IV.7 BIOLOGICAL RESOURCES

This chapter provides the analysis of environmental impacts for biological resources for the No Action Alternative, Preferred Alternative, and other action alternatives in the Desert Renewable Energy Conservation Plan (DRECP or Plan). The chapter is broadly organized according to the following major sections:

- IV.7.1 Approach to the Impact Analysis
- IV.7.2 Typical Impacts Common to All Action Alternatives
  - Impacts of Renewable Energy and Transmission
  - Impacts of the Reserve Design
  - Impacts of BLM Land Use Plan Decisions
  - Impacts of Natural Community Conservation Plan
  - Impact of General Conservation Plan
- IV.7.3 Impact Analysis by Alternative (No Action, Preferred, and Alternative 1–4)

In Section IV.7.3, the impacts of each of the action alternatives are analyzed according to the following subsections:

- Plan-Wide Impacts of Implementing the DRECP
- Impacts of DRECP Land Use Plan Amendment (LUPA) on BLM Land
- Impacts of Natural Community Conservation Plan (NCCP)
- Impacts of General Conservation Plan (GCP)
- Impacts Outside the Plan Area

Within these impact subsections, the impacts from renewable energy and transmission development and the impacts of the reserve design are analyzed. The analysis is organized according to biological resources impact statements (BR-1, BR-2, etc.) addressing the range of biological resources impacts. Following these analyses, CEQA significance determinations and an inter-alternative impact comparison are provided.[1]

[1] Rounding of data was applied to raw values to avoid false precision when presenting calculated values. However, in presenting rounded values there were tradeoffs. Numerical data presented and analyzed in this volume comes from a variety of different sources with varying levels of precision in the data. For presentation purposes, the following general rounding rules were applied: 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. Each value, including the totals and sub-totals, was independently rounded directly from the underlying source data. However, because totals and sub-totals were independently rounded they may not be the sum of the other constituent lower level table values.

IV.7.1 Approach to Impact Analysis

This section describes the methods for analyzing the biological resources impacts of siting, construction, decommissioning, and operations of Covered Activities for the DRECP. Additionally, the CEQA standards of significance are provided, which were used in making CEQA significance determinations.

IV.7.1.1 General Methods

IV.7.1.1.1 Siting, Construction, and Decommissioning Impacts

The biological resources impacts of siting, construction, and decommissioning of renewable energy and transmission projects were analyzed using the methods described below. Siting and construction impacts include the long-term loss of species or their habitat, removal or alteration of natural communities, or modification or disruption of ecological processes resulting from siting and construction of renewable energy and transmission projects. These impacts often result from ground disturbance activities associated with the construction of these projects. Additionally, short-term impacts to biological resources result from construction activities or decommissioning activities during these phases of projects.

For the purpose of quantifying the siting, construction, and decommissioning impacts, the impacts of each renewable energy technology were assumed to occur in or around a "project area." The project area is acreage necessary to generate the assumed megawatts for each technology, and the technology-specific assumptions used to determine the project area are described in Volume II, Description of Alternatives. The approach for distributing the megawatts to the DFAs under each alternative is described in Appendix F. For transmission, the impacts were assumed to occur in or around a right-of-way area. The right-of-way area width varies by transmission line type and is based on the Transmission Technical Group (TTG) Report (Appendix K). The following provides an overview of the technology-specific impact assumptions for siting, construction, and decommissioning.

- For solar Covered Activities (thermal, photovoltaic, and ground-mounted distributed generation), the project area necessary to generate one megawatt is 7.1 acres. It was assumed that long-term impacts (e.g., ground disturbance and infrastructure installation) to biological resources would occur within the entire solar project area. Short-term construction and decommissioning impacts would also occur within the solar project area. Infrastructure maintenance is assumed to occur within the same ground disturbance footprint as the infrastructure construction. The methods for assessing the operational impacts from solar Covered Activities, both terrestrial operational impacts and bird and bat operational impacts, are described below under operational impacts.

- For wind Covered Activities, the project area necessary to generate one megawatt is 40 acres. The impacts to biological resources from wind siting, construction of wind turbines and associated facilities, and decommissioning would affect substantially less acreage than the wind project area (approximately 6% of the wind project area would be impacted by ground disturbance). Therefore, it was assumed that the long-term impacts to biological resources from wind siting, construction, and decommissioning impacts would occur within the ground disturbance footprint for wind. Short-term construction and decommissioning impacts would also occur within the ground disturbance footprint. Infrastructure maintenance is assumed to occur within the same ground disturbance footprint as the infrastructure construction. The methods for assessing the operational impacts from wind Covered Activities, both terrestrial operational impacts and bird and bat operational impacts, are described below under operational impacts.
- For geothermal Covered Activities, the project area necessary to generate one megawatt is 5 acres. It was assumed that long-term impacts to biological resources would occur within the entire geothermal project area (e.g., ground disturbance and infrastructure installation). Short-term construction and decommissioning impacts would also occur within the geothermal project area. Infrastructure maintenance is assumed to occur within the same ground disturbance footprint as the infrastructure construction. The methods for assessing the operational impacts from geothermal Covered Activities, both terrestrial operational impacts and bird and bat operational impacts, are described below under operational impacts.
- For transmission Covered Activities, the right-of-way area necessary for each transmission line was based on the length of the line and the width of the right-of-way, which varies by the size of the transmission line. It was assumed that long-term impacts to biological resources would occur within the entire transmission right-of-way area (e.g., ground disturbance and infrastructure installation). Short-term construction and decommissioning impacts would also occur within the transmission right-of-way area. Infrastructure maintenance is assumed to occur within the same ground disturbance footprint as the infrastructure construction. The methods for assessing the operational impacts from transmission Covered Activities, both terrestrial operational impacts and bird and bat operational impacts, are described below under operational impacts.

Under the Preferred Alternative and the other action alternatives, siting, construction, and decommissioning impacts from renewable energy development would occur within DFAs. The DFAs under each action alternative cover a substantially greater acreage than the total area needed to generate the target megawatts (MW); therefore, only a portion of the DFAs would be impacted by renewable energy development. The location of project development

within the DFAs is not known so a proportional impact analysis approach was employed, as described further below.

Impacts to resources within the DFAs were estimated by: (1) calculating the proportion of the DFAs in each ecoregion subunit expected to be developed, and (2) then multiplying each subunit-specific impact proportion across the biological resources within the DFAs in that ecoregion subunit. Ecoregion subunits in the Plan Area are shown on Figure IV.7-1. The following provides the detailed methods for the impact analysis:

1. As described in II.3.1.3, the proposed impact acreage for each renewable energy technology (i.e., solar, wind, and geothermal) have been distributed to the DFAs in each alternative on a ecoregion subunit basis, such that for each subunit there is an identified impact acreage for each technology in each alternative. The subunit total ground disturbance and/or project area, as appropriate, for each technology was the basis of this impact analysis.
2. Application of strict avoidance Conservation and Management Actions (CMAs) would preclude development of Covered Activities in portions of the DFAs (see Section II.3.1.2.5). In order to reflect this within-DFA avoidance, the estimation of impacts (see #3 in the methods below) assumed the following areas would not be impacted by the Covered Activities within the DFAs. The full set of CMAs include all avoidance, minimization, and compensation measures for important landscape processes, all natural communities, and all Covered Species. The strict avoidance CMAs listed below are a subset of the full set of CMAs.
    a. Riparian areas and wetlands: The CMAs would require avoidance with setback of all riparian natural communities and land covers, specific wetland communities, and managed wetlands in Imperial Valley. Therefore, these resources were assumed not to be impacted by Covered Activities. Unavoidable impacts to these resources may be permitted as described by the CMAs; however, the DRECP CMAs and existing regulations would require compensation for any unavoidable impacts such that no net loss of these resources would occur.
    b. Dunes: The CMAs would require avoidance of the dune natural community; therefore, these resources were assumed not to be impacted by Covered Activities. Unavoidable impacts to these resources may be permitted as described by the CMAs; however, the DRECP CMAs would require compensation for any unavoidable impacts.
    c. Covered Species: The CMAs would require avoidance of the following species-specific resources in the DFAs. These resources were assumed not to be impacted by Covered Activities.
        i. Golden eagle: Avoidance of known golden eagle nests with a setback of 1 mile.

ii. Swainson's hawk: Avoidance of known active Swainson's hawk nests with a setback of 0.5 mile.

iii. Mohave tui chub, Owens tui chub, and Owens pupfish: Avoidance of known occurrences with setback of 0.25 mile.

iv. Bat roosts: Avoidance of known bat roosts with a setback of 500 feet.

v. Plant Covered Species: Avoidance of all plant Covered Species occurrences with a setback of 0.25 mile. Additionally, avoidance of suitable habitat with setback of 0.25 mile for, triple-ribbed milk-vetch.

3. The exact location of the impact on biological resources within the DFAs in each subunit is not known; therefore, the estimated impacts to resources are based on the technology-specific proportion of impact within the DFAs in each subunit. For example, if 5% of the available DFAs in a subunit would be impacted by solar development, then 5% of the extent of each biological resource in that subunit would be impacted. For Covered Species with modeled habitat in only a portion of a DFA subunit, for example, this would mean 5% of the modeled habitat acreage for that species within the DFA subunit would be impacted. This method of proportionally distributing the impacts to the DFA subunits was applied to the available DFA, which is the area of DFA remaining after applying the avoidance CMAs described in #2 above.

   Transmission effects are unique among the renewable energy development activities because they are not confined to DFAs. All transmission impacts were assumed to occur within DFAs or existing and planned transmission corridors, which occur both within and outside of DFAs. The impact analysis for transmission uses a method that is analytically equivalent to the method described above, but instead of using available DFAs to establish the context for the impacts, the analysis combines corridors developed from the TTG report, corridors on federal lands, and available DFAs, into a transmission effects area. The avoidance CMAs applied in #2 above were applied within the DFAs and the existing and planned transmission corridors outside of the DFAs. Identification of a transmission effects area provides the spatial context to evaluate transmission impacts similar to a DFA. Unlike DFAs, however, the transmission effects area is not intended to limit transmission to specific locations but simply identify areas most likely to be affected by transmission.

4. The impact analysis assumes that the full set of CMAs would be implemented. After estimating the quantitative impacts for each resource using steps 1-3 above, the impact analysis considered the effect of CMA implementation to determine to what extent the CMAs would further minimize, offset, or compensate the impact.

5. For an evaluation of the impacts within the BLM LUPA, the GCP, and the NCCP, the Plan-wide impact analysis conducted through #1–4 above was filtered to the BLM LUPA lands, the nonfederal GCP lands, and the NCCP lands.

The biological resources impact analysis was conducted at the landscape-level, at the natural community level and at the species level, and the analysis is organized by biological resources impact statements.

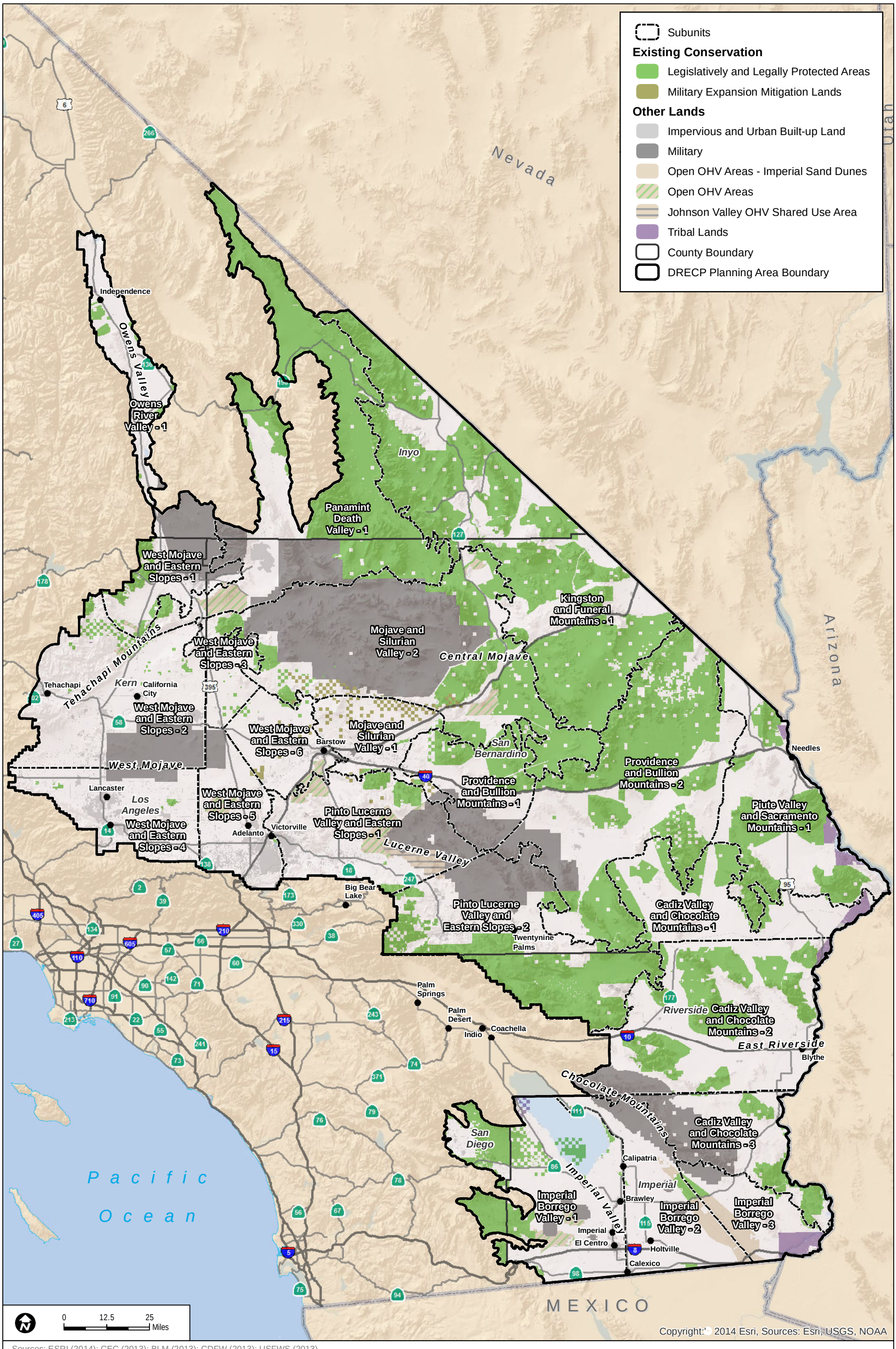
For the No Action Alternative, the ground disturbance and project area impacts from renewable energy and transmission development would occur on a project-by-project basis in a pattern similar to past and ongoing renewable energy, as described in Chapter II.2. The ground disturbance and project area impacts were estimated in a similar manner as the proportional approach used for the action alternatives, except that renewable energy development impacts were not limited to DFAs. Impacts were distributed to the areas currently available for renewable energy development, including the Solar PEIS Variance Lands, in the areas of the Plan Area with past and ongoing renewable energy development. CMAs would not be applied under the No Action Alternative; however, the analysis of the No Action Alternative assumes compliance with existing laws and regulations.

