%) of grassland communities would be impacted under Alternative 2. 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 2, microphyll woodlands occur within DFAs in the McCoy Valley area in the Cadiz Valley and Chocolate Mountains ecoregion subarea and in the south of Chocolate Mountains area east of the Imperial Sand Dunes in the Imperial Borrego Valley ecoregion subarea.

Impacts to riparian communities would be avoided under Alternative 2 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 9,000 acres (1.1%) of wetland communities, specifically North American warm desert alkaline scrub, herb playa and wet flat, and open water, would be impacted under Alternative 2. 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 2 through application of the wetland CMAs, including a 0.25-mile setback (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Over a third 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 subarea.

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.7-153
Plan-Wide Impact Analysis for Natural Communities – Alternative 2**

Natural Community	Available Lands (acres) ¹	Solar Impact (acres) ²	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	20	0	0	0	30
Californian montane conifer forest	78,000	100	100	0	40	300
<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	10	0	0	0	20
Central and South Coastal Californian coastal sage scrub	54,000	800	200	0	200	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	20	20	0	40	80
<i>Desert conifer woodlands</i>						
Great Basin Pinyon - Juniper Woodland	287,000	700	200	0	100	1,000
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	1,613,000	4,000	1,000	600	3,000	9,000
<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	500	40	0	90	600

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Plan-Wide Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Intermontane seral shrubland	74,000	2,000	200	0	100	2,000
Inter-Mountain Dry Shrubland and Grassland	437,000	1,000	400	600	600	3,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	10	10	0	0	20
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	50,000	10,000	6,000	15,000	80,000
Mojave and Great Basin upper bajada and toeslope	1,333,000	2,000	600	0	800	4,000
Shadscale - saltbush cool semi-desert scrub	279,000	2,000	300	400	600	3,000
Southern Great Basin semi-desert grassland	100	0	0	0	0	0
<i>Dunes</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	4,000	500	0	500	5,000
California annual forb/grass vegetation	8,000	200	20	0	0	200
<i>Riparian</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
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

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Plan-Wide Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern North American riparian/wash scrub	66,000	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	310,000	1,000	300	0	300	2,000
Open Water	209,000	2,000	20	1,000	1,000	4,000
Playa	78,000	0	0	0	10	10
Southwestern North American salt basin and high marsh	261,000	3,000	200	0	200	3,000
Wetland	8,000	60	10	0	20	80
<i>Other Land Cover – Developed and Disturbed Areas</i>						
Agriculture	711,000	27,000	800	9,000	9,000	46,000
Developed and Disturbed Areas	447,000	600	70	60	2,000	2,000
Not Mapped	7,000	200	60	30	30	300
Rural	114,000	1,000	100	300	800	2,000
Total	19,040,000	102,000	15,000	17,000	34,000	169,000

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 under Alternative 2. The vast majority of the impact acreage (3,000 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 2 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 2 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, except those impacts determined to be unavoidable, would be avoided under Alternative 2 through application of the wetland CMAs, including wetland setbacks (AM-DFA-RIPWET-1 through AM-DFA-RIPWET-9). Approximately 10,000 acres of other wetland communities would be impacted under Alternative 2. 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 the jurisdictional waters and wetlands.

Playa

Less than 1% (2,000 acres) of playa would be impacted by Covered Activities under Alternative 2. The majority of impacts would be associated with solar (2,000 acres), with 300 acres of wind impacts, 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, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death 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 2 in the following ecoregion subareas: Imperial Borrego Valley, 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. 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

Major rivers occur within DFAs and transmission corridors and potential impacts to major rivers under Alternative 2 have the potential to occur to both the Colorado and Mojave Rivers. Changes in hydrological conditions associated with development could adversely impact these rivers. Impacts to major rivers would be adverse absent implementation of avoidance measures. Impacts to major rivers and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs. 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 the Alternative 2, approximately 13% of the total Plan Area would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 2, 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.7-154. These impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes subareas, which would experience most of terrestrial operational impacts, respectively. 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.7-154
Plan-Wide Terrestrial Operational Impacts – Alternative 2**

Ecoregion Subarea	Solar Impact (acres)¹	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	17,000	16,000	-	8,000	41,000
Imperial Borrego Valley	34,000	11,000	16,000	14,000	75,000
Kingston and Funeral Mountains	2,000	1,000	-	700	3,700
Mojave and Silurian Valley	3,000	3,000	-	1,000	7,000
Owens River Valley	1,000	900	900	700	3,500
Panamint Death Valley	800	200	-	40	1,040
Pinto Lucerne Valley and Eastern Slopes	8,000	16,000	-	6,000	30,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	1,000	3,000	-	1,000	5,000
West Mojave and Eastern Slopes	36,000	17,000	-	1,000	54,000
Total	102,000	68,000	17,000	34,000	221,000

¹ 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 from physical damage, reduced photosynthesis, and reduced net primary productivity as a result of dust created by on-road and off-road vehicle use associated with the operation and maintenance of renewable energy facilities. Specifically, water usage by Mojave desert shrubs has been shown to be particularly affected by dust deposition. These

natural communities are primarily affected by Covered Activities in the West Mojave and Eastern Slopes subarea, which would experience the most of these impacts. 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 in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. 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 Pinto Lucerne Valley and Eastern Slopes subarea to a lesser extent.

The application of dust suppressants is a common management practice used during construction and operations and is a Covered Activity under the Plan to control dust emissions. 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 2 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. These affects from the use of dust suppressants are most likely to affect riparian and wetland natural communities. These natural communities are most prevalent near DFAs in the Imperial Borrego Valley and the West Mojave and Eastern Slopes subareas. Plant Covered Species that could also be affected by dust suppressants and are prevalent near the DFAs in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. As a result, the West Mojave and Eastern Slopes and

the Imperial Borrego Valley subareas would contain the largest potential amount of vegetation degradation due to dust suppressants.

Avoidance and minimization CMAs implemented as part of Alternative 2, 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 substantial and potentially long-term community type conversion. Within the Plan Area desert scrub natural communities are primarily affected by Covered Activities within the West Mojave and Eastern Slopes subarea and to a smaller degree in the Pinto Lucerne Valley and Eastern Slopes subarea. 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 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, 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 are located mostly in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas; chaparral and coastal scrubs potential impacts are primarily located within the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea; and most of the 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 during operation and maintenance activities, the primary areas of

vegetation degradation would be located in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley 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 2 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 2 this would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas.

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 2. 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 reduce 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.7-155 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. The majority of impacts to plant and wildlife species and their habitat under Alternative 2 would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas as described below. Impacts to plant and wildlife species and their habitat under Alternative 2 would also occur in the following subareas: Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Owens River Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento 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, including Agassiz's desert tortoise, Mojave fringe-toed lizard, and Tehachapi slender salamander. The siting of the DFAs under Alternative 2 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.7-155.

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, 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 least Bell's vireo, southwestern willow flycatcher, and tricolored blackbird to less than the acreage reported in Table IV.7-155. 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, California leaf-nosed bat, and Townsend's big-eared bat would be impacted in this subarea. The siting of the DFAs under Alternative 2 largely avoid habitat for bighorn sheep. The CMAs requiring avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) would further reduce the impacts on those habitats used by Mohave ground squirrel, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-155. 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.7-155. 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. Impacts in this subarea would be primarily to land covers other than natural communities, which provide limited suitable habitat for

Covered Species. However, impacts would also 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 2 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.7-155. Compensation CMAs would offset habitat loss for these species.

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, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, 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, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-155. 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.

Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be relatively minimal (approximately 100 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.

Impacts to suitable habitat for mammal Covered Species would occur for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Planning Species burro deer and desert kit fox would also be impacted in this subarea. The siting of the DFAs under Alternative 2 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, pallid bat, and Townsend's big-eared bat to less than the acreage reported in Table IV.7-155. Compensation CMAs would offset habitat loss for these species.

Table IV.7-155
Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Amphibian/Reptile</i>						
Agassiz's desert tortoise	9,858,000	38,000	7,000	800	9,000	55,000
Flat-tailed horned lizard	758,000	7,000	50	7,000	5,000	19,000
Mojave fringe-toed lizard	1,094,000	6,000	1,000	-	3,000	10,000
Tehachapi slender salamander	48,000	80	10	-	-	90
<i>Bird</i>						
Bendire's thrasher	2,141,000	3,000	1,000	500	3,000	8,000
Burrowing owl	5,269,000	72,000	8,000	14,000	20,000	114,000
California black rail	197,000	2,000	20	1,000	1,000	4,000
California condor	1,240,000	14,000	2,000	70	700	17,000
Gila woodpecker	106,000	900	300	200	300	2,000
Golden eagle–foraging	10,747,000	24,000	6,000	800	8,000	39,000
Golden eagle–nesting	4,443,000	2,000	1,000	20	2,000	6,000
Greater sandhill crane	617,000	24,000	600	8,000	9,000	42,000
Least Bell's vireo	226,000	200	70	20	200	400
Mountain plover	828,000	30,000	1,000	8,000	9,000	48,000
Southwestern willow flycatcher	317,000	3,000	100	2,000	2,000	7,000
Swainson's hawk	1,455,000	26,000	2,000	6,000	5,000	38,000
Tricolored blackbird	271,000	5,000	500	20	300	6,000
Western yellow-billed cuckoo	152,000	100	20	-	90	200
Yuma clapper rail	51,000	30	-	20	30	80
<i>Fish</i>						
Desert pupfish	8,000	60	-	30	50	100
Mohave tui chub	300	-	-	-	-	-
Owens pupfish	18,000	20	10	-	20	50
Owens tui chub	17,000	20	10	-	20	50

Table IV.7-155
Plan-Wide Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres) ¹	Solar Impact (acres) ²	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	1,000	70	2,000	7,000
Bighorn sheep – mountain habitat	6,649,000	5,000	3,000	-	5,000	13,000
California leaf-nosed bat	7,132,000	20,000	5,000	4,000	10,000	39,000
Mohave ground squirrel	2,383,000	25,000	3,000	900	2,000	30,000
Pallid bat	16,411,000	62,000	13,000	7,000	21,000	102,000
Townsend's big-eared bat	14,677,000	58,000	12,000	7,000	20,000	97,000
<i>Plant</i>						
Alkali mariposa-lily	119,000	2,000	200	-	100	2,000
Bakersfield cactus	278,000	3,000	500	-	70	3,000
Barstow woolly sunflower	154,000	2,000	60	-	20	2,000
Desert cymopterus	205,000	800	50	-	20	900
Little San Bernardino Mountains linanthus	289,000	1,000	600	-	200	2,000
Mojave monkeyflower	161,000	600	200	-	300	1,000
Mojave tarplant	265,000	900	40	50	100	1,000
Owens Valley checkerbloom	147,000	200	70	20	200	500
Parish's daisy	188,000	1,000	800	-	600	2,000
Triple-ribbed milk-vetch	8,000	-	-	-	-	-

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.

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 2, DFAs occur within TCAs in the following areas: in the West Mojave – 2 ecoregion subunit (the Desert Tortoise Research Natural Area and West Rand Mountains ACEC), in the West Mojave – 3 ecoregion subunit (the Fremont-Kramer critical habitat unit and the location of the SAA from the Preferred Alternative), in the Pinto – 1 ecoregion subunit in upper Lucerne Valley (portion of the Ord-Rodman critical habitat unit) and in the Imperial – 3 ecoregion subunit (Chuckwalla). DFAs also abut TCAs in the following areas: in the Pinto – 1 ecoregion subunit in upper Lucerne Valley (Ord-Rodman) and in the Cadiz – 1 ecoregion subunit in east Riverside (Chuckwalla).

Under Alternative 2, 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, in the West Mojave – 5 ecoregion subunit in the Fremont Kramer to Ord Rodman linkage. and in the Kingston – 1 and Mojave -2 ecoregion subunits occurs connecting Superior-Cronese to Mojave National Preserve to Shadow Valley to Death Valley National Park (the SAA from the Preferred Alternative).

Table IV.7-156 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 7,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 2. Within the Eastern Mojave Recovery Unit, approximately 3,000 acres of habitat would be impacted under Alternative 2. Within the Western Mojave Recovery Unit, approximately 19,000 acres of TCAs and linkage habitat would be impacted under Alternative 2.

**Table IV.7-156
Plan-Wide Impact Analysis for Desert Tortoise Important Areas – Alternative 2**

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	387,000	1,000	300	-	100	2,000
	Linkage	469,000	400	100	-	10	500
	TCA	3,130,000	800	300	-	4,000	5,000

Table IV.7-156
Plan-Wide Impact Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Colorado Desert Total</i>		<i>3,985,000</i>	<i>3,000</i>	<i>800</i>	<i>-</i>	<i>4,000</i>	<i>7,000</i>
Eastern Mojave	Linkage	784,000	2,000	400	-	300	2,000
	TCA	2,096,000	-	-	-	600	600
<i>Eastern Mojave Total</i>		<i>2,880,000</i>	<i>2,000</i>	<i>400</i>	<i>-</i>	<i>900</i>	<i>3,000</i>
Western Mojave	Linkage	1,204,000	7,000	2,000	-	3,000	12,000
	TCA	2,313,000	5,000	400	-	1,000	6,000
<i>Western Mojave Total</i>		<i>3,517,000</i>	<i>12,000</i>	<i>3,000</i>	<i>-</i>	<i>4,000</i>	<i>19,000</i>
Total		10,382,000	16,000	4,000	-	9,000	29,000

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.

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 2 would result in approximately 10,000 acres (approximately 0.2% of the total critical habitat for desert tortoise in the Plan Area) of impact to desert tortoise critical habitat. Approximately 5,000 acres of impact would occur in the Chuckwalla critical habitat unit, and approximately 3,000 acres of impact would occur in the Fremont-Kramer critical habitat unit. Approximately 400 acres of impact from transmission development would occur in the Ivanpah critical habitat unit, approximately 700 acres of impact would occur in the Ord-Rodman critical habitat unit, and approximately 600 acres of impact from transmission development would occur in the Superior-Cronese critical habitat unit. 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.

Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required impacts to desert tortoise important areas.

Based on the impact analysis of Alternative 2, this alternative would result in adverse impacts to desert tortoise. The adverse impacts to desert tortoise under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs could occur in numerous locations considered important for desert tortoise conservation, including but not limited to Desert Tortoise Research Natural Area and West Rand Mountains ACEC, the Fremont-Kramer critical habitat unit, the Ord-Rodman critical habitat unit, habitat linkages around Ord-Rodman, and habitat linkage areas in the Silurian Valley. Impacts to the Desert Tortoise Research Natural Area would result in the loss of over 30 years of science and research on desert tortoise that have been and continue to be conducted at this location, which would be considered an irreplaceable impact. In addition to the acreage of lost desert tortoise habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate desert tortoise populations, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of the desert tortoise to recover in the Plan Area.

Flat-tailed Horned Lizard

For flat-tailed horned lizard, flat-tailed horned lizard (FTHL) management areas were identified in the FTHL Rangewide 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 6,000 acres of impact to FTHL management areas would result from Covered Activities under Alternative 2, 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.7-155, approximately 8,000 acres of impacts to habitat for Bendire's thrasher would occur under Alternative 2.

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.7-155, approximately 17,000 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.7-155, 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 2, 50 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 2, 84 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 2, approximately 13,000 acres of mountain habitat and 7,000 acres of intermountain habitat would be impacted.

These impacts would occur in the Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Eastern Slopes, and Imperial Borrego Valley ecoregion subareas. Additionally, approximately 3,000 acres of these impact would occur within bighorn sheep mountain and intermountain habitat in the Silurian Valley, which is the location of the SAA from the Preferred Alternative. 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 2 would not result in any impacts to critical habitat for the Peninsular bighorn sheep DPS.

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 2, impacts to key population centers and linkages for Mohave ground squirrel would occur primarily in the West Mojave – 1, West Mojave – 2, and West Mojave – 3 ecoregion subunits. Impacts to Mohave ground squirrel expansion areas would occur primarily in the West Mojave -2 ecoregion subunit and impacts to the climate change extension areas would occur only in a limited area of the Owens – 1 ecoregion subunit. The SAA from the Preferred Alternative in the West Mojave – 3 ecoregion subunit would be a DFA under Alternative 2, where approximately 2,000 acres of impact to Mohave ground squirrel key population centers and 1,000 acres of impact linkage habitat would occur.

Table IV.7-157 provides an impact analysis for these Mohave ground squirrel important areas. A total of 17,000 acres of impact to Mohave ground squirrel important areas would occur under Alternative 2. 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.

Based on the impact analysis of Alternative 2, this alternative would result in adverse impacts to Mohave ground squirrel. The adverse impacts to Mohave ground squirrel under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs could occur in numerous locations considered important for Mohave ground squirrel conservation, including but not limited key population centers and

linkages in West Mojave – 1, West Mojave – 2, and West Mojave – 3 ecoregion subunits. In addition to the acreage of loss of Mohave ground squirrel habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate key population centers for Mohave ground squirrel, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of Mohave ground squirrel to recover in the Plan Area.

Table IV.7-157
Plan-Wide Impact Analysis for Mohave Ground Squirrel
Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	507,000	7,000	200	100	400	8,000
Linkage	386,000	4,000	90	400	300	5,000
Expansion Area	552,000	3,000	200	300	200	3,000
Climate Change Extension	224,000	600	200	100	300	1,000
Total	1,669,000	14,000	700	900	1,000	17,000

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.

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 Species¹

Dune Covered Species include Mojave fringe-toed lizard. Although Table IV.7-155 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

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

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 Species²

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.7-155 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 2 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 2 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 cuckoo critical habitat was not addressed in the Draft EIR/EIS, but will be addressed in the Final EIR/EIS.

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

Covered Species associated with Agricultural Lands³

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.7-155, 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.7-155, 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.7-155, Alternative 2 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 2 would not result in any impacts to critical habitat for Parish's Daisy.

³ 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, 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 Rangelwide Management Strategy (RMS) and RMS Interagency Coordinating Committee (ICC) to reduce mortality (AM-DFA-ICS-15).
- 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).
- 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).
- CMAs also require monitoring and enforcement of vehicular restrictions and travel off designated routes to prevent mortality to Covered Species associated with dunes (AM-RES-BLM-DUNE-2).

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 2, approximately 13% of the total Plan Area, would be DFAs that allow renewable energy development. Based on the planned renewable energy generation and transmission under Alternative 2 (a total of 169,000 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.7-155. These impacts would mostly occur in the West Mojave and Eastern Slopes, Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, and the Pinto Lucerne Valley and Eastern Slopes 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 West Mojave and Eastern Slopes and Imperial Borrego Valley are the subareas primarily affected, containing most of the total Plan-wide impacts to bird Covered Species habitat. 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 to the habitat for these Covered Species mostly occurs in the West Mojave and Eastern Slopes subarea, and to a lesser extent in the Cadiz Valley and Chocolate Mountains as well as the Imperial Borrego Valley subareas. As such, the disturbance of wildlife from noise would

predominantly occur in the West Mojave and Eastern Slopes subarea and Imperial Borrego Valley subareas.

The disturbance and injury of wildlife from noise-related effects would also be reduced through the implementation of avoidance and minimization CMAs under Alternative 2. 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

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. 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 including nesting bird species. These wildlife species are spread throughout the Plan Area; however, the greatest amount of terrestrial operational impacts would be located in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. The Cadiz Valley and Chocolate Mountains as well as the Pinto Lucerne Valley and Eastern Slopes would also experience fewer terrestrial operational impacts, and thus less potential predator avoidance behavior than that expected for the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Under Alternative 2, 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 2, terrestrial operational impacts would mostly occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley. Similarly, impacts from solar projects throughout the Plan Area would primarily occur in the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains subareas.

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, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas 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 on high structures such as met towers and turbines. For bird Covered Species the West Mojave and Eastern Slopes and Imperial Borrego Valley 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 West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Alternative 2 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 2, 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

Table IV.7-158 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 2.1% and agricultural/rural land cover at approximately 5.8% (see Table IV.7-158).

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 2, impacts to approximately 30 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.

**Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and
Associated Non-Covered Species – Alternative 2**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)⁴	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	365,000	800	300	0	100	1,200	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,	13,328,000	58,000	12,000	7,000	17,000	94,000	0.7%

**Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and
Associated Non-Covered Species – Alternative 2**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	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 Desert plum,							

**Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and
Associated Non-Covered Species – Alternative 2**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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 ³ / 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	3,508,000	4,000	1,000	600	3,000	8,600	0.2%

**Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and
Associated Non-Covered Species – Alternative 2**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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, white-margined beardtongue, flat-seeded spurge							

**Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and
Associated Non-Covered Species – Alternative 2**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	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	238,000	4,000	500	0	500	5,000	2.1%
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,	1,652,000	4,000	500	0	500	5,000	0.3%

**Table IV.7-158
Plan-Wide Impact Analysis for Natural Communities and
Associated Non-Covered Species – Alternative 2**

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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	28,000	900	9,000	10,000	47,900	5.8%

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.

⁴ This amount assumes the loss of conservation value for all land fragmented by the wellfields.

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 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.7-159 shows the impact analysis for the desert linkage network for Alternative 2. Overall, over 34,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in nine 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 Palen Valley portion of a linkage network that extends south to the northern foothills of the Chocolate Mountains. There are also small DFAs in the linkage along the Colorado River around Vinagre Wash. Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement. The existing I-10 corridor is a substantial barrier to movement for many species and the development of renewable energy both north and south of the I-10 corridor would further reduce the numbers and size of wildlife crossing locations, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

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. There are also DFAs in the area that connects the southern end of the Chocolate Mountains. 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 subarea, 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 Mojave and Silurian Valley and Kingston and Funeral Mountains subareas, there is a DFA that has the potential to adversely impact wildlife movement that connects the Silurian Valley to the Turquoise Mountain area (SAA in the Preferred Alternative), which is an important linkage area for bighorn sheep and desert tortoise as assessed under BR-4. There is also a small DFA in the linkage that connects the Lava Mountains with Red Mountain. General terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. There is a DFA in the Searles Valley that would impact the linkage between the Searles Range and Argus Range in the Panamint Death Valley

subarea. 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, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

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 in Lucerne Valley. DFAs are also located in the habitat linkage between the Ord Mountains and the Granite Mountains. A DFA occurs in the connection between the Mojave River and Quartzite Mountain. There are also DFAs in the linkage that connects the Little Morongo Canyon to the area around Emerson Lake and in the linkage that connects the San Bernardino Mountains to the Fry Mountains. Development in these linkage areas would limit or degrade the ability of species, including bighorn sheep and other terrestrial mammals, to move from the surrounding mountains to the desert floor and other adjoining mountains. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to terrestrial wildlife movement, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Providence and Bullion Mountains there is a DFA in the area northeast of the Twentynine Palms Marine Corps Base. DFAs are not located in the desert linkage network corridors elsewhere in this 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 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 are also in the linkage between the Kern County line and Fremont Wash. DFAs also occur in the Brisbane Valley and in the linkages around Barstow. There is a DFA along the Highway 395 corridor north of Kramer Junction (SAA in the Preferred Alternative) that has the potential to adversely impact wildlife movement, including Mohave ground squirrel and desert tortoise. 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. There are also DFAs in the linkages in the Indian Wells Valley area, which could adversely impact movement for Mohave ground squirrel between its most northern population and the rest of its range. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general

terrestrial wildlife movement which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

Although the reserve design envelope for Alternative 2 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network, the DFAs under Alternative 2 are proposed in geographic locations important for the movement of wildlife and in locations that, if developed, could not be replaced or compensated. Additionally, the CMAs under Alternative 2 would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)). The potential for dispersed development across the Plan Area under Alternative 2 would reduce the probability of maintaining a connected, unfragmented landscape, and it is anticipated that populations would become isolated and that more human intervention and management would be needed (i.e. assisted migration, population augmentation) to maintain populations.

**Table IV.7-159
 Plan-Wide Impact Analysis for the Desert Linkage Network – Alternative 2**

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	890,000	5,000	1,000	-	4,000	10,000
Imperial Borrego Valley	156,000	3,000	1,000	700	30	4,000
Kingston and Funeral Mountains	174,000	200	50	-	400	600
Mojave and Silurian Valley	507,000	1,000	200	-	500	2,000
Owens River Valley	19,000	100	10	200	200	500
Panamint Death Valley	206,000	80	10	-	10	100
Pinto Lucerne Valley and Eastern Slopes	291,000	2,000	1,000	-	2,000	5,000

Table IV.7-159
Plan-Wide Impact Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Piute Valley and Sacramento Mountains	152,000	-	-	-	-	-
Providence and Bullion Mountains	426,000	800	400	-	200	1,000
West Mojave and Eastern Slopes	860,000	9,000	500	-	200	10,000
Total	3,682,000	21,000	4,000	900	8,000	35,000

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.

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, along with impacts associated with each technology 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 the Alternative 2, wind generation is moderate proportion of the overall generation mix with approximately equal quantities of development divided between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate Mountain ecoregion subareas, and smaller quantities anticipated in all other subareas except Piute Valley and Sacramento Mountains. Wind development would 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. Wind development in the Cadiz and Chocolate Mountains subarea would occur to the north of the I-10 and in McCoy Valley. These areas are adjacent to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. Small quantities of wind development in Imperial Borrego Valley ecoregion subarea would occur in the southeast of the Chocolate Mountains.

Solar development would be expected throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. Considerably less solar impact would occur in the Kingston and Funeral Mountains subarea. Alternative 2 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 in Chuckawalla Valley, west of Blythe and in McCoy Valley would result in a 2.7- 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 impact both Covered Species and other migratory birds. Similarly, development in the West Mojave and Eastern Slopes subarea would result in a 3.5-fold increase in solar facilities. In particular DFAs near Koehn dry lake and Harper Dry Lake would present hazards to migratory birds using these features as stopovers. Further, the Pinto Lucerne Valley subarea would be developed where previously it has not been the focus of development. Impacts are likely to occur in DFAs between the San Bernardino Mountain passes, and dry lakes on Edwards AFB, as well as, the North Mojave dry lakes of China Lake, Harper 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 four-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. Small quantities of solar development is anticipated in the Mojave Silurian Valley and Providence and Bullion Mountains subareas, these developments would be to the west of Barstow, and less likely to impact migratory corridors than other developments, although they could affect birds using Harper Dry. Small quantities of solar development in DFAs near Searles Dry Lake could impact migratory birds using this as areas as a stopover

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. 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.

Although these CMAs would be in place under Alternative 2, the DFAs are sited in locations that would result in impacts to migratory birds in locations that cannot be avoided, minimized, and compensated given the potential for fragmentation, isolation, and disruption of migratory patterns that would result from this alternative.