IV.7.1.1.2 Operational Impacts

Operational impacts are the long-term impacts associated with the ongoing operation and maintenance of renewable energy facilities. As with the siting, construction, and decommissioning related impacts, operational impacts of renewable energy development for all alternatives, except the No Action, occur within the DFAs. Operational impacts of transmission development would occur within DFAs or transmission corridors. The exact location of the impacts within the DFAs in each subunit is not known; therefore, the estimated impact to resources is based on the technology-specific proportional approach that divides impacts into each DFAs subunit.

Impacts are discussed in relation to the technology type (solar, wind, geothermal and transmission) and the mechanism by which the technology affects the biological resource. The following analysis discusses the effects of collision (the mechanism of impact) with respect to wind turbines, transmission, and solar structures separately. This differentiation is necessary because both the distribution of the technologies, and the magnitude and implication of impacts may vary. Furthermore, CMAs may be technology specific and are applied on a technology-by-technology basis.

The types of operational impacts analyzed include the effects of collision, light and glare, dust, noise, water, fire, and human disturbance. Where appropriate, impacts are subdivided in order to differentiate their potential effects on biological resources. For example, under mechanism of human disturbance, the impact analysis is divided into introduced diseases, invasive species, and predator subsidization.



Sources: ESRI (2014); CEC (2013); BLM (2013); CDFW (2013); USFWS (2013)

FIGURE IV.7-1
Subunits

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In developing the analysis for each operational effect, the scope and scale of the analysis considered the following issues:

- The quality and extent of existing information (including literature from monitoring studies as well as peer reviewed studies or reports)
- The extent to which current best management practices can be considered when assessing likely impacts
- The relationship between the generation distribution described in Section II.3.1 and the extent of the operational impacts
- The potential impacts of operational activities on landscape, natural communities, and Covered Species

Operational impacts may occur within the same area as the impacts resulting from siting, construction, and decommissioning impacts of Covered Activities. In these cases, the extent (i.e., acreage) of the operational impact can be quantified. Operational impacts may also occur beyond the ground disturbance impact, beyond the boundaries of the project area, or above a project area. For solar and geothermal operational Covered Activities, the extent of ground disturbance is the same as the project area extent. For wind Covered Activities, the siting, construction, and decommissioning impacts are quantified by the ground disturbance impacts only, and the impacts from wind operations (both terrestrial and bird-bat related) are quantified using wind project area and rotor swept area.

Some impacts such as lighting or reflection and refraction from infrastructure may attract wildlife, while other mechanisms like noise may repel wildlife. In these two instances, the effects are exerted beyond the boundaries of a project. In the same way that the exact locations of projects within DFAs are unknown, the extent of these operational impacts is also unknown. Factors such as topography and local prevailing winds make it impossible to accurately estimate these wider area effects for the geographic size and environmental variation that exists in the Plan Area. Analysis of these impacts focuses on a discussion of the potential effects and the relative distribution of impacts between subareas. The relative magnitude of impacts expected in each subarea corresponds with the amount of development occurring in each subarea.

Bird and Bat Collision

Wind Turbines

Collision risks to birds and bats depend on several factors, including species-specific behavior, turbine size, number of turbines, and turbine location, that limit the ability to estimate the collision risk without site-specific and project-level information. Project-level estimates of collision risk would require avian and bat use data to be collected over

multiple seasons (WTGAC 2010). Any prediction of mortality risk, even using the best current models, requires both site-specific and species-specific studies (Smales et al. 2013). There are numerous project-specific mortality reports available from existing operating wind projects in the Plan Area; however, these studies lack standardized collection methods, which limit their use in determining collision risk across the DRECP. Due to the programmatic scale of the DRECP, a project-level analysis of collision risk was not considered feasible.

The typical impacts associated with wind turbine collisions are described in Section IV.7.2. The DRECP assessment of collision impacts with wind turbines is provided based on: (1) an estimate of the distribution of wind turbines across the Plan Area for each alternative (based on DFA locations with wind resources), (2) the range of potential collision rates for bird and for bats (based on published collision rates for birds and bats) (described in Section IV.7.2.1.3), and (3) the proportion of generation expected to be wind.

Collision rates per MW of installed capacity were estimated for all birds from information compiled from current environmental permitting documents. The potential distribution of wind turbines and hence collisions across the Plan Area corresponds with the subarea-based estimate of wind generation described in Chapter II.3, Preferred Alternative. The collision rate estimates were calculated on a per-MW basis for birds and bats and multiplied by the anticipated MWs per acre (for example, an assumed collision rate of 0.75 birds per MW at an assumed acreage yield of 1 MW per 40 acres would yield and average of 0.75 bird collision per 40 acres. In addition, collision rate estimates for Covered Species were assumed for annual take of wind projects at full build out. These estimates provide an indication of relative expected take between different alternatives, technologies, and subareas.

Transmission Lines

The typical impacts associated with transmission line collisions are described in Section IV.7.2. Detailed collision rates for transmission lines in the Plan Area are not available. Therefore, the analysis of the likely effects of transmission line collision is based on the locations of expected new transmission development and the known distribution and movement patterns of bird and bat species. In particular, the analysis highlights the potential effects of new transmission lines on the migratory routes such as the pacific flyway, as well as local movement corridors for example between the Colorado River and the Salton Sea.

Solar Structures: Collisions, Solar Flux and Lake Effects

Solar troughs, photovoltaic arrays, heliostats and power towers, found in large solar generation facilities, pose a range of potential hazards for both bird and bat species. All structures are potential collision hazards, and the operation of power towers creates a solar

flux that concentrates energy that can injure aerial species. Further, reflective arrays and heliostats can mimic water bodies and cause behavioral changes resulting in collision for some avian species. The extent to which the operation of solar facilities is a risk depends by their location in relation to bird and bat foraging, nesting/roosting, and migration patterns.

The impacts of solar structures and their operation are discussed qualitatively in relation to the Covered Species. For the purpose of comparison between alternatives at the subarea scale, the distribution of solar generation ground disturbance in relation to the distribution of biological resources was used as a proxy for the magnitude and distribution of operation impacts associated with solar. For the purpose of analysis, the following assumptions were made when assessing the effects of solar structures on biological resources:

- Distribution and magnitude of effects for each alternative were estimated from the subarea-based estimates of solar ground disturbance, as described in Volume II. The extent of solar infrastructure is directly correlated with the extent of solar ground disturbance (i.e., more ground disturbance equates to more infrastructure; the areas that pose a risk of affecting bird and bat species is directly related to the amount of solar ground disturbance in a subarea). Therefore, the distribution effects between subareas is determined by the distribution of solar ground disturbance of the relevant technology.
- Analysis of solar structure impacts on biological resources were assessed based on the distribution of the bird and bat Covered Species (using the species distribution models) and migratory birds, and the distribution of solar thermal facilities.
- On a subarea basis, the analysis compares the distribution of bird and bat species and the proximity and amount of allowable solar facilities.

The Plan assumes that the application of avoidance and minimization CMAs for biological resources would result in the exclusion of renewable energy generation from sensitive areas within the DFAs. In addition, the Plan assumes implementation of general avoidance CMAs, and standard siting and design CMAs for birds and bats.

Estimated Take of Covered Avian and Bat Species by Operational and Maintenance Activities

Annual take by operational and maintenance (O&M) Covered Activities was estimated for Covered Species in each ecoregion subarea for full build out of all technologies. For the purpose of this analysis, full build out was assumed to have been completed by 2038 with a linear growth rate of facilities of four percentage points per year assumed for the first 24 years of the Plan (i.e., 2014 was assumed to have 4% of the take estimated for full build out, 2015—8% of the take, 2016—12% of the take, etc.). Take was assumed to be proportional to the quantity of generation as measured in MWs in each ecoregion subarea. Take

estimates were adjusted to account for both technology based factors and species-specific factors that were considered to be influential on the likely take of a given Covered Species.

All other factors being equal, the initial take for a typical solar facility of 100MWs (that would occupy about 710 acres) was assumed to be 1-2 individuals per bird Covered Species over the lifetime of the Plan. For wind the initial take for a 100 MW wind project was assumed to be 2-4 individuals per bird Covered Species. For bat Covered Species, take by solar was assumed to be similar to bird Covered Species, but for wind generation was assumed to be substantially higher at 10-20 individuals per bat Covered Species over the lifetime of the Plan. Take was then either increased or reduced based on assumptions about the likely distribution of generation, both between ecoregion subareas and within ecoregion subareas, and our understanding of the life history, behavior, known locations, and the location of movement and migration corridors for Covered Species. Covered Species were considered both individually and grouped into guilds defined by their primary habitat (i.e., wetland, riparian, agricultural and disturbed, and desert scrubs when modifying expected mortality).

The following rules and assumptions were then applied to modify expected take:

- Specific guilds of Covered Species were assumed to be more or less at risk from O&M activities. For example, generation projects were assumed to avoid riparian and wetland habitats; therefore, take of riparian bird Covered Species in most subareas were negatively weighted (i.e. the take of riparian bird Covered Species was viewed as less likely and reduced). Species ecology dictated positive or negative weighting to the range of potential take. In riparian bird Covered Species example, the exception to the assumption was for alternatives with DFAs near the Colorado River corridor, or where DFAs surround the New River and Alamo River in Imperial Valley, in these situations take of riparian bird Covered Species was assumed to be more likely and adjusted upwards.
- For solar, projects are more likely to be sited within agricultural, ex-agricultural and disturbed habitats, or in open flat undisturbed desert scrub habitats. Therefore, Covered Species associated with these habitats were assumed to be at greater risk over the life of the Plan. Consequently, estimates for burrowing owl, greater sandhill crane, Swainson's hawks and mountain plover were positively weighted (i.e., expected take was increased to account for the assumed siting bias).
- For wind, project locations are relatively limited and are likely to be sited in open topographically complex habitat like the eastern slopes of the Tehachapi Mountains, and on the slopes of the San Bernardino Mountains. For bird Covered Species associated with the West Mojave (e.g., tricolored black bird and Swainson's hawk), take by wind was positively weighted because of its expected distribution.

Elsewhere, the distribution of wind projects is limited to specific locations that may be particularly sensitive. For example, special weighting was given to alternatives that identified McCoy Valley, as a potential location for wind generation. Due to its location on both migratory corridors and is proximity to the Colorado River, take of riparian and wetland bird Covered Species was assumed to be higher.

- Geothermal has relatively few feasible locations for development, primarily in Imperial Valley. Depending on the alternative, particular consideration was given to the potential for geothermal to affect wetland and riparian species along the southern edge of the Salton Sea since this area is a location of considerable overlap between wetland bird Covered Species like the Yuma Clapper Rail and the California black rail and potential geothermal projects.
- Where known, migratory corridors or movement corridors for some bird Covered Species were considered sufficiently important to increase take estimates. For example, Yuma Clapper Rail movement between the Colorado River and the Imperial Valley was considered to be sufficiently frequent that it to increase the overall take for that species in the Cadiz Valley and Chocolate Mountains ecoregion subarea.
- For many bird Covered Species, such as burrowing owl and Bendire's thrasher, much of the Plan Area has been identified as potential habitat. For these Covered Species the locations of observation records were especially important, when considering the overlap with Covered Activities. In these cases, take was reduced in subareas that showed no recent observations.
- For bat Covered Species, no positive or negative weightings were identified to modify take estimates, since many of the known roosts fall outside of DFAs and specific CMAs address the siting of projects near roosting sites.

Using these rules and assumptions, the estimated range of Covered Species take per MW was adjusted and applied to each alternative for the analysis.

Lighting and Night Lighting

Operational impacts may occur beyond the boundaries of the project area or above a project area, including potential impacts from lighting and night lighting. The impact mechanisms for lighting and night lighting may attract or repel wildlife. In these two instances, the effects extend beyond the boundaries of a project. In the same way that the exact locations of projects within DFAs are unknown, the extent of these operational impacts is also unknown. Topography and other environmental factors make it difficult to accurately estimate these wider area effects for the geographic size and environmental variation that exists in the Plan Area. Analysis of these impacts focuses on a discussion of the potential effects and the relative distribution of impacts between subareas. The relative

magnitude of impacts expected in each subarea corresponds with the amount of development occurring in each subarea.