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.

Renewable energy development would be restricted to DFAs under the DRECP; therefore, Alternative 2 would allow the siting of renewable energy development only within approximately 13% of the available lands in Plan Area (2,473,000 acres of DFAs). Of which, siting and construction of renewable energy development would result in ground disturbance to less than 1% of the available lands in the Plan Area (approximately 169,000 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 2 covers 15,087,000 acres of the Plan Area (79% of the available lands in the Plan Area); therefore, 79% 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, most DFAs under Alternative 2 were sited in less intact and more degraded areas; however, some DFAs under Alternative 2 do not avoid sensitive resource or intact landscapes because these areas were identified through public scope as priority for the development of renewable energy. Based on the terrestrial intactness analysis developed for the DRECP area, approximately 78% of the DFAs in Alternative 2 are characterized by low or moderately low intactness. Although many 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, some of the DFAs in this alternative are in direct conflict with landscape intactness, critical populations, and/or key connectivity corridors. See Impact BR-6 for an analysis of the effects of this alternative on wildlife movement.

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 2, 98% of the impacts from Covered Activities would occur in DFAs below 4,000 feet, including 56% of the impacts occurring below 1,000 feet and 36% 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 95% of geothermal impacts are at elevations below 1,000 feet, including 61% below sea level. Solar impacts also tend to be concentrated in the lower elevations, with 85% of impacts below 3,000 feet. Wind impacts tend to be at higher elevations, with 52% of impacts at elevations above 2,000 feet. Approximately 26% 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 2 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 2, the vast majority (95%) of impacts within DFAs would occur to plains, with these impacts spread across the different impact types, including 63% from solar, 9% from wind, 11% from geothermal, and 17% 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 2 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 2, total impacts within DFAs would be progressively less with increasing slope. The large majority (89%) of impacts would occur on slopes less than 5%, and 98% of impacts would occur on slopes up to 20%. On slopes less than 20%, impacts would be spread across the different impacts types, including 63% from solar, 9% from wind, 11% from geothermal, and 17% 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 2 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 2, 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 (Alternative 2) through AM-LL-4). Although these CMAs would be in place under Alternative 2, the DFAs are sited in locations that would result in impacts to migratory birds in locations that cannot be avoided, minimized, and compensated given the potential for fragmentation, isolation, and disruption of migratory patterns that would result from this alternative.

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, east of Barstow, in Imperial Borrego Valley and west of 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 2 would result 119,000 acres of permanent conversion of natural desert communities with 50,000 acres of impacts (30% of the total ground disturbance) within areas characterized by disturbed land cover types.

All impacts in the Kingston and Funeral Mountains and the Providence and Bullion Mountains subareas would be in natural communities and therefore more likely to increase predation rates on susceptible species like desert tortoise, Mojave fringe-toed lizard, and nesting birds species. 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. This area may already experience increased predator densities as a consequence of human development, the additional impact of further development would therefore be attenuated. However, development in more remote parts to the subarea would likely increase predation. Population growth for desert tortoise is precarious, and development in remote, largely undeveloped, portions of the Plan Area under Alternative 2 has the potential to increase mortality rates for desert tortoise.

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. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, as well as small reptiles like the Tehachapi slender salamander and mammals like the Mohave ground squirrel. In particular, any development in suitable MGS habitat within the extensive DFAs to North of Edwards AFB are likely to negatively affect Mohave ground squirrel by reducing juvenile survival rates, reducing juvenile dispersal, reducing metapopulation dynamics, and ultimately reducing recruitment rates for several of the key population centers.

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.7-160 are indicative of the overall annual collision rates for all bird and bat 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.

Implementation of Alternative 2 would result in a median of 15,000 collisions per year for birds and 69,000 collisions per year for bats across the Plan Area. In Alternative 2, 28 % of wind would be in the Pinto Lucerne Valley and Eastern Slopes, and 28% in the West Mojave and Eastern Slopes subareas. While 26% of wind development would be in the Cadiz Valley and Chocolate Mountains ecoregion subarea and 16% of development in the Borrego Imperial Valley ecoregion subarea, with the remaining 19 % spread across the remaining subareas. In Alternative 2, development in the West Mojave and Eastern Slopes 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. Whereas, development in the Pinto and Lucerne Valley subarea would mainly affect golden eagle territories and important Bendire's thrasher habitat. In Imperial Valley subarea development of wind facilities would disproportionately affect overwintering migratory birds such as sandhill crane and, mountain plover, as well as wetland residents like Yuma clapper rail and California black rail.

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. Although these CMAs would be in place under Alternative 2, some of the DFAs under this alternative are sited in remote geographic locations in intact landscapes where impacts to Covered Species have a higher potential to occur.

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 BBOS 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 BBOS.

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.7-160
Estimated Range of Collisions per Year Expected for
Birds and Bats by Subarea – Alternative 2

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr) ¹			Bats (Collisions/Yr) ¹		
		Low	Median	High	Low	Median	High
Cadiz Valley and Chocolate Mountains	783	1,000	4,000	15,000	2,000	18,000	110,000
Imperial Borrego Valley	145	200	700	3,000	300	3,000	20,000
Kingston and Funeral Mountains	57	100	300	1,000	100	1,000	8,000

Table IV.7-160
Estimated Range of Collisions per Year Expected for
Birds and Bats by Subarea – Alternative 2

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr) ¹			Bats (Collisions/Yr) ¹		
		Low	Median	High	Low	Median	High
Mojave and Silurian Valley	139	200	700	3,000	300	3,000	20,000
Owens River Valley	44	100	200	800	100	1,000	6,000
Panamint Death Valley	12	-	100	200	-	300	2,000
Pinto Lucerne Valley and Eastern Slopes	815	1,000	4,000	16,000	2,000	19,000	114,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	159	200	800	3,000	300	4,000	22,000
West Mojave and Eastern Slopes	830	1,000	4,000	16,000	2,000	19,000	116,000
Grand Total	2,985	4,000	15,000	57,000	6,000	69,000	418,000

¹ 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 solar arrays, and injury or mortality from exposure to concentrate 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 2 a total of 2,473,000 acres of the Plan Area would designated as DFAs, of which up to 102,000 acres would be directly impacted by solar development. This is the least restricted of all development alternatives.

In Alternative 2, plan-wide solar development would result in a 3.5-fold increase in collision risks relative to baseline (Appendix O). 17% of the anticipated solar facilities would be in the Cadiz Valley and Chocolate Mountains Region, and 33% would be in the Imperial Borrego Valley subarea. The West Mojave and Eastern Slopes subarea would support approximately 34% of the solar development, with a further 7% occurring in the Pinto and Lucerne Valley subarea. The remaining 9% would be spread across the rest of the Plan area.

Solar impacts in a subarea may be disproportionately important because of the biological value of a given area. Impacts in Imperial Borrego Valley and the Cadiz Valley would disproportionately affect wetland species like Yuma clapper rail and California black rail. Any solar development in Imperial Borrego Valley ecoregion subarea would affect important winter foraging areas for mountain plover and greater sandhill crane. Further, migratory birds would be affected, because development is likely to occur within recognized high use areas of the Pacific flyway, which include corridors between the Colorado River, the Salton Sea and the Coachella Valley. In the western Mojave, impacts along the HWY14 corridor, in Antelope Valley and to the east of Lancaster may disproportionately affect nesting Swainson's hawk, and Bendire's thrasher. Whereas, impacts in the Lucerne Valley affect foraging habitat for nesting golden eagle populations, and overwintering habitat of Bendire's thrasher. Other species, like burrowing owl are less regionally specific and but likely to be impacted by expected plan wide increase in solar development on agricultural, which is typically their foraging and nesting habitat.

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 foot 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.

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 Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, West Mojave and Eastern Slopes, Pinto Lucerne Valley, and the Mojave and Silurian Valley, subareas, with 14,000 acres, 8,000 acres, 1,000 acres, 6,000 acres and 1,000 acres of terrestrial impacts anticipated respectively. The remaining 3,000 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 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 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 level of impact on Non-Covered Species would be similar to that discussed for the Covered 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. 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.7-161
Plan-Wide Estimated Total Take for
Covered Avian and Bat Species – Alternative 2**

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire’s thrasher	40	50	0	90
Burrowing owl	140	180	20	330
California condor	0	0	0	0
California black rail	40	20	10	60
Gila woodpecker	40	20	0	60
Golden eagle	n/a	n/a	n/a	n/a
Least Bell’s vireo	60	10	0	70
Mountain plover	80	130	20	230
Greater sandhill crane	10	20	10	40
Southwestern willow flycatcher	60	30	0	80
Swainson’s hawk	40	30	0	70

**Table IV.7-161
Plan-Wide Estimated Total Take for
Covered Avian and Bat Species – Alternative 2**

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Tricolored blackbird	70	70	0	150
Western yellow billed cuckoo	40	20	0	60
Yuma clapper rail	40	20	10	60
Grand Total Avian Species	660	600	70	1300
California leaf-nosed bat	20	70	0	80
Pallid bat	20	200	0	220
Townsend’s big-eared bat	50	30	10	90
Grand Total Bat Species	90	300	10	390

¹ Take for California condor would not be permitted under the DRECP

² 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 2 (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 through COMP-5). While these CMAs would be applied under Alternative 2, the DFAs under this alternative are sited in geographic locations where the CMAs would not avoid, minimize, or otherwise offset the effects of the development of Covered Activities.

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 CMA 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.7.3.4.1.2 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 15,087,000 acres within the Alternative 2 Reserve Design lands, 41% is within BLM LUPA conservation designations, 8% in the Conservation Planning Areas, and the remaining 51% are located in existing conservation areas. Within the Reserve Design Lands, the interagency Plan-wide Conservation Priority Area covers approximately 2,734,000 acres, including 2,427,000 acres of BLM LUPA conservation designations and 307,000 acres of Conservation Planning Areas.

The DRECP Plan-Wide Reserve Design Envelope for Alternative 2 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 2 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 2 would include 94% of the conceptual reserve design envelope described in Volume I. The Alternative 2 reserve design envelope would also include high percentages of the conceptual reserve design envelope in all of the subareas, ranging from 83% in the West Mojave and Eastern Slopes subareas to 102% in the Piute Valley and Sacramento Mountains subarea.

Areas not included in the DRECP Plan-Wide Reserve Design Envelope for Alternative 2 that are in the conceptual reserve design envelope described in Volume I include:

- Portions of Study Area Lands: The Future Assessment Areas occupy approximately 14,000 acres that were identified in the reserve design envelope that are not designated as Reserve Design Lands under Alternative 2, including the following geographic areas:
 - The Brisbane Valley area south of Barstow
 - Morongo Basin
- Portions of the DFAs: Areas in DFAs under Alternative 2 occupy approximately 916,000 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 and Johnson Valley area along Highway 247
 - Western and eastern areas of Imperial Valley
 - East and west of Barstow
 - Silurian Valley north of Interstate 15 (SAA in the Preferred Alternative)
 - Foothill areas of the Antelope Valley
 - Along Highway 395 north of Kramer Junction (SAA in the Preferred Alternative)
 - Along Highway 395 west of Ridgecrest
 - Coso Range area

As noted in the impact analysis section above, siting of DFAs in these key locations would not only prevent the conservation of these areas within the reserve design envelope but also result in impacts in these key locations.

- Undesignated Areas : Approximately 106,000 acres were not designated as Reserve Design Lands under Alternative 2 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.7-162 shows the Plan-

wide conservation of the desert linkage network under Alternative 2. Conservation of the desert linkage network totals more than 2.5 million acres (70%).

The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that extends from the Ward Valley to the Vidal Valley and south to the Big Maria Mountains and the Palen Mountains is entirely conserved. The linkage from the Ward Valley to the Cadiz Valley is entirely conserved. The three smaller connections in the Palen Valley are all entirely conserved. With the exception of the linkage along the eastern boundary of the Plan Area and the Chuckwalla Valley, the majority of the remaining linkages are conserved. In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and Chocolate Mountains subarea to the east and the linkage along East Mesa are only partly conserved. The linkages in the Kingston and Funeral Mountains subarea along Shadow Valley and between Halloran Springs and the Shadow Mountains are entirely conserved. Only a portion of the linkage across the Clark Mountain Range is not conserved, as well as the western end of the westernmost linkage to the Silurian Valley. 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 only along the Searles Range. 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. The westernmost portions and some areas along the southern boundary of the subarea of the linkage in the eastern portion of the subarea are not in Reserve Design Lands, but connectivity in this linkage is mostly preserved. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved, 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. 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 the eastern portion of Providence and Bullion Mountains subarea would be entirely maintained in Reserve Design Lands, but the area northeast of the Twentynine Palms Corps Base is outside Reserve Design Lands, potentially breaking connections to the north and east. In the West Mojave and Eastern Slopes subarea the connection between Barstow and Victorville, though constrained, 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.7.3.4.1.1).

Table IV.7-162
Plan-Wide Conservation Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)	Existing Conservation ¹ (acres)	BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	481,000	12,000	680,000	76%
Imperial Borrego Valley	156,000	14,000	80,000	100	94,000	60%
Kingston and Funeral Mountains	174,000	28,000	123,000	3,000	155,000	89%
Mojave and Silurian Valley	507,000	179,000	215,000	6,000	400,000	79%
Owens River Valley	19,000	40	12,000	2,000	14,000	73%
Panamint Death Valley	206,000	109,000	77,000	500	186,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	119,000	16,000	150,000	52%
Piute Valley and Sacramento Mountains	152,000	14,000	98,000	2,000	114,000	75%
Providence and Bullion Mountains	426,000	144,000	204,000	3,000	350,000	82%
West Mojave and Eastern Slopes	860,000	45,000	349,000	49,000	443,000	51%
Grand Total	3,682,000	736,000	1,757,000	94,000	2,587,000	70%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

² 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.

³ 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 2. 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, 66% (212,000 acres) would be conserved under Alternative 2. Existing Conservation would account for 44% of the conservation, BLM LUPA would account for 55%, 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 484 seep/spring locations in the Plan Area in the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) in available lands. Overall, 87% (421 locations) of the seep/spring locations would be conserved under Alternative 2. Over half of the of seep/spring locations under Alternative 2 would be conserved in all subareas. These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Imperial Borrego Valley (43%, 10 locations), Kingston and Funeral Mountains (82%, 70 locations), Mojave and Silurian Valley (74%, 20 locations), Owens River Valley (32%, 12 locations), Panamint Death Valley (93%, 39 locations), Pinto Lucerne Valley and Eastern Slopes (64%, 54 locations), Piute Valley and Sacramento Mountains (79%, 15 locations), Providence and Bullion Mountains (85%, 56 locations), and West Mojave and Eastern Slopes (51%, 48 locations).

Overall, Existing Conservation would account for 58% of the conservation of seep/spring, BLM LUPA conservation designations would account for 37%, and Conservation Planning Areas would account for 5%. 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, 74% of the major rivers would be conserved under Alternative 2, including 90% of the Amargosa River, 42% of the Colorado River, 74% 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 44%, and BLM LUPA conservation designations would account for 23%. 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, 76% (1,137,000 acres) of dunes and sand resources would be conserved under Alternative 2. At least 60% 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 78% (463,000 acres), Imperial Borrego Valley at 61% (81,000 acres), Kingston and Funeral Mountains at 86% (59,000 acres), Mojave and Silurian Valley at 84% (169,000 acres), Owens River Valley at 60% (5,000 acres), Panamint and Death Valley at 84% (118,000 acres), Pinto Lucerne Valley and Eastern Slopes at 69% (45,000 acres), and Providence and Bullion Mountains at 75% (184,000 acres). The subarea with lower conservation of dunes and sand resources under Alternative 2 is the West Mojave and Eastern Slopes at 38% (14,000 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.

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 2, the majority of available lands would be conserved at all elevation classes above sea level, ranging from 66% for the 2,000 to 3,000 feet class to 65% of the 7,000 to 8,000 feet class. The average conservation of elevation classes above sea level would be 73%. The majority of Plan Area lands for each elevation class above sea level will be conserved under Alternative 2 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 2 would include 68% 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 2 would include 88% of canyons/deeply incised streams, 88% of mountain tops/high ridges, and 86% of open slopes. As the majority of Plan Area lands for all landforms will be conserved under Alternative 2, 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 2 would range from 65% of slopes up to 5% to 93% of slopes over 100%, with 85% of slopes less than 20% conserved under Alternative 2. The vast majority of Plan Area lands within each slope class will be conserved under Alternative 2 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 2, conservation of aspects would range from 71% for flat terrain to 84% of south and southwest aspects. The majority of Plan Area lands for each aspect class will be conserved under Alternative 2 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.7-163 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 65,000 acres (44%) of California forest and woodlands would be conserved under Alternative 2. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea, but conservation would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea and about 40 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. California forest and woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of California forest and woodlands would provide conservation of suitable habitat for these species.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 34,000 acres (31%) of chaparral and coastal scrubs would be conserved under Alternative 2. The majority of conservation would occur in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Conservation is primarily from existing conservation and BLM LUPA conservation designations. 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. Chaparral and coastal scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of chaparral and coastal scrubs would provide conservation of suitable habitat for these species.

Desert conifer woodlands

Overall, approximately 190,000 acres (66%) of desert conifer woodlands would be conserved under Alternative 2. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains and West Mojave and Eastern Slopes subareas. Conservation of this general community would primarily come from existing conservation (77% of total conservation). 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. Desert conifer woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert conifer woodlands would provide conservation of suitable habitat for these species.

Desert outcrop and badlands

Overall, approximately 1,339,000 acres (83%) of desert outcrop and badlands would be conserved under Alternative 2. The majority of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas. Most (approximately 802,000 acres) 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. They also provide habitat for desert kit fox (Planning Species). Covered Species associated with desert scrub may also be associated with this general community. Desert outcrop and badlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert outcrop and badlands would provide conservation of suitable habitat for these species.

Desert scrubs

Overall, approximately 9,917,000 acres (75%) of desert scrubs would be conserved under Alternative 2. Over half of the conserved acreage would occur in the Kingston and Funeral Mountains, Providence and Bullion Mountains, and Cadiz Valley and Chocolate Mountains 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, Mojavean–Sonoran desert scrub accounts for the majority of the conservation of desert scrub communities. Over half 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, Swainson's hawk, 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). Desert scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert scrubs would provide conservation of suitable habitat for these species.

Dunes

Overall, approximately 223,000 acres (79%) of dunes would be conserved under Alternative 2. 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 (approximately 146,000 acres) 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. Dune communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of desert dunes would provide conservation of suitable habitat for these species.

Grasslands

Overall, approximately 53,000 acres (22%) of grasslands would be conserved under Alternative 2. 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). Grassland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. Therefore, conservation of grasslands would provide conservation of suitable habitat for these species.

Riparian

Overall, approximately 713,000 acres (72%) of riparian communities would be conserved under Alternative 2. 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 2 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 2, conservation for microphyll woodland related natural communities would include: 77% of Madrean warm semi-desert wash woodland/scrub, 58% of Mojavean semi-desert wash scrub, and 70% 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. Riparian communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. 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 474,000 acres (55%) of wetland communities would be conserved under Alternative 2. Most of the conserved acreage would occur in the Panamint Death Valley, West Mojave and Eastern Slopes, and Owens River Valley subareas with the remaining conserved acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of warm semi-desert/ Mediterranean alkali saline wetland, playa, and open water account for the majority of the conservation of riparian communities. Most 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 2 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. Wetland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-50 in Section IV.7.3.2.1. 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.7-163
Plan-Wide Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation¹ (acres)	BLM LUPA Conservation Designations² (acres)	Conservation Planning Areas³ (acres)	Total Conservation (acres)	% of Available Lands
<i>California forest and woodland</i>						
Californian broadleaf forest and woodland	72,000	1,000	19,000	700	21,000	30%
Californian montane conifer forest	78,000	25,000	15,000	4,000	44,000	57%
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>						
Californian mesic chaparral	4,000	20	800	200	1,000	27%
Californian pre-montane chaparral	1,000	0	500	10	500	37%
Californian xeric chaparral	24,000	3,000	3,000	3,000	9,000	36%
Central and south coastal California seral scrub	1,000	0	20	30	40	3%
Central and South Coastal Californian coastal sage scrub	54,000	2,000	9,000	3,000	14,000	25%
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	9,000	90	800	10,000	43%
<i>Desert conifer woodlands</i>						
Great Basin Pinyon - Juniper Woodland	287,000	159,000	19,000	12,000	190,000	66%
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	1,613,000	802,000	523,000	14,000	1,339,000	83%

**Table IV.7-163
Plan-Wide Conservation Analysis for Natural Communities – Alternative 2**

Natural Community	Available Lands (acres)	Existing Conservation¹ (acres)	BLM LUPA Conservation Designations² (acres)	Conservation Planning Areas³ (acres)	Total Conservation (acres)	% of Available Lands
<i>Desert Scrub</i>						
Arizonan upland Sonoran desert scrub	57,000	44,000	1,000	900	46,000	80%
Intermontane deep or well-drained soil scrub	106,000	30,000	49,000	3,000	82,000	77%
Intermontane seral shrubland	74,000	1,000	4,000	3,000	8,000	11%
Inter-Mountain Dry Shrubland and Grassland	437,000	110,000	138,000	11,000	258,000	59%
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	9,000	21,000	1,000	31,000	41%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,858,000	4,561,000	3,529,000	182,000	8,271,000	76%
Mojave and Great Basin upper bajada and toeslope	1,333,000	838,000	229,000	31,000	1,097,000	82%
Shadscale - saltbush cool semi-desert scrub	279,000	38,000	67,000	19,000	123,000	44%
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	70,000	7,000	223,000	79%

Table IV.7-163
Plan-Wide Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation¹ (acres)	BLM LUPA Conservation Designations² (acres)	Conservation Planning Areas³ (acres)	Total Conservation (acres)	% of Available Lands
<i>Grassland</i>						
California Annual and Perennial Grassland	230,000	23,000	16,000	12,000	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	333,000	7,000	535,000	77%
Mojavean semi-desert wash scrub	30,000	7,000	9,000	2,000	18,000	58%
Riparian	600	20	0	300	300	56%
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	70,000	61,000	4,000	134,000	70%
Southwestern North American riparian evergreen and deciduous woodland	6,000	500	700	2,000	3,000	46%
Southwestern North American riparian/wash scrub	66,000	7,000	9,000	7,000	23,000	35%
<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%

**Table IV.7-163
Plan-Wide Conservation Analysis for Natural Communities – Alternative 2**

Natural Community	Available Lands (acres)	Existing Conservation¹ (acres)	BLM LUPA Conservation Designations² (acres)	Conservation Planning Areas³ (acres)	Total Conservation (acres)	% of Available Lands
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	136,000	103,000	3,000	242,000	78%
Open Water	209,000	23,000	600	25,000	48,000	23%
Playa	78,000	400	35,000	300	36,000	46%
Southwestern North American salt basin and high marsh	261,000	31,000	97,000	18,000	146,000	56%
Wetland	8,000	30	200	500	700	9%
<i>Other Land Cover</i>						
Agriculture	711,000	6,000	4,000	3,000	12,000	2%
Developed and Disturbed Areas	447,000	3,000	4,000	400	8,000	2%
Not Mapped	7,000	200	400	300	900	14%
Rural	114,000	900	5,000	10,000	16,000	14%
Total	19,040,000	7,279,000	5,376,000	389,000	13,045,000	69%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

² 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.

³ 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.7-164 shows the Plan-wide conservation of Covered Species modeled habitat under the Alternative 2 (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 87% for triple-ribbed milk-vetch.

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 2 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, over 15% 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 conserved modeled suitable habitat for Gila woodpecker is conserved in the Cadiz Valley and Chocolate Mountains subarea. Conservation of mountain plover suitable habitat is mostly the West Mojave and Eastern Slopes subarea, which is mostly conserved in Conservation Planning Areas.

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 2 largely avoid habitat for bighorn sheep. Approximately half or more of the conservation of burro deer, desert kit fox, and 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 8% of suitable habitat for alkali mariposa-lily to 87% of suitable habitat for triple-ribbed milk-vetch. 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, 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.7-164
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation ¹ (acres)	BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
<i>Amphibian/Reptile</i>						
Agassiz's desert tortoise	9,858,000	3,711,000	3,526,000	207,000	7,444,000	76%
Flat-tailed horned lizard	758,000	151,000	292,000	3,000	446,000	59%
Mojave fringe-toed lizard	1,094,000	403,000	429,000	14,000	847,000	77%
Tehachapi slender salamander	48,000	300	13,000	500	14,000	29%
<i>Bird</i>						
Bendire's thrasher	2,141,000	1,196,000	464,000	48,000	1,707,000	80%
Burrowing owl	5,269,000	479,000	1,267,000	197,000	1,943,000	37%
California black rail	197,000	21,000	11,000	6,000	38,000	19%
California condor	1,240,000	81,000	196,000	38,000	314,000	25%
Gila woodpecker	106,000	10,000	18,000	2,000	30,000	28%
Golden eagle–foraging	10,747,000	5,518,000	3,150,000	141,000	8,808,000	82%
Golden eagle–nesting	4,443,000	2,689,000	956,000	61,000	3,706,000	83%
Greater sandhill crane	617,000	6,000	2,000	1,000	9,000	1%
Least Bell's vireo	226,000	86,000	42,000	23,000	151,000	67%
Mountain plover	828,000	7,000	5,000	11,000	23,000	3%
Southwestern willow flycatcher	317,000	18,000	34,000	22,000	73,000	23%
Swainson's hawk	1,455,000	24,000	65,000	65,000	154,000	11%
Tricolored blackbird	271,000	11,000	7,000	16,000	34,000	12%
Western yellow-billed cuckoo	152,000	15,000	14,000	23,000	52,000	34%

Table IV.7-164
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation ¹ (acres)	BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
Yuma clapper rail	51,000	10,000	2,000	2,000	13,000	26%
<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	4,000	5,000	31%
Owens tui chub	17,000	700	1,000	4,000	5,000	31%
<i>Mammal</i>						
Bighorn sheep – inter-mountain habitat	3,854,000	1,904,000	1,253,000	38,000	3,195,000	83%
Bighorn sheep – mountain habitat	6,649,000	4,085,000	1,478,000	88,000	5,652,000	85%
California leaf-nosed bat	7,132,000	3,138,000	2,533,000	70,000	5,741,000	80%
Mohave ground squirrel	2,383,000	216,000	803,000	153,000	1,171,000	49%
Pallid bat	16,411,000	6,836,000	5,050,000	312,000	12,198,000	74%
Townsend's big-eared bat	14,677,000	5,879,000	4,460,000	307,000	10,646,000	73%
<i>Plant</i>						
Alkali mariposa-lily	119,000	200	1,000	8,000	9,000	8%
Bakersfield cactus	278,000	20,000	77,000	5,000	103,000	37%
Barstow woolly sunflower	154,000	3,000	66,000	16,000	85,000	55%
Desert cymopterus	205,000	7,000	85,000	31,000	122,000	60%
Little San Bernardino Mountains linanthus	289,000	87,000	57,000	7,000	151,000	52%
Mojave monkeyflower	161,000	27,000	84,000	6,000	117,000	72%

Table IV.7-164
Plan-Wide Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation ¹ (acres)	BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
Mojave tarplant	265,000	48,000	107,000	4,000	159,000	60%
Owens Valley checkerbloom	147,000	13,000	7,000	19,000	39,000	26%
Parish's daisy	188,000	82,000	35,000	5,000	122,000	65%
Triple-ribbed milk-vetch	8,000	5,000	200	1,000	7,000	87%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

² 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.

³ 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.7-165 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, 88% of TCAs, linkage habitat, and high priority habitat would be conserved under Alternative 2. Within the Eastern Mojave Recovery Unit, 92% of the important areas would be conserved Alternative 2. Within the Western Mojave Recovery Unit, 77% of TCAs and linkage habitat would be conserved under Alternative 2. Under Alternative 2, the CMAs would not require avoidance of TCAs and would only require maintenance of minimum functionality of desert tortoise linkages. Compensation CMAs would be required for impacts to desert tortoise important areas. West Mojave is the portion of the Plan Area that desert tortoise is most precarious and is the area where population surveys indicate substantial declines. In Alternative 2, 23% of the TCAs in this region would not be conserved, which has the potential to reduce the likelihood of desert tortoise recovery within this unit, leads to increased likelihood of desert tortoise populations being extirpated, and reduces the likelihood of desert tortoise repopulating depauperate areas, and is likely to lead to reduced survival and recruitment.

Table IV.7-165
Plan-Wide Conservation Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation ¹ (acres)	BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	387,000	157,000	156,000	4,000	317,000	82%
	Linkage	469,000	126,000	260,000	6,000	391,000	83%
	TCA	3,130,000	1,544,000	1,233,000	15,000	2,792,000	89%
<i>Colorado Desert Total</i>		<i>3,985,000</i>	<i>1,827,000</i>	<i>1,649,000</i>	<i>25,000</i>	<i>3,500,000</i>	<i>88%</i>
Eastern Mojave	Linkage	784,000	421,000	259,000	10,000	690,000	88%
	TCA	2,096,000	1,758,000	177,000	14,000	1,949,000	93%
<i>Eastern Mojave Total</i>		<i>2,880,000</i>	<i>2,179,000</i>	<i>436,000</i>	<i>24,000</i>	<i>2,639,000</i>	<i>92%</i>
Western Mojave	Linkage	1,204,000	391,000	319,000	38,000	748,000	62%
	TCA	2,313,000	1,061,000	912,000	3,000	1,976,000	85%
<i>Western Mojave Total</i>		<i>3,517,000</i>	<i>1,452,000</i>	<i>1,231,000</i>	<i>41,000</i>	<i>2,724,000</i>	<i>77%</i>
Grand Total		10,382,000	5,458,000	3,315,000	90,000	8,863,000	85%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

² 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.

³ 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.7-166 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 62% of key populations centers and 66% of linkages would be conserved under Alternative 2. Expansion areas and climate change extension areas would be conserved at 70% and 47% respectively. Under Alternative 2, approximately 40% of the key population centers and 35% of the habitat linkages would not be conserved by the reserve design envelope. The DFAs in this alternative were based on public scoping comments to allow renewable energy development siting flexibility and are no related to reducing conflicts with sensitive resources. Prioritizing areas for development where DFAs overlap key population centers and linkages for Mohave ground squirrel would result in the reduced survival of Mohave ground squirrel through increased habitat fragmentation of the landscape and population of squirrels. It is anticipated that Mohave ground squirrel would have disjunct populations without functioning metapopulation dynamics that eventually results in loss of subpopulations.

Table IV.7-166
Plan-Wide Conservation Analysis for
Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation ¹ (acres)	BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	507,000	47,000	228,000	39,000	314,000	62%
Linkage	386,000	30,000	205,000	17,000	253,000	66%
Expansion Area	552,000	77,000	260,000	49,000	386,000	70%
Climate Change Extension	224,000	28,000	53,000	25,000	106,000	47%
Total	1,669,000	181,000	746,000	131,000	1,059,000	63%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

² 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.

³ 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 2, including 1,517,000 acres in existing conservation areas, 2,082,000 acres in BLM LUPA conservation designations, and 16,000 acres in Conservation Planning Areas. For southwestern willow flycatcher, approximately 64% of the southwestern willow flycatcher designated critical habitat would be conserved in Reserve Design Lands under Alternative 2, including 900 acres in existing conservation areas, 100 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 2, including 100 acres in existing conservation areas and 500 acres in BLM LUPA conservation designations. For Parish’s daisy, approximately 67% of the Parish’s daisy designated critical habitat would be conserved in Reserve Design Lands under Alternative 2, 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.7-167 shows the total amount of Critical Habitat and the amount within each Plan Wide 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 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.7-167
 Critical Habitat Within Plan-Wide Reserve Design
 for Non-Covered Species – Alternative 2**

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

**Table IV.7-167
Critical Habitat Within Plan-Wide Reserve Design
for Non-Covered Species – Alternative 2**

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 vole	5,000	1,000	3,000	0	4,000
Arroyo toad	4,000	0	30	3,000	3,030
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 ¹	12,000	3,000	200	9,000 ²	12,000
Peninsular Bighorn sheep	47,000	41,000	2,000	300	43,300

¹ NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

² 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.7.3.4.2 Impacts of DRECP Land Use Plan Amendment on BLM Land: Alternative 2

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.7.3.4.2.1 Impacts from Renewable Energy and Transmission Development on BLM Land

On BLM lands under the LUPA, Alternative 2 includes DFAs (approximately 718,000 acres) and transmission corridors where approximately 67,000 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.7-168 shows the impacts to natural communities under Alternative 2 on BLM Land. An effects summary by general community is provided below in relation to the Plan-wide effects analysis provided in Section IV.7.3.4.1.1. Appendix R2 provides a detailed analysis of natural community effects by ecoregion subarea.

California forest and woodlands

Overall, approximately 200 acres (0.4%) of California forest and woodlands would be impacted under Alternative 2 on BLM Land, approximately two-thirds of the Plan-wide effects. Much of this impact would be from wind development in the Pinto Lucerne Valley and Eastern Slopes subarea, but impacts from solar and transmission would also occur in this subarea as well as 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 (1.1%) of chaparral and coastal scrubs would be impacted under Alternative 2 on BLM Land, which is approximately one-fifth 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 (0.5%) of desert conifer woodlands would be impacted under Alternative 2 on BLM Land, which is less than a third of the Plan-wide effects. Most of the impacts to desert conifer woodlands would be from solar development in the Pinto Lucerne Valley and Eastern Slopes 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 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 7,000 acres (0.6%) of desert outcrop and badlands would be impacted under Alternative 2 on BLM Land, which constitutes the majority of the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley 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-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 53,000 acres (0.8%) of desert scrubs would be impacted under Alternative 2 on BLM Land, which is over half of the Plan-wide effects. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, 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. 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 4; AM-DFA-ICS-5 and 6 (Alternative 2), AM-DFA-ICS-7 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 500 acres (1.6%) of grasslands would be impacted under Alternative 2 on BLM Land, which is only about 10% of the Plan-wide effects. The majority of these impacts would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas. There would also be about 90 acres of impacts 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-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 4,000 acres (1.3%) of wetlands would be impacted under Alternative 2 on BLM Land, which is less than half of the Plan-wide effects. Impacts would be primarily to Southwestern North American salt basin and high marsh and North American warm desert alkaline scrub and herb playa and wet flat. Most impacts would occur in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains

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.7-168
BLM LUPA Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>California forest and woodland</i>						
Californian broadleaf forest and woodland	11,000	0	0	0	0	10
Californian montane conifer forest	34,000	40	90	0	40	200
<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	10
Central and south coastal California seral scrub	20	0	0	0	0	0
Central and South Coastal Californian coastal sage scrub	13,000	100	20	0	30	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	60	0	40	300
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	1,203,000	4,000	1,000	400	2,000	7,000
<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	200	10	0	40	300
Intermontane seral shrubland	5,000	20	10	0	20	50

Table IV.7-168
BLM LUPA Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Inter-Mountain Dry Shrubland and Grassland	282,000	500	100	600	400	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	0	0	0	0	10
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	29,000	6,000	5,000	9,000	49,000
Mojave and Great Basin upper bajada and toeslope	406,000	300	90	0	500	900
Shadscale - saltbush cool semi-desert scrub	101,000	600	100	300	200	1,000
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	200	100	0	200	400
California annual forb/grass vegetation	1,000	40	0	0	0	40
<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

Table IV.7-168
BLM LUPA Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
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
<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	200	0	200	2,000
Open Water	700	20	0	10	10	50
Playa	26,000	0	0	0	0	0
Southwestern North American salt basin and high marsh	122,000	2,000	100	0	40	2,000
Wetland	100	10	0	0	0	10
<i>Other Land Cover – Developed and Disturbed Areas</i>						
Agriculture	6,000	200	0	200	100	500
Developed and Disturbed Areas	44,000	400	70	20	100	600
Not Mapped	800	100	50	10	20	200
Rural	3,000	40	0	50	10	100
Total	9,471,000	39,000	8,000	7,000	13,000	67,000

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.

Notes: 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.

Rare natural community alliances could be impacted under Alternative 2 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 2 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 2 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, except those impacts determined to be unavoidable, would be avoided under Alternative 2 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 2. 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 2% (approximately 2,000 acres) of playa would be impacted by Covered Activities under Alternative 2 on BLM land. Impacts would be associated with solar (2,000 acres), with approximately 300 acres of wind impacts and approximately 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, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas with most impacts in the West Mojave and Eastern Slopes subarea.

Addition 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 2 on BLM land in the following ecoregion subareas: Kingston and Funeral Mountains, Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, 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 impacts determined to be unavoidable (COMP-1 and COMP-2).

Major Rivers

Major rivers occur within DFAs and transmission corridors and potential impacts to major rivers under Alternative 2 on BLM land have the potential to occur to the Mojave River. Development of the DFAs could indirectly impact these resources through alteration of hydrology. Impacts to major rivers would be adverse absent implementation of avoidance measures. Impacts to major rivers and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs. 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 and Imperial Borrego Valley subareas, as shown in Table IV.7-169. 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.7-169
BLM LUPA Terrestrial Operational Impacts – Alternative 2**

Ecoregion Subarea	Solar Impact (acres)¹	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	11,000	14,000	-	5,000	30,000
Imperial Borrego Valley	8,000	9,000	6,000	3,000	26,000
Kingston and Funeral Mountains	1,000	1,000	-	500	2,500
Mojave and Silurian Valley	2,000	3,000	-	800	5,800

Table IV.7-169
BLM LUPA Terrestrial Operational Impacts – Alternative 2

Ecoregion Subarea	Solar Impact (acres)¹	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Owens River Valley	400	-	900	400	1,700
Panamint Death Valley	600	200	-	40	840
Pinto Lucerne Valley and Eastern Slopes	2,000	6,000	-	2,000	10,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	900	3,000	-	800	4,700
West Mojave and Eastern Slopes	12,000	1,000	-	200	13,200
Total	39,000	37,000	7,000	13,000	96,000

¹ 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 Imperial Borrego Valley and Cadiz Valley and Chocolate Mountains subareas. 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 West Mojave and Eastern Slopes, Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains 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 2 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 subarea. Plant Covered Species that could also experience vegetation degradation from dust suppressants, would also mainly be impacted by Covered Activities in the West Mojave and Eastern Slopes subarea.

Avoidance and minimization CMAs implemented as part of Alternative 2, 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

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, 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 and Imperial Borrego Valley 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, 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 2. 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 Pinto Lucerne Valley and Eastern Slopes subarea, and to a lesser extent in the West Mojave and Eastern Slopes subarea. Under Alternative 2 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 subarea and to a lesser extent in the Imperial Borrego Valley and 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 Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas would have the largest amount of impacts to plant Covered Species on BLM Land.

Under Alternative 2 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. The siting of the DFAs under the BLM LUPA largely avoid habitat for Tehachapi slender salamander and CMAs require avoidance of and setbacks from riparian and wetland habitat (AM-DFA-RIPWET-1) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-170. 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 require 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.7-170. 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.7-170. 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.7-170. 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 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.7-170. 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. In addition the Planning Species desert kit fox and burro deer 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 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.7-170. Compensation CMAs would offset habitat loss for these species.

No impacts to suitable habitat for covered plant species are expected. Although modeled suitable habitat for plant 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 this species to less than the acreage reported in Table IV.7-170. 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 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.7-170.

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, greater sandhill crane, 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, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-170. 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 covered mammal species would occur for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Desert kit fox and burro deer (Planning Species) would also 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 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.7-170.

Table IV.7-170
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Amphibian/Reptile</i>						
Agassiz's desert tortoise	5,799,000	19,000	3,000	800	5,000	27,000
Flat-tailed horned lizard	428,000	4,000	-	5,000	2,000	12,000
Mojave fringe-toed lizard	731,000	4,000	1,000	-	2,000	7,000
Tehachapi slender salamander	7,000	10	-	-	-	10
<i>Bird</i>						
Bendire's thrasher	773,000	700	500	50	800	2,000
Burrowing owl	1,707,000	18,000	2,000	5,000	4,000	29,000
California black rail	31,000	400	-	500	100	1,000
California condor	242,000	3,000	100	70	100	3,000
Gila woodpecker	38,000	500	200	-	40	800
Golden eagle–foraging	6,216,000	18,000	5,000	800	6,000	29,000

Table IV.7-170
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Golden eagle–nesting	2,421,000	1,000	600	20	2,000	4,000
Greater sandhill crane	3,000	90	-	100	30	200
Least Bell's vireo	69,000	10	10	10	60	90
Mountain plover	7,000	200	10	100	50	400
Southwestern willow flycatcher	46,000	300	20	600	200	1,000
Swainson's hawk	112,000	2,000	70	600	200	3,000
Tricolored blackbird	13,000	100	50	-	50	200
Western yellow-billed cuckoo	19,000	10	-	-	10	20
Yuma clapper rail	5,000	-	-	10	10	20
<i>Fish</i>						
Desert pupfish	500	-	-	-	-	-
Owens pupfish	4,000	-	-	-	20	20
Owens tui chub	4,000	-	-	-	20	20
<i>Mammal</i>						
Bighorn sheep – inter-mountain habitat	2,243,000	4,000	1,000	70	1,000	6,000
Bighorn sheep – mountain habitat	3,568,000	3,000	2,000	-	3,000	8,000
California leaf-nosed bat	4,444,000	17,000	5,000	3,000	7,000	32,000
Mohave ground squirrel	999,000	12,000	300	900	500	14,000
Pallid bat	8,943,000	33,000	7,000	6,000	12,000	59,000
<i>Plant</i>						
Alkali mariposa-lily	2,000	30	10	-	10	40
Bakersfield cactus	77,000	400	30	-	10	400
Barstow woolly sunflower	72,000	2,000	-	-	10	2,000
Desert cymopterus	67,000	300	-	-	10	300
Little San Bernardino Mountains linanthus	80,000	500	200	-	20	800
Mojave monkeyflower	116,000	400	100	-	200	800
Mojave tarplant	136,000	500	10	50	80	600

Table IV.7-170
BLM LUPA Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Owens Valley checkerbloom	55,000	10	-	20	60	90
Parish’s daisy	85,000	300	400	-	100	800
Triple-ribbed milk-vetch	4,000	-	-	-	-	-

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.

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.7-171 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, 6,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 2. Within the Eastern Mojave Recovery Unit, 2,000 acres of TCAs and linkage habitat would be impacted under Alternative 2. Within the Western Mojave Recovery Unit, 10,000 acres of TCAs and linkage habitat would be impacted under Alternative 2.

Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required impacts to desert tortoise important areas.

As described in the Plan-wide impact analysis of Alternative 2 under Impact BR-4, this alternative would result in adverse impacts to desert tortoise. The adverse impacts to desert tortoise under Alternative 2 are primarily a result of where renewable energy

development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs would be covered in numerous locations considered important for desert tortoise conservation, including but not limited to Desert Tortoise Research Natural Area and West Rand Mountains ACEC, the Fremont-Kramer critical habitat unit, the Ord-Rodman critical habitat unit, habitat linkages around Ord-Rodman, and habitat linkage areas in the Silurian Valley. Impacts to the Desert Tortoise Research Natural Area would result in the loss of over 30 years of science and research on desert tortoise that have been and continue to be conducted at this location, which would be considered an irreplaceable impact. In addition to the acreage of lost desert tortoise habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate desert tortoise populations, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of the desert tortoise to recover in the Plan Area.

Table IV.7-171
BLM LUPA Impact Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	354,000	1,000	300	-	100	2,000
	Linkage	406,000	300	80	-	10	400
	TCA	1,728,000	700	300	-	3,000	4,000
<i>Colorado Desert Total</i>		<i>2,488,000</i>	<i>2,000</i>	<i>700</i>	<i>-</i>	<i>3,000</i>	<i>6,000</i>
Eastern Mojave	Linkage	728,000	1,000	400	-	300	2,000
	TCA	239,000	-	-	-	400	400
<i>Eastern Mojave Total</i>		<i>967,000</i>	<i>1,000</i>	<i>400</i>	<i>-</i>	<i>700</i>	<i>2,000</i>
Western Mojave	Linkage	796,000	2,000	900	-	1,000	4,000
	TCA	964,000	4,000	300	-	700	5,000
<i>Western Mojave Total</i>		<i>1,759,000</i>	<i>7,000</i>	<i>1,000</i>	<i>-</i>	<i>2,000</i>	<i>10,000</i>
Total		5,215,000	10,000	2,000	-	6,000	18,000

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.

Notes: Total reported acres include solar and ground-mounted DG (GMDG), wind project area, geothermal, and transmission impacts. Short-term and long-term ground disturbance from wind would be within the wind project 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 2, 46 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 2, 84 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 2 on BLM land, approximately 8,000 acres of mountain habitat and 6,000 acres of intermountain habitat would be impacted. Alternative 2 identified DFAs that avoid impacts to bighorn sheep mountain and intermountain habitat except in the Pinto Lucerne Valley and Eastern Slopes subarea, eastern Mojave and Silurian Valley subarea, and eastern Imperial Borrego Valley subarea. 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.7-172 provides an impact analysis for these Mohave ground squirrel important areas in the BLM LUPA area. Approximately 6,000 acres of impact would occur to key population centers under Alternative 2. A total of 200 acres of impact would occur in climate change extension areas under Alternative 2. A total of 4,000 acres of impact to linkage and 2,000 acres of impact to expansion areas would occur under Alternative 2. CMAs would require protocol surveys in population centers and linkages, as well as provide other measures to offset the loss of habitat for Mohave ground squirrel (AM-DFA-ICS-36 through AM-DFA-ICS-43). Additionally, the CMAs would prohibit impacts that affect the viability of

linkages. Compensation CMAs would be required for impacts to Mohave ground squirrel important areas.

As described in the Plan-wide impact analysis of Alternative 2 under Impact BR-4, this alternative would result in adverse impacts to Mohave ground squirrel. The adverse impacts to Mohave ground squirrel under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs would be covered in numerous locations considered important for Mohave ground squirrel conservation, including but not limited key population centers and linkages in West Mojave – 1, West Mojave – 2, and West Mojave – 3 ecoregion subunits. In addition to the acreage of lost of Mohave ground squirrel habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate key population centers for Mohave ground squirrel, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of Mohave ground squirrel to recover in the Plan Area.

Table IV.7-172
BLM LUPA Impact Analysis for Mohave Ground Squirrel
Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	299,000	6,000	80	100	200	6,000
Linkage	280,000	3,000	20	400	200	4,000
Expansion Area	282,000	2,000	80	300	80	2,000
Climate Change Extension	92,000	50	-	100	80	200
Total	954,000	11,000	200	900	600	12,000

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.

Notes: Total reported acres include solar and ground-mounted distributed generation, short-term and long-term wind 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.

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 8,000 acres of impact designated critical habitat would result from the development of Covered Activities on BLM-administered lands under Alternative 2 located in the Chuckwalla, Fremont-Kramer, Ivanpah, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 2, 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 West Mojave and Eastern Slopes subarea, as shown in Table IV.7-169. The Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley 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.

Noise

Noise can cause physical damage to wildlife as well as behavioral changes in habitat use, activity patterns, reproduction, and foraging. Although different Covered Activities can generate varying noise levels, noise-related effects on wildlife would generally be similar across renewable energy technology types. Therefore, the severity and location of adverse effects resulting from noise, including disturbance of wildlife, would correspond to the amount and distribution of Covered Activities represented by the DFAs on BLM Land, as previously described.

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 habitat on BLM Land would be located in the Imperial Borrego Valley and West Mojave and Eastern Slopes 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. Overall, impacts on BLM Land to the habitat for these Covered Species would mostly occur in the Imperial Borrego Valley, Cadiz Valley and Chocolate Mountains, and West Mojave and Eastern Slopes subareas. As such, the disturbance of wildlife from noise would predominantly occur in the Imperial Borrego and West Mojave and Eastern Slopes subareas.

The disturbance and injury of wildlife from noise-related effects would be minimized through the implementation of avoidance and minimization CMAs under Alternative 2. The CMA AM-PW-13 would minimize 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 are described in detail in Section IV.7.2.1 and can occur for some wildlife in response to human activities during siting, construction, and operations. These adverse effects resulting from predator avoidance behavior would generally be similar across renewable energy technology types. Therefore, the severity and location of the effects resulting from predator avoidance behavior would correspond to the amount and distribution of Covered Activities represented by the DFAs on BLM Land, as previously described.

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 as well as the Imperial Borrego Valley subareas, where most of the terrestrial operational impacts on BLM Land are anticipated.

Under Alternative 2, 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 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 and Imperial Borrego Valley subareas. Similarly, impacts from solar projects on BLM Land would primarily occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas.

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 and Imperial Borrego Valley subareas. Migratory birds that fly during the night may be affected by aviation safety lighting. For bird Covered Species the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley are the subareas 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 Imperial Borrego Valley subarea and to a lesser extent in the West Mojave and Eastern Slopes as well as the Cadiz Valley and Chocolate Mountains subareas.

Alternative 2 would implement avoidance and minimization CMAs on BLM Land 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. 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.7-173 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- 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 1.7% and within the agriculture/rural land cover areas at approximately 6.7%.

As additional analysis, Table IV.7-50 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.

Under the Alternative 2, impacts to approximately 20 acres of Lane Mountain milk-vetch critical habitat on BLM lands 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 is 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.

Table IV.7-173
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	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	200	0	100	500	0.5%
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, Lucy’s warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-	7,023,000	31,000	6,000	6,000	10,000	53,000	0.7%

Table IV.7-173

BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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 Desert plum, Mojave milkweed, Munz’s Cholla, nine-awned							

Table IV.7-173

BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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 ³ / 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,	1,330,000	4,000	1,000	400	2,000	7,400	0.6%

Table IV.7-173

BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	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.7-173

BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	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	29,000	200	100	0	200	500	1.7%
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,	1,443,000	3,000	300	0	200	3,500	0.2%

Table IV.7-173
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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	200	0	300	100	600	6.7%

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.

⁴ 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.7-174 shows the impact analysis for the desert linkage network for Alternative 2 for the BLM LUPA. Overall, over 24,000 acres of desert linkage network could be adversely impacted in DFAs and transmission corridors in nine 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 Palen Valley portion of a linkage network that extends south to the northern foothills of the Chocolate Mountains. There are also small DFAs in the linkage along the Colorado River around Vinagre Wash. As described in the Plan-wide analysis under Impact BR-6, Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial

wildlife movement. The existing I-10 corridor is a substantial barrier to movement for many species and the development of renewable energy both north and south of the I-10 corridor would further reduce the numbers and size of wildlife crossing location, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

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. There are also DFAs in the area that connects the southern end of the Chocolate Mountains. 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 and Kingston and Funeral Mountains subareas, there is a DFA in the linkage network that connects the Silurian Valley to the Turquoise Mountain area. As described in the Plan-wide analysis under Impact BR-6, general terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. There is a DFA in the Searles Valley that would impact the linkage between the Searles Range and Argus Range in the Panamint Death Valley subarea. As described in the Plan-wide analysis under Impact BR-6, 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, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

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 then east to the Bodman Mountains. A DFA occurs in the connection between the Mojave River and Quartzite Mountain. There are also DFAs in the linkage that connects the Little Morongo Canyon to the area around Emerson Lake and in the linkage that connects the San Bernardino Mountains to the Fry Mountains. As described in the Plan-wide analysis under Impact BR-6, Development in these linkage areas would limit or degrade the ability of species, including bighorn sheep and other terrestrial

mammals, to move from the surrounding mountains to the desert floor and other adjoining mountains. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to terrestrial wildlife movement, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Providence and Bullion Mountains there are DFAs in the area northeast of the Twentynine Palms Marine Corps Base. DFAs are not located in the desert linkage network corridors elsewhere in this 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 West Mojave and Eastern Slopes subarea, there are small 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 Brisbane Valley. Farther west in the Plan Area, there are small DFAs in the linkages that connect Fremont Valley and Soledad Mountain to the Tehachapi Mountains. There are also DFAs in the linkages in the Indian Wells Valley area, which could adversely impact movement for Mohave ground squirrel between its most northern population and the rest of its range. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

Although the reserve design envelope for Alternative 2 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network, the DFAs under Alternative 2 are proposed in geographic locations important for the movement of wildlife and in locations that, if developed, could not be replaced or compensated. Additionally, the CMAs under Alternative 2 would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)). The potential for dispersed development across the Plan Area under Alternative would reduce the probability of maintaining a connected, unfragmented landscape, and it is anticipated that populations would become isolated and that more human intervention and management would be needed (i.e. assisted migration, population augmentation) to maintain populations.