- Analysis of impacts from aircraft warning lights was confined to assessing the relationship between the distribution of bird and bat species, as defined by the species habitat models, and the distribution of wind turbines and solar power towers, as described by the ground disturbance.
- The effects of night lighting are discussed with particular emphasis on species for which there is documented evidence of behavioral changes as a consequence of night lighting. It was assumed that all technologies would require night lighting for their primary production areas (generation facilities, operations and maintenance areas, substations, etc.). The overall distribution of night lighting was based on the ground disturbance footprint. For the purpose of analysis, all technologies were analyzed together to provide a single assessment of night lighting effects for each alternative.
- The analysis of polarized light pollution and water-mimicking effects compared the distribution of solar generation at the subarea level with the distribution of birds, as defined by the distribution of species and migration routes through the Plan area.

Dust and Dust Suppression

Some impacts may result in effects beyond the boundary of a project, including the effects of dust and dust suppressants that are often dispersed beyond project boundaries by wind and water conveyance. For this analysis, dust and dust suppression activities are generally considered to repel wildlife and result in adverse effects for plants and natural communities. In the same way that the exact locations of projects within DFAs are unknown, the extent of these wider area impacts are also unknown. Factors such as topography and local prevailing winds make it impossible to accurately estimate the extent of these wider area effects for the geographic size and environmental variation that exists in the Plan Area. Analysis of these impacts includes a discussion of the potential effects and the relative distribution of impacts between subareas. The relative magnitude of impacts expected in each subarea was estimated by using the acreage of ground disturbance as an indicator of the generation of dust from Covered Activities and use of dust suppressants.

Dust emission rates within the Plan area have been observed to fluctuate from daytime to nighttime and throughout different parts of the year (Goossens and Buck 2011). Natural factors including the surface type and soil composition, wind speed, soil moisture content, and depth of the groundwater table can lead to substantial variations in the amount of dust emitted (Reynolds et al. 2007). Human factors such as disturbance of soils can also cause substantial amounts of dust and can even become the primary source of dust emissions in certain areas (Goossens and Buck 2011). Research has described the mechanisms of dust

transportation and developed methods to quantify dust emissions from some human activities, such as off-road vehicle use, that require detailed information characterizing the extent of the human activities as well as specific environmental factors. However, due to the variability in project-related activities, environmental conditions, and location of sensitive natural communities and species' modeled habitats, the site-specific details that would be required for quantitative projection of dust creation are not available for the magnitude and variation that exists within the Plan Area. Therefore, impacts from dust are qualitatively described in relation to the sensitivities of each biological resource and the location of potential dust emissions as a result of Covered Activities. For the purpose of comparison between alternatives at the subarea scale, the following assumptions were made when assessing the effects of dust on biological resources:

- The distribution of dust generation at a subarea scale would be similar to the distribution of ground disturbance effects, where the change in dust emissions due to Covered Activities would likely be concentrated.
- The use of dust suppressants (discussed below) that would reduce dust effects were assumed to apply to Covered Activities.
- Analysis of dust impacts was based on the relationship between renewable energy facilities and the distribution of the dust-sensitive landscapes, landforms with a greater propensity for dust deposition, as well as the distribution of natural communities and Covered Species. This comparison was qualitatively compared on a subarea level.
- The effect of dust was evaluated with particular emphasis on landscapes, as well as plant species and natural communities, for which there is documented evidence of dust impacts from operation of renewable energy facilities. The severity of these impacts was assumed to be similar in proportion to that described in the available research and information.

The analysis of biological resource impacts was primarily at the landscape scale. For example, the geographic distribution of operational dust generated by vehicles at wind facilities was related to the biological resources known to be affected by the dust in the ecoregion subareas.

For each technology, the variations in dust suppression impacts associated with specific Covered Activities are qualitatively described in relation to the sensitivities of each biological resource. For the purpose of comparison between alternatives at the subarea scale, the distribution of dust suppressant impacts is assumed to be directly related to the proportional distribution of impacts to biological resources described for ground disturbance.

For the purpose of analysis, the following assumptions were made when assessing the effects of dust suppressants on biological resources:

- The distribution of dust suppressant effects between subareas would be similar to the distribution of ground disturbance effects.
- Given that responses to dust suppressants used during operation could vary considerably due to suppressant chemical formulation and site-specific details, the effects analysis was limited to a discussion of the potential natural community level response to potential dust suppressant impacts.
- For each subarea, the analysis compared the likely natural communities that operational applications of dust suppressants could affect at sites expected to have renewable energy facilities.

The analysis of biological resource impacts is conducted primarily at the natural community scale and assumes that impacts are similar to those described in the available information.

Noise

Equipment may generate noise and vibration that repel wildlife from the source of the noise. Noise effects may extend beyond the project boundaries as well. In the same way that the exact locations of projects within DFAs are unknown, the extent of these operational impacts is also unknown. Environmental factors such as variable topography and soils make accurate estimation of the extent and location of these wider area effects difficult for the scale of the Plan Area. Analysis of these impacts focuses on a discussion of the potential effects and the relative distribution of impacts between subareas. The amount of development occurring in each subarea is assumed to correspond with the relative magnitude of noise impacts.

The inherent variability in the technology type, location of noise sources on project sites in relation to species habitats, the sensitivity of different biological receptors, and the diversity of other environmental factors that can significantly affect noise propagation (e.g., topography and vegetation) pose substantial challenges in determining technology- and project-specific noise impacts on wildlife. Currently, consistent quantitative methods to monitor biological impacts from operational noise at renewable energy facilities are not in place. Therefore, data that furnish a meaningful measure of noise impacts for a diverse range of project sites and sensitive receptors are not available. Consequently, noise-related impacts for Covered Activities are qualitatively described in relation to the sensitivities of each biological resource. For the purpose of comparison between alternatives at the subarea scale, the distribution of noise impacts is assumed to be directly related to the proportional distribution of

impacts to biological resources described for ground disturbance impacts. In this analysis, the following assumptions were made when assessing the effects of noise on biological resources:

- The distribution of the sources of noise effects between subareas would be similar to the distribution of ground disturbance from renewable energy development, where the increase in noise from Covered Activities would be likely be concentrated.
- The application of CMAs for siting and standard practices that would reduce noise effects. These include vehicle speed limits, strategic placement of access roads away from suitable habitat, as well as standard shielding and enclosures for noise generating equipment.
- Analysis of noise impacts assessed the relationship between the distributions of the noise-sensitive species, as defined by the distribution of species, and the distribution of likely renewable energy facilities between different subareas.
- The effects of operational noise are evaluated with particular emphasis on the species for which there is documented evidence of behavioral impacts as a consequence of noise.
- The comparison analysis of likely species that would be affected by operational noise was performed at the subarea level in relation to the distribution of renewable energy facilities.

Evaporation and Cooling ponds

Analysis associated with evaporation and cooling ponds focused on the likely impacts to species and assessed the likely significant areas where ponds may have the most impacts within the Plan Area. The analysis of typical impacts was based on information available from current monitoring programs for existing generation facilities, used in conjunction with existing published information relating to net entanglement and salt toxicosis. Assuming that the distribution or evaporation ponds was closely associated with the distribution of solar facilities, their likely extent and locations were inferred from the distribution of operational impacts.

Fire and Fire Management

Fire

For analysis purposes, fire events were treated as natural community level impacts, which included Covered Species habitat within those communities. The natural communities within the Plan were grouped by communities that are generally more resilient to varying fire regimes and those generally less resilient to changes in the frequency or intensity of fire

events. Natural communities and land covers were divided according to their ecological resilience to fire as follows:

- Non-native or disturbance related land covers (i.e., rural/disturbed areas and agriculture): areas that exhibit little ecological change as a consequence of fire
- Fire-resilient natural communities: Natural communities that can adapt to a wider range of fire regimes before experiencing degradation of permanent conversion to a different community type.
- Non-resilient natural communities: Natural communities for which fire was historically a rare event in the ecological cycle and/or which have a limited capacity to adapt to changes in fire frequency or intensity. Natural communities that are not historically resilient to fire may take decades to recover and are highly susceptible to invasive non-natives.
- Indeterminate natural communities: Natural communities for which the role or effect of fire is not clearly defined or understood.
- Not Applicable (N/A): Natural communities for which fire resilience is not relevant (e.g., open water bodies)

Table IV.7-1 categorizes the natural communities as fire resilient, non-resilient, and indeterminate. Desert scrub, desert woodland and riparian communities were identified as being the least fire adapted; that is, more likely to undergo type conversion and be less resilient to invasive non-native species with increased fire frequency and/or intensities. California woodland and chaparral communities were identified as generally fire resilient.

In the analysis, each community group is discussed in relation to the overall subarea distribution of communities in the DFAs.

Table IV.7-1
List of Fire Resilient and Non-Resilient Natural Communities

Fire Resilient	Fire Non-Resilient
Californian broadleaf forest and woodland	Arid West freshwater emergent marsh
Californian mesic chaparral	Arizonan upland Sonoran desert scrub
Californian montane conifer forest	Californian warm temperate marsh/seep
Californian montane conifer forest	Intermontane deep or well-drained soil scrub
Californian montane conifer forest	Intermontane seral shrubland
Californian pre-montane chaparral	Inter-Mountain Dry Shrubland and Grassland
Californian xeric chaparral	Intermountain Mountain Big Sagebrush Shrubland and steppe
Central and south coastal California seral scrub	Lower Bajada and Fan Mojavean - Sonoran desert scrub

Table IV.7-1
List of Fire Resilient and Non-Resilient Natural Communities

Fire Resilient	Fire Non-Resilient
Central and south coastal Californian coastal sage scrub	Great Basin Pinyon - Juniper Woodland
	Madrean Warm Semi-Desert Wash Woodland/Scrub
Agriculture, Developed and Disturbed	
Agriculture	Madrean Warm Semi-Desert Wash Woodland/Scrub
Developed and Disturbed Areas	Mojave and Great Basin upper bajada and toeslope
Rural	Mojavean semi-desert wash scrub
	North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat
Indeterminate	North American warm desert bedrock cliff and outcrop
California Annual and Perennial Grassland	North American warm desert bedrock cliff and outcrop
California annual forb/grass vegetation	North American warm desert dunes and sand flats
Western Mojave and Western Sonoran Desert borderland chaparral	Riparian
	Shadscale - saltbush cool semi-desert scrub
N/A	Sonoran-Coloradan semi-desert wash woodland/scrub
Open Water	Southern Great Basin semi-desert grassland
Playa	Southwestern North American alkali marsh/seep vegetation
	Southwestern North American riparian evergreen and deciduous woodland
	Southwestern North American riparian evergreen and deciduous woodland
	Southwestern North American riparian/wash scrub
	Southwestern North American salt basin and high marsh
	Southwestern North American salt basin and high marsh
	Wetland

Source: Sawyer et al. 2009

Fire Management

In addition to the effects of fire, the effects of fire management may result in changes to natural communities. Fire management may involve many measures designed to reduce the risk of fire ignition and spread. Many of these activities would be expected to have little or no direct adverse impacts resulting from their implementation (e.g., requirement of spark arresters, design features to reduce the chance of accidental ignitions, etc.), but would reduce the risk of fire when applied. Analysis of fire management activities was confined to those activities that may result in ground and/or vegetation disturbances that could adversely affect biological resources. Such activities include fuel management and

maintenance of fire breaks and installation of permanent on-site emergency water tanks. Related management activities such as fire patrols are assessed as part of the increased human disturbance section below. The effects and mechanisms by which fire patrols would impact biological resources (e.g., use of vehicles, leading to potential collisions with wildlife, introduction of exotic plants, etc.) are effects that are identical to the other maintenance activities associated with projects.

The following approach was used in analyzing the distribution and magnitude of fire management impacts:

1. Two activities were analyzed for fire management purposes:
    a. The use of fuel and fire breaks. The construction and management of fire breaks increase the likelihood and spread of non-native species as a consequence of reducing native cover and introducing human activity into otherwise untouched areas (Merriam et al. 2006).
    b. Vegetation modification for transmission facilities. For the purpose of analysis, management activities associated with vegetation clearing would adhere to CPUC General Order 95 that requires utilities to maintain set clearances between encroaching vegetation and transmission lines.
2. The prevalence of each fire management activity for each technology was assessed and the consequence of the fire management activities on fire-resilient and fire non-resilient communities was discussed in the context of each alternative.
3. The installation of water towers, watch towers, and other facilities that may be needed, especially for remote sites, were factored into ground disturbance estimates and would result in little or no additional impacts.

Increased Human Presence

Increased human presence impacts result as a consequence of many different Covered Activities associated with the operational activities of renewable energy and transmission facilities. Impacts result from any activities that require the ongoing presence of work personnel and their associated vehicle and equipment operation. Increased human presence may impact landscapes, natural communities, and Covered Species through several different mechanisms, and may be viewed as a long term low-level impact.

The effects of human presence on biological resources were already discussed in relation to noise, lighting, and dust effects impacts. For the purpose of this analysis, human presence effects specifically refer to activities that may result in behavior changes, mortality, injury, or harassment that occur either directly or indirectly as a consequence of contact with humans. This could involve several different mechanisms, including but not limited to

vehicle collisions, avoidance behavior, collecting, disease (e.g., canine distemper), subsidized predators and pesticide use.

Human presence impacts may occur throughout the entire Project Area, but the relative intensity or frequency will vary depending on the type and level of human activities. Generation facilities, operational buildings, and substations would be areas of high intensity, daily usage, such as relatively frequent vehicle trips that increase collision risks, landscape maintenance, etc. Other facility components, for example, transmission lines, fencing, culverts, and ditches, may receive infrequent inspection and maintenance on the order of 1 or 2 visits per year, and thus pose a relatively low risk of human presence effects. Included in human presence effects are biological surveys and monitoring activities that themselves could increase regular human presence in areas that would otherwise remain undisturbed.