Table IV.7-174
BLM LUPA Impact Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	709,000	4,000	1,000	-	3,000	9,000
Imperial Borrego Valley	146,000	3,000	1,000	700	10	4,000
Kingston and Funeral Mountains	138,000	200	50	-	300	600
Mojave and Silurian Valley	368,000	700	200	-	300	1,000
Owens River Valley	15,000	80	-	200	100	400
Panamint Death Valley	112,000	70	10	-	10	90
Pinto Lucerne Valley and Eastern Slopes	168,000	600	500	-	900	2,000
Piute Valley and Sacramento Mountains	111,000	-	-	-	-	-
Providence and Bullion Mountains	377,000	600	400	-	100	1,000
West Mojave and Eastern Slopes	386,000	6,000	20	-	80	7,000
Total	2,530,000	4,000	200	300	5,000	9,000

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.

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 bird migration areas in each subarea.

In Alternative 2 wind generation is a significant proportion of the overall generation mix, BLM managed DFAs especially in the Pinto Lucerne Valley and Eastern Slopes Subarea.

Smaller quantities of develop in the West Mojave and Eastern Slopes, and Mojave and Silurian Valley Subareas. Wind development would affect migratory routes between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on the Edwards AFB, and in the North Mojave including China Lake, Koehn Lake, Harper Lake and Searles Lake. In particular, DFAs near Koehn Lake would be a particular issue because they lie between the Tehachapi Mountains and the Lake. Wind development would also 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 near to the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. The smaller quantities of wind development anticipated in the Imperial Borrego Valley subarea would occur in to the southeast of the Chocolate Mountains.

Solar development would be constructed throughout the West Mojave and Eastern slopes, Pinto Lucerne Valley, Cadiz and Chocolate Mountain and Imperial Borrego Valley subareas. Alternative 2 would result in 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 and in McCoy Valley. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River and Coachella Valley. As discussed above, development in the West Mojave and Eastern slopes, Pinto Lucerne Valley would occur in DFAs between the Tehachapi and San Bernardino Mountain passes, 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 southern, western and eastern shores. Impacts from solar development described in BR-4, are likely to result development of solar facilities on BLM lands where previously this has not occurred. Development would create facilities across the landscape that mimic open water. Such facilities would adversely affect the behavior migratory birds, and would result increased mortality.

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 a 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.

Although these CMAs would be in place under Alternative 2, the DFAs are sited in locations that would result in impacts to migratory birds in locations that cannot be avoided, minimized, and compensated given the potential for fragmentation, isolation, and disruption of migratory patterns that would result from this alternative.

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. 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 2 within DFAs on BLM Land would follow the same overall pattern as Plan-wide impacts (AM-LL-1(Alternative 2) through AM-LL-4).

In order to minimize habitat fragmentation and population isolation, most DFAs under Alternative 2 were sited in less intact and more degraded areas; however, some DFAs under Alternative 2 do not avoid sensitive resource or intact landscapes because these areas were identified through public scope as priority for the development of renewable energy. Although many 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, some of the DFAs in this alternative are in direct conflict with landscape intactness, critical populations, and/or key connectivity corridors. See Impact BR-6 for an analysis of the effects of this alternative on wildlife movement.

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 LUPA Alternative 2 would result approximately 66,000 acres of permanent conversion of natural desert communities with 1,400 acres of impacts to already disturbed communities. 31% of impacts would occur in the Cadiz and Chocolate Mountains, 19% would occur in Imperial Borrego Valley, 20% in West Mojave and Eastern Slopes, 6% at Pinto Lucerne Valley, and the remaining 12 % spread across the rest of the plan area.

The development in the Cadiz and Chocolate Mountains subarea would be expected in the solar PEIS SEZ adjacent to the I-10 corridor, and in the McCoy Wash. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, 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 throughout the Lucerne Valley. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles.

Impacts from solar and geothermal development area anticipated in Imperial Borrego Valley. Impacts would occur in three BLM managed areas: the western foothills of the Chocolate Mountains that include geothermal leasing areas studied in the 2008 west-wide geothermal PEIS; BLM land along the western edge of East Mesa ACEC; and in BLM managed lands on the west side of the Salton Sea that include the Truckhaven geothermal leasing area. Increased predation on flat-tailed horned lizard, desert tortoise, and nesting birds could be expected.

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 BLM managed DFAs. The range of collision rates calculated in Table IV.7-175 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 of collision from its expected distribution and life history of the birds in the Plan Area.

Overall, the Alternative 2 would result in a median of 4,000 collisions per year for birds and 19,000 collisions for bats across the Plan Area. The expected distribution of wind generation indicates that 48% of all collisions in DFAs on BLM lands would occur in the Cadiz Valley and Chocolate Mountains subarea, 21% of collision, would occur in the Pinto Lucerne Valley and Eastern Slopes subarea, and 10% of collisions would occur in the Mojave, and Silurian Valley subarea, with the remaining 20% spread between across other subareas

The high rates of collision effects in the Cadiz Valley and Chocolate Mountains region would result in greater impacts for western yellow-billed cuckoo, Yuma clapper rail, mountain plover, southwest willow flycatcher, and burrowing owl. Whereas, development in the Pinto and Lucerne Valley subarea would mainly affect golden eagle territories and important Bendire's thrasher habitat. In the Mojave and Silurian Valley, burrowing owl, tricolored blackbird and golden eagles would be at risk.

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.

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. Although these CMAs would be in place under Alternative 2, some of the DFAs under this alternative are sited in remote geographic locations in intact landscapes where impacts to Covered Species have a higher potential to occur.

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 BBOS 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 BBOS.

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.7-175
BLM LUPA Estimated Range of Bird and
Bat Collisions per Year by Subarea – Alternative 2**

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)			Bats (Collisions/Yr)		
		Low	Median	High	Low	Median	High
Cadiz Valley and Chocolate Mountains	694	1,000	4,000	13,000	1,000	16,000	97,000
Imperial Borrego Valley	58	100	300	1,000	100	1,000	8,000
Kingston and Funeral Mountains	57	100	300	1,000	100	1,000	8,000
Mojave and Silurian Valley	139	200	700	3,000	300	3,000	20,000
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	12	-	100	200	-	300	2,000
Pinto Lucerne Valley and Eastern Slopes	306	500	2,000	6,000	600	7,000	43,000

Table IV.7-175
BLM LUPA Estimated Range of Bird and
Bat Collisions per Year by Subarea – Alternative 2

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)			Bats (Collisions/Yr)		
		Low	Median	High	Low	Median	High
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	133	200	700	3,000	300	3,000	19,000
West Mojave and Eastern Slopes	62	100	300	1,000	100	1,000	9,000
Grand Total	1,462	2,000	7,000	28,000	3,000	34,000	205,000

¹ 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 the Alternative 2 impacts to avian and bat species from solar development based on the planned solar capacity. Nonfederal DFAs would see a 4-fold increase in collision risks relative to baseline. 28% of the collision risks would occur in the Cadiz and Chocolate Mountains, with, 22% in Imperial Borrego Valley, 32% in West Mojave and Eastern Slopes, 6% in Pinto Lucerne Valley and Eastern Slopes subarea, and the remaining 12 % 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 Activity include: Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, and mountain plover. 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, Swainson's hawk, and Yuma clapper rail, Bats at risk include pallid bat, California leaf-nosed bat, Townsend's big-eared bat. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north California City, and along HWY 395. In these areas, susceptible species would include California condor, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, Burrowing owls and Swainson's hawk. Affected bat species that

include pallid bat, California leaf-nosed bat, Townsend's big-eared bat. Impacts from Covered Activities associated with solar generation in the Pinto and Lucerne Valley subarea would be spread throughout the Lucerne Valley. Species impacted would include golden eagle, Bendire's thrasher, and burrowing owl.

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 and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, and the Pinto Lucerne Valley, with 5,000 acres, 3,000 acres, 1,000 acres, and 2,000 acres of terrestrial impacts anticipated respectively. The remaining 3,000 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 those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes, which would represent additional risk to migrating and overwintering Covered birds. Migrating birds would be particularly susceptible in bad weather when flocks birds may be forced down to lower altitudes. Golden eagle would be particularly susceptible to lines in both the Pinto Lucerne Valley and Eastern Slopes, and the Mojave and Silurian Valley subareas, as there are numerous territories in these areas. However, all covered bird 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 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 BBOS 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 level of impact on Non-Covered Species would be similar to that discussed for the Covered 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.7-176
BLM LUPA Estimated Total Take for
Covered Avian and Bat Species –Alternative 2**

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire’s thrasher	10	10	0	20
Burrowing owl	60	140	10	210
California condor ¹	0	0	0	0
California black rail	20	10	0	30
Gila woodpecker	20	20	0	40
Golden eagle ²	n/a	n/a	n/a	n/a
Least Bell’s vireo	20	10	0	30
Mountain plover	30	90	10	130
Greater sandhill crane	10	20	0	30
Southwestern willow flycatcher	30	20	0	50
Swainson’s hawk	10	0	0	10
Tricolored blackbird	20	0	0	20
Western yellow billed cuckoo	20	20	0	40
Yuma clapper rail	20	10	0	30
Grand Total Avian Species	270	350	20	640
California leaf-nosed bat	10	60	0	70
Pallid bat	10	80	0	90
Townsend’s big-eared bat	20	0	0	20
Grand Total Bat Species	40	140	0	180

¹ Take for California condor would not be permitted under the DRECP.

² 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.7.3.4.2.2 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 2, the BLM LUPA would designate approximately 5,191,000 acres of BLM LUPA conservation designations, including 5,113,000 acres of NLCS, 77,000 acres of ACEC, and 700 acres of wildlife allocation. Additionally, existing conservation areas occur on BLM-administered lands that conserve biological resources. 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, 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.7-177 shows the conservation of the desert linkage network under Alternative 2 for the BLM LUPA. Conservation of the desert linkage network totals more than 2.5 million acres (70%). The linkage in the northern portion of the Cadiz Valley and Chocolate Mountains subarea that extends from the Ward Valley to the Vidal Valley and south to the Big Maria Mountains and the Palen Mountains and the linkage from the Ward Valley to the Cadiz Valley are mostly conserved. With the exception of the linkage along the eastern boundary of the Plan Area and the Chuckwalla Valley, the majority of the remaining linkages are mostly conserved. In the Imperial Borrego Valley, the connection that extends into the Cadiz Valley and Chocolate Mountains subarea to the east and the linkage along East Mesa are only partly conserved. None of the linkages in the Kingston and Funeral Mountains subarea 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; however the majority of the desert linkage network in the northwestern portion of the Plan Area are conserved. Portions 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 only along the Searles Range. The connection in the China Lake Naval Weapon Center is not conserved in Reserve 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 not in Reserve Lands under the BLM LUPA. In the Pinto Lucerne Valley and Eastern Slopes subarea, none of the linkages are completely conserved. The linkages along the eastern boundary of the Piute Valley and Sacramento Mountains subarea would not be in Reserve Lands, but most of the remaining linkages or portions of linkages are conserved. The linkages in the eastern portion of Providence and Bullion Mountains

subarea would be largely maintained in Reserve Lands, but the area northeast of the Twentynine Palms Corps Base is outside Reserve Lands, potentially breaking connections to the north and east. In addition, a portion along Fenner Valley is not in Reserve Lands, potentially breaking another connection there. In the West Mojave and Eastern Slopes subarea, the largest contiguous conservation of the desert linkage network is in the Tehachapi Mountains area.

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.7.3.4.2.1).

Table IV.7-177
BLM LUPA Conservation Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Subarea	Available Lands (acres)	Existing Conservation¹ (acres)	NLCS (acres)²	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	890,000	187,000	434,000	47,000	-	680,000	76%
Imperial Borrego Valley	156,000	14,000	78,000	2,000	-	94,000	60%
Kingston and Funeral Mountains	174,000	28,000	117,000	6,000	-	155,000	89%
Mojave and Silurian Valley	507,000	179,000	198,000	17,000	-	400,000	79%
Owens River Valley	19,000	40	11,000	500	-	14,000	73%
Panamint Death Valley	206,000	109,000	71,000	6,000	-	186,000	90%
Pinto Lucerne Valley and Eastern Slopes	291,000	16,000	114,000	5,000	-	150,000	52%
Piute Valley and Sacramento Mountains	152,000	14,000	95,000	3,000	-	114,000	75%
Providence and Bullion Mountains	426,000	144,000	198,000	5,000	-	350,000	82%
West Mojave and Eastern Slopes	860,000	45,000	265,000	85,000	-	443,000	51%
Grand Total	3,682,000	736,000	1,581,000	176,000	-	2,587,000	70%

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

² 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.7.1.1.2.1. 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 2 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 approximately 163,000 acres in the Plan Area. Overall, 71% (approximately 116,000 acres) would be conserved under Alternative 2 on BLM land. Existing Conservation would account for 9% of the conservation, NLCSs would account for 90%, ACECs and wildlife allocations would each account for less than 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 178 seep/spring locations in the Plan Area under Alternative 2 on BLM land. Overall, 83% (148 locations) of the seep/spring locations would be conserved under Alternative 2 on BLM land. The conservation of seep/spring under Alternative 2 on BLM land would be more than half in all subareas except for Imperial Borrego Valley (32%, 1 location). These include Cadiz Valley and Chocolate Mountains (100%, 5 locations), Kingston and Funeral Mountains (83%, 27 locations), Mojave and Silurian Valley (95%, 10 locations), Owens River Valley (57%, 6 locations), Panamint Death Valley (87%, 10 locations), Piute Valley and Sacramento Mountains (89%, 14 locations), Pinto Lucerne Valley and Eastern Slopes (74%, 29 locations), Providence and Bullion Mountains (90%, 17 locations), and West Mojave and Eastern Slopes (95%, 29 locations).

Overall, Existing Conservation would account for 36% of the conservation of seep/spring, NLCSs would account for 61%, and ACECs 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. 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, 94% of the major rivers would be conserved under Alternative 2 on BLM land, including 95% of the Amargosa River and 93% of the Mojave River. Existing Conservation would account for 37%, NLCSs would account for 61%, and ACECs would account for 3%. 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, 82% (802,000 acres) of dunes and sand resources would be conserved under Alternative 2 on BLM land. At least 50% of dunes and sand resources would be conserved in all subareas that contain substantial acreage of dunes and sand in the Plan Area, including Cadiz Valley and Chocolate Mountains at 85% (444,000 acres), Imperial Borrego Valley at 65% (77,000 acres), Kingston and Funeral Mountains at 90% (40,000 acres), Mojave and Silurian Valley at 90% (38,000 acres), Owens River Valley at 87% (4,000 acres), Panamint and Death Valley at 54% (17,000 acres), Providence and Bullion Mountains at 88% (164,000 acres), West Mojave and Eastern Slopes at 89% (8,000 acres), and Pinto Lucerne Valley and Eastern Slopes at 66% (12,000 acres). 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 2 within DFAs on BLM Land would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-178 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 39,000 acres (87%) of California forest and woodlands would be conserved under BLM LUPA under Alternative 2. 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, which are mostly ACECs. 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 15,000 acres (81%) of chaparral and coastal scrubs would be conserved under BLM LUPA under Alternative 2. The majority of conservation would occur in NLCSs. 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 43,000 acres (87%) of desert conifer woodlands would be conserved under BLM LUPA under Alternative 2. 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. 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 1,061,000 (88%) of desert outcrop and badlands would be conserved under BLM LUPA under Alternative 2. 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. 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 6,017,000 acres (86%) of desert scrubs would be conserved under BLM LUPA under Alternative 2. The majority of conservation within BLM LUPA would occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. Conservation would primarily come from NLCSs. 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 101,000 acres (79%) of dunes would be conserved under BLM LUPA under Alternative 2. Most of the dunes within BLM LUPA would be conserved in Imperial Borrego Valley, Kingston and Funeral Mountains, and Cadiz Valley and Chocolate Mountains subareas. Conservation would primarily come from NLCSSs. 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 BLM LUPA under Alternative 2. The majority of conservation within BLM LUPA would occur in the Pinto Lucerne Valley and Eastern Slopes subarea. Over half of the conservation would be in NLCSSs. 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 512,000 acres (79%) of riparian communities would be conserved under BLM LUPA under Alternative 2. Most of the conservation within BLM LUPA would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would primarily come from NLCSSs. 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 217,000 acres (73%) of riparian communities would be conserved under BLM LUPA under Alternative 2. Most of the conservation within BLM LUPA would occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and West Mojave and Eastern Slopes subareas. Conservation would primarily come from NLCSSs. 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.7-178
BLM LUPA Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation ¹ (acres)	NLCS (acres) ²	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	1,000	8,000	50	10,000	94%
Californian montane conifer forest	34,000	18,000	7,000	4,000	0	29,000	84%
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>							
Californian mesic chaparral	500	0	200	300	0	500	90%
Californian pre-montane chaparral	300	0	40	300	0	300	95%
Californian xeric chaparral	5,000	2,000	2,000	500	0	4,000	91%
Central and south coastal California seral scrub	20	0	20	0	0	20	95%
Central and South Coastal Californian coastal sage scrub	13,000	2,000	8,000	20	0	10,000	76%
Western Mojave and Western Sonoran Desert borderland chaparral	200	20	80	0	0	100	48%
<i>Desert conifer woodlands</i>							
Great Basin Pinyon - Juniper Woodland	50,000	27,000	16,000	1,000	0	43,000	87%
<i>Desert outcrop and badlands</i>							
North American warm desert bedrock cliff and outcrop	1,203,000	566,000	487,000	8,000	100	1,061,000	88%

Table IV.7-178
BLM LUPA Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation ¹ (acres)	NLCS (acres) ²	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
<i>Desert Scrub</i>							
Arizonan upland Sonoran desert scrub	3,000	1,000	1,389	0	-	2,744	91%
Intermontane deep or well-drained soil scrub	69,000	16,000	46,035	714	-	62,312	90%
Intermontane seral shrubland	5,000	10	4,036	0	-	4,048	74%
Inter-Mountain Dry Shrubland and Grassland	282,000	86,000	1,000	0	0	3,000	91%
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	5,000	46,000	700	0	62,000	90%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,114,000	2,003,000	4,000	0	0	4,000	73%
Mojave and Great Basin upper bajada and toeslope	406,000	165,000	121,000	2,000	0	209,000	74%
Shadscale - saltbush cool semi-desert scrub	101,000	17,000	10,000	4,000	0	19,000	78%
Southern Great Basin semi-desert grassland	50	0	3,236,000	31,000	400	5,270,000	86%
<i>Dunes</i>							
North American warm desert dunes and sand flats	127,000	34,000	66,000	1,000	0	101,000	79%
<i>Grassland</i>							
California Annual and Perennial Grassland	28,000	10,000	11,000	600	0	21,000	77%

Table IV.7-178
BLM LUPA Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation¹ (acres)	NLCS (acres)²	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
California annual forb/grass vegetation	1,000	0	700	0	0	700	60%
<i>Riparian</i>							
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	104,000	307,000	2,000	0	413,000	82%
Mojavean semi-desert wash scrub	11,000	1,000	8,000	200	0	9,000	87%
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	28,000	55,000	500	0	84,000	68%
Southwestern North American riparian evergreen and deciduous woodland	400	0	200	200	0	400	94%
Southwestern North American riparian/wash scrub	10,000	600	5,000	50	0	6,000	56%
<i>Wetland</i>							
Arid West freshwater emergent marsh	10	0	0	0	0	0	18%
Californian warm temperate marsh/seep	0	0	0	0	0	0	93%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	147,000	13,000	100,000	200	0	114,000	77%
Open Water	700	0	200	0	0	200	37%
Playa	26,000	300	24,000	100	90	25,000	94%

Table IV.7-178
BLM LUPA Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation ¹ (acres)	NLCS (acres) ²	ACEC (acres)	Wildlife Allocations (acres)	Total Conservation (acres)	% of Available Lands
Southwestern North American salt basin and high marsh	122,000	2,000	72,000	4,000	0	78,000	64%
Wetland	100	0	20	0	0	20	16%
<i>Other Land Cover</i>							
Agriculture	6,000	0	2,000	100	0	2,000	34%
Developed and Disturbed Areas	44,000	200	2,000	200	0	2,000	6%
Not Mapped	800	0	200	0	0	200	27%
Rural	3,000	0	1,000	60	0	1,000	47%
Total	9,471,000	3,101,000	4,858,000	73,000	700	8,032,000	85%

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

² 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.7-179 shows the conservation of Covered Species modeled habitat under the Alternative 2 (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 31% for greater sandhill crane and Yuma clapper rail to 93% for triple-ribbed milk-vetch.

Most of the conserved modeled habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that are in the NLCSS. Flat-tailed horned lizard modeled habitat is mainly conserved in the NLCSS in the Imperial Borrego Valley subarea. Tehachapi slender salamander modeled habitat occurs in the Tehachapi Mountains where conservation is primarily composed of ACECs. Furthermore, the siting of the DFAs under Alternative 2 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.

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 suitable habitat Bendire's thrasher occurs mainly in NLCSS. Suitable habitat for 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 NLCSS.

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 NLCSS. Golden eagle modeled suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in existing conservation areas and NLCSS. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes and Owens River Valley subareas; the majority of suitable habitat conserved is in NLCSS. 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 NLCSS. Conservation of mountain plover suitable habitat is almost entirely within the NLCSS.

Conservation of suitable habitat for desert pupfish is mostly in NLCSS. In addition, 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 NLCSs.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is mainly in existing conservation areas and NLCSs. The siting of the DFAs under Alternative 2 largely avoid habitat for bighorn sheep. The total conserved acreage of suitable habitat for burro deer, desert kit fox, and Mojave ground squirrel is conserved mainly in NLCSs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend’s big-eared bat—is also mainly conserved in NLCSs. 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 30% of suitable habitat for Owens Valley checkerbloom to 93% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat is conserved in existing conservation and BLM LUPA conservation designations, and 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, 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.7-179
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation ¹ (acres)	NLCS (acres) ²	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	3,186,000	33,000	300	5,088,000	88%
Flat-tailed horned lizard	428,000	36,000	266,000	2,000	-	304,000	71%
Mojave fringe-toed lizard	731,000	214,000	412,000	3,000	300	629,000	86%
Tehachapi slender salamander	7,000	-	1,000	5,000	50	7,000	92%
<i>Bird</i>							
Bendire's thrasher	773,000	266,000	427,000	4,000	-	697,000	90%

Table IV.7-179
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation ¹ (acres)	NLCS (acres) ²	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Burrowing owl	1,707,000	144,000	1,038,000	16,000	80	1,198,000	70%
California black rail	31,000	1,000	10,000	60	-	11,000	35%
California condor	242,000	37,000	131,000	22,000	50	190,000	78%
Gila woodpecker	38,000	700	16,000	80	-	17,000	46%
Golden eagle–foraging	6,216,000	2,539,000	2,884,000	45,000	300	5,469,000	88%
Golden eagle–nesting	2,421,000	1,334,000	858,000	29,000	300	2,220,000	92%
Greater sandhill crane	3,000	-	900	30	-	1,000	31%
Least Bell's vireo	69,000	28,000	33,000	2,000	50	63,000	91%
Mountain plover	7,000	80	3,000	100	-	3,000	45%
Southwestern willow flycatcher	46,000	5,000	17,000	4,000	40	27,000	59%
Swainson's hawk	112,000	6,000	34,000	4,000	-	45,000	40%
Tricolored blackbird	13,000	5,000	4,000	200	-	9,000	70%
Western yellow-billed cuckoo	19,000	4,000	8,000	300	-	12,000	65%
Yuma clapper rail	5,000	30	2,000	10	-	2,000	31%
<i>Fish</i>							
Desert pupfish	500	20	300	-	-	300	67%
Owens pupfish	4,000	600	600	50	-	1,000	32%
Owens tui chub	4,000	600	600	50	-	1,000	32%
<i>Mammal</i>							
Bighorn sheep – inter-mountain habitat	2,243,000	785,000	1,166,000	20,000	90	1,971,000	88%
Bighorn sheep – mountain habitat	3,568,000	1,821,000	1,406,000	10,000	300	3,238,000	91%
California leaf-nosed bat	4,444,000	1,442,000	2,389,000	15,000	300	3,845,000	87%
Mohave ground squirrel	999,000	104,000	605,000	23,000	-	732,000	73%
Pallid bat	8,943,000	3,024,000	4,579,000	67,000	700	7,671,000	86%

Table IV.7-179
BLM LUPA Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation ¹ (acres)	NLCS (acres) ²	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Townsend's big-eared bat	7,599,000	2,330,000	4,036,000	61,000	600	6,428,000	85%
<i>Plant</i>							
Alkali mariposa-lily	2,000	-	1,000	-	-	1,000	65%
Bakersfield cactus	77,000	3,000	62,000	4,000	-	68,000	89%
Barstow woolly sunflower	72,000	400	46,000	400	-	47,000	65%
Desert cymopterus	67,000	4,000	55,000	400	-	59,000	89%
Little San Bernardino Mountains linanthus	80,000	6,000	46,000	200	-	52,000	65%
Mojave monkeyflower	116,000	23,000	78,000	200	-	102,000	87%
Mojave tarplant	136,000	29,000	87,000	4,000	50	121,000	89%
Owens Valley checkerbloom	55,000	12,000	2,000	2,000	-	17,000	30%
Parish's daisy	85,000	34,000	32,000	50	-	66,000	77%
Triple-ribbed milk-vetch	4,000	4,000	100	-	-	4,000	93%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on BLM-administered land.