The inherent variability in the technology type, location of human presence on renewable energy sites, the sensitivity of different biological resources, and the diversity of environmental factors present substantial challenges for determining specific impacts on wildlife and plants. Consequently, human presence-related impacts for Covered Activities are qualitatively described in relation to impacted biological resource. For the purpose of comparison between alternatives at the subarea scale, the distribution of human presence impacts was assumed to be directly related to the distribution of operational activities. For wind, operational impacts from increased human presence were considered to affect an area equivalent to 25% of the total project area. For solar and geothermal, operational impacts from increase human presence were considered to affect the project area, which is also equivalent to the ground disturbance area. For transmission, operational impacts from increased human presence were considered to affect the right-of-way area.

IV.7.1.1.3 Reserve Design Impacts

This section provides the methods used to analyze the impacts of the reserve design envelope, which provide a beneficial effect for biological resources. The reserve design impacts section of each alternative serves as the conservation analyses for the landscape features and ecological process-related resources, natural communities, and Covered Species.

As described in Volume II, a DRECP Plan-Wide Reserve Design Envelope comprised of Reserve Design Lands has been developed for each alternative based on the reserve design process, summarized in Section I.3.4.4 and detailed in Appendix D. The reserve design envelope identifies important areas for conservation in available lands (i.e., the entire Plan Area excluding military lands, BLM Off-Highway Vehicle open areas, and tribal lands) outside existing protected areas needed to meet Plan-wide Biological Goals and Objectives (BGOs; see Appendix C) for landscape features and processes, natural communities, and Covered Species. The DRECP Plan-Wide Reserve Design Envelope for

each alternative is comprised of existing conservation areas, BLM LUPA conservation designations, and Conservation Planning Areas.

To evaluate the DRECP Plan-Wide Reserve Design Envelope for each alternative, the Reserve Design Lands in each alternative were compared to the reserve design envelope developed through the reserve design process described in Volume I, Section I.3.4.4. Conservation percentages, as described below and in Appendix S, assigned for the purpose of quantifying conservation in the Reserve Design Lands, were not used in this gross evaluation of the reserve design. This evaluation provides a quantitative assessment of the geospatial configuration of the Reserve Design Lands in each alternative relative to the reserve design envelope. An evaluation of the reserve design envelope for specific landscape elements and processes, natural communities, and Covered Species is provided in the conservation analysis for those resources.

For the purpose of quantifying the conservation of resources within reserve design envelope for each action alternative, the Reserve Design Lands components were assigned a conservation percentage (see Appendix S). Resources within each component of the Reserve Design Lands were assumed conserved at a level consistent with the assigned conservation percentage. The conservation percentages were used only to facilitate the conservation analyses and represent a reasonable assumption related to the level of conservation that could be expected in the Reserve Design Lands. For all analyses of the conservation of resources at the landscape, natural community, and Covered Species levels, the acreages reported within Reserve Design Lands were calculated using the assigned conservation percentages.

For the No Action Alternative, existing conservation includes Existing Protected areas (i.e., LLPAs and MEMLs) and existing BLM land use plan conservation designations (i.e., ACECs). There are no proposed BLM LUPA conservation designations and there are no Conservation Planning Areas for the No Action Alternative. Conservation percentage assumptions have been applied to Existing Protected areas and existing BLM land use plan designations as described in Appendix S. Mitigation for planned or future renewable energy and transmission development under No Action is assumed to occur on a project-by-project basis but is not quantified or located geographically in the analysis; however, nonfederal inholdings within BLM LUPA conservation designations could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative and are quantified in the analysis.

The conservation analysis is organized at three levels:

- Landscape Conservation Analysis: At the landscape level, the conservation analysis focuses on landscape features and ecological process-related resources, including habitat linkages (using the Desert Linkage Network design), environmental

gradients (i.e., elevation, landform, slope, and aspect), dunes and sand resources, and hydrological resources (e.g., playa, seep/spring, and major rivers).

- Natural Communities Conservation Analysis: The conservation analysis for natural communities presented in this section includes analyses at both the general level and the natural communities level.
- Covered Species Conservation Analysis: The species-level conservation analysis addresses all Covered Species. At the species level, the analysis focuses on each species' modeled suitable habitat and other species-specific analyses. Analysis of conservation for Non-Covered Species is also provided.

IV.7.1.2 CEQA Standards of Significance

In determining whether an impact to a biological resource is significant under CEQA, the following standards from Appendix G of the CEQA Guidelines (Cal. Code of Reg., title 14, sections 15000–15387) were consulted and used in making CEQA significance determinations:

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

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

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

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

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

IV.7.2 Typical Impacts Common to All Action Alternatives

This section describes the typical impacts of renewable energy and transmission development, typical impacts of the reserve design, typical impacts of BLM Land Use Plan decisions, and typical impacts of the Natural Community Conservation Plan and General Conservation Plan. This is an overview intended to describe the type of impacts to biological resources that would be expected from implementation of the DRECP. Section IV.7.3 describes alternative-specific impact analysis for biological resources.

IV.7.2.1 Impacts of Renewable Energy and Transmission Development

An overview of the typical impacts to biological resources from renewable energy and transmission development is provided below, which includes a description of site characterization impacts, construction and decommissioning impacts, and operations and maintenance impacts.

IV.7.2.1.1 Impacts of Site Characterization

Site characterization includes any type of assessment conducted to determine whether a site is suitable for the development of renewable energy or transmission. A full description of the site characterization activities associated with all Covered Activities is provided in in the description of Covered Activities provided in Section II.3.1.4 (Overview Description of Covered Activities). Site characterization impacts include would result from a range of site surveying and testing activities conducted prior to project construction, including installation of MET (meteorological) towers, geotechnical studies, biological studies, and other suitability assessments. Site characterization impacts are assumed to occur in DFAs for solar, wind, and geothermal and in DFAs or transmission corridors for transmission. Site characterization impacts would result in similar impacts to biological resources as is discussed below for construction and decommissioning but would be relatively limited in extent and magnitude, including impacts associated with accessing and traversing the site, bore construction, tower installation, or other similar activities.

IV.7.2.1.2 Impacts of Construction and Decommissioning

Typical impacts associated with the construction and decommissioning of the renewable energy generating and transmission projects include modification/disruption of ecological processes, removal or alteration of natural communities, and the loss of species or their habitat. A full description of the construction and decommissioning activities associated with all Covered Activities is provided in in the description of Covered Activities provided in Section II.3.1.4 (Overview Description of Covered Activities). These impacts often result from ground disturbance activities associated with the construction or decommissioning of these projects. All ground disturbance impacts are considered long-term. Short-term

impacts to biological resources also result from construction activities or decommissioning activities during these phases of projects.

Activities related to the construction and decommissioning of renewable energy projects may cause the direct mortality of wildlife and plant species. Subterranean or burrow-dwelling species are most susceptible to direct mortality from ground disturbance. In the Sonoran Desert in California, Cowles (1941, cited in Lovich and Ennen 2011) notes that most reptiles hibernate at relatively shallow depths. Vehicular activities related to construction and decommissioning could cause the direct mortality or entrapment of subterranean animals (Lovich and Ennen 2011). Direct mortality is anticipated to be less of a threat to larger, more mobile wildlife species and birds. See below for a discussion of wildlife mortality associated with roads.

Construction and decommissioning activities can cause the destruction and modification of habitat for plant and wildlife species. The removal of vegetation to construct access roads and build the infrastructure associated with Covered Activities would result in the loss of natural communities and habitat for plant and wildlife species. Ground disturbance during construction and decommissioning effects undermine the stability of soil aggregates and biotic crusts leading to greater potential for erosion; increase can also affect soil density and decrease the inversely related rate of water infiltration, thus cutting off water supplies to plant roots; and promote secondary plant succession (plant growth following a disturbance event), including invasion by exotic plant species. These factors all contribute to habitat quality for native wildlife and plant species. Therefore, alteration of these factors, singularly and in combination, can affect the ability of an area to support native plant and wildlife species. An increase in soil erosion can physically and physiologically affect plant primary production and food availability for wildlife (Lovich and Ennen 2011). Habitat destruction and modification are expected to affect all wildlife species, but may have a more pronounced effect on species of limited distribution or habitat specialists. Species with greater mobility, such as birds and large mammals, may be less affected by habitat removal in a specific area than smaller mammals, amphibians, and reptiles.

Construction and decommissioning can also alter the hydrologic regime of the area subject to ground disturbance. Vegetation removal and topographic alternations affect drainage patterns intended to divert surface flow away from renewable energy facilities. Channeling runoff away from plant communities decreases water availability and can negatively affect habitat quality (Lovich and Ennen 2011). Areas with diverted surface flow support less biomass of both annual and perennial plants compared to adjacent areas with undisturbed water surface flow (Shlesinger et al. 1989, cited in Lovich and Ennen 2011). Less biomass influences the wildlife shelter and forage. In addition, it may precipitate a change in vegetation structure and/or composition that may alter and/or limit the suite of wildlife species that can use that area.

The construction of roads is an important part of the infrastructure supporting renewable energy development. Both paved and unpaved roads have documented negative effects on wildlife. Roads contribute both to direct morality of wildlife species from road kill and more indirect effects from the presence of traffic and introduction of invasive species. (Brooks and Lair 2005; Lovich and Ennen 2011). In a study documenting the effects of roads on Agassiz's desert tortoise, for example, fewer tortoises and less tortoise sign were found near roads than were found farther away from roads. Roads with high traffic volumes had reduced tortoise sign up to 4,000 meters (2.49 miles) from the road (von Seckendorff Hoff and Marlow 2002, cited in Lovich and Ennen 2011). On the other hand, vegetation and arthropod herbivores tend to increase along roads, perhaps because of the increased runoff from the impervious pavement or compacted soil. The more dense or larger vegetation and greater prey availability directly adjacent to roads may attract more wildlife, including Agassiz's desert tortoise, making them more susceptible to vehicle strikes (Lovich and Ennen 2011). Small mammals, amphibians, and reptiles would be more susceptible to the effects of roads than would more mobile larger mammals and aerial species (i.e., birds and bats).

Construction of renewable energy and transmission projects has the potential to impact wildlife movement across the landscape and result in habitat fragmentation effects and population isolation. Impacts from Covered Activities on wildlife movement can result from the loss of terrestrial habitat in movement areas or linkages and from the effects of the operations of Covered Activities on wildlife movement. These effects can adversely impact species through limiting dispersal and genetic exchange, limiting movement within a population for wide-ranging species, and limiting or impairing the ability of species to respond to the effects of climate change (Groom et al 2006). Groom et al (2006) define habitat fragmentation as a reduction in area covered by a habitat type in a landscape and/or a change in habitat configuration resulting in less habitat area or more isolated habitat patches. In addition to the direct loss of habitat, the effects of habitat fragmentation include crowding of remaining habitat areas, reduction of biodiversity in remaining habitat areas, population isolation, edge effects, species invasions, and alteration or degradation of ecological processes.

Siting, construction, and decommissioning can also result impacts to biological resources that are limited to these discrete project phases, including construction/decommissioning dust and dust suppression impacts, construction/decommissioning noise impacts, construction/decommissioning lighting, construction/decommissioning introduction of invasive plants, construction/decommissioning subsidized predators, and construction/decommissioning human presence. The typical impacts associated with these activities would occur throughout operations of Covered Activities and are described further below in Section IV.7.2.1.3.

IV.7.2.1.3 Impacts of Operations and Maintenance

Dust and Dust Suppression

Dust

Operation and maintenance of renewable energy facilities can produce dust that could have negative effects on natural communities and Covered Species. Dust may be generated from bare and disturbed soils where vegetation removal, grading, and other site preparation activities have occurred. Disturbed soils are prone to wind erosion and creation of dust from ground disturbance related to human activities (Lovich and Ennen 2011). Similarly, the operation of vehicles on both graded roads and on off-road soils would produce fugitive dust emissions (Brooks and Lair 2005). Other human activities that alter hydrologic processes and soil moisture content can cause the formation of different surface land covers that are more susceptible to the creation of dust from wind erosion (Reynolds et al. 2007).

Operational activities associated with renewable energy development located in the Plan Area, including operation of vehicles on dirt roads and on off-road soils, earthwork activities for the maintenance of roadways and other facilities, as well as vegetation clearing would produce fugitive dust. However, the specific impacts and the severity of impacts from dust generation would vary considerably at the project level. The principal immediate impact is soil loss, which also results in loss of soil fertility as the most fertile layer of soil is in the topsoil. Dust-related impacts from Covered Activities would generally be less severe with distance from the dust source as the concentration of dust from dispersal and deposition of atmospheric dust decreases away from the source. The magnitude of alteration to the ground surface for development of renewable energy facilities will vary in relation to the difference in the size of foundations and amount of access roads needed for each technology. The type of activity that disturbs soils also will affect the amount of dust generated. Quantitative relationships for dust emissions from vehicle use have shown that the greater the weight of the vehicles, vehicle speed, and frequency of use would cause larger amounts of fugitive dust than operations that only require minimal vehicle activity (Goossens and Buck 2009).

Region-specific climatological and site-specific environmental variables, including precipitation patterns, topography, and wind speed, also influence the amount of dust transport resulting from otherwise similar activities. Areas of consistently high wind speeds caused by topographic features may result in larger amounts of fugitive dust from naturally occurring and disturbed soils than areas with lower wind speeds on average (Reynolds et al. 2007). The type of land surface and composition of soils also can change the potential for dust emissions resulting from both naturally occurring wind erosion and human disturbance. Silt, clay, and desert pavement surface have been shown to create

higher dust emissions when disturbed by vehicles, while lower emissions have been found to occur from vehicle disturbance of uncrusted sandy surfaces, gravel, and bedrock (Goossens and Buck 2009). Additionally, due to surface evaporation of groundwater wet playas in the Mojave Desert have been found to create soft surfaces prone to wind erosion, while dry playas can create hard-packed crusts that produce less dust from wind erosion (Reynolds et al. 2007).