² 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.7-180 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, 92% of TCAs, linkage habitat, and high priority habitat

would be conserved under Alternative 2. Within the Eastern Mojave Recovery Unit, 92% of the important areas would be conserved Alternative 2. Within the Western Mojave Recovery Unit, 88% of TCAs and linkage habitat would be conserved under Alternative 2. Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-180

BLM LUPA Conservation Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation ¹ (acres)	NLCS (acres) ²	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Colorado Desert	High Priority Habitat	354,000	156,000	150,000	500	-	306,000	87%
	Linkage	406,000	126,000	250,000	1,000	300	377,000	93%
	TCA	1,728,000	454,000	1,144,000	13,000	-	1,611,000	93%
<i>Colorado Desert Total</i>		<i>2,488,000</i>	<i>735,000</i>	<i>1,544,000</i>	<i>14,000</i>	<i>300</i>	<i>2,294,000</i>	<i>92%</i>
Eastern Mojave	Linkage	728,000	418,000	246,000	1,000	-	665,000	91%
	TCA	239,000	56,000	168,000	400	-	225,000	94%
<i>Eastern Mojave Total</i>		<i>967,000</i>	<i>474,000</i>	<i>414,000</i>	<i>1,000</i>	<i>-</i>	<i>890,000</i>	<i>92%</i>
Western Mojave	Linkage	796,000	387,000	305,000	700	-	693,000	87%
	TCA	964,000	129,000	717,000	8,000	-	854,000	89%
<i>Western Mojave Total</i>		<i>1,759,000</i>	<i>517,000</i>	<i>1,022,000</i>	<i>8,000</i>	<i>-</i>	<i>1,547,000</i>	<i>88%</i>
Grand Total		5,215,000	1,726,000	2,980,000	24,000	300	4,731,000	91%

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

² 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.7.1.1.2.1. 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.7-181 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 69% of key population centers and 73% of linkages would be conserved under Alternative 2. Expansion areas and climate change extension areas would be conserved at 86% and 66% 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.7-181
BLM LUPA Conservation Analysis for
Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation ¹ (acres)	NLCS (acres) ²	ACEC (acres)	Wildlife Allocation (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	299,000	18,000	181,000	7,000	-	206,000	69%
Linkage	280,000	24,000	170,000	10,000	-	204,000	73%
Expansion Area	282,000	45,000	196,000	2,000	-	243,000	86%
Climate Change Extension	92,000	14,000	44,000	3,000	-	61,000	66%
Total	954,000	101,000	591,000	22,000	-	714,000	75%

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

² 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 2, 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 2, 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 2, including 20 acres in existing conservation areas and 400 acres in BLM LUPA conservation designations. For Parish’s daisy, approximately 88% of the Parish’s daisy designated critical habitat on BLM-administered lands would be conserved in Reserve Design Lands under Alternative 2, 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.7-182 shows the total amount of Critical Habitat and the amount within each LUPA conservation designation for Non-Covered Species. These conservation designations are 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.7-182
Critical Habitat within BLM LUPA Conservation Designations
for Non-Covered Species – Alternative 2**

Common Name	Acres of Critical Habitat within BLM LUPA Lands	Existing Conservation	NLCS (acres)	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	30	0	0	30
Ash Meadows gumplant	300	0	300	0	0	300
Cushenbury buckwheat	400	0	400	0	0	400
Cushenbury milk-vetch	900	0	800	10	0	810
Cushenbury oxytheca	80	0	80	0	0	80
Lane Mountain milk-vetch	10,000	50	9,000	900	0	9,950
Pierson’s milk-vetch	12,000	12,000 ²	200	0	0	3,200
Peninsular Bighorn sheep	7,000	5,000	2,000	0	0	7,000

¹ NLCS and ACEC designations overlap, the entire Amargosa Valley, which contains the Amargosa vole critical habitat, is located within an ACEC.

² 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.7.3.4.3 Impacts of Natural Community Conservation Plan: Alternative 2

The impacts and mitigation measures for renewable energy and transmission development of the NCCP for Alternative 2 would be the same as those defined in Section IV.7.3.4.1 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.

The following provides the conservation analysis for the NCCP.

Landscape

Habitat Linkages

Table IV.7-183 shows the conservation of the desert linkage network under Alternative 2 for the NCCP. Conservation of the desert linkage network totals more than 2.5 million acres

(71%). Approximately 363,000 acres of the desert linkage network would be inside the DRECP NCCP Reserve Design (287,000 acres on BLM Land and 76,000 acres on non-BLM land). Approximately 987,000 acres of the desert linkage network would be inside the NCCP Conceptual Plan-Wide Reserve Design and 860,000 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).

Table IV.7-183
NCCP Conservation Analysis for the Desert Linkage Network – Alternative 2

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	37,000	174,000	7,000	38,000	227,000	10,000	680,000
Imperial Borrego Valley	14,000	-	34,000	-	1,000	44,000	600	94,000
Kingston and Funeral Mountains	28,000	71,000	37,000	6,000	3,000	6,000	70	151,000
Mojave and Silurian Valley	179,000	1,000	65,000	-	15,000	132,000	7,000	400,000
Owens River Valley	40	11,000	-	3,000	-	60	20	14,000
Panamint Death Valley	109,000	20	35,000	-	2,000	40,000	600	186,000
Pinto Lucerne Valley and Eastern Slopes	16,000	73,000	30,000	14,000	6,000	10,000	900	150,000
Piute Valley and Sacramento Mountains	14,000	-	-	-	2,000	96,000	2,000	114,000
Providence and Bullion Mountains	144,000	-	300	-	50	199,000	7,000	350,000
West Mojave and Eastern Slopes	45,000	94,000	120,000	47,000	62,000	59,000	17,000	443,000
Grand Total	736,000	287,000	495,000	76,000	129,000	814,000	46,000	2,584,000

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 2 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 212,000 acres would be conserved under Alternative 2 under the NCCP. Approximately 300 acres are within the DRECP NCCP Reserve Design (approximately 100 on BLM land and approximately 200 acres on non-BLM land). Approximately 8,000 acres of the playa acreage conserved is inside NCCP Conceptual Plan-Wide Reserve Design and approximately 110,000 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, 329 locations of the seep/spring locations would be conserved under Alternative 2 under the NCCP. There are 47 seep/spring locations within the DRECP NCCP Reserve Design (28 on BLM land and 19 on non-BLM land). Approximately 89 seep/spring locations are inside NCCP Conceptual Plan-Wide Reserve Design and approximately 50 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 740,000 feet of the major rivers (Amargosa, Colorado, and Mojave) are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 113,000 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 21,000 acres are within the DRECP NCCP Reserve Design (approximately 14,000 acres on BLM land and approximately 6,000 acres on non-BLM land). Approximately 119,000 acres of the dunes and sand resources are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 491,000 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 2 under the NCCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-184 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 65,000 acres (44%) of California forest and woodlands would be conserved under Alternative 2 under the NCCP. Approximately 9,000 acres are within the DRECP NCCP Reserve Design (approximately 4,000 acres on BLM land and approximately 5,000 acres on non-BLM land). Approximately 9,000 acres of California forest and woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 30,000 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 34,000 acres (31%) of chaparral and coastal scrubs would be conserved under Alternative 2 under the NCCP. Approximately 5,000 acres are within the DRECP NCCP Reserve Design (approximately 4,000 acres on BLM land and approximately 1,000 acres on non-BLM land). Approximately 8,000 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 190,000 acres (66%) of desert conifer woodlands would be conserved under Alternative 2 under the NCCP. Approximately 8,000 acres are within the DRECP NCCP Reserve Design (approximately 6,000 acres on BLM land and approximately 3,000 acres on non-BLM land). Approximately 12,000 acres of desert conifer woodlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 18,000 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 1,339,000 acres (83%) of desert outcrop and badlands would be conserved under Alternative 2 under the NCCP. Approximately 21,000 acres are within the DRECP NCCP Reserve Design (approximately 16,000 acres on BLM land and approximately 5,000 acres on non-BLM land). Approximately 176,000 acres of desert outcrop and badlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 361,000 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 9,917,000 acres (75%) of desert scrubs would be conserved under Alternative 2 under the NCCP. Approximately 590,000 acres are within the DRECP NCCP Reserve Design (approximately 424,000 acres on BLM land and approximately 166,000 acres on non-BLM land). Approximately 1,840,000 acres of desert scrubs are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 2,444,000 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 223,000 acres (79%) of dunes would be conserved under Alternative 2 under the NCCP. Approximately 800 acres are within the DRECP NCCP Reserve Design (approximately 200 acres on BLM land and approximately 500 acres on non-BLM land). Approximately 42,000 acres of dunes are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 35,000 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 53,000 acres (22%) of grasslands would be conserved under Alternative 2 under the NCCP. Approximately 9,000 acres are within the DRECP NCCP Reserve Design (approximately 6,000 acres on BLM land and approximately 3,000 acres on non-BLM land). Approximately 199,000 acres of grasslands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 244,000 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 713,000 acres (72%) of riparian communities would be conserved under Alternative 2 under the NCCP. Approximately 17,000 acres are within the DRECP NCCP Reserve Design (approximately 14,000 acres on BLM land and approximately 4,000

acres on non-BLM land). Approximately 190,000 acres of riparian are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 244,000 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 474,000 acres (55%) of wetland communities would be conserved under Alternative 2 under the NCCP. Approximately 27,000 acres are within the DRECP NCCP Reserve Design (approximately 8,000 acres on BLM land and approximately 19,000 acres on non-BLM land). Approximately 96,000 acres of wetlands are conserved inside NCCP Conceptual Plan-Wide Reserve Design and approximately 189,000 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.7-184
NCCP Conservation Analysis for Natural Communities -Alternative 2

Natural Community	Existing Conservation ¹ (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	300	10	100	0	9,000	10,000	21,000
Californian montane conifer forest	25,000	4,000	90	5,000	0	7,000	4,000	44,000
<i>Chaparral and coastal scrub community (Cismontane scrub)</i>								
Californian mesic chaparral	20	10	0	0	0	400	600	1,000
Californian pre-montane chaparral	0	0	0	0	0	300	200	500
Californian xeric chaparral	3,000	300	10	600	10	2,000	3,000	9,000
Central and south coastal California seral scrub	0	0	0	0	0	20	30	40
Central and South Coastal Californian coastal sage scrub	2,000	3,000	2,000	800	700	3,000	2,000	14,000
Western Mojave and Western Sonoran Desert borderland chaparral	9,000	20	0	10	0	60	800	10,000

Table IV.7-184
NCCP Conservation Analysis for Natural Communities -Alternative 2

Natural Community	Existing Conservation ¹ (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>Desert conifer woodlands</i>								
Great Basin Pinyon - Juniper Woodland	159,000	6,000	3,000	3,000	1,000	8,000	10,000	190,000
<i>Desert outcrop and badlands</i>								
North American warm desert bedrock cliff and outcrop	802,000	16,000	133,000	5,000	22,000	345,000	16,000	1,339,000
<i>Desert Scrub</i>								
Arizonan upland Sonoran desert scrub	44,000	0	0	40	400	1,000	400	46,000
Intermontane deep or well-drained soil scrub	30,000	11,000	28,000	2,000	2,000	8,000	2,000	82,000
Intermontane seral shrubland	1,000	2,000	800	500	1,000	1,000	1,000	8,000
Inter-Mountain Dry Shrubland and Grassland	110,000	93,000	500	19,000	300	30,000	7,000	258,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	9,000	2,000	700	500	20	12,000	7,000	31,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	4,561,000	223,000	899,000	123,000	206,000	2,141,000	114,000	8,268,000

Table IV.7-184
NCCP Conservation Analysis for Natural Communities -Alternative 2

Natural Community	Existing Conservation ¹ (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	
Mojave and Great Basin upper bajada and toeslope	838,000	87,000	78,000	19,000	15,000	42,000	17,000	1,097,000
Shadscale - saltbush cool semi-desert scrub	38,000	5,000	11,000	2,000	7,000	44,000	16,000	123,000
Southern Great Basin semi-desert grassland	0	0	0	0	0	40	0	40
<i>Dunes</i>								
North American warm desert dunes and sand flats	146,000	200	35,000	500	6,000	31,000	4,000	223,000
<i>Grassland</i>								
California Annual and Perennial Grassland	23,000	6,000	2,000	3,000	4,000	5,000	8,000	51,000
California annual forb/grass vegetation	400	80	400	60	300	300	200	2,000
<i>Riparian</i>								
Madrean Warm Semi-Desert Wash Woodland/Scrub	195,000	4,000	98,000	400	25,000	207,000	7,000	535,000

Table IV.7-184
NCCP Conservation Analysis for Natural Communities -Alternative 2

Natural Community	Existing Conservation ¹ (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	
Mojavean semi-desert wash scrub	7,000	700	4,000	900	1,000	4,000	1,000	18,000
Sonoran-Coloradan semi-desert wash woodland/scrub	70,000	8,000	26,000	2,000	5,000	21,000	2,000	134,000
Southwestern North American riparian evergreen and deciduous woodland	500	50	10	70	1,000	400	500	3,000
Southwestern North American riparian/wash scrub	7,000	200	4,000	300	8,000	1,000	2,000	23,000
<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	60	17,000	200	1,000	83,000	5,000	242,000

**Table IV.7-184
NCCP Conservation Analysis for Natural Communities -Alternative 2**

Natural Community	Existing Conservation ¹ (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	
Open Water	23,000	10	10	900	1,000	200	23,000	48,000
Playa	400	0	0	0	2,000	24,000	10,000	36,000
Southwestern North American salt basin and high marsh	31,000	8,000	32,000	18,000	16,000	37,000	6,000	146,000
Wetland	30	0	0	300	20	20	400	700
<i>Other Land Cover</i>								
Agriculture	6,000	90	600	500	2,000	1,000	2,000	12,000
Developed and Disturbed Areas	3,000	200	400	200	200	2,000	2,000	8,000
Not Mapped	200	10	40	200	30	200	300	900
Rural	900	90	50	4,000	1,000	1,000	8,000	16,000
Total	7,279,000	481,000	1,375,000	212,000	330,000	3,072,000	291,000	13,041,000

¹ 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.7-185 shows the conservation of Covered Species modeled habitat under Alternative 2 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 85% 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 10% each of the total conserved 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 half of the conserved suitable habitat for Mojave fringe-toed lizard is outside the NCCP Conceptual Plan-Wide Reserve Design. Almost all of the conserved suitable habitat for Tehachapi slender salamander is outside the NCCP Conceptual Plan-Wide Reserve Design. The siting of the DFAs under Alternative 2 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 11% of conserved suitable golden eagle nesting habitat to 50% of western yellow-billed cuckoo conserved suitable habitat. Conservation outside of the NCCP Conceptual Plan-Wide Reserve Design ranges from 6% of conserved greater sandhill crane suitable modeled habitat to 45% of conserved Swainson's hawk 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 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 76% of the conserved suitable habitat for Owens pupfish and Owens tui chub is inside the NCCP Conceptual Plan-Wide Reserve Design and 21% 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 1-6% of the conserved suitable habitat for bat Covered Species and bighorn sheep is inside the DRECP NCCP Reserve Design while 18% of conserved suitable habitat for Mohave ground squirrel is inside the DRECP NCCP Reserve Design. There is also 62% of the conserved suitable habitat for Mohave ground squirrel inside the NCCP Conceptual Plan-Wide Reserve Design (19% outside). Conserved suitable habitat for bat Covered Species are 13-19% inside the NCCP Conceptual Plan-Wide Reserve Design (26-32% outside). Approximately 10-15% of the conserved suitable habitat for bighorn sheep (inter-mountain and mountain habitat) is inside the NCCP Conceptual Plan-Wide Reserve Design while 18-25% is outside of it. The siting of the DFAs under Alternative 2 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 8% for Mojave monkeyflower to 52% for Mojave tarplant. Conservation of suitable habitat for plant species inside the NCCP Conceptual Plan-Wide Reserve Design ranges from 9% for alkali mariposa-lily to 93% 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.

**Table IV.7-185
NCCP Conservation Analysis for Covered Species Habitat –Alternative 2**

Species	Existing Conservation ¹ (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	299,000	857,000	155,000	245,000	2,060,000	115,000	7,441,000
Flat-tailed horned lizard	151,000	-	224,000	-	23,000	44,000	4,000	446,000
Mojave fringe-toed lizard	403,000	12,000	16,000	2,000	5,000	387,000	20,000	847,000
Tehachapi slender salamander	300	-	-	-	-	7,000	7,000	14,000
<i>Bird</i>								
Bendire's thrasher	1,196,000	151,000	75,000	43,000	13,000	206,000	24,000	1,707,000
Burrowing owl	479,000	123,000	495,000	122,000	200,000	436,000	88,000	1,943,000
California black rail	21,000	-	5,000	-	5,000	5,000	2,000	38,000
California condor	81,000	82,000	4,000	17,000	2,000	68,000	61,000	314,000
Gila woodpecker	10,000	-	5,000	-	3,000	11,000	200	30,000
Golden eagle–foraging	5,518,000	366,000	794,000	74,000	162,000	1,768,000	123,000	8,806,000
Golden eagle–nesting	2,689,000	139,000	222,000	33,000	31,000	525,000	66,000	3,706,000
Greater sandhill crane	6,000	-	600	-	2,000	400	100	9,000
Least Bell's vireo	86,000	8,000	13,000	9,000	15,000	15,000	6,000	151,000

**Table IV.7-185
NCCP Conservation Analysis for Covered Species Habitat –Alternative 2**

Species	Existing Conservation ¹ (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	
Mountain plover	7,000	300	2,000	2,000	5,000	1,000	6,000	23,000
Southwestern willow flycatcher	18,000	10,000	4,000	7,000	15,000	8,000	12,000	73,000
Swainson's hawk	24,000	7,000	11,000	11,000	32,000	21,000	48,000	154,000
Tricolored blackbird	11,000	2,000	1,000	2,000	7,000	1,000	8,000	34,000
Western yellow-billed cuckoo	15,000	20	5,000	-	21,000	4,000	8,000	52,000
Yuma clapper rail	10,000	-	600	-	2,000	1,000	400	13,000
<i>Fish</i>								
Desert pupfish	900	-	90	-	10	200	300	1,000
Mohave tui chub	200	-	-	-	20	-	-	200
Owens pupfish	600	600	-	200	3,000	60	1,000	5,000
Owens tui chub	700	600	-	200	3,000	60	1,000	5,000
<i>Mammal</i>								
Bighorn sheep – inter-mountain habitat	1,904,000	124,000	290,000	36,000	34,000	772,000	35,000	3,195,000
Bighorn sheep – mountain habitat	4,085,000	164,000	322,000	41,000	48,000	930,000	60,000	5,652,000

**Table IV.7-185
NCCP Conservation Analysis for Covered Species Habitat –Alternative 2**

Species	Existing Conservation ¹ (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	
California leaf-nosed bat	3,138,000	179,000	471,000	22,000	91,000	1,751,000	87,000	5,737,000
Mohave ground squirrel	216,000	97,000	357,000	118,000	158,000	173,000	52,000	1,171,000
Pallid bat	6,836,000	462,000	1,289,000	189,000	305,000	2,892,000	221,000	12,194,000
Townsend's big-eared bat	5,879,000	437,000	1,152,000	159,000	271,000	2,506,000	239,000	10,643,000
<i>Plant</i>								
Alkali mariposa-lily	200	700	-	100	30	300	8,000	9,000
Bakersfield cactus	20,000	44,000	-	8,000	-	22,000	10,000	103,000
Barstow woolly sunflower	3,000	16,000	28,000	23,000	12,000	2,000	600	85,000
Desert cymopterus	7,000	2,000	41,000	27,000	28,000	12,000	4,000	122,000
Little San Bernardino Mountains linanthus	87,000	39,000	-	16,000	-	7,000	2,000	151,000
Mojave monkeyflower	27,000	7,000	64,000	2,000	9,000	7,000	500	117,000
Mojave tarplant	48,000	68,000	100	14,000	300	24,000	6,000	159,000
Owens Valley checkerbloom	13,000	2,000	10	3,000	8,000	3,000	11,000	39,000

**Table IV.7-185
NCCP Conservation Analysis for Covered Species Habitat –Alternative 2**

Species	Existing Conservation ¹ (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	
Parish's daisy	82,000	27,000	90	8,000	30	5,000	200	122,000
Triple-ribbed milk-vetch	5,000	100	-	1,000	-	-	-	7,000

¹ 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.

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.7-186 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 414,000 acres of the desert tortoise important areas are inside the DRECP NCCP Reserve Design (343,000 acres on BLM land and 906,000 acres on non-BLM land). Approximately 1,555,000 acres of desert tortoise important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 1,847,000 acres are outside of it. Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

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.7-187 provides a conservation analysis for these Mohave ground squirrel important areas under the NCCP. Approximately 287,000 acres of the Mohave ground squirrel important areas are inside the DRECP NCCP Reserve Design (155,000 acres on BLM land and 132,000 acres on non-BLM land). Approximately 664,000 acres of Mohave ground squirrel important areas are inside the NCCP Conceptual Plan-Wide Reserve Design and 213,000 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.

**Table IV.7-186
NCCP Conservation Analysis for Desert Tortoise Important Areas –Alternative 2**

Recovery Unit	Desert Tortoise Important Areas	Existing Conservation ¹ (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	22,000	-	5,000	-	128,000	5,000	317,000
	Linkage	126,000	13,000	-	4,000	-	239,000	10,000	391,000
	TCA	1,544,000	40,000	292,000	6,000	52,000	824,000	33,000	2,792,000
<i>Colorado Desert Total</i>		<i>1,827,000</i>	<i>75,000</i>	<i>292,000</i>	<i>14,000</i>	<i>52,000</i>	<i>1,191,000</i>	<i>48,000</i>	<i>3,500,000</i>
Eastern Mojave	Linkage	421,000	44,000	163,000	3,000	16,000	37,000	2,000	687,000
	TCA	1,758,000	118,000	18,000	9,000	4,000	32,000	9,000	1,949,000
<i>Eastern Mojave Total</i>		<i>2,179,000</i>	<i>162,000</i>	<i>181,000</i>	<i>12,000</i>	<i>21,000</i>	<i>69,000</i>	<i>11,000</i>	<i>2,636,000</i>
Western Mojave	Linkage	391,000	72,000	28,000	20,000	17,000	206,000	14,000	748,000
	TCA	1,061,000	35,000	404,000	25,000	145,000	286,000	20,000	1,976,000
<i>Western Mojave Total</i>		<i>1,452,000</i>	<i>107,000</i>	<i>432,000</i>	<i>44,000</i>	<i>162,000</i>	<i>492,000</i>	<i>35,000</i>	<i>2,724,000</i>
Grand Total		5,458,000	343,000	906,000	71,000	235,000	1,753,000	94,000	8,860,000

¹ 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.7-187
NCCP Conservation Analysis for Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Existing Conservation ¹ (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	54,000	47,000	54,000	47,000	54,000	47,000	54,000
Linkage	30,000	30,000	30,000	30,000	30,000	30,000	30,000	30,000
Expansion Area	77,000	27,000	77,000	27,000	77,000	27,000	77,000	27,000
Climate Change Extension	28,000	44,000	28,000	44,000	28,000	44,000	28,000	44,000
Total	181,000	155,000	181,000	155,000	181,000	155,000	181,000	155,000

¹ 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.7.3.4.4 Impacts of General Conservation Plan: Alternative 2

IV.7.3.4.4.1 General Conservation Plan Impacts and Mitigation Measures from Renewable Energy and Transmission Development

The impacts of the GCP for Alternative 2 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 2 includes DFAs (approximately 1,730,000 acres) and transmission corridors where approximately 100,000 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.7-188 shows the impacts to natural communities under Alternative 2 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 2 within the GCP, about a third of the Plan-wide effects. Most of the impacts are from solar and wind development in the Pinto Lucerne 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 (1.3%) of chaparral and coastal scrubs would be impacted under Alternative 2 within the GCP Area, which is approximately the same acreage as the Plan-wide effects to this general community. Most of the impacts are from solar development in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas, but there would also be impacts from wind and transmission in these 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, 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 800 acres (0.7%) of desert conifer woodlands would be impacted under Alternative 2 under the GCP, which is approximately four-fifths of 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 from wind and transmission and 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 1,000 acres (0.6%) of desert outcrop and badlands would be impacted under Alternative 2 under the GCP, which constitutes only about 11% of the Plan-wide effects. Most of the impacts would be in the Imperial Borrego Valley subarea, but the Cadiz Valley and Chocolate Mountains and Pinto Lucerne and Eastern Slopes subareas would also have approximately 200 acres of impacts to desert outcrop and badlands each. Less than 100 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 39,000 acres (1.3%) of desert scrubs would be impacted under Alternative 2 under the GCP, which is less than half of the Plan-wide effects. Most 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 4; AM-DFA-ICS-5 and 6 (Alternative 2), AM-DFA-ICS-7 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 5,000 acres (2.3%) of grasslands would be impacted under Alternative 2 under the GCP, which is about the same as 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 in this subarea. In addition, impacts would occur in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes 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-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 4,000 acres (1.3%) of wetlands would be impacted under Alternative 2 under the GCP, which is less than 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.7-188
GCP Impact Analysis for Natural Communities – Alternative 2**

Natural Community	Available Lands (acres) ¹	Solar Impact (acres) ²	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	20	0	0	0	20
Californian montane conifer forest	44,000	70	40	0	0	100
<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	10	0	0	0	20

Table IV.7-188
GCP Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Central and South Coastal Californian coastal sage scrub	42,000	700	200	0	100	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	20	20	0	40	70
<i>Desert conifer woodlands</i>						
Great Basin Pinyon - Juniper Woodland	104,000	500	100	0	100	800
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	220,000	500	100	100	500	1,000
<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	200	40	0	50	300
Intermontane seral shrubland	68,000	2,000	200	0	100	2,000
Inter-Mountain Dry Shrubland and Grassland	152,000	700	300	0	200	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	20,000	4,000	600	5,000	30,000
Mojave and Great Basin upper bajada and toeslope	228,000	2,000	500	0	300	3,000
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	200	200	400	2,000
Southern Great Basin semi-desert grassland	70	0	0	0	0	0

Table IV.7-188
GCP Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<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	4,000	400	0	300	4,000
California annual forb/grass vegetation	7,000	200	20	0	0	200
<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
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	200	60	0	100	400
Open Water	114,000	1,000	10	600	900	3,000
Playa	52,000	0	0	0	10	10

Table IV.7-188
GCP Impact Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Southwestern North American salt basin and high marsh	112,000	700	60	0	100	900
Wetland	8,000	50	0	0	20	70
<i>Other Land Cover – Developed and Disturbed Areas</i>						
Agriculture	693,000	27,000	800	8,000	9,000	45,000
Developed and Disturbed Areas	399,000	200	10	40	1,000	2,000
Not Mapped	4,000	10	10	0	10	30
Rural	110,000	900	100	300	800	2,000
Total	5,420,000	62,000	7,000	10,000	20,000	100,000

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.