These region-specific environmental factors may also dictate the location and type of effects that result from dust. Different environmental factors such as prevailing winds may transport fugitive and concentrate its effects in one particular compass direction, while higher precipitation patterns can concentrate deposition of atmospheric dust in particular locations through rainwater. Contrasting land features can also result in varying dust deposition and dust effects. Mountaintop and bench landforms that have smooth surfaces and gentle slopes retain less dust than mountain-flank and mountain-base landforms that have rough surfaces and microsites between surface clasts (Hirmas and Graham 2011). Furthermore, appropriately selected dust suppressants (discussed earlier and further below) can effectively reduce the amount of dust generated by human activities and exposed soils (Beighley et al. 2009). The application of dust suppressants is a common management practice for renewable energy development. The extent to which dust suppressants are applied, their effectiveness and potential impacts in site-specific environments may also be different for similar Covered Activities.

Human activities that disturb soils can directly emit dust and create disturbed soils that are susceptible to wind erosion, which can cause direct physical effects to plants including root exposure, burial, abrasion of plant tissue, and leaf stripping. These injuries have been shown to lead to reduced plant growth and mortality. Soil erosion from wind and human activities can affect biogeochemical processes, including plant germination that relies heavily on nutrients and water located in the topsoil. Deposition of fugitive dust from wind erosion or human activities also reduces photosynthesis and net primary productivity and can alter water usage by Mojave Desert shrubs (Lovich and Ennen 2011). Increased dust emissions from Covered Activities can affect sensitive native plant species biogeochemically, thus reducing their environmental fitness and creating conditions that enhance the growth of more robust invasive plant species. At the natural community level, the effects of dust as a result of Covered Activities could result in rapid changes in ecosystem structure from reduced soil fertility and net primary productivity.

Dust Suppression

The application of dust suppressants is a standard industry management practice to reduce fugitive dust as the consequence of operation and maintenance (and construction) activities at renewable energy project sites. The application of dust suppressants includes

water spraying and the use of chemical or biochemical agents, would be undertaken on an as needed basis and is included as a Covered Activity in the Plan. Typical dust suppressants include application of water, salts and brines, organic nonpetroleum products, synthetic polymers, organic petroleum, electrochemical substances, clay additives, and biologically generated polymers as well as mulch and fiber mixtures to exposed soils (Lovich and Ennen 2011).

The type and amount of dust suppressants used varies depending on technology type, amount of exposed soils, type of activities occurring on exposed soils, and other climatological considerations. Some suppressants such as water and magnesium chloride have limited effectiveness in desert ecosystems. Additionally, the little publicly available research has been equivocal in identifying specific concerns on the use of dust suppressants due to the high amount of variability associated with site conditions, chemical composition of dust suppressants, and application techniques (Piechota et al. 2004). These same factors can also influence the range and intensity extent of dust suppressant effects after suppressant application. Erosion from stormwater runoff can transport dust suppressants applied to exposed soils. The effects of dust suppressants can extend beyond the area in which they are applied and thus potentially outside of the project area. Chemicals in surface water from dust suppressants may be released to sediment through deposition and sorption), to biota through uptake, to surface water through runoff, and into the air through volatilization. Dust suppressant chemicals in the air may subsequently be deposited on sediment and in surface water through wet or dry deposition (Steevens et al. 2007).

The use of dust suppressants may also have detrimental effects on wildlife and adjacent vegetation through potential alteration of surface hydrology. Particular dust suppressants such as synthetic polymers and organic petroleum products can affect the infiltration of water into the soils where they are applied. Increased stormwater runoff and changes to peak stormwater runoff resulting from the application of dust suppressants can change hydrologic functions in an area, modify soil erosion and deposition rates, and can alter biological resources that rely on the existing hydrologic pattern. However, dust suppressants have been shown to have a low probability of adversely affecting water quality from runoff (Beighley et al. 2009).

Increased pollutant and toxicant loads may also result in runoff. Concerns about hazardous chemicals such as vinyl acetate polymers used in dust suppressant formulations has prompted the US Army Corps of Engineers to research alternatives for soil binders such as biopolymers of sugar molecules created by fungi under laboratory conditions (Larson et al. 2012). The chemical composition of many dust suppressant formulations may not be readily available to land managers because the formulations are proprietary information. Consequently, detailed descriptions of environmental impacts from the suppressants

themselves may be difficult to characterize. Dust suppressants such as salts and brines, electrochemical substances, and organic mixtures can have subsequent environmental impacts on water and soil quality when present in sufficient quantities (Piechota et al. 2004). These potential hydrologic and chemical changes could reduce the viability of plants and wildlife in affected areas through the spread of harmful chemicals and increased salinity (Lovich and Ennen 2011; Beighley et al. 2009). The application of dust suppressants such as salts and brines can have herbicidal characteristics resulting in chemical and physical changes that can reduce vegetation. These effects vary due to the different tolerances of plants to the different chemical formulations of dust suppressants.

Ecological receptors most likely to come into contact with soil stabilizing dust suppressants are those that are immobile or have limited mobility such as plants and soil invertebrates. Lizards and other burrowing desert organisms could be exposed through inhalation of volatile compounds or through dermal contact with particles derived from the dust stabilizers (Steevens et al. 2007). Wildlife biologists have expressed concern regarding the potential long-term toxicity effects of some dust suppressants directly on sensitive species. However, the immediate impacts would be to water quality due to the increased suspended solids and chemicals from dust suppressant application that flow to water bodies and drainage areas through stormwater runoff (Lovich and Ennen 2011). The potential negative biological impacts from negative effects of increased pollutant loads and degradation of water quality resulting from application of dust suppressants would primarily be to fish Covered Species, and to wetland and riparian natural communities that support several Covered Species. The scant research to date has shown that there is a low probability of dust suppressants adversely impacting water quality (Beighley et al. 2009). Generally, land managers have high uncertainty about the types and intensity of impacts from dust suppressants.

Fire and Fire Management

Fire

The majority of plant communities within the Plan area are not fire adapted. The desert scrub communities of the Mojave and Colorado deserts are adapted to less frequent, lower intensity fires. Fire was historically uncommon in these regions (Brooks and Esque 2002), and the native vegetation types exhibit generally low productivity and fuel levels, with fire fuels derived primarily from winter annuals (Brooks and Minnich 2006). Consequently, desert scrub communities are naturally slow to recover from fire episodes and are more vulnerable to proliferation of non-native grasses that, themselves, can create a positive feedback loop of increasing fire frequency and intensity, resulting in significant and potentially permanent community type conversion (Brooks and Chambers 2011). In contrast, chaparral, and to a lesser extent forest communities in the Plan area, are adapted

to periodic fires that remove senescent biomass, induce new growth, and induce the growth of dormant seeds and plants (Hanes 1971; Keely and Zedler 1978). Such communities are relatively fire resilient, providing the disturbance is not too frequent, because their dominant woody vegetation can quickly recover, overtop, and out-compete invasive grasses (Brooks and Chambers 2011).

The response of each group of communities may be qualitatively different to increased fire frequency and/or intensity. Desert scrub and other desert communities may take decades to recover, or may enter into a fire/grass cycle, whereby non-native grasses colonize an area and provide the fuel necessary for the initiation and propagation of further fires in which alien species outcompete natives species (D'Antonio and Vitousek 1992, cited in Brooks and Chambers 2011). Conversely, chaparral communities can quickly exhibit regrowth of native species, although they too are susceptible to invasive non-natives if increasingly subjected to frequent and/or intense fires. The introduction of non-native plants that rapidly colonize newly cleared land may affect the successional cycle of both fire-adapted and fire-sensitive communities, leading to permanent community conversion.

Flammable invasive annual plants have become established in much of the southwestern deserts, and coupled with increased anthropogenic ignitions, fire has become more common in the deserts and has adversely affected wildlife (Esque et al. 2003). Fire-caused conversion of dominant vegetation communities can drastically affect plant and animal habitats and can adversely affect the distribution and abundance of many species, including Covered Species that are specifically adapted to desert ecosystems (Lovich and Ennen 2011).

Fire Management

Fire breaks are used in limited cases to maintain defensibility of facilities in certain fire-prone areas. Such activities are usually in areas with high fuel load vegetation communities such as chaparral and woodland communities. Generally, fire breaks have not been required around the disturbance footprint of renewable energy or transmission projects in desert natural communities.

Construction and maintenance of fire breaks has the potential to result in the removal of vegetation from woodland, chaparral and grassland natural communities. Such activities may introduce non-native invasive species into otherwise undisturbed native natural communities. The introduction of breaks may effectively suppress the ability of woody native plants or native grasses to outcompete invasive grasses, and consequently increase the susceptibility of these communities to invasive species. The overall susceptibility of breaks to invasive non-native species depends upon the method of clearance used in establishing and maintaining the break (Merriam et al 2006). The use of aggressive mechanical clearance methods can result in increased exposure of top soil and subsequent greater proliferation of non-native plants when compared to hand-cleared breaks.

Introduction of Invasive plants

Invasive exotic species have a significant impact on the natural communities of the California deserts. Some of the major invasive plants are saltcedar (*Tamarix ramosissima*), also known as tamarisk, Russian thistle (*Salsola iberica*), filaree (*Erodium cicutarium*), and several grass species including split grass (*Schismus* spp.) and bromes (*Bromus* spp.) (Brown and Minnich 1986; Hunter 1991). Invasive plants cause two problems for desert ecosystems. First, exotic annuals increase the fuel load and the frequency of fires in plant communities that are poorly adapted to fire. Second, exotic plants may induce allelopathic effects, which hinder the growth or establishment of other plant species.

Existing populated and agricultural areas may act as source populations for exotic species. Roads promote the spread and establishment of exotic plants, either via the passage of vehicles or during construction, and act as corridors of disturbed land along which exotic plants can spread into otherwise undisturbed native communities (Brooks and Lair 2005). Further, as discussed above, wildfires initiate a positive feedback loop between exotic grass invasion and changes in fire frequency, which have the potential to maintain communities dominated by exotic plants (D'Antonio and Vitousek 1992; Mack and D'Antonio 1998). The resultant plant communities, post-fire, may not support the same fauna typically found during pre-fire conditions (Saab and Powell 2005).

Wind projects may be particularly prone to introducing exotic species to otherwise natural communities. Wind projects are highly distributed, they have a branching configuration that spreads turbines and road systems across thousands of acres, resulting in a very high edge to area ratio. For which the extent of initial disturbance area may not adequately represent the impacts of future invasions by exotic plants. Disturbed areas adjacent to roadsides or in utility corridors are readily invaded, especially if the use is unmanaged regardless of the vehicle type, is inadvertently increased (Davidson and Fox 1974). The initial stages of spread away from projects such as wind farms occurs within landscape features like washes or north facing hillslopes, or in microsites (e.g. beneath perennial shrubs) where soil moisture levels are locally high. Research examining the impacts of roads has identified three zones around roads: (a) direct effects, (b) an area within which environmental gradients such as moisture develop as a consequence of roads and (c) a wider cumulative effects areas that represents the combined effects of multiple roads and areas of disturbance (Brooks and Lair 2005).

Impacts from transmission projects would be similar to wind especially where roads are established for inspection and maintenance. The construction of new roads may attract uncontrolled usage that may lead to inadvertent introduction of exotic plants. In contrast, solar and geothermal projects, while occupying large areas, have a smaller edge to area ratio, and are more densely configured. Additional edge effects, such as those described

above, though probable, would be relatively small because all operations would be confined to already disturbed areas. Further, because sites are usually fully fenced they are unlikely to attract uncontrolled OHV usage.

Noise

While noise effects from renewable energy facilities generally could have detrimental effects on Covered Species, specific noise effects are expected to vary considerably depending on factors such as noise intensity, duration (e.g., chronic or intermittent), species-specific sensitivity, the type of activities exposed to the noise, and the distance of the individual from the noise source. Further, it has been shown that some species rapidly habituate to noises that they learn do not pose a threat, which can complicate determining the severity of impacts that could result from operational noise (Pater et al. 2009). There is substantial inter-specific variation in habituation to noise and even differences among individuals of the same species. Noise-related impacts can also be confounded by other stimuli that are produced in conjunction with operational noise. For instance, it is difficult to segregate the primary cause of behavioral changes in wildlife near wind turbines due to the simultaneous introduction of operational noise and shadow-flicker.

Noise can be generated from a variety of sources associated with the operation of renewable energy facilities. The noise generated from these facilities can vary in intensity and can be caused by intermittent or constant sources depending on the type of renewable energy technology and the proximity of the facility to sensitive biological receptors (Pater et al. 2009). Vehicles used for the operation and maintenance of renewable energy facilities are typically sources of intense but intermittent noise that can result in damage to wildlife (Lovich and Ennen 2011; USFWS 2013). The operation of electrical transmission facilities can be a constant source of low-intensity corona noise (audible discharge of energy) that varies with the level of voltage and distance from the transmission facilities (Abbasi and Abbasi 2000).

Noise sources, such as the operation of mechanical equipment, can vary depending on the type of renewable energy technology being implemented. Solar thermal technologies that use wet-cooling systems would have noises generated by fans and pumps. Solar thermal technologies using dry-cooling systems would only produce noise from fans, but because of the larger size requirements of dry-cooling systems, there would typically be more noise generated from these systems associated with an increase in the number of fans (Lovich and Ennen 2011). Wind turbines also produce noise from the mechanical machinery within the wind turbine and from the movement of the rotating blades through the air (Abbasi and Abbasi 2000; Langston 2013).

The effects of industrial noise from renewable energy facilities on wildlife would vary depending on the type and proximity of the noise source. Noise expands outward from a point source through spherical spreading and is reduced from distance from the source. It is typically estimated that for every doubling of distance from a noise source that there is an approximate 6 decibel (dB) reduction in sound level (Pater et al. 2009). However, the propagation of noise is also affected by natural conditions including topography, vegetation, and climate. These environmental factors can inhibit or enhance noise propagation to varying degrees depending upon the location of the source and receptor.