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 2 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 2 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 2 through application of the riparian CMAs including riparian setbacks. All impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep wetlands, except those impacts determined to be unavoidable, would be avoided under Alternative 2 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 2. 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% (400 acres) of playa would be impacted by Covered Activities under Alternative 2 within the GCP. About half of the impacts would be associated with solar (200 acres), with 40 acres of wind impacts, and 200 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, 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 2 within the GCP in the following ecoregion subareas: Imperial Borrego Valley, Kingston and Funeral Mountains, 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

Major rivers occur within DFAs and transmission corridors and potential impacts to major rivers under Alternative 2 within the GCP have the potential to occur to both the Colorado and Mojave Rivers, and there could be indirect effects associated with modification of hydrology resulting from development. Impacts to major rivers would be adverse absent implementation of avoidance measures. Impacts to major rivers and associated Covered Species and hydrological functions would be avoided through adherence to avoidance and minimization CMAs. 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 Imperial Borrego Valley and West Mojave and Eastern Slopes subareas, as shown in Table IV.7-189. 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.7-189
GCP Terrestrial Operational Impacts – Alternative 2**

Ecoregion Subarea	Solar Impact (acres)¹	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	6,000	2,000	-	4,000	12,000
Imperial Borrego Valley	24,000	2,000	10,000	11,000	47,000
Kingston and Funeral Mountains	500	-	-	60	560
Mojave and Silurian Valley	1,000	-	-	500	1,500
Owens River Valley	700	900	-	300	1,900
Panamint Death Valley	200	-	-	-	200
Pinto Lucerne Valley and Eastern Slopes	6,000	10,000	-	4,000	20,000
Piute Valley and Sacramento Mountains	-	-	-	-	-
Providence and Bullion Mountains	500	500	-	300	1,300
West Mojave and Eastern Slopes	23,000	15,000	-	1,000	39,000
Total	62,000	31,000	10,000	20,000	123,000

¹ 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, especially those with Mojave desert shrubs, are susceptible to vegetation degradation as a result of dust deposition. 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 in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Pinto Lucerne Valley and Eastern Slopes subarea, which contain most of the impacts to plant Covered Species habitat within the GCP. 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 2 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 2, 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

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. Due to their slower speed of recovery, desert scrub natural communities are more susceptible to natural community conversion from fires. Within the GCP approximately most of the impacts to desert scrubs throughout the Plan Area would occur within the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas under Alternative 2.

Under Alternative 2, 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 in the Pinto Lucerne Valley and Eastern slopes subarea. Avoidance and minimization CMAs would be implemented to minimize 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 2.

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 and Pinto Lucerne Valley and Eastern Slopes subareas where most of the impacts to natural communities within the GCP would be located. 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 Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Avoidance and minimization CMAs would be implemented to reduce vegetation degradation from invasive plants under Alternative 2, 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 nonfederal GCP lands. Most of the impacts to plant and wildlife species and their habitat under Alternative 2 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 Tehachapi slender salamander, 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.7-190. 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, and tricolored blackbird 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, and tricolored blackbird to less than the acreage reported in Table IV.7-190. 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, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. Desert kit fox, a Planning Species, would also be impacted. 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.7-190. 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.7-190. 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 Agassiz's desert tortoise and 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) would further avoid and minimize the impacts on this species to less than the acreage reported in Table IV.7-190.

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, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, 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, tricolored blackbird, least Bell's vireo, California black rail, and Yuma clapper rail to less than the acreage reported in Table IV.7-190. 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 approximately 100 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 (10 acres) would occur to each bighorn sheep mountain and intermountain 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. Suitable habitat for Planning Species desert kit fox and burro deer would also be impacted. The siting of the DFAs under the GCP 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 the habitats used by California leaf-nosed bat, pallid bat, and Townsend’s big-eared bat to less than the acreage reported in Table IV.7-190.

Table IV.7-190
GCP Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
<i>Amphibian/Reptile</i>						
Agassiz’s desert tortoise	2,248,000	19,000	4,000	-	4,000	27,000
Flat-tailed horned lizard	310,000	3,000	40	1,000	2,000	6,000
Mojave fringe-toed lizard	168,000	2,000	100	-	1,000	3,000
Tehachapi slender salamander	41,000	70	10	-	-	80
<i>Bird</i>						
Bendire's thrasher	405,000	3,000	900	400	2,000	6,000
Burrowing owl	3,244,000	54,000	6,000	9,000	16,000	84,000
California black rail	127,000	1,000	20	500	800	3,000
California condor	997,000	11,000	2,000	-	600	14,000
Gila woodpecker	56,000	400	10	200	300	800
Golden eagle–foraging	1,498,000	6,000	2,000	20	2,000	10,000
Golden eagle–nesting	676,000	900	300	-	600	2,000
Greater sandhill crane	601,000	24,000	600	8,000	9,000	42,000
Least Bell's vireo	104,000	100	50	10	100	300
Mountain plover	811,000	30,000	1,000	8,000	9,000	48,000
Southwestern willow flycatcher	258,000	3,000	100	1,000	1,000	5,000
Swainson's hawk	1,339,000	24,000	2,000	5,000	5,000	35,000
Tricolored blackbird	257,000	5,000	400	20	200	6,000

Table IV.7-190
GCP Impact Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Western yellow-billed cuckoo	111,000	100	10	-	70	200
Yuma clapper rail	31,000	20	-	10	10	30
<i>Fish</i>						
Desert pupfish	7,000	60	-	30	50	100
Mohave tui chub	100	-	-	-	-	-
Owens pupfish	13,000	20	10	-	10	30
Owens tui chub	13,000	20	10	-	10	30
<i>Mammal</i>						
Bighorn sheep – inter-mountain habitat	465,000	600	100	-	600	1,000
Bighorn sheep – mountain habitat	807,000	2,000	1,000	-	2,000	5,000
California leaf-nosed bat	979,000	3,000	300	400	3,000	7,000
Mohave ground squirrel	1,319,000	13,000	2,000	-	2,000	17,000
Pallid bat	3,775,000	28,000	5,000	900	8,000	43,000
Townsend's big-eared bat	3,510,000	26,000	5,000	1,000	8,000	40,000
<i>Plant</i>						
Alkali mariposa-lily	117,000	2,000	200	-	90	2,000
Bakersfield cactus	200,000	2,000	500	-	60	3,000
Barstow woolly sunflower	82,000	400	60	-	10	500
Desert cymopterus	137,000	500	50	-	10	600
Little San Bernardino Mountains linanthus	130,000	800	400	-	200	1,000
Mojave monkeyflower	41,000	200	60	-	100	400
Mojave tarplant	129,000	400	30	-	40	500
Owens Valley checkerbloom	92,000	200	70	-	100	400
Parish's daisy	72,000	700	500	-	500	2,000
Triple-ribbed milk-vetch	3,000	-	-	-	-	-

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.

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.7-191 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 900 acres of TCAs, linkage habitat, and high priority habitat would be impacted under Alternative 2. Within the Eastern Mojave Recovery Unit, approximately 400 acres of TCAs and linkage habitat would be impacted under Alternative 2. Within the Western Mojave Recovery Unit, approximately 9,000 acres of TCAs and linkage habitat would be impacted under Alternative 2.

Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required impacts to desert tortoise important areas.

As described in the Plan-wide impact analysis of Alternative 2 under Impact BR-4, this alternative would result in adverse impacts to desert tortoise. The adverse impacts to desert tortoise under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs would be covered in numerous locations considered important for desert tortoise conservation, including but not limited to Desert Tortoise Research Natural Area and West Rand Mountains ACEC, the Fremont-Kramer critical habitat unit, the Ord-Rodman critical habitat unit, habitat linkages around Ord-Rodman, and habitat linkage areas in the Silurian Valley. Impacts to the Desert Tortoise Research Natural Area would result in the loss of over 30 years of science and research on desert tortoise that have been and continue to be conducted at this location, which would be considered an irreplaceable impact. In addition to the acreage of lost desert tortoise habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate desert tortoise populations, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats,

increased risk of extirpation within subpopulations, and a substantially reduced ability of the desert tortoise to recover in the Plan Area.

Table IV.7-191
GCP Impact Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	31,000	-	-	-	10	10
	Linkage	63,000	30	30	-	-	60
	TCA	269,000	100	40	-	700	900
<i>Colorado Desert Total</i>		<i>363,000</i>	<i>100</i>	<i>70</i>	<i>-</i>	<i>700</i>	<i>900</i>
Eastern Mojave	Linkage	56,000	400	-	-	10	400
	TCA	66,000	-	-	-	40	40
<i>Eastern Mojave Total</i>		<i>122,000</i>	<i>400</i>	<i>-</i>	<i>-</i>	<i>50</i>	<i>400</i>
Western Mojave	Linkage	407,000	5,000	1,000	-	2,000	8,000
	TCA	392,000	600	90	-	300	1,000
<i>Western Mojave Total</i>		<i>798,000</i>	<i>6,000</i>	<i>2,000</i>	<i>-</i>	<i>2,000</i>	<i>9,000</i>
Total		1,283,000	6,000	2,000	-	3,000	10,000

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

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), wind project area, geothermal, and transmission impacts. Short-term and long-term ground disturbance from wind would be within the wind project 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 2, 33 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 2, 74 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 2 on nonfederal land, approximately 5,201 acres of mountain habitat and 1,263 acres of intermountain habitat would be impacted. Alternative 2 identified DFAs that avoid impacts to bighorn sheep mountain and intermountain habitat except in the Pinto Lucerne Valley and Eastern Slopes subarea, eastern Mojave and Silurian Valley subarea, and eastern Imperial Borrego Valley subarea. 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.7-192 provides an impact analysis for these Mohave ground squirrel important areas in the GCP area. A total of approximately 900 acres of impact would occur in climate change extension areas under Alternative 2. A total of approximately 900 acres of impact to linkage and approximately 1,000 acres of impact to expansion areas would occur under Alternative 2. 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 important areas.

As described in the Plan-wide impact analysis of Alternative 2 under Impact BR-4, this alternative would result in adverse impacts to Mohave ground squirrel. The adverse impacts to Mohave ground squirrel under Alternative 2 are primarily a result of where renewable energy development would be allowed under this alternative (i.e., the DFA locations). Under Alternative 2, renewable energy development in DFAs would be covered in numerous locations considered important for Mohave ground squirrel conservation, including but not limited key population centers and linkages in West Mojave – 1, West Mojave – 2, and West Mojave – 3 ecoregion subunits. In addition to the acreage of lost Mohave ground squirrel habitat, impacts in linkages have the potential to reduce or eliminate the linkage function at that geographic location, which cannot be replaced or compensated. The lost linkage function in these locations has the potential to isolate key population centers for Mohave ground squirrel, which over time would lead to reduced individual fitness related to inbreeding, reduced genetic diversity, reduced resilience of subpopulations to threats, increased risk of extirpation within subpopulations, and a substantially reduced ability of Mohave ground squirrel to recover in the Plan Area.

Table IV.7-192
GCP Impact Analysis for Mohave Ground Squirrel Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	193,000	1,000	100	-	100	1,000
Linkage	103,000	800	70	-	40	900
Expansion Area	258,000	1,000	100	-	70	1,000
Climate Change Extension	131,000	600	200	-	200	900
Total	684,000	4,000	500	-	400	5,000

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.

Notes: Total reported acres include solar and ground-mounted distributed generation, short-term and long-term wind 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.

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 1,000 acres of impact designated critical habitat would result from the development of Covered Activities on nonfederal lands under Alternative 2 located in the Chuckwalla, Fremont-Kramer, Ord-Rodman, and Superior-Cronese critical habitat units. Under Alternative 2, 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 Pinto Lucerne Valley and Eastern Slopes subareas respectively, as shown in Table IV.7-189. 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 modeled 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 subarea. 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 2 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, 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 2, 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 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 and the Pinto Lucerne Valley and Eastern Slopes subareas. 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 and the Imperial Borrego Valley subareas.

Alternative 2 would implement avoidance and minimization CMAs within the GCP 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. 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.7-193 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- 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 desert scrub/chaparral communities at approximately 1.3%, grassland communities at approximately 2.3%, and within the agriculture/rural land cover areas at approximately 5.8%.

As additional analysis, Table IV.7-50 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.

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.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	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	600	100	0	100	800	0.4%
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, 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	3,020,000	27,000	5,000	800	6,000	38,800	1.3%

Table IV.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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 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							

Table IV.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	beardtongue, white bear poppy, White-margined beardstongue, Wiggin’s croton, Flat-seeded spurge, Parish’s phacelia, Parish’s alkali grass							
Dunes ³ / 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, 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	254,000	500	100	100	500	1,200	0.5%

Table IV.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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	203,000	4,000	400	0	300	4,700	2.3%
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, 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,	413,000	1,000	100	0	200	1,300	0.3%

Table IV.7-193
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – Alternative 2

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres) ¹	Solar Impact (acres) ²	Wind Impact (acres)	Geothermal Impact (acres) ⁴	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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	28,000	1,000	8,000	10,000	47,000	5.8%

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.

⁴ 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.7-194 shows the impact analysis for the desert linkage network for Alternative 2. Overall, over 10,000 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 Palen Valley portion of a linkage network that extends south to the northern foothills of the Chocolate Mountains. There are also small DFAs in the linkage along the Colorado River around Vinagre Wash. As described in the Plan-wide analysis under Impact BR-6, Numerous generally north-south habitat linkages cross the I-10 corridor area between Desert Center and Blythe in this subarea. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement. The existing I-10 corridor is a substantial barrier to movement for

many species and the development of renewable energy both north and south of the I-10 corridor would further reduce the numbers and size of wildlife crossing location, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

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. There are also DFAs in the area that connects the southern end of the Chocolate Mountains. 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 subarea, there are DFAs in the Mojave Valley in a linkage that connects the area east of Barstow north to the Superior Valley. There is a DFA in the linkage network that connects the Silurian Valley to the Turquoise Mountain area in the eastern portion of the subarea. As described in the Plan-wide analysis under Impact BR-6, general terrestrial wildlife movement may be affected locally by the development of Covered Activities in these DFAs, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Owens River Valley, there are DFAs in the desert linkage network that connects the Haiwee Reservoir to Indian Wells. As described in the Plan-wide analysis under Impact BR-6, 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, which has the potential to fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

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 then east to the Bodman Mountains. A DFA occurs in the connection between the Mojave River and Quartzite Mountain. There are also DFAs in the linkage that connects the Little Morongo Canyon to the area around Emerson Lake and in the linkage that connects the San Bernardino Mountains to the Fry Mountains. As described in the Plan-wide analysis under Impact BR-6, Development in these linkage areas would limit or degrade the ability of species, including bighorn sheep and other terrestrial

mammals, to move from the surrounding mountains to the desert floor and other adjoining mountains. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to terrestrial wildlife movement, which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

In the Providence and Bullion Mountains there is a DFA in the area northeast of the Twentynine Palms Marine Corps Base. DFAs are not located in the desert linkage network corridors elsewhere in this 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 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 are also in the linkage between the Kern County line and Fremont Wash. DFAs also occur in the Brisbane Valley and 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. There are also DFAs in the linkages in the Indian Wells Valley area, which could adversely impact movement for Mohave ground squirrel between its most northern population and the rest of its range. DFAs under Alternative 2 overlap these habitat linkages and would have the potential to result in adverse impacts to general terrestrial wildlife movement which has the potential to further fragment habitat, reduce gene flow, and isolate populations. Under Alternative 2, the CMAs would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)).

Although the DRECP Plan-Wide Reserve Design Envelope for Alternative 2 was developed, in part, to conserve and avoid impacts to habitat linkages and wildlife movement, including the desert linkage network, the DFAs under Alternative 2 are proposed in geographic locations important for the movement of wildlife and in locations that, if developed, could not be replaced or compensated. Additionally, the CMAs under Alternative 2 would not require avoidance and minimization of impacts to habitat linkages or maintenance of linkage function (AM-LL-1 (Alternative 2)). The potential for dispersed development across the Plan Area under Alternative would reduce the probability of maintaining a connected, unfragmented landscape, and it is anticipated that populations would become isolated and that more human intervention and management would be needed (i.e. assisted migration, population augmentation) to maintain populations.

Table IV.7-194
GCP Impact Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Ecoregion Subarea	Available Lands (acres)¹	Solar Impact (acres)²	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	148,000	500	40	-	1,000	2,000
Imperial Borrego Valley	10,000	70	10	20	20	100
Kingston and Funeral Mountains	12,000	-	-	-	30	30
Mojave and Silurian Valley	101,000	400	-	-	200	600
Owens River Valley	4,000	30	10	-	30	60
Panamint Death Valley	15,000	10	-	-	-	10
Pinto Lucerne Valley and Eastern Slopes	122,000	1,000	600	-	1,000	3,000
Piute Valley and Sacramento Mountains	24,000	-	-	-	-	-
Providence and Bullion Mountains	49,000	200	50	-	40	300
West Mojave and Eastern Slopes	468,000	3,000	500	-	100	4,000
Total	952,000	6,000	1,000	20	3,000	10,000

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.

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 bird migration areas in each subarea.

In Alternative 2 wind generation is a moderate proportion of the overall generation mix in nonfederal DFAs. Impacts are mainly divided between the West Mojave and Eastern Slopes, Pinto Lucerne 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 2 which would affect migratory and overwintering birds associated with the Salton Sea.

As with the plan-wide impacts, solar development would be constructed throughout the West Mojave and Eastern slopes, and Imperial Borrego Valley subareas. With smaller quantities of development in nonfederal DFAs in the Pinto Lucerne Valley, Mojave and Silurian Valley and Cadiz and Chocolate Mountains subareas. Affected bird migration areas would be the same as for wind development, namely, routes between mountain passes and dry lakes in the north Mojave, foraging areas for overwintering birds in Imperial Borrego Valley, as well as migratory routes between the Colorado River and the Coachella Valley.

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 BBOS 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 Bird and Bat Covered Species Operational Actions. 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.

Although these CMAs would be in place under Alternative 2, the DFAs are sited in locations that would result in impacts to migratory birds in locations that cannot be avoided,

minimized, and compensated given the potential for fragmentation, isolation, and disruption of migratory patterns that would result from this alternative.

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. 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 2 within DFAs under the GCP would follow the same overall pattern as Plan-wide impacts (AM-LL-1 through AM-LL-4).

In order to minimize habitat fragmentation and population isolation, most DFAs under Alternative 2 were sited in less intact and more degraded areas; however, some DFAs under Alternative 2 do not avoid sensitive resource or intact landscapes because these areas were identified through public scope as priority for the development of renewable energy. Although many 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, some of the DFAs in this alternative are in direct conflict with landscape intactness, critical populations, and/or key connectivity corridors. See Impact BR-6 for an analysis of the effects of this alternative on wildlife movement.

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 2 would result 60,000 acres of permanent conversion of natural desert communities and with 40,000 acres of impacts (44% of the total ground disturbance) within areas characterized by disturbed land cover types.

Impacts from Covered Activity are anticipated in Imperial Borrego Valley. Impacts would occur in agricultural habitats south of and west side of the Salton Sea. Increased predation may affect nesting birds; impacts may affect flat-tailed horned lizard, desert tortoise, and

nesting birds. 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, around California City and along HWY 395, and much of the development would be expected in disturbed and agricultural land around Lancaster and in the Antelope Valley. In the West Mojave and Eastern Slopes subareas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, mountain plover, Bendire's thrasher, Swainson's hawk, as well as reptiles like the desert tortoise and 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 throughout the 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.

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.7-195 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, the Alternative 2 would result in a median of 7,000 collisions per year for birds and 35,000 collisions for bats in DFAs on nonfederal lands. The expected distribution of wind generation indicates that 50% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 34% in the Pinto Lucerne Valley and Eastern Slopes subarea, 6% in the Cadiz Valley and Chocolate Mountains subarea, and 6% in the Imperial Borrego Valley subarea.

Impacts in Mojave and Eastern Slopes Subarea would affect burrowing owl, Swainson's hawk, mountain plover, California condor, tricolored blackbird, and golden eagle. Similarly, collisions in Pinto and Lucerne Valley would affect golden eagle, burrowing owl and Bendire's thrasher. Affected bats in both subareas would include California leaf-nosed bat, pallid bat and Townsend's big-eared bat. Fewer collisions would occur in the Cadiz and Chocolate Mountains and Imperial Valley Borrego subareas, but affected species would include 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.

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. Although these CMAs would be in place under Alternative 2, some of the DFAs under this alternative are sited in remote geographic locations in intact landscapes where impacts to Covered Species have a higher potential to occur.

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.7-195
GCP Estimated Range of Bird and Bat Collisions
per Year by Subarea – Alternative 2**

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr) ¹			Bats (Collisions/Yr) ¹		
		Low	Median	High	Low	Median	High
Cadiz Valley and Chocolate Mountains	89	100	400	2,000	200	2,000	12,000
Imperial Borrego Valley	85	100	400	2,000	200	2,000	12,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	44	100	200	800	100	1,000	6,000
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	510	800	3,000	10,000	1,000	12,000	71,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	26	-	100	500	100	600	4,000
West Mojave and Eastern Slopes	768	1,000	4,000	15,000	2,000	18,000	108,000
Grand Total	1,521	2,000	7,000	29,000	3,000	35,000	213,000

¹ 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 the Alternative 2, 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 3.3-fold increase in collision risks relative to baseline. In DFAs on nonfederal lands, 39% of the collision risk would be in Imperial Borrego Valley, and 37% in West Mojave and Eastern Slopes, with 9% of the collision risks occurring in the Cadiz and Chocolate Mountains, and 9% at Pinto Lucerne Valley; the remaining 5% spread across the rest of the plan area.

Anticipated impacts in the Imperial Borrego Valley subarea under the GCP would occur in agricultural lands south and west side 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. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains and areas to the north of Edwards AFB, as well as agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include pallid bat, Townsend's big-eared bat, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and Swainson's hawk. 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. However, implementation of surveying, siting and monitoring CMAs would result in avoidance of occupied nesting habitat and minimize impacts to covered bird species. When combined with land cover specific setbacks for agricultural, riparian and wetland habitats impacts to wetland bird species would be minimized and avoided. Further, implementation of species specific CMAs would ensure impacts to birds species would be reduced.

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 foot 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 Imperial Borrego Valley, Cadiz and Chocolate Mountains and Pinto Lucerne Valley, with 11,000 acres, 4,000, and 4,000 acres of terrestrial impacts. Other subareas that would be impacted to a lesser extent include West Mojave and Eastern Slopes subareas, with 1,000 acres, of terrestrial impacts. The remaining 1,000 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 those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. In other subareas, all lines would represent an additional but lesser risk to migrating and overwintering covered avian species when compared to West Mojave and Eastern Slopes subarea

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 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.

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.7-196
GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 2**

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire’s thrasher	20	40	0	60
Burrowing owl	90	40	10	140
California condor ¹	0	0	0	0
California black rail	20	0	0	20
Gila woodpecker	20	0	0	20
Golden eagle ²	n/a	n/a	n/a	n/a
Least Bell’s vireo	30	0	0	30
Mountain plover	50	40	10	100
Greater sandhill crane	10	0	10	20
Southwestern willow flycatcher	30	0	0	30
Swainson’s hawk	30	30	0	60
Tricolored blackbird	50	70	0	120
Western yellow billed cuckoo	20	0	0	20

Table IV.7-196
GCP Estimated Total Take for Covered Avian and Bat Species – Alternative 2

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Yuma clapper rail	20	0	0	20
Grand Total Avian Species	390	220	30	640
California leaf-nosed bat	10	10	0	20
Pallid bat	10	120	0	130
Townsend’s big-eared bat	30	30	10	70
Grand Total Bat Species	50	160	10	220

¹ Take for California condor would not be permitted under the DRECP.

² 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.7.3.4.4.2 Impacts of the Reserve Design under the General Conservation Plan

In the nonfederal GCP portion of the Plan Area for Alternative 2, the Reserve Design Lands include existing conservation areas on nonfederal lands (433,00 acres), nonfederal lands within BLM LUPA conservation designations (1,041,000 acres), and Conservation Planning Areas on nonfederal lands (1,121,000 acres). 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.7-197 shows the conservation of the desert linkage network under Alternative 2 for the GCP. Conservation of the desert linkage network totals more than 300,000 acres (32%). None of the linkages are entirely conserved under the GCP. However, the majority of the linkage from the Black Mountain 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.7.3.4.4.1).

Table IV.7-197
GCP Conservation Analysis for the Desert Linkage Network – Alternative 2

Desert Linkage Network by Subarea	Available Lands (acres)	Existing Conservation ¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
Cadiz Valley and Chocolate Mountains	148,000	2,000	44,000	12,000	57,000	39%
Imperial Borrego Valley	10,000	-	2,000	100	2,000	17%
Kingston and Funeral Mountains	12,000	30	6,000	1,000	7,000	59%
Mojave and Silurian Valley	101,000	5,000	16,000	6,000	28,000	28%
Owens River Valley	4,000	-	500	2,000	3,000	59%
Panamint Death Valley	15,000	6,000	2,000	500	8,000	57%
Pinto Lucerne Valley and Eastern Slopes	122,000	12,000	5,000	16,000	33,000	27%
Piute Valley and Sacramento Mountains	24,000	-	2,000	2,000	4,000	17%
Providence and Bullion Mountains	49,000	4,000	5,000	3,000	12,000	25%
West Mojave and Eastern Slopes	468,000	26,000	76,000	49,000	151,000	32%
Grand Total	952,000	6,000	1,000	20	3,000	10,000

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

² 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. 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. Totals may not sum due to rounding.

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 2 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 approximately 74,000 acres in the Plan Area. Overall, 20% (15,062 acres) would be conserved under Alternative 2 within the GCP. Existing Conservation would account for 15% of the conservation, BLM LUPA would account for 66%, and Conservation Planning Areas would account for 18%. 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 181 seep/spring locations in the Plan Area under Alternative 2 within the GCP. Overall, 35% (64 locations) of the seep/spring locations would be conserved under Alternative 2 within the GCP. The conservation of seep/spring under Alternative 2 would be less than half in all subareas except for the Kingston and Funeral Mountains location (52%, 8 locations). These subareas include Imperial Borrego Valley (46%, 9 locations), Mojave and Silurian Valley (35%, 3 locations), Owens River Valley (22%, 6 locations), Pinto Lucerne Valley and Eastern Slopes (46%, 16 locations), Providence and Bullion Mountains (28%, 3 locations), and West Mojave and Eastern Slopes (29%, 19 locations).