Along with the general relationship of noise abatement with increasing distance from the source, it has been shown that the probability of wildlife response to noise varies as a function of distance. Most noise effects on wildlife from the operation of renewable energy facilities are expected to be on behavior, although physical damage such as hearing loss can also occur at higher noise intensities. Behavioral changes in wildlife from increased noise levels can include alternations in habitat use, activity patterns, and foraging behavior. High noise levels can also interfere with the ability of wildlife to detect important sounds that may inhibit their ability to detect predators, resulting in increased rates of predation (Abbasi and Abbasi 2000; Langston 2013). Noise interference may also affect nest site selection or abandonment and can mask biologically important sounds, including mating call behavior and territory advertisement and defense that could affect reproductive success (Pater et al. 2009).

The impact of noise will vary by species due to a variety of differences, such as the species' audible range, timing of and intensity of noise in relation to critical activities, and various other species-specific physiological and behavioral factors. Taxa expected to be particularly sensitive to noise effects from the operation of renewable energy facilities include birds during the nesting seasons when mating and nesting activities could be interrupted by noise. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could be adversely directly 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 (Abbais and Abbasi 2000; Lovich and Ennen 2011). Larger species such as golden eagle have been found to alter their activity patterns as a result of noise from renewable energy facilities (USFWS 2011). This could result in less available suitable habitat for foraging, as species alter their behavior and area of travel.

Light and Glare

Aviation Collision Lighting

Collision lighting would be found on wind turbines and solar towers and would act by attracting or entrapping night flying birds, and may increase their susceptibility to

collision. The distribution of wind turbines discussed above lays out the likely distribution of collision events to which collision lighting maybe a contributory factor.

Behavior and life history traits such as nocturnal foraging or night migration likely would predispose Covered Species to effects of Collision Lighting. Of the Covered Species, no bird species have known behavior or life history traits that would predispose them to be – unusually susceptible to the effects of collision lighting. It is not known if nocturnal species such as burrowing owl are affected by collision lighting. Similarly, the covered bat species do not have specific life history traits (e.g., large migrations) that make them unusually susceptible to collision lighting.

Night lighting

Impacts from light and glare can result from exposure of species to both intentional lighting necessary for operation of facilities (e.g., on-site night lighting and aircraft safety lights) and the indirect consequences of reflection, refraction, and polarized lighting effects resulting from project features such as power towers, heliostats, and solar arrays.

The effects of lighting are expected to occur during general operation of a facility. Lighting can act through various biological mechanisms and can result in greatly different effects to individual species. For example, lighting around facilities may cause disorientation of nocturnal wildlife or may attract or repel certain species (Longcore and Rich 2004). Normally diurnal predators may exploit night lighting that increases prey detectability, while nocturnal prey species may reduce their foraging activity in lighted areas (Gaston et al. 2012). Some species may be able to exploit night lighting; bats and insectivorous birds may opportunistically prey upon the insects drawn to security lighting. Other species may exhibit unusual and more risky behavior as a consequence night lighting; for example, night flying migratory birds may be attracted to aviation safety lighting on high structures such as met towers and turbines and become reluctant to fly into the dark once attracted to the lighted area (Drewitt and Langston 2008). Mechanisms affecting wildlife related to lighting are diverse and very species-specific (Perry et al. 2008; Longcore and Rich 2004; Gaston et al. 2012).

Management of security night lights and aircraft safety lights has resulted in standard practices that seek to minimize the impacts of lighting. For the purpose of analysis, it was assumed that collision-alert lighting on high structures such as turbines and towers would follow the recommendations of Gehring et al. (2009); namely, lighting would consist of white or red flashing beacons, not steady burning lights. Similarly, it was assumed that security lighting would be directed downwards and within the facility to avoid illuminating surrounding areas and to minimize the spread of lighting effects.

Other light and glare related issues are less well studied, and potential effects are more speculative. Appropriate studies are lacking, but glare could possibly disorientate a bird in flight and cause it to collide with solar energy project facilities or other objects. Also, lights could increase bird and bat collisions with structures by disorienting or attracting them to the project area (Hockin et al. 1992; Longcore et al. 2008).

Polarized light reflected from solar PV arrays has been observed to attract insects (Horváth et al. 2010), which could in turn attract insect-eating Covered Species. Further, incidental mortality data from solar projects currently under construction suggest that large areas of solar PV panels, troughs, and heliostats in the desert environment may mimic water bodies and attract migrating or dispersing water bird species. Anecdotal evidence suggests that water bird species may either collide with or become stranded in solar fields, resulting in fatalities. However, there is currently insufficient data to assess the magnitude or likely risk associated with such events.

Night lighting effects are likely to be most pronounced in areas with fewer existing rural developments, and therefore less existing light pollution; i.e., species in these areas would not have been previously exposed to night lighting. Complex topographic features such as ridges and hills may limit the reach of night lighting and limit possible effects; conversely, flat open topography may result in light being visible for a considerable distance. Covered Species that may exhibit modified behavior as a consequence of night lighting include nocturnal foragers such as burrowing owl. Owls may experience differential rates of foraging success as a consequence of lighting (Kotler et al. 1991). However, whether night lighting increases foraging success (e.g., through enhanced prey detection) or decreases foraging success (e.g., by inhibiting activity in lighted areas), at a particular site, is unknown. Other Covered Species that may be affected by night lighting include desert kit fox, which is primarily a nocturnal hunter for rabbits and small rodents; however, as with the owls, the effects of night lighting on kit fox behavior are not well understood and likely would be site-specific. Night lighting may enhance localized foraging hot spots for bats that are attracted to insect swarms around lights. The extent to which this may occur with the covered bat species is unknown, but the potential for this occurring with Townsend's big-eared bats is likely low because this species roosts and forages away from human-developed areas (Szewczak, pers. comm. 2012). Overall, most of the Covered Species that may be affected by night lighting are widespread across the Plan Area.

Predator Avoidance Behavior

The predator avoidance response of some species may lead them to avoid humans and manmade objects. For example, bighorn sheep use visual cues to assess and escape predators. As a consequence of avoidance behavior, individuals must expend energy, may suffer increased physiological stress and may reduce foraging or avoid key habitat such as

water sources. Other species that may experience behavioral changes that reduce foraging opportunities or lead to avoidance of suitable foraging habitat include burro deer, desert kit fox, and nesting bird species.

Vehicle Collision

Human disturbance may result from a variety of Covered Activities. This section discusses susceptible Covered Species in the context of specific causes of mortality, morbidity and behavioral changes that would result from human presence. Of the human disturbance issues discussed below, anecdotal evidence from project monitoring reports would suggest that vehicle collisions in particular are a distinct source of mortality within existing projects.

Vehicle collision is a source of injury and mortality for many species, and commonly reported as a source of mortality during both construction and operational activities for all types of technology. All terrestrial and avian species are at risk of vehicle collisions. Basking species such as lizards and slow-moving species such as desert tortoise are particularly susceptible to collisions and birds are susceptible when scavenging on roads.

Disease

Human presence may act as a vector for the spread of disease. This is a known issue for kit fox populations that are susceptible to canine distemper, for which domestic dogs act as a reservoir. Uncontrolled introduction of dogs to a site may introduce canine diseases to resident desert kit foxes. Recent incidents associated with construction of generation facilities near Ford Dry Lake, Blythe, demonstrate the risk posed to desert kit fox of increased anthropogenic activity in desert areas.

There is also potential for humans to spread upper respiratory tract disease (URTD) to desert tortoises by inappropriately handling or transporting the animals (Berry and Christopher 2001).

Pesticide Usage

Use of rodenticides and other pesticides may adversely affect several species directly. Mohave ground squirrel is susceptible, especially where Mohave ground squirrels forage adjacent to agricultural fields (Hafner and Yates 1983). Further predators such as burrowing owl and Swainson's hawk are inadvertently susceptible to rodenticide poisoning.

Predator Subsidization

Subsidization of predators, including provision of additional food, water, nesting/bedding material is a recognized issue associated with increased human presence in the Plan area (Boarman et al. 2006), and may include improved perching facilities and high vantage points. Generalist predators and omnivores are typically the beneficiaries of anthropogenic

inputs. Populations of species such as the common raven (*Corvus corax*) and coyote (*Canis latrans*) have increased dramatically in areas with increased human presence (Boarman et al. 2006; Fedriani et al. 2001).

In particular, Common Raven populations increased hugely over the last several decades because of resource subsidization. Increase fledging success near human developments suggests that food is the most likely resource subsidy received by common ravens. Ravens adjacent to roads (road kill) and landfills (trash) demonstrated increased fledging success (Kristan et al. 2004), and Knight et al. (1993) found significantly fewer ravens in natural areas compared to power line and highway corridors.

The release of ravens from resource constraints has resulted in dramatically increased pressure on prey species. Ravens have been implicated as contributors to declines of several threatened or endangered species (Liebezeit and George 2002), such as the snowy plover (*Charadrius alexandrinus*), sandhill crane (*Grus canadensis*), and desert tortoise (*Gopherus agassizii*; Morafka et al. 1997).

Ravens are opportunistic predators, and may prey other birds' eggs and nestlings, they are also known to prey on small and medium size mammals, amphibians, and reptiles. In particular, ravens are known to prey neonate and juvenile desert tortoises, and may be partially responsible for the current "Threatened" status (Tracy et al. 2004).

Differences in distribution of non-breeding and breeding ravens may have varied effects on prey species. Desert dwelling sub-adult and other non-breeding ravens are typically concentrated in areas with dependable food resources such as landfills. While breeding pairs are evenly distributed throughout the desert, as nest site availability and territorial behavior allows (Kristan and Boarman 2003). Non-breeding ravens should have a more concentrated effect on prey that are in the vicinity of reliable anthropogenic food resources, while the predation effects from breeding ravens as a whole is expected to be more widespread.

Many activities discussed previously e.g. collisions; road kill etc. could supplement raven diet. The degree to which identified Covered Activities supplement predator diet is poorly understood. However, raven distribution is strongly associated with human encroachment into the desert. To the extent that wind, geothermal and solar projects encroach into undisturbed desert they are likely to increase subsidized feeding opportunities for ravens as a result of their operation. Carcasses, from collision with turbines, towers and solar arrays, along with trash, and improved waters sources all increase the attractiveness of project sites to ravens. Further, roosting and nesting resources are introduced or augmented by human encroachment. Associated structures, such as buildings, and transmission poles, provide roosting and nesting opportunities that otherwise would be unavailable.

Bird Migration

The Pacific Flyway is the major migratory route for millions of waterfowl and other migratory birds running along the west coast of North America. Large numbers of birds migrate along the Pacific Flyway and either cross or overwinter within the Plan area. In the Imperial Borrego Valley subarea, the Salton Sea is a key destination and stopover for migrating birds, especially water birds. Further, the Colorado River corridor is an essential corridor on the flight from central Canada to northern Mexico, both water birds and passerines use the riparian woodland for forage and cover. However, beyond these routes, migration across the desert is highly variable are poorly understood (McKernan, pers. comm. 2013). Riparian and wetland habitats and playas throughout the desert provide corridors and refuges for migrating birds (Ruth et al. 2012).

The Salton Sea is the confluence of several migratory routes, birds from the California coast converge with birds that fly down the Central Valley and along the Colorado rivers corridor. The Salton Sea provides both an essential stopover and a destination for summering or overwintering birds (Wilson 2010). American avocet (*Recurvirostra americana*), black-necked stilt, western sandpiper (*Calidris mauri*) and long-billed dowitcher (*Limnodromus scolopaceus*) are easy to find in great numbers both in spring and fall. Open waters of the Salton Sea, the northern portions of the New and Alamo rivers, various drainage and irrigation channels, as well as managed wetlands (i.e., shallow, seasonal wetlands, open water, freshwater cattail marsh) and agricultural fields support a diverse and abundant waterfowl population, overwintering and migrating waterfowl populations. Since the Salton Sea, and the Colorado River Valley are both significant for migratory birds, interconnecting valleys like the Chuckwalla Valley form important linkages, and consequently become important migratory features in their own right. The majority of migrating birds travel along the Coachella Valley from wetlands on the coast and in California's Central Valley to the Salton Sea. However, significant numbers of birds also migrate through the Tehachapi passes or travel south along the eastern side of the Sierras before crossing the Mojave (McKernan, pers. comm. 2013). Radar studies indicate that high densities of migrating song birds crossing the west Mojave reach their highest densities in the mountain passes of the Tehachapis and around the desert water bodies when crossing the West Mojave (ACOE 2012). The passes of both the Tehachapi and the San Bernardino Mountains offer lower topographic relief that reduce the energy expenditure of migrating birds (USFWS 2013). It is at these concentration points the highest densities of birds are susceptible to collision with generation facilities.

Temporary water bodies in the Mojave act as vital stopovers and refuges for birds during desert migration. Temporary lakes, playas and desert wetlands such as Searles Lake, Koehn Lake, Harper Lake, China Lake can attract several thousand water birds when wet. Isolated wetlands associated with watercourses such as the Amargosa Wild and Scenic River and

Afton Canyon are of particular importance to migrants since the surrounding habitat is unsuitable for refueling during migration. However, rainfall and winter storms are localized, and temporary lakes may alternately be dry or wet in consecutive years. Consequently, migratory bird patterns are highly variable between years (McKernan, pers. comm. 2013). For example, at locations such as dry Ford Lake can attract substantial numbers of watersbirds in one year may be devoid of birds in the following year when the lake is dry (McKernan, pers. comm. 2013).

The numbers of birds migrating across the Mojave may also vary considerably and depend on factors such as weather, and timing of migration. Migration typically occurs in Spring and Fall. Two types of migration can be recognized, long distance migration for which collision is relatively minor risk, and daily migration, where birds forage and roost at lower elevations before traveling shorter distances. Collision risk is higher for daily migration since birds spend longer at elevation that may contain collision risks. Bird migratory behavior, both timing of daily flights and altitude is species dependent. Land birds will begin their migratory flights soon after dark and fly for several hours, with activity tailing off after midnight. By contrast, raptors and soaring migrants will not fly until mid-morning to take advantage of thermals, and waterfowl may be observed flying either day or night.

The greatest risk of collision for migratory birds is during takeoff, landing, or during foraging, while in flight they are usually too high to be affected by wind turbines, transmission lines or other generation infrastructure. Two exceptions to this would be where when migrants are funneled into high passes and in mountainous areas. Large numbers of migrants can be funneled along valleys and may cross a ridge or pass at the end of the valley at a very low height above the terrain elevation. Even in lower passes, such as San Gorgonio Pass in Riverside County, California, where there are extensive wind plant generation facilities, nocturnal migration can be funneled along the Coachella Valley. The second exception is when migrating flocks are prematurely brought down to lower altitudes by adverse weather conditions. Siting and operating facilities near the migratory routes, stopovers, and refuges described above would present the greatest hazard to migrating birds.

Collision

Sources of potential collision risk associated with energy development include overhead transmission lines, wind turbines, meteorological towers, power towers, solar photovoltaic and parabolic trough facilities panels, fencing, and open-ended fence piping and boundary markers. The following analysis focuses on the collision of wind turbines and transmission lines, while the light and glare section focuses on the collision impacts associated with power towers and photovoltaic panels.

Wind Turbines

For wind turbines, direct mortality or injury of bird and bat species may occur when individuals strike rotors, nacelles, or towers. Many studies have assessed collision and collision risk for specific wind projects, and mortality rates for California have been observed to range from 0.55 to 9.57 collisions/MW/yr, depending on the location and species affected (BLM and Kern County 2012; Loss et al. 2013). Many recent studies give mortality rates for specific projects, however, there is little standardization of methods between different studies, and consequently, considerable uncertainty over the actual rate of mortality caused by specific technology types and locations exists. Detection methods rely on the collection of carcasses, which are susceptible to detection bias related to factors such as search efficiency and carcass removal by scavengers (Matthews et al. 2013; Langston 2013; Smallwood 2013; Kitano and Shiraki 2013).

When assessing the risk posed by wind turbine operation, several factors may contribute to higher collision rates. For example, at Altamont Pass, the combination of topographical features and raptors in pursuit of prey or raptors soaring in thermals rising from slopes occupied by wind turbines contribute to a relatively high local mortality rate (Smallwood et al. 2007). Generally speaking, the highest-risk turbines are those situated on steeper slopes, in canyons, or on ridges and saddles (Drewitt and Langston 2008). Studies also indicate that high risks of collision may occur on ridge lines and slopes where deflected wind currents facilitate soaring and kiting (rapid, easy flight) behavior of some avian species. Further, saddles between hilltops may be a particular risk area because saddles can facilitate birds flying across ridges with lower energy (de Lucas et al. 2008).

Location and configuration of turbine arrays may also contribute to the risk of collision. Turbines at the ends of rows may be a higher risk to raptors than turbines in the middle of an array (Orloff and Flannery 1992; Smallwood and Thelander 2004; Smallwood et al. 2007). Further, fast and intermediate rotor blade tip speeds were associated with higher collision mortality in raptors. This result may be due to the motion smearing effect that makes the rotor tips more difficult to see at faster speeds when the retina can no longer register blade images (Hodos 2002). Other factors that may influence collision rate include turbine spacing, abandoned turbines, and land management that attracts prey or food sources (Thelander et al. 2003). Evidence assessing the risk of modern larger turbines is contradictory. Krijgsveld et al. (2009) found that each larger modern turbine represents a similar collision risk to each smaller earlier-generation turbine, while Loss et al. (2013) found that larger turbines present a greater collision risk for birds.

Different bird species are variably susceptible to collisions. Species-specific factors such as bird wing structure, flight patterns, and behavior can greatly influence collision risk. Birds with high wing loading (weight divided by wing area), relatively low maneuverability in

flight, and/or a low capability for powered flight, such as griffon vultures in Spain, have been observed to have an increased risk of collision with objects other than turbine blades (de Lucas et al. 2008, 2012).

Risk of collision may also vary both throughout the day and throughout the year, depending on species-specific behavioral patterns. Activity at dusk and dawn, display fights, pursuit and hunting flights, as well as flying in flocks have all been found to contribute to collision risk (Drewitt and Langston 2008; Krijgsveld et al. 2009). Turbines pose a greater risk if placed on migratory flyways, near regular feeding or breeding areas, or in local flight paths, such as between foraging and roosting areas (Drewitt and Langston 2008). While migrants may fly above turbines across a broad front, they may concentrate in high densities at topological features such as mountain passes where risks can be magnified. Some studies have documented the highest risks are to migratory birds (e.g., de Lucas et al. 2012), while other studies have found collision risks to local birds are considerably higher than to migratory birds (e.g., Krijgsveld et al. 2009).

Unlike birds, concern and documentation of bat mortality at wind turbines is a more recent phenomenon (Cryan and Barclay 2009). It is estimated that more bat than bird mortality occurs at wind turbines (Baerwald 2008). Bat fatalities from turbines result from both collisions and barotrauma (which occurs as a result of turbulence and pressure changes that rupture bats' lungs). Estimates to date for individual wind energy sites range from just below 1 bat collision/MW/yr to as high as 70 collisions/MW/yr, with an average published bat fatality rate of 11.6 collision/MW/yr (Arnett et al. 2008). However, standardized and well-validated methods for measuring and comparing fatality rates across sites have rarely been employed, so direct comparisons among studies and sites cannot be made.

Compared to birds, fewer studies assessing the contributory factors to bat mortality have been conducted. However, a very high proportion (between 50% and 75%) of fatalities reported in the United States are to migratory tree-roosting species. In particular, studies suggest that turbines on ridgelines, especially in heavily forested areas, may result in particularly high bat mortality (Arnett et al. 2005). Other contributing factors appear to be similar to birds; for example, fatalities per MW of generation have been observed to be lower with larger turbines than with smaller turbines (Arnett et al. 2008). The likelihood of fatalities is also linked to weather conditions, especially wind speed, which affects bat flight activity. Bats are known to restrict their flights during rain, lower temperatures, and strong winds. Studies at proposed and operating wind facilities have documented lower bat activity during high wind speeds (Arnett et al. 2008, 2010). Most mortality occurs at low wind speeds during the summer and fall. Experiments that increase turbine cut-in speeds (the speed at which the turbine first starts to rotate) have been found to reduce bat mortality by between 44% and 93%, while losing less than 1% of total turbine performance (Arnett et al. 2009).

Power Towers

Collisions with powers towers and the associated heliostats are a known hazard for avian and bat species, although the relative infrequency of these structures means there have been few studies of their impacts. McCrary et al. (1986) identified 20 species of bird including raptors that collided with towers. More recent monitoring reports (CEC 2013) have found similar evidence of collision with both towers and heliostats. Reports indicate that many different avian species are susceptible to collision with towers, with few apparent patterns. Similarly, bats are also susceptible to collision with powers towers (e.g., Vespertilionidae and Molossidae). Evidence would suggest that siting of this type of technology is crucial because post construction adaptive management would be limited.

Transmission Lines

Avian collision with power lines have been studied for several decades and is a well-established risk factor. Power lines are now often designed and constructed to reduce the likelihood of collision and electrocution. Several factors may influence the risk of collision associated with transmission lines. According to *The Avian Protection Plan Guidelines* (APLIC and USFWS 2005):

> Species-related factors include habitat use, body size, flight behavior, age, sex, and flocking behavior. Heavy-bodied, less agile birds or birds within large flocks may lack the ability to quickly negotiate obstacles, making them more likely to collide with overhead lines. Likewise, inexperienced birds as well as those distracted by territorial or courtship activities may collide with lines. Environmental factors influencing collision risk include the effects of weather and time of day on line visibility, surrounding land use practices that may attract birds and human activities that may flush birds into lines. Line-related factors influencing collision risk include the configuration and location of the line and line placement with respect to other structures or topographic features. Collisions often occur with the overhead static wire, which may be less visible than the other wires due to its smaller diameter.

The factors affecting collision hazards for transmission are site-specific and complex. For example, lines crossing between foraging and roosting areas may particularly increase the chance of collision events. Studies suggest that the majority of collisions smallest diameter wire shield wire located at the top of transmission lines (APLIC 2012; Saverno et al. 1996).

Larger species, such as raptors, are more susceptible to collision because they are less maneuverable and have large wing spans. Further, because raptors and other large aerial perching birds often perch on tall structures that offer broad outlooks for

potential prey, the design of transmission poles or towers can be a major factor in the risk of electrocution (APLIC 2006).

Collision risk is affected by the proximity of powerlines to bird take-off and landing areas. There is no recommended setback from these areas in the literature (APLIC 2012). Orientation of lines, in relation to features utilized by birds (e.g., ridgetops, saddles, and crossing river corridors), is also a factor.

During migration, birds make stopovers in their preferred habitats. When migratory birds' staging, roosting, resting, and foraging habitat are located near power lines, especially when flight approaches coincide with inclement weather, then collision risk increases (APLIC 2012).

Electrocution

Electrocution occurs when a bird is able to span between two electrified lines and create a contact, either wrist to wrist or vertically, head to foot. Electrocution can also occur when birds perched side-by-side span the distance between circuits (APLIC 2012). Current guidelines for constructing power lines have been developed to minimize the potential effects from bird strikes and electrocution (APLIC 2012). Covered species most susceptible to electrocution include the larger species such as California condor and golden eagle.

Solar Flux

Solar flux can affect any species of bird, bat, or insect that enters the airspace over the heliostat fields. The solar flux can be focused on the power tower when in operation or can also occur in the standby zones, where the heliostats are focused on "standby points" in the sky around the solar tower receiver. Temperatures in the standby zones can vary, but can be sufficient to injure birds that fly through these zones. Exposure to solar flux has the potential to result in direct and indirect effects to birds by damaging their eyes, including the loss of sight; burning or singeing feathers; compromising the molecular structure of feathers (i.e., non-visible damage); and secondary, non-visible physiological changes including elevated body temperatures or thermal stress that can lead to death. The potential for injury or death depends on a variety of factors including the size and type of bird; length of exposure; and the level of solar energy flux. The degree of risk associated with solar flux also depends on habitat use and life history traits of each bird species (McCrary et al. 1986; NFWFL 2013).

Ongoing monitoring seeks to document avian and bat mortality resulting from solar flux in Californian solar thermal projects. So far monitoring suggests that the strong light emitted by an operational tower attracts large numbers of insects, which presents two issues. First, the large numbers of insects include both sensitive species, such as migrating Monarch

butterflies, but also include large numbers of pollinators, the loss of which may affect covered plant species and natural communities. At present, there is insufficient evidence to assess the impact and make mitigation recommendations for the effects of solar flux on insects and natural communities. Second, the large numbers of insects attract insectivorous birds, bats, and their predators. Bird species susceptible to solar flux injury (i.e., feather damage) disproportionately consist of aerial insectivores such as warblers, swifts and swallows, as well as their predators; it has been proposed that power towers create and ecological trap (NFWFL 2013). An ecological trap is a behavioral response that leads animals to select habitat that negatively affects their fitness. In this case, the attractiveness of the swarming insects increases the susceptibility of insectivorous birds to solar flux injury. Finally, the number of solar flux incidents with birds may be further exacerbated by the presence of permanent water ponds nearby or with solar thermal facilities located near agriculture or other high-quality foraging areas (McCrary et al. 1986).

The foraging behaviors of Covered Species do not predispose them to higher risk of solar flux impacts. Of the Covered Species, only southwest willow flycatcher is an aerial forager. However, the southwest willow flycatcher forages within enclosed wooded territories or over open water. They are, therefore, less likely to be co-located with solar development. Thus far, there are no recorded injuries or mortality to willow flycatchers. Other Covered Species that are insectivorous include mountain plover, tricolored blackbird, and Bendire's thrasher, all of which feed at or near the ground on insects such as beetles, and grasshoppers. In principle, they may take advantage of the insect fallout resulting from power tower operation; however, there is no evidence to support this hypothesis. The risk would be lower still for riparian and wetland species (e.g., Bell's vireo, willow flycatcher, tricolored blackbird, Californian black rail, greater sandhill crane) that are rarely found away from river corridors, and for soaring birds (e.g., golden eagle, California condor) that would fly generally fly above the flux zone. However, Yuma clapper rail, are known to disperse through wide areas of the southwest, with numerous colonization events and dispersal records documented in isolated patches of suitable habitat across the Mojave-Sonoran deserts in California. These records demonstrate the dispersal capabilities of the species across long distances of hostile terrain from the nearest breeding habitat along the Colorado River and Salton Sea, into areas of potential solar-flux inducing projects as well as solar PV arrays.

Solar flux effects depend, in part, on the siting of solar thermal plants in relation to occupied or foraging habitat of avian species and the size of the heliostat field (McCrary et al. 1986), these factors vary considerably, and their assessment requires project-level and site-specific information. Given that, many solar flux impacts are inherently site-specific the most effective mitigation is by the effective siting and design of individual projects such that important bird habitat, migratory routes, and flight paths are avoided. In addition,

operational strategies that reduce the availability of water sources which attract birds to areas with solar flux would help in reducing potential impacts (McCrary et al. 1986).

The potential concentration of insects near power towers presents an opportunity for foraging bats (NFWFL 2013). Bats have been observed roosting in the condenser facility of power towers, presumably attracted by the high density of swarming insects. Although bat mortality has been recorded on power tower sites, the exact cause of death is unknown, with no evidence of singeing apparent on recovered carcasses. For bat Covered Species, their known foraging behavior does not pre-dispose them to higher risk of solar flux injury. The Pallid bat is a ground-gleaning bat that feeds extremely close to the ground and therefore unlikely to be at risk from flux injury. Whereas both the California Leaf nose bat and Townsend's big-eared bat are associated with Riparian woodlands and riparian desert washes.