Overall, Existing Conservation would account for 40% of the conservation of seep/spring, BLM LUPA conservation designations would account for 39%, and Conservation Planning Areas would account for 28%. 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, 62% of the major rivers would be conserved under Alternative 2 within the GCP, including 40% 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 81% of the conservation of the major rivers, Existing Conservation would account for 8%, and BLM LUPA conservation designations would account for 11%. 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, 22% (48,000 acres) of dunes and sand resources would be conserved under Alternative 2 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, except for in Kingston and Funeral Mountains at 50% (4,000 acres). These subareas include Cadiz Valley and Chocolate Mountains at 24% (17,000 acres), Imperial Borrego Valley at 26% (3,000 acres), Mojave and Silurian Valley at 19% (5,000 acres) Owens River Valley at 24% (1,000 acres), Panamint and Death Valley at 31% (1,000 acres), Pinto Lucerne Valley and Eastern Slopes at 20% (3,000 acres), Providence and Bullion Mountains at 17% (8,000 acres) and West Mojave and Eastern Slopes at 21% (6,000 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 2 within the GCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-198 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 27,000 acres (23%) of California forest and woodlands would be conserved under Alternative 2 under the GCP. The majority of conservation would occur in the West Mojave and Eastern Slopes subarea. Almost half of the conserved acreage would 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 10,000 acres (13%) of chaparral and coastal scrubs would be conserved under Alternative 2 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 21,000 acres (20%) of desert conifer woodlands would be conserved under Alternative 2 under the GCP. 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. 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 111,000 acres (50%) of desert outcrop and badlands would be conserved under Alternative 2 in the GCP. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Conservation would primarily come from existing conservation and BLM LUPA conservation designations. 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 843,000 acres (29%) of desert scrubs would be conserved under Alternative 2 under the GCP. The majority of conservation would occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Over one third of the conservation would 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 10,000 acres (29%) of dunes would be conserved under Alternative 2 under the GCP. Most of the conserved dune acreage would be located in the Mojave and Silurian Valley 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 2 under the GCP. The majority of conserved acreage would occur in the West Mojave and Eastern Slopes subarea. About 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 75,000 acres (37%) of riparian communities would be conserved under Alternative 2 under the GCP. Most of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Much 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 80,000 acres (25%) of riparian communities would be conserved under Alternative 2 under the GCP. Most of the conserved acreage would occur in the Imperial Borrego Valley, Owens River Valley, and West Mojave and Eastern Slopes subareas. Conservation would primarily come from BLM LUPA conservation designations and Conservation Planning Areas. 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.7-198
GCP Conservation Analysis for Natural Communities - Alternative 2**

Natural Community	Available Lands (acres)	Existing Conservation¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations² (acres)	Conservation Planning Areas³ (acres)	Total Conservation (acres)	% of Available Lands
<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	5,000	4,000	16,000	36%
<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	22%
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	700	3,000	4,000	10%
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	600	10	800	1,000	9%
<i>Desert conifer woodlands</i>						
Great Basin Pinyon - Juniper Woodland	104,000	7,000	2,000	12,000	21,000	20%

Table IV.7-198
GCP Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations² (acres)	Conservation Planning Areas³ (acres)	Total Conservation (acres)	% of Available Lands
<i>Desert outcrop and badlands</i>						
North American warm desert bedrock cliff and outcrop	220,000	68,000	29,000	14,000	111,000	50%
<i>Desert Scrub</i>						
Arizonan upland Sonoran desert scrub	8,000	3,000	10	900	4,000	50%
Intermontane deep or well-drained soil scrub	24,000	2,000	2,000	3,000	7,000	29%
Intermontane seral shrubland	68,000	500	80	3,000	3,000	5%
Inter-Mountain Dry Shrubland and Grassland	152,000	21,000	15,000	11,000	47,000	31%
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	1,000	6,000	1,000	9,000	18%
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,254,000	246,000	259,000	180,000	685,000	30%
Mojave and Great Basin upper bajada and toeslope	228,000	13,000	20,000	28,000	62,000	27%
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	6,000	19,000	26,000	17%
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	7,000	10,000	29%
<i>Grassland</i>						
California Annual and Perennial Grassland	196,000	8,000	4,000	12,000	24,000	12%

Table IV.7-198
GCP Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations² (acres)	Conservation Planning Areas³ (acres)	Total Conservation (acres)	% of Available Lands
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	24,000	7,000	34,000	36%
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	7,000	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%
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	36,000	2,000	3,000	3,000	8,000	22%
Open Water	114,000	800	400	15,000	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	21,000	18,000	42,000	38%
Wetland	8,000	30	200	500	700	9%

Table IV.7-198
GCP Conservation Analysis for Natural Communities – Alternative 2

Natural Community	Available Lands (acres)	Existing Conservation ¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
<i>Other Land Cover</i>						
Agriculture	693,000	5,000	2,000	3,000	9,000	1%
Developed and Disturbed Areas	399,000	500	2,000	400	2,000	1%
Not Mapped	4,000	50	200	300	600	13%
Rural	110,000	400	4,000	10,000	14,000	13%
Total	5,420,000	412,000	440,000	374,000	1,227,000	23%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

² Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

³ 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. 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.7-199 shows the conservation of Covered Species modeled habitat under the Alternative 2 (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 77% for triple-ribbed milk-vetch.

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 in Conservation Planning Areas or occur in the BLM

LUPA conservation designations. Flat-tailed horned lizard modeled habitat is conserved entirely in the Imperial Borrego Valley, mostly in existing conservation. 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 2 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 nearly every subarea of the Plan Area, but is mainly in BLM LUPA conservation designations and Conservation Planning 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.

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. 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 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 and Cadiz Valley and Chocolate Mountains subareas in existing conservation areas and BLM LUPA conservation designations. About half of the conservation 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. The siting of the DFAs under Alternative 2 largely avoid habitat for bighorn sheep. Over half of the conservation of burro deer is from BLM LUPA conservation designations. Conservation of desert kit fox is from different conservation designations. Conserved habitat for desert kit fox is mostly in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. Almost half of the available suitable habitat for Mohave ground squirrel is in the Cadiz Valley and Chocolate Mountains subarea, but less than a quarter of the available suitable habitat is conserved in the remaining subareas. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend’s big-eared bat—is widespread and conserved in existing conservation areas, BLM LUPA conservation designations, and Conservation Planning 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 77% of suitable habitat for triple-ribbed milk-vetch. 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, 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.7-199
GCP Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation ¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
<i>Amphibian/Reptile</i>						
Agassiz's desert tortoise	2,248,000	140,000	307,000	203,000	650,000	29%
Flat-tailed horned lizard	310,000	112,000	20,000	3,000	135,000	44%
Mojave fringe-toed lizard	168,000	3,000	14,000	14,000	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	32,000	43,000	110,000	27%
Burrowing owl	3,244,000	73,000	209,000	196,000	478,000	15%
California black rail	127,000	5,000	500	6,000	11,000	9%
California condor	997,000	43,000	43,000	38,000	124,000	12%
Gila woodpecker	56,000	4,000	1,000	2,000	6,000	12%
Golden eagle–foraging	1,498,000	154,000	219,000	138,000	512,000	34%
Golden eagle–nesting	676,000	108,000	69,000	60,000	238,000	35%
Greater sandhill crane	601,000	5,000	500	1,000	7,000	1%
Least Bell's vireo	104,000	9,000	7,000	23,000	38,000	36%
Mountain plover	811,000	6,000	2,000	11,000	19,000	2%
Southwestern willow flycatcher	258,000	6,000	12,000	22,000	40,000	16%
Swainson's hawk	1,339,000	15,000	26,000	65,000	106,000	8%
Tricolored blackbird	257,000	6,000	2,000	16,000	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.7-199
GCP Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation ¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (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	-	600	4,000	4,000	31%
Owens tui chub	13,000	-	600	4,000	4,000	31%
<i>Mammal</i>						
Bighorn sheep – inter-mountain habitat	465,000	40,000	67,000	37,000	144,000	31%
Bighorn sheep – mountain habitat	807,000	149,000	61,000	87,000	297,000	37%
California leaf-nosed bat	979,000	137,000	129,000	65,000	331,000	34%
Mohave ground squirrel	1,319,000	51,000	175,000	153,000	379,000	29%
Pallid bat	3,775,000	393,000	400,000	307,000	1,101,000	29%
Townsend's big-eared bat	3,510,000	308,000	359,000	293,000	959,000	27%
<i>Plant</i>						
Alkali mariposa-lily	117,000	200	70	8,000	8,000	7%
Bakersfield cactus	200,000	17,000	12,000	5,000	35,000	17%
Barstow woolly sunflower	82,000	3,000	20,000	16,000	38,000	47%
Desert cymopterus	137,000	2,000	29,000	31,000	62,000	45%
Little San Bernardino Mountains linanthus	130,000	5,000	11,000	7,000	23,000	18%
Mojave monkeyflower	41,000	100	5,000	6,000	11,000	27%
Mojave tarplant	129,000	19,000	15,000	4,000	38,000	30%

Table IV.7-199
GCP Conservation Analysis for Covered Species Habitat – Alternative 2

Species	Available Lands (acres)	Existing Conservation ¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
Owens Valley checkerbloom	92,000	200	3,000	19,000	22,000	24%
Parish's daisy	72,000	19,000	3,000	5,000	27,000	37%
Triple-ribbed milk-vetch	3,000	900	40	1,000	2,000	77%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

² Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

³ 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. 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.7-200 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 2. Within the Eastern Mojave Recovery Unit, 41% of the important areas would be conserved Alternative 2. Within the Western Mojave Recovery Unit, 33% of TCAs and linkage habitat would be conserved under Alternative 2. Under Alternative 2, the CMAs would not prohibit the development of Covered Activities in the TCAs (AM-DFA-ICS-5 (Alternative 2)). Additionally under Alternative 2, the CMAs would require that impacts to desert tortoise linkage only limit impact to the minimum functionality within each linkage (AM-DFA-ICS-6 (Alternative 2)). Compensation CMAs would be required for impacts to desert tortoise, including desert tortoise important areas.

Table IV.7-200
GCP Conservation Analysis for Desert Tortoise Important Areas – Alternative 2

Recovery Unit	Desert Tortoise Important Areas	Available Lands (acres)	Existing Conservation ¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (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	6,000	14,000	22%
	TCA	269,000	16,000	76,000	15,000	107,000	40%
<i>Colorado Desert Total</i>		<i>363,000</i>	<i>17,000</i>	<i>90,000</i>	<i>25,000</i>	<i>131,000</i>	<i>36%</i>
Eastern Mojave	Linkage	56,000	4,000	12,000	10,000	26,000	46%
	TCA	66,000	6,000	8,000	10,000	25,000	37%
<i>Eastern Mojave Total</i>		<i>122,000</i>	<i>10,000</i>	<i>20,000</i>	<i>21,000</i>	<i>50,000</i>	<i>41%</i>
Western Mojave	Linkage	407,000	2,000	13,000	38,000	53,000	13%
	TCA	392,000	23,000	187,000	2,000	212,000	54%
<i>Western Mojave Total</i>		<i>798,000</i>	<i>25,000</i>	<i>200,000</i>	<i>41,000</i>	<i>266,000</i>	<i>33%</i>
Grand Total		1,283,000	52,000	310,000	86,000	447,000	35%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land
² Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

³ 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. 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.7-201 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 48% of key population centers and 44% of linkages would be conserved under Alternative 2. Expansion areas and climate change extension areas would be conserved at 51% and 34% 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.7-201
GCP Conservation Analysis for Mohave Ground Squirrel
Important Areas – Alternative 2

Mohave Ground Squirrel Important Area Type	Available Lands (acres)	Existing Conservation ¹ (acres)	Nonfederal Inholdings in BLM LUPA Conservation Designations ² (acres)	Conservation Planning Areas ³ (acres)	Total Conservation (acres)	% of Available Lands
Key Population Center	193,000	14,000	40,000	39,000	93,000	48%
Linkage	103,000	3,000	25,000	17,000	45,000	44%
Expansion Area	258,000	21,000	62,000	49,000	132,000	51%
Climate Change Extension	131,000	13,000	6,000	25,000	44,000	34%
Total	684,000	50,000	133,000	131,000	315,000	46%

¹ Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLS) on nonfederal land

² Includes nonfederal inholdings within existing and proposed BLM Land Use Plan Amendment Conservation Designations (NLCS, ACECs, and Wildlife Allocations)

³ 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. 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 50% of the desert tortoise designated critical habitat on nonfederal lands would be conserved under Alternative 2, 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 62% of the southwestern willow flycatcher designated critical habitat on nonfederal lands would be conserved in Reserve Design Lands under Alternative 2, including 600 acres in existing conservation areas, 90 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 2, 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 2, 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.7-202 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.7-202
Critical Habitat within GCP Lands for Non-Covered Species – Alternative 2**

Common Name	Acres of Critical Habitat within GCP Lands	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
Amargosa vole	600	0	300	0	300
Arroyo toad	4,000	0	0	3,000	3,000

**Table IV.7-202
Critical Habitat within GCP Lands for Non-Covered Species – Alternative 2**

Common Name	Acres of Critical Habitat within GCP Lands	Acres of Critical Habitat in Existing Conservation	Acres of Critical Habitat in BLM LUPA Lands (Nonfederal Inholdings)	Acres of Critical Habitat in Conservation Planning Areas	Acres in Conservation
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.7.3.4.5 Impacts Outside of Plan Area

IV.7.3.4.5.1 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.7.3.4.5.2 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, 324,431 acres would be proposed NLCS lands and 265,478 would be existing and proposed ACECs, for a total of 483,656 acres (accounting for overlapping designations) of natural communities in BLM LUPA conservation under Alternative 2.

Table IV.7-203
Estimated Acres of Natural Communities in
BLM LUPA Outside of Plan Area – Alternative 2

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation [†]		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	Existing and Proposed ACECs (acres)	
<i>Dune/Rocky, Barren, and Un-vegetated Communities</i>				
Barren	23,402	3,027	2,841	3,992
<i>Forest/Woodland Communities</i>				
Closed-Cone Pine-Cypress	287	0	231	231
Jeffrey Pine	27	26	0	26
Juniper	31,590	7,199	6,963	7,937
Montane Hardwood	282	2	0	2
Pinyon-Juniper	73,444	18,432	10,079	19,443
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	3,315	0	3,315
<i>Riparian/Wetland Communities</i>				
Desert Riparian	205	2	205	205
Desert Wash	22,414	13,806	9,106	14,030
Freshwater Emergent Wetland	952	877	0	877
Lacustrine	99	90	19	90
<i>Scrub and Chaparral Communities</i>				
Alkali Desert Scrub	189,771	80,134	10,729	81,121
Chamise-Redshank Chaparral	8,317	4,531	4,117	7,647
Coastal Scrub	12	0	0	0
Desert Scrub	572,907	154,494	208,800	302,449
Desert Succulent Shrub	35,115	14,869	957	14,869
Joshua Tree	21,034	4,491	1,135	3,913
Low Sage	3,035	2,995	895	2,995
Mixed Chaparral	12,821	5,200	5,465	9,458
Sagebrush	48,566	8,707	3,673	8,810

Table IV.7-203
Estimated Acres of Natural Communities in
BLM LUPA Outside of Plan Area – Alternative 2

Natural Communities	Natural Communities within BLM LUPA Lands Outside Plan Area (acres)	BLM LUPA Designation [†]		Total Natural Communities in BLM LUPA Conservation (acres)
		Proposed NLCS (acres)	Existing and Proposed ACECs (acres)	
<i>Other Land Covers</i>				
Cropland	3,617	476	0	476
Irrigated Hayfield	421	421	0	421
Urban	1,449	1,337	263	1,349
Total	1,057,874	324,431	265,478	483,656

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.7-204 below for the list of special-status species within conservation areas. Refer to Table IV.7-203 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 2 is expected to beneficially affect the 125 species shown in Table IV.7-204 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.7-203 above. Under Alternative 2, 26 species, dominated by plant species, are not present within existing and proposed BLM LUPA conservation lands.

**Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2**

Special-Status Species Present	Federal Status ¹	State Status ²	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	Y
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	N
<i>Birds</i>			
burrowing owl	-	CSC	Y
California black rail	BLM, BCC	ST	Y
Crissal thrasher	BLM, BCC	CSC	Y
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	Y
Loggerhead shrike	BCC	CSC	Y
Long-eared owl	BLM	CSC	Y
prairie falcon	BCC	-	Y
Swainson's hawk	BLM	ST	Y
southwestern willow flycatcher	FE	SE	Y
Vermilion flycatcher	-	CSC	Y
western snowy plover	FT	CSC	Y
Yellow warbler	BCC	CSC	Y
Yuma clapper-rail	FE, BCC	ST, FP	Y

**Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2**

Special-Status Species Present	Federal Status ¹	State Status ²	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
<i>Mammals</i>			
American badger	-	CSC	Y
big free-tailed bat	-	CSC	Y
Hoary bat	-	WBWG	Y
Long-eared myotis	BLM	-	Y
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	Y
Spotted bat	BLM	CSC	Y
Townsend’s big-eared bat	BLM	CSC	Y
Western mastiff bat	BLM	CSC	Y
Western small-footed myotis	BLM	-	Y
western yellow bat	-	CSC	Y
<i>Plants</i>			
Abrams’ spurge	-	(CRPR 2.2)	Y
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)	Y
Bailey’s greasewood	-	(CRPR 2.3)	Y
Barneby’s phacelia	-	(CRPR 2.3)	N
black bog-rush	-	(CRPR 2.2)	N
bristly scaleseed	-	(CRPR 2.3)	Y
brown turbans	-	(CRPR 2.3)	Y
California ayenia	-	(CRPR 2.3)	Y
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

**Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2**

Special-Status Species Present	Federal Status ¹	State Status ²	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
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)	Y
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)	Y
Gilman's buckwheat	-	(CRPR 1B.3)	Y
Gilman's cymopterus	-	(CRPR 2.3)	Y
Gilman's goldenbush	-	(CRPR 1B.3)	Y
glandular ditaxis	-	(CRPR 2.2)	Y
Greene's rabbitbrush	-	(CRPR 2.3)	Y
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)	Y
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)	Y
Inyo rock daisy	-	(CRPR 1B.2)	Y
jackass-clover	-	(CRPR 2.2)	Y
Jacumba milk-vetch	-	(CRPR 1B.2)	Y
July gold	-	(CRPR 1B.3)	Y

**Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2**

Special-Status Species Present	Federal Status ¹	State Status ²	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
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)	Y
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)	Y
long-stem evening-primrose	-	(CRPR 2.2)	Y
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
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)	N
Parish's desert-thorn	-	(CRPR 2.3)	Y
Parry's monkeyflower	-	(CRPR 2.3)	Y
Parry's spineflower	-	(CRPR 1B.1)	Y

**Table IV.7-204
Special-Status Species Occurring in BLM LUPA Outside of Plan Area – Alternative 2**

Special-Status Species Present	Federal Status ¹	State Status ²	Present in BLM LUPA Conservation Lands (Proposed NLCS and Existing and Proposed ACECs)
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)	Y
Shockley's milk-vetch	-	(CRPR 2.2)	Y
Shockley's rockcress	-	(CRPR 2.2)	N
slender cottonheads	-	(CRPR 2.2)	Y
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
sweet-smelling monardella	-	(CRPR 1B.3)	N
triple –ribbed milk-vetch	FE	(CRPR 1B.2)	Y
Wheeler's dune-broom	-	(CRPR 2.2)	Y
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

¹ 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.

² 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.7-205 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.7-205
Critical Habitat Within BLM LUPA Conservation Designations for
Special-Status Species – Alternative 2

Common Name	Acres of Critical Habitat within BLM LUPA Lands	NLCS (acres)	ACEC (acres)	SRMA (acres)	Total ¹ in BLM Designations
Coachella Valley milk-vetch	10,000	4,000	500	1,000	5,500
Inyo California towhee	2,000	10	800	500	1,310
Peninsular Bighorn sheep	317,000	24,000	9,000	200	33,200
Coachella Valley fringe-toed lizard	12,000	2,000	2,000	0	4,000
Desert tortoise	173,000	35,000	99,000	55,000	189,000
Least Bell’s vireo	600	0	0	0	0

¹ 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 2 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.7.3.4.6 CEQA Significance Determination for Alternative 2

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

Alternative 2 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 2 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 2 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 2 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 CMAs. Under Alternative 2, the DFAs are sited in locations where development of Covered Activities would adversely impact habitat for listed and sensitive wildlife species, including desert tortoise and Mohave ground squirrel. Development in these locations under Alternative 2 has the potential to adversely impact habitat linkage function and isolate populations and fragment habitat in the Plan Area for these species. These adverse impacts cannot be mitigated or otherwise avoided or minimized without modifying the CMAs or DFAs to limit or prohibit development in these sensitive areas, which would modify the purpose and intent of Alternative 2. Therefore, Alternative 2 would result in significant and unmitigable impact to listed and sensitive wildlife and their habitat.

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 2 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 2 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; however, the DFAs in Alternative 2 are located in important linkage areas such that development of Covered Activities in these key location would have an adverse impact on wildlife movement. The potential adverse effects to habitat linkages and wildlife movement would be partially minimized through the implementation of the DRECP conservation strategy, including the reserve design envelope. However, Alternative 2 would result in impacts of habitat fragmentation and population isolation that cannot be entirely offset through these measures. These adverse impacts cannot be mitigated or otherwise avoided or minimized without modifying the CMAs or DFAs to limit or prohibit development in these sensitive areas, which would modify purpose and intent of Alternative 2. Therefore, Alternative 2 would result in significant and unmitigable impacts to habitat linkages and wildlife movement.

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 2 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 partially 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; however, impacts to wildlife movement and habitat linkages under Alternative 2 would be significant and unavoidable.

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

Alternative 2 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 Plan (AM-PW-6) would reduce the adverse effects to Covered Species to a less than significant impact.

Alternative 2 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 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 2 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 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.7.3.4.7 Comparison of Alternative 2 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 2 with the Preferred Alternative.

IV.7.3.4.7.1 Alternative 2 Compared with Preferred Alternative for Plan-Wide DRECP

Alternative 2 would allow renewable energy development in nearly 2.5 million acres of DFAs (11% of the Plan Area) as compared to the approximately 2 million acres of DFAs (9% of the Plan Area) under the Preferred Alternative. Under Alternative 2, 78% of the DFAs are characterized by low terrestrial intactness as compared to the 87% of the DFAs in the Preferred Alternative. Alternative 2 and the Preferred Alternative would result in

roughly equivalent conservation acreage within Reserve Design Lands; however, the BLM LUPA conservation designations vary considerably between these alternatives. Alternative 2 BLM LUPA conservation designations would include 18% ACEC designations, 82% NLCS designations, and 0% 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 300 acres of California forest and woodlands would be impacted under Alternative 2, compared to 100 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar in the West Mojave and Eastern Slopes subarea. In the Pinto Lucerne Valley and Eastern Slopes subarea, there are more impacts from solar, wind, and transmission.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under Alternative 2, compared to 2,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from transmission and wind in the Pinto Lucerne Valley and Eastern Slopes subarea, but fewer impacts from wind. In the West Mojave and Eastern Slopes there are fewer impacts from solar and transmission development under Alternative 2 compared to the Preferred Alternative.

Desert conifer woodlands

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under both Alternative 2 and the Preferred Alternative. Compared to the Preferred Alternative, there are slightly greater impacts from solar and wind in the Pinto Lucerne Valley and Eastern Slopes subarea. In the West Mojave and Eastern Slopes there are fewer impacts from solar and transmission development under Alternative 2 compared to the Preferred Alternative.

Desert outcrop and badlands

Overall, approximately 9,000 acres of desert outcrop and badlands would be impacted under Alternative 2, compared to 10,000 acres under the Preferred Alternative. The most

substantial differences are greater impacts in the Imperial Borrego Valley under Alternative 2 and fewer impacts in the Cadiz Valley and Chocolate Mountains subarea. In both subareas, the difference in acreage of solar impact is more substantial than for other technology types.

Desert scrubs

Overall, approximately 92,000 acres of desert scrubs would be impacted under both Alternative 2 and the Preferred Alternative. Compared to the Preferred Alternative, the biggest differences are in fewer impacts in the Cadiz Valley and Chocolate Mountains subarea under Alternative 2 compared to the Preferred Alternative and more impacts in the Pinto Lucerne Valley and Eastern Slopes subarea.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 2 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 5,000 acres of grasslands would be impacted under Alternative 2, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains, Mojave and Silurian Valley, and West Mojave and Eastern Slopes subareas and greater impacts in the Pinto Lucerne Valley and Eastern Slopes subarea. Although there are more impacts from solar under the Preferred Alternative there are greater impacts to grasslands from wind under Alternative 2.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 2 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 9,000 acres of California forest and woodlands would be impacted under Alternative 2, 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 2 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 from in the Mojave and Silurian Valley, Panamint Death Valley, and Owens River Valley subareas under Alternative 2, but fewer or about the same impacts in all other subareas. The largest difference would be the less impacts from solar development in the Cadiz Valley and Chocolate Mountains subarea under Alternative 2.

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 65,000 acres (44%) of California forest and woodlands would be conserved under Alternative 2, compared to 62,000 acres (41%) under the Preferred Alternative. Although conservation between these subareas is similar overall, the distribution of conservation varies. Compared to the Preferred Alternative, there is more California forest and woodland areas conserved in the West Mojave and Eastern Slopes subarea from BLM LUPA conservation designations. There is more acreage conserved in BLM LUPA conservation designations in the Pinto Lucerne Valley and Eastern Slopes subarea under the Preferred Alternative, but less conservation in Conservation Planning Areas.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 34,000 acres (31%) of chaparral and coastal scrubs would be conserved under Alternative 2, compared to 31,000 acres (28%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conserved acreage of chaparral and coastal scrubs in the Pinto Lucerne Valley and Eastern Slopes, West Mojave and Eastern Slopes, and Mojave and Silurian Valley subareas. There is more conserved acreage within the Conservation Planning Areas under Alternative 2, as compared with the Preferred Alternative.

Desert conifer woodlands

Overall, approximately 190,000 acres (66%) of desert conifer woodlands would be conserved under Alternative 2, compared to 186,000 acres (65%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation in the West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Pinto Valley and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 1,339,000 acres (83%) of desert outcrop and badlands would be impacted under Alternative 2, compared to 1,295,000 acres (80%) under the Preferred Alternative. Compared to the Preferred Alternative, there is greater conservation of this general community in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Piute Valley and Sacramento Mountains, and Providence and Bullion Mountains subareas, with the greatest difference in the Piute Valley and Sacramento Mountains subarea. There is less conserved acreage in the Pinto Lucerne Valley and Eastern Slopes subarea.

Desert scrubs

Overall, approximately 9,917,000 acres (75%) of desert scrubs would be conserved under Alternative 2, compared to 9,729,000 acres (74%) under the Preferred Alternative. Two of the subareas in the Plan Area have less conservation of desert scrubs under Alternative 2 compared to the Preferred Alternative—Owens River Valley and West Mojave and Eastern Slopes subareas. Of the remaining subareas with more conservation under Alternative 2, the Kingston and Funeral Mountains subarea has the largest difference between the two alternatives.

Dunes

Overall, approximately 223,000 acres (79%) of dunes would be conserved under Alternative 2, compared to 209,000 acres (74%) under the Preferred Alternative. There is more conservation of dunes under Alternative 2 in the Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas.

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 53,000 acres (22%) of grasslands would be conserved under Alternative 1, compared to 54,000 acres (22%) under the Preferred Alternative. Although conservation between these subareas is similar overall, the distribution of conservation varies. Compared to the Preferred Alternative, there is more conservation of grasslands in the West Mojave and Eastern Slopes subarea, but less in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Overall, approximately 713,000 (72%) of riparian would be conserved under Alternative 2, compared to 715,000 acres (72%) under the Preferred Alternative. The most substantial differences between the alternatives are much less conservation in BLM LUPA conservation designations in the Imperial Borrego Valley subarea and much more conservation in the Piute Valley and Sacramento Mountains subarea. The other subareas with greater conservation under Alternative 2 are the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, and West Mojave and Eastern Slopes subareas.

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 474,000 acres (55%) of wetlands would be conserved under Alternative 2, compared to 433,000 acres (50%) under the Preferred Alternative. There is more conserved acreage of wetlands primarily in the Providence and Bullion Mountains subarea. Additional subareas which support more conservation under Alternative 2 include the Kingston and Funeral Mountains, Cadiz Valley and Chocolate Mountains, and West Mojave and Eastern Slopes. All of the other subareas have fewer or approximately the same conserved acres of wetland communities.

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 2 compared to the Preferred Alternative. Less suitable habitat for Covered Species would be impacted under Alternative 2 in three subareas: Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas with the greatest difference in the Cadiz Valley and Chocolate Mountains subarea.

More suitable habitat for Covered Species would be impacted under Alternative 2 compared to the Preferred Alternative for one of the four amphibian/reptile species—Agassiz's desert tortoise. Impacts to desert tortoise important areas are greater under Alternative 2 compared with the Preferred Alternative. Most of the covered bird species have less impacts to their suitable habitat under Alternative 2 including some birds associated with riparian/wetland areas (i.e., California black rail, southwestern willow flycatcher, western tricolored blackbird) and birds associated with other habitats (California condor, greater sandhill crane, burrowing owl, mountain plover, Swainson's hawk). Suitable habitat for covered fish species Owens pupfish and Owens tui chub would have greater impacts, desert pupfish would have less impacts under Alternative 2, but neither would differ by more than 50 acres for any species. Mohave tui chub would not be impacted under either alternative.

Suitable habitat for bighorn sheep (both mountain and inter-mountain), Mohave ground squirrel, and pallid bat would be impacted more under Alternative 2 than under the Preferred Alternative. Alternative 2 would impact more than twice as much Mohave ground squirrel important areas than would the Preferred Alternative. Four of the ten covered plant species would have greater impacts under Alternative 2 compared to the Preferred Alternative, including Barstow woolly sunflower, Little San Bernardino Mountains linanthus, Owens Valley checkerbloom, and Parish's daisy. CMA application would avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1; however, under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations would result in adverse impacts that cannot be mitigated or otherwise avoided or minimized.

Impacts to Non-Covered Species

Overall, Alternative 2 could result in greater potential impacts to suitable habitat for Non-Covered Species 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 2 for all of the 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 2 for the majority of amphibian/reptile species compared to the Preferred Alternative. of the majority of the bird Non-Covered Species would have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 2. Both of the fish Non-Covered species could potentially have greater impacts under Alternative 2; however, implementation of CMAs would preclude development within the habitat for the fish, thus further protecting these species under either Alternative. Greater potential impacts to suitable habitat for about half of the mammal Non-Covered Species would occur under Alternative 2 as compared to the Preferred Alternative. The majority of plant Non-Covered Species could have greater potential impacts under Alternative 2 compared to the Preferred Alternative.

Conservation of Covered Species

Overall, there is greater conservation of Covered Species habitat under Alternative 2 compared to the Preferred Alternative. There is more conservation in both BLM LUPA conservation designations and Conservation Planning Areas under Alternative 2. Compared to the Preferred Alternative there is greater conservation of suitable habitat for Covered Species in the Cadiz Valley and Eastern Slopes, Kingston and Funeral Mountains, Mojave and Silurian Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, and Providence and Bullion Mountains subareas under Alternative 2.

More suitable habitat for the following Covered Species would be conserved under the Preferred Alternative compared to Alternative 2: Gila woodpecker, Owens pupfish, Owens tui chub, Mohave ground squirrel, Barstow woolly sunflower, Mojave monkeyflower, Owens Valley checkerbloom, and Parish's daisy. For the remaining species, more suitable habitat would be conserved under Alternative 2.

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 2 compared to the Preferred Alternative. There are more DFAs under Alternative 2 compared to the Preferred Alternative in linkages in the Chocolate Mountains in the Imperial Borrego Valley subarea, in the San Bernardino Mountains, in the Fry Valley area, Granite Mountains, Gray Butte Field, area west of Fremont Peak, and Indian Wells. Under Alternative 2, the

DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations, absent CMAs to protect these linkages or removing DFAs from these locations, would result in adverse impacts to habitat linkages and wildlife movement that cannot be mitigated or otherwise avoided or minimized.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 2. Some linkage areas with more conservation under the Preferred Alternative compared to Alternative 2 include: the Providence and Bullion Mountains subarea and along East Mesa in the Imperial Borrego Valley, near the Twentynine Palms Air Corps Base, in the Lucerne Valley, south of Johnson Valley and south into the Black Mountain area, Gray Butte Field area north of the California aqueduct, in the Mojave Desert near Fremont Peak, and in Indian Wells Valley. 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 2 would result in a 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 2. The degradation of vegetation and disturbance of wildlife during operations in Alternative 2 would be more heavily distributed in the Pinto Lucerne Valley and Eastern Slopes subarea than in the Preferred Alternative. The Preferred Alternative would also have a larger distribution of impacts in the Cadiz Valley and Chocolate Mountains subarea than Alternative 2. Both the Preferred Alternative and Alternative 2 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 2 would result in an estimated 4,800 more bird collisions and 22,300 more bat collision with wind turbines than the Preferred Alternative. However, this would result in a 16,036 acres reduction in solar development, with a proportional decrease in the associated operational impacts. Alternative 2 would result in a reduction of operational impacts from solar in all subareas. However, impacts from transmission would be considerably lower in Imperial Borrego Valley, and Cadiz and Chocolate Mountain

subareas, while impacts in West Mojave and Eastern Slopes would be greater. Migratory Bird impacts across most of the plan area are likely to be greater because of the overall increase in wind impacts.

IV.7.3.4.7.2 Alternative 2 Compared with Preferred Alternative for the BLM Land Use Plan Amendment

Alternative 2 would allow renewable energy development in approximately 718,000 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 2 would designate 5.2 million acres of BLM LUPA conservation designations on BLM-administered lands, including 5.1 million acres of NLCS, 77,000 acres of ACEC, and 700 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 200 acres of California forest and woodlands would be impacted under Alternative 2 for the BLM LUPA, compared to 40 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar, wind, and 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 2 for the BLM LUPA, compared to 300 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar in the Pinto Lucerne Valley and Eastern Slopes subarea and from solar and transmission in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 300 acres of desert conifer woodlands would be impacted under Alternative 2, compared to 400 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from solar and wind development in the

Pinto Lucerne Valley and Eastern Slopes. However, there are fewer impacts from transmission in the Pinto Lucerne Valley and Eastern Slopes and from solar and wind in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 7,000 acres of desert outcrop and badlands would be impacted under Alternative 2 for the BLM LUPA, compared to 8,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Imperial Borrego Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas. However, the total is less for Alternative 2 because there are much fewer impacts in the Cadiz Valley and Chocolate Mountains subarea, mostly from solar and transmission development, and also fewer impacts in other subareas.

Desert scrubs

Overall, approximately 53,000 acres of desert scrubs would be impacted under Alternative 2 for the BLM LUPA, compared to 46,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Imperial Borrego Valley, Mojave and Silurian Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Valley, and West Mojave and Eastern Slopes subareas, with the greatest difference in the West Mojave and Eastern Slopes subarea. However, there are far fewer impacts in the Cadiz Valley and Chocolate Mountains subarea.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 2 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 500 acres of grasslands would be impacted under both Alternative 2 and the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas, mostly from solar development. However, there are greater impacts in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 2 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 4,000 acres of wetlands would be impacted under both Alternative 2 and the Preferred Alternative for the BLM LUPA. Like the Preferred Alternative, impacts to Arid West freshwater emergent marsh and Californian warm temperate marsh/seep would not occur under Alternative 2 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 39,000 acres (87%) of California forest and woodlands would be conserved under Alternative 2 for BLM LUPA, compared to 38,000 acres (86%) under the Preferred Alternative. Compared to the Preferred Alternative, there is more conservation of California forest and woodlands in NLCS and ACECs and less conservation in Wildlife Allocation areas under Alternative 2. There is also more conservation in the West Mojave and Eastern Slopes subarea under Alternative 2, and less conservation in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 15,000 acres (81%) of chaparral and coastal scrubs would be conserved under Alternative 2, compared to 11,000 acres (62%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is more conserved acreage of chaparral and coastal scrubs in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subarea. Overall, there is less

conserved acreage in ACEC areas, no conserved area in wildlife allocations, but more conservation in NLCS.

Desert conifer woodlands

Overall, approximately 43,000 acres (87%) of desert conifer woodlands would be conserved under Alternative 2, compared to 41,000 acres (83%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is less conservation in ACECs in the Pinto Lucerne and Eastern Slopes and Kingston and Funeral Mountains subareas. There is more conserved acreage within Alternative 2 NLCS areas in the Pinto Lucerne Valley and Eastern Slopes, Kingston and Funeral Mountains, and West Mojave and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 1,061,000 acres (88%) of desert outcrop and badlands would be conserved under Alternative 2, compared to 1,017,000 acres (85%) under the Preferred Alternative for the BLM LUPA. Although conservation between these subareas is similar overall, the distribution of conservation varies substantially. Compared to the Preferred Alternative, there is greater conservation of this general community in NLCS and wildlife allocations in Alternative 2. Specifically, greater conservation of desert outcrop and badlands occur within the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, Piute Valley and Sacramento Mountains, and Providence and Bullion Mountains subareas, with the greatest difference in the Piute Valley and Sacramento Mountains subarea.

Desert scrubs

Overall, approximately 6,017,000 acres (86%) of desert scrubs would be conserved under Alternative 2, compared to 5,835,000 acres (83%) under the Preferred Alternative for the BLM LUPA. Eight of the ten subareas in the Plan Area have greater conservation of desert scrubs under Alternative 2 compared to the Preferred Alternative. The biggest difference is in the Providence and Bullion Mountains subarea, but there is also over 30,000 acres more conservation of desert scrubs in the Mojave and Silurian Valley and Pinto Lucerne Valley and Eastern Slopes subareas. Of the remaining subareas with less conservation under Alternative 2, the West Mojave and Eastern Slopes subarea has the largest difference between the two alternatives.

Dunes

Overall, approximately 101,000 acres (79%) of dunes would be conserved under Alternative 2, compared to 89,000 acres (70%) under the Preferred Alternative for the

BLM LUPA. There is more conservation in NLCS areas under Alternative 2, but less in ACECs. Compared to the Preferred Alternative, there is more conservation of dunes in most subareas, particularly the Pinto Lucerne Valley and Eastern Slopes, Mojave and Silurian Valley, Imperial Borrego Valley, and Kingston and Funeral Mountains subareas.

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 2, compared to 23,000 acres (80%) under the Preferred Alternative for the BLM LUPA. Compared to the Preferred Alternative, there is more or equal conservation of grasslands in most subareas with conservation, except the Pinto Lucerne Valley and Eastern Slopes subarea. Overall, there is less conservation of grasslands in ACEC areas and wildlife allocations, and more in NLCS area under Alternative 2.

Riparian

Overall, approximately 512,000 acres (79%) of dunes would be conserved under Alternative 2, 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 BLM LUPA conservation designations in the Imperial Borrego Valley subarea, and substantially more conservation in the Piute Valley and Sacramento Mountains.

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 217,000 acres (73%) of wetlands would be conserved under Alternative 2, compared to 184,000 acres (62%) under the Preferred Alternative. There is substantially more conserved acreage of wetlands primarily in the Kingston and Funeral Mountains and Providence and Bullion Mountains subareas. There are fewer wetland

conservation acres under Alternate 2 in the West Mojave and Eastern Slopes, Mojave and Silurian Valley, and Panamint Death Valley subareas. Overall, there are fewer conserved acres in ACEC areas and more conservation in NLCS and 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 Habitat

Overall, there are greater impacts to suitable habitat for Covered Species under Alternative 2 compared to the Preferred Alternative for the BLM LUPA. The only subareas where less suitable habitat for Covered Species would be impacted under Alternative 2 would be the Cadiz Valley and Chocolate Mountains and Owens River Valley subareas. Less suitable habitat for Covered Species would be impacted under Alternative 2 compared to the Preferred Alternative except for the following species: flat-tailed horned lizard, Mojave fringed-toed lizard, Tehachapi slender salamander, California black rail, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, California leaf-nosed bat, alkali mariposa-lily, and Bakersfield cactus. CMA application would avoid and minimize impacts to suitable habitat for Covered Species under both alternatives as described in Section IV.7.3.3.1.1; however, under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations would result in adverse impacts that cannot be mitigated or otherwise avoided or minimized.

Impacts to Non-Covered Species Habitat

Overall, Alternative 2 could result in greater potential impacts to suitable habitat for Non-Covered Species as compared to the Plan-wide Preferred Alternative.

More suitable habitat for the spring- and cave-restricted invertebrate Non-Covered Species has the potential to be impacted under Alternative 2 compared to the Preferred Alternative. The analysis indicates that there could be more impacts to dune habitats under the Preferred Alternative, however, application of CMA's and general siting design under either Alternative, 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 2 for all of the amphibian/reptile species compared to the Preferred Alternative. All of the bird Non-Covered Species have greater potential impacts to suitable habitat under Alternative 2 as compared to the Preferred Alternative. Both of the fish Non-Covered species could potentially have greater impacts under Alternative 2; however, implementation of CMAs would preclude development

within habitat for these fish, thus further protecting these species under either Alternative. Greater potential impacts to suitable habitat for the majority of mammal Non-Covered Species could occur under Alternative 2 as compared to the Preferred Alternative. The majority of plant Non-Covered Species could have greater potential impacts under Alternative 2 compared to the Preferred Alternative.

Conservation of Covered Species Habitat

Overall, there is more conservation of Covered Species habitat under Alternative 2 compared to the Preferred Alternative. There is much less conservation in ACECs and wildlife allocations under Alternative 2, but more conservation in NLCS areas. The only subarea with wildlife allocations under the Preferred Alternative is the West Mojave and Eastern Slopes subarea, but wildlife allocations are included in both this subarea and the Cadiz Valley and Chocolate Mountains subarea under Alternative 2. There is greater conservation of Covered Species habitat in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Mojave and Silurian Valley, Panamint Death Valley, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, and Providence and Bullion Mountains subareas under Alternative 2 compared to the Preferred Alternative. The greatest difference between alternatives among the remaining subareas would be in the Imperial Borrego Valley subarea.

More suitable habitat would be conserved under Alternative 2 compared to the Preferred Alternative for all covered reptiles and amphibians, 13 of 15 birds, 1 fish (desert pupfish), 5 of 6 mammals, and 6 of 10 plants. Conservation of desert pupfish would only be minimally higher under Alternative 2.

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 2 compared to the Preferred Alternative for the BLM LUPA. There are more DFAs under Alternative 2 compared to the Preferred Alternative in linkages in the Chocolate Mountains in the Imperial Borrego Valley subarea, in the San Bernardino Mountains, in the Fry Valley area, area west of Fremont Peak, and Indian Wells. Under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations, absent CMAs to protect these linkages or removing DFAs from these locations, would result in adverse impacts to habitat linkages and wildlife movement that cannot be mitigated or otherwise avoided or minimized.

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 2 would result in a larger 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 2. The degradation of vegetation and disturbance of wildlife during operations in Alternative 2 would be more heavily distributed in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas, whereas the Preferred Alternative would distribute more terrestrial operational impacts in the Cadiz Valley and Chocolate Mountains subarea. Both the Preferred Alternative and Alternative 2 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 2 on bird and bat Covered Species would result in an estimated 3,400 more bird collisions and 15,300 more bat collision with wind turbines than the Preferred Alternative. Differences would be especially marked in Pinto and Lucerne Valley and Mojave and Silurian Valley subareas with an expected 1,600 more collisions per year. In these subareas, golden eagle may be disproportionately affected by wind development in BLM managed DFAs. Solar development in Imperial Borrego Valley would increase by 7,268 acres while impacts in Cadiz and Chocolate Mountains would decrease by a similar quantity; similar species are likely to be affected in each region.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under the Preferred Alternative compared to Alternative 2. Some linkage areas with more conservation under the Preferred Alternative compared to Alternative 2 include: along East Mesa in the Imperial Borrego Valley, near the Twentynine Palms Air Corps Base, in the Lucerne Valley, south of Johnson Valley and south into the Black Mountain area, in the Mojave Desert near Fremont Peak, and in Indian Wells Valley. In addition to conservation of the desert linkage network, CMAs provide for the avoidance and minimization of certain linkages in the DFAs.

IV.7.3.4.7.3 Alternative 2 Compared with Preferred Alternative for NCCP

The impacts of the NCCP for Alternative 2 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 2 with the Preferred Alternative for the NCCP is the same as described above for Plan-wide DRECP.

IV.7.3.4.7.4 Alternative 2 Compared with Preferred Alternative for the GCP

Alternative 2 would allow renewable energy development on approximately 1.7 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 2, the Reserve Design Lands would include approximately 2.6 million acres on nonfederal lands, including 434,000 acres within existing conservation areas, 1.0 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 2 under the GCP, compared to 80 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts from solar in the West Mojave and Eastern Slopes subarea, but more impacts from solar and wind development in the Pinto Lucerne Valley 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 2 and the Preferred Alternative under the GCP. Compared to the Preferred Alternative, there are greater impacts from solar and wind in the Pinto Lucerne Valley and Eastern Slopes subarea and fewer impacts from solar and transmission in the West Mojave and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 800 acres of desert conifer woodlands would be impacted under Alternative 2, compared to 900 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts in the Pinto Lucerne Valley and Eastern Slopes subarea and fewer impacts in the West Mojave and Eastern Slopes subarea.

Desert outcrop and badlands

Overall, approximately 1,000 acres of desert outcrop and badlands would be impacted under both Alternative 2 and the Preferred Alternative. Compared to the Preferred Alternative, there are fewer impacts in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas under Alternative 2. There are greater impacts in Owens River Valley, Pinto Lucerne Valley and Eastern Slopes, and Providence and Bullion Mountains subareas under Alternative 2 with the greatest difference in the Pinto Lucerne Valley and Eastern Slopes subarea.

Desert scrubs

Overall, approximately 39,000 acres of desert scrubs would be impacted under Alternative 2 under the GCP, compared to 45,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are greater impacts from wind development in all impacted subareas, but fewer impacts from solar development overall. The Imperial Borrego Valley is the only subarea with geothermal effects under Alternative 2 under the GCP, which are approximately the same as those of the Preferred Alternative.

Dunes

Like the Preferred Alternative, impacts to dune communities would be minimized under Alternative 2 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 5,000 acres of grasslands would be impacted under Alternative 2, compared to 6,000 acres under the Preferred Alternative. Compared to the Preferred Alternative, there are actually greater impacts in two of the four subareas impacted but fewer impacts in the West Mojave and Eastern Slopes and Mojave and Silurian Valley subareas resulting in a fewer impacts to grasslands overall.

Riparian

Like the Preferred Alternative, impacts to riparian communities would be avoided under Alternative 2 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 4,000 acres of wetlands would be impacted under Alternative 2 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 2 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 the West Mojave and Eastern Slopes and Panamint Death Valley subareas, but fewer impacts in all other impacted subareas.

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 27,000 acres (26%) of California forest and woodlands would be conserved under Alternative 2, compared to 24,000 acres (23%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more California forest and woodland areas conserved in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas, mostly from Conservation Planning Areas.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 10,000 acres (13%) of chaparral and coastal scrubs would be conserved under Alternative 2, compared to 11,000 acres (13%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is less conserved acreage from BLM LUPA conservation designations and more conserved from Conservation Planning Areas in the Pinto Lucerne Valley and Eastern Slopes subarea.

Desert conifer woodlands

Overall, approximately 21,000 acres (20%) of desert conifer woodlands would be conserved under Alternative 2, compared to 19,000 acres (18%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more

conservation in the Pinto Lucerne Valley and Eastern Slopes and Kingston and Funeral Mountains subareas.

Desert outcrop and badlands

Overall, approximately 111,000 acres (50%) of desert outcrop and badlands would be impacted under Alternative 2, compared to 110,000 acres (50%) under the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conservation in the Kingston and Funeral Mountains, Pinto Lucerne Valley and Eastern Slopes, and Mojave and Silurian Valley subareas. There is the about same or less conserved acreage in the remaining subareas.

Desert scrubs

Overall, approximately 843,000 acres (29%) of desert scrubs would be conserved under Alternative 2, compared to 833,000 acres (28%) under the Preferred Alternative for the GCP. All of the subareas in the Plan Area have about the same or less conservation of desert scrubs under Alternative 2 compared to the Preferred Alternative except the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Panamint Death Valley subareas.

Dunes

Overall, approximately 10,000 acres (29%) of dunes would be conserved under Alternative 2, compared to 7,000 acres (21%) under the Preferred Alternative for the GCP. There is much more conservation in the Kingston and Funeral Mountains subarea under Alternative 2 compared to the Preferred Alternative and somewhat less conservation in the Owens River Valley subarea.

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 2 and the Preferred Alternative for the GCP. Compared to the Preferred Alternative, there is more conservation of grasslands in the Pinto Lucerne Valley and Eastern Slopes in Conservation Planning Areas and less in BLM LUPA conservation designations in this subarea. There is roughly equal conservation of grasslands in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, West Mojave and Eastern Slopes, and Mojave and Silurian Valley subareas.

Riparian

Overall, approximately 75,000 acres (37%) of dunes would be conserved under Alternative 2, compared to 74,000 acres (37%) under the Preferred Alternative for the GCP. Overall, there is more conservation in Conservation Planning Areas under Alternative 2. There is more conservation in the Imperial Borrego Valley subarea, but less conservation in the Imperial Borrego Valley and Owens River Valley subareas.

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 80,000 acres (25%) of wetlands would be impacted under Alternative 2, 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, under Alternative 2. All of the other subareas, except the Kingston and Funeral Mountains, have the same or fewer conserved acres of wetland communities. There is substantially more acreage conserved under the Conservation Planning Areas but less acreage conserved under BLM LUPA conservation designations in Alternative 2, as compared with the Preferred Alternative.

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 less impacts to suitable habitat for Covered Species under Alternative 2 compared to the Preferred Alternative for the GCP. The subareas where less suitable habitat for Covered Species would be impacted under Alternative 2 would be the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, and West Mojave and Eastern Slopes subareas. Less suitable habitat for Covered Species would be impacted under Alternative 2 compared to the Preferred Alternative except for the following species: Bendire's thrasher, golden eagle (nesting habitat), least Bell's vireo, Owens pupfish, Owens chub, bighorn sheep (inter-

mountain and mountain habitat), little San Bernardino mountains linanthus, Owens checkerbloom, and Parish's daisy. 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; however, under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations would result in adverse impacts that cannot be mitigated or otherwise avoided or minimized.

Impacts to Non-Covered Species Habitat

Overall, Alternative 2 only has the potential for greater impacts to suitable habitat for only a few Non-Covered Species 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 Preferred Alternative compared to Alternative 2 for all of the amphibian/reptile species. All of the bird Non-Covered Species have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 2. All of the mammal Non-Covered Species have greater potential impacts to suitable habitat under the Preferred Alternative as compared to Alternative 2. Only a few of the plant Non-Covered Species could have greater potential impacts under Alternative 2 compared to the Preferred Alternative.

Conservation of Covered Species Habitat

Overall, there is greater conservation of Covered Species habitat under Alternative 2 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 2. Three subareas under Alternative 2 have less conservation of Covered Species suitable habitat compared to the Preferred Alternative, including the Imperial Borrego Valley, Owens River Valley, and Providence and Bullion Mountains subareas. The largest difference between the amount of habitat conserved for Covered Species is in the Kingston and Funeral Mountains subarea.

More suitable habitat for the following species would be conserved under the Preferred Alternative compared to Alternative 2: flat-tailed horned lizard, burrowing owl, California condor, Gila woodpecker, mountain plover, Swainson's hawk, Owens pupfish, Owens tui chub, Mohave ground squirrel, Mojave monkeyflower, Owens Valley checkerbloom, and Parish's daisy. For the remaining species, more or the same 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, approximately the same acreage of the desert linkage network would be impacted under Alternative 2 compared to the Preferred Alternative for the GCP. There is actually more impacted desert linkage network under the Preferred Alternative in the Cadiz Valley and Chocolate Mountain subarea, but less mostly in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains subareas. Under Alternative 2, the DFAs are sited in remote and sensitive locations such that development of Covered Activities in these locations, absent CMAs to protect these linkages or removing DFAs from these locations, would result in adverse impacts to habitat linkages and wildlife movement that cannot be mitigated or otherwise avoided or minimized.

Conservation of the Desert Linkage Network

Overall, there is greater conservation of the desert linkage network under Alternative 2 compared to the Preferred Alternative for the GCP. The biggest difference in acreage would be in the Pinto Lucerne Valley and Eastern Slopes and the West Mojave and Eastern Slopes subareas. 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 2 would result in fewer terrestrial operational impacts in the GCP 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 2. The degradation of vegetation and disturbance of wildlife during operations in Alternative 2 would be more heavily distributed in the Pinto Lucerne Valley and Eastern Slopes subarea, while the Preferred Alternative would have a greater distribution of terrestrial operational impacts in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas. Both the Preferred Alternative and Alternative 2 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 2 on bird and bat Covered Species would result in an estimated 1,300 more bird collisions and 7,000 more bat collision with wind turbines than the Preferred Alternative GCP. Differences would be especially marked in Pinto and Lucerne Valley subarea with an expected 700 more collisions per year. This would be especially important for golden eagle and Bendire's thrasher.

Impacts to Avian and bat species from solar development would be reduced with a plan-wide reduction in solar development of 17,986 acres in nonfederal DFAs. This would be especially marked in Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

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