Reflection and Refraction Effects

Few utility-scale photovoltaic, parabolic trough, and power tower projects are currently in operation. Limited information exists, therefore, on the potential of glare or reflection causing bird collisions at solar energy facilities. Reflection from mirrors and arrays found in solar PV and solar thermal facilities may simulate a water body attracting waterbirds traversing desert environments (McCrary et al. 1986; CEC 2013). Avian collision studies and detailed observations have documented that birds do not recognize clear or reflective glass as a barrier (Klem 2009). Overall, the biological effects of solar energy development remain largely unstudied (Lovich and Ennen 2011), and the need for additional research is apparent. The one intensive study (McCrary et al. 1986) on power tower technology documented significant avian mortality, particularly from collisions with mirrored heliostats. During the 40-week study at a 10-MW pilot power tower facility in the Mojave Desert, 70 bird fatalities were documented involving 26 species. Collisions with the reflective heliostats accounted for 81% of the fatalities, while 19% died from burns received by flying through standby points within the flux area. The study concluded that larger facilities could produce nonlinear increases in the rate of avian mortality and, when coupled with the removal of large tracts of land from biological production, could be of concern as ecological effects of a solar energy project (McCrary et al. 1986).

Recent monitoring of utility-scale photovoltaic and concentrating solar power facilities in the Plan area support the hypothesis that both birds and bats, and waterbirds in particular, are susceptible to collision with panels. Collisions of waterbirds, passerines and raptors with various project components, including solar panels, fencing, and metal posts within the panel arrays have been documented. Because birds are prone to collisions with reflective surfaces, and incidental observations have documented mortalities on numerous projects in the desert, it is expected that the utility-scale solar energy projects proposed

under the Plan will cause bird mortalities. Further, the echo-acoustic properties of flat surfaces, like solar panels, elicit behavioral response from bats that are similar to water bodies. Experiments have shown bats attempt to drink from smooth surfaces, mistaking them for water bodies (Greif and Siemers 2010). However, Russo et al. (2012) demonstrated that under field conditions, a wide variety of bats have the capacity to learn and avoid such mistakes once they gain experience with such smooth surfaces, consequently there is little evidence for a negative effect on bats.

Solar PV panels are smooth surfaces that artificially polarize light, and to insects are indistinguishable from bodies of open water (Horváth et al. 2010). This leads to maladaptive responses that result in insects swarming, or attempting to oviposit on panels. Such responses result in ecological traps where the maladapted behavior results in increased mortality and reduced fecundity of a population. Further, predators may be attracted to the swarming insects that, in turn may be subject increased injury due to collision with panels. As stated by Horváth et al. (2009) "Because the advantages of sensitivity to polarized light in some taxa are still unclear, forecasting the importance of PLP [polarized light pollution] to the survival of populations and the integrity and function of ecosystems remains largely speculative." However, while large numbers of insects may be attracted to solar panels there is currently insufficient research to determine whether this negatively impacts the populations of insect or their predators.

Water

Evaporation and Cooling Ponds

Open water ponds such as evaporation and cooling ponds may be found on sites for all types of generation and transmission facilities such as substations. Ponds may be constructed to control hydrological processes, provide site water for cleaning and washing, or as part of the cooling processes for wet-cooled solar thermal and geothermal generation.

The ponds periodically fill and evaporate, leaving standing water that can attract both resident and migratory water birds. Salt levels in the pond may become highly concentrated because of the evaporation process. Birds that drink water containing high levels of salt may succumb to salt toxicosis.

Long-term mortality data collected from existing generation facilities indicates that open ponds can pose a risk to water birds in arid environments. As documented in construction and operational monitoring reports, evaporation ponds may lure water birds to a site where they may become entangled in the exclusion netting or die from salt toxicosis. However, it is not clear to what extent this is a site-specific issue rather than an issue that could occur over a broader landscape. Mitigation to reduce mortality in such situations includes increasing the standing water level where feasible to reduce salt concentration,

and installing bird deterrents such as bird netting. However, netting often results in the inadvertent entanglement of birds.

IV.7.2.2 Impacts of the Reserve Design

The DRECP Plan-Wide Reserve Design Envelope has been developed for each alternative that is comprised of existing conservation areas, BLM LUPA conservation designations, and Conservation Planning Areas. The conservation of biological resources within existing conservation areas and BLM LUPA conservation designations and the establishment of reserve lands within Conservation Planning Areas through DRECP implementation would result in beneficial effects to the biological resources in these areas. Additionally, management and monitoring actions within Reserve Design Lands will benefit the biological resources in the reserve. Management and monitoring actions within Reserve Design Lands may also result in minor adverse effects (e.g., impacts associated with vehicular activity and human presence during monitoring) and during habitat manipulations, (e.g. short term-loss of habitat values to birds during salt cedar removal).

IV.7.2.3 Impacts of BLM Land Use Plan Decisions

Through the BLM LUPA component of the DRECP, the BLM land use plan decisions have the potential to impact, both positively and negatively, biological resources through renewable energy and transmission development on BLM-administered lands and through BLM land designations and management actions on BLM-administered lands.

IV.7.2.3.1 Impacts of Renewable Energy Development and Transmission on BLM Lands

The typical impacts from the various renewable energy and transmission technologies on BLM lands would be the same as those described above in Section IV.7.2.1. However, the specific locations in which energy and transmission development will be allowed will be driven by LUPA decisions within BLM-administered lands.

IV.7.2.3.2 Impacts of BLM Land Designations and Management Actions

As part of the reserve design for each alternative, BLM LUPA conservation designations would be established that would be managed to protect ecological, historic, cultural, scenic scientific, and recreation resources and values. These designations would also confer protections and management for biological resources and would be considered a beneficial effect**.** While other land uses are allowed within these areas, other uses must be compatible with the resources and values that the land designation is intended to protect.

Details on allowable uses and management within National Conservation Lands, Areas of Critical Environmental Concern, and wildlife allocations are presented in the proposed

Land Use Plan Amendment description in Volume II. Details on the goals, objectives, allowable uses, and management actions for designation are presented in the LUPA worksheets in Appendix L.

IV.7.2.4 Impacts of Natural Community Conservation Plan and General Conservation Plan

The NCCP would be administered by the CDFW, and would be applicable to the entire Plan Area. The GCP would be administered by the USFWS and would be applicable to nonfederal lands, a subset of the entire Plan Area.

IV.7.2.4.1 Natural Community Conservation Plan

The impacts of renewable energy development permitted under the NCCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.7.2, and for each alternative described below. Conservation under the NCCP is specifically addressed for each alternative by provided conservation analyses for biological resources within the NCCP Conceptual Plan-Wide Reserve Design and within the DRECP NCCP Reserve Design.

IV.7.2.4.2 General Conservation Plan

The types of impacts resulting from renewable energy development permitted under the GCP would be the same as those defined for the Plan-wide impacts, including the typical impacts described in Section IV.7.2. However, the locations where these impacts would occur would vary by alternative. Any differences in these impacts that result from the locational differences are described for each alternative.

IV.7.3 Impact Analysis by Alternative

The following sections present impact analysis for the No Action Alternative, the Preferred Alternative, and Alternatives 1 through 4.

IV.7.3.1 No Action Alternative

The impact analysis for biological resources under the No Action Alternative is provided below.

IV.7.3.1.1 Impacts Within the Entire Plan Area in No Action Alternative

This section provides the assessment of impacts under the No Action Alternative within the same area as the DRECP.

IV.7.3.1.1.1 Impacts and Mitigation for Renewable Energy and Transmission Development in No Action Alternative

Impact Assessment

The following provides the Plan-wide assessment of impacts and mitigation for renewable energy and transmission development under the No Action Alternative. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9). Under the No Action Alternative, renewable energy development could occur anywhere in the DRECP area that such development is not prohibited, as described in Chapter II.2. The distribution of renewable energy development and transmission under the No Action Alternative was based on past and current project siting information. Using this approach, approximately 6,286,000 acres are assumed available for solar, wind, and/or geothermal development in regions of likely development under the No Action Alternative.

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

Table IV.7-2 shows the impacts to natural communities under the No Action Alternative. An impact summary by general community is provided below.

<u>California forest and woodlands</u>

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

Overall, over 1,000 acres of California forest and woodlands would be impacted under the No Action Alternative. Because California forest and woodlands are located primarily in peripheral portions of the Plan Area, impacts to these communities are limited in extent (about 1% of available California forest and woodlands).

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, and bighorn sheep. Therefore, impacts to this community may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

<u>Chaparral and coastal scrubs (Cismontane scrub)</u>

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 of the chaparral and coastal scrubs would be impacted under the No Action Alternative. Impacts would be primarily from solar and transmission development and most impacts would be to Central and South Coastal Californian coastal sage scrub. Most impacts to chaparral and coastal scrubs would occur in the Western Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes subarea.

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 an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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 of the desert conifer woodlands would be impacted under the No Action Alternative. Impacts would be primarily from solar development. Most impacts to desert conifer woodlands would occur in the West Mojave and Eastern Slopes subarea, but some would also occur in the Pinto Lucerne Valley and Eastern Slopes and Kingston and Funeral Mountains subareas.

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, and bighorn sheep. Therefore, impacts to this general community may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert outcrop and badlands

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

Overall, approximately 11,000 acres of the desert outcrop and badlands would be impacted under the No Action Alternative. Impacts would be primarily from solar development. Impacts to desert outcrop and badlands are widely distributed with impacts in seven of the ten subareas. However, impacts are concentrated in two subareas; the majority (69%) of impacts to desert outcrop and badlands would occur in the Cadiz Valley and Chocolate Mountains subarea and 22% would occur in the Imperial Borrego Valley subarea.

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. Covered Species associated with desert scrub may also be associated with this general community. Therefore, impacts to desert outcrop and badlands may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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 95,000 acres of desert scrubs would be impacted under the No Action Alternative. Impacts would be primarily from solar development, but transmission accounts for almost 18,000 acres of impacts to desert scrub and wind accounts for over 7,000 acres of impacts to desert scrub; there are also over 500 acres of impacts from geothermal development in the Imperial Borrego Valley subarea. Most impacts would be to the most prevalent desert scrub community: lower bajada and fan Mojavean–Sonoran desert scrub. The majority of impacts to desert scrub would occur in the West Mojave and Eastern Slopes and Cadiz Valley and Chocolate Mountains subareas (57%).

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-

lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Therefore, impacts to this general community may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Dunes

Dune communities are widespread in 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. All the dunes in the Plan Area are classified as North American warm desert dunes and sand flats.

Overall, approximately 2,000 acres of dunes would be impacted under the No Action Alternative. Impacts would be primarily from solar development, but transmission accounts for over 500 acres of impacts to dunes; there are minimal impacts from geothermal and wind development. The majority of impacts to dunes would occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard, flat-tailed horned lizard, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Therefore, impacts to this general community may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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 4,000 acres of grassland communities would be impacted under the No Action Alternative. The majority of impacts to grassland communities (82%) would be from solar, wind, and transmission development in the West Mojave and Eastern Slopes subarea. Impacts would also occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Mojave and Silurian Valley, and Pinto Lucerne Valley and Eastern Slopes subareas.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, and mountain plover. Therefore, impacts to this community may have an

adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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 Valley and Chocolate Mountains and Imperial Borrego Valley subareas, and along major drainages such as the Mojave River.

Overall, approximately 8,000 acres of riparian communities would be impacted under the No Action Alternative. The majority of impacts to riparian communities (56%) would be from solar and transmission development in the Cadiz Valley and Chocolate Mountains subarea. Impacts would also occur in the Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

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). Approximately 7,000 acres of impact to microphyll woodlands and groundwater-dependent vegetation have the potential to occur under the No Action Alternative.

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. 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. Therefore, impacts to riparian communities may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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). Smaller, isolated wetlands also occur throughout the desert region and can be

of particular importance in that their isolation can lead to a concentration of locally endemic species such as is the case with the Amargosa Wild and Scenic River.

Overall, approximately 7,000 acres of wetland communities would be impacted under the No Action Alternative. Almost 40% of the impacts to wetland communities would be in DFAs in open water of the Salton Sea in the Imperial Borrego Valley subarea. There would also be substantial impacts to wetland communities in the West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Cadiz Valley and Chocolate Mountains subareas.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, California leaf-nosed 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. Therefore, impacts to wetlands may have an adverse effect on these species by removing or degrading suitable habitat and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Table IV.7-2
Plan-Wide Impact Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California Forest and Woodland						
Californian broadleaf forest and woodland	72,000	400	200	—	10	600
Californian montane conifer forest	78,000	300	100	—	10	400
Chaparral and Coastal Scrub Community (Cismontane Scrub)						
Californian mesic chaparral	4,000	10	10	—	10	30
Californian pre-montane chaparral	1,000	10	0	—	0	10
Californian xeric chaparral	24,000	100	60	—	80	300
Central and south coastal California seral scrub	1,000	10	0	—	0	10
Central and South Coastal Californian coastal sage scrub	54,000	300	100	0	200	600
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	60	30	—	40	100

Table IV.7-2
Plan-Wide Impact Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Desert Conifer Woodlands						
Great Basin Pinyon - Juniper Woodland	287,000	800	300	—	200	1,000
Desert Outcrop and Badlands						
North American warm desert bedrock cliff and outcrop	1,613,000	9,000	200	100	2,000	11,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	57,000	10	0	0	—	20
Intermontane deep or well-drained soil scrub	107,000	100	70	—	100	300
Intermontane seral shrubland	74,000	600	300	—	300	1,000
Inter-Mountain Dry Shrubland and Grassland	437,000	1,000	500	0	200	2,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	400	200	—	10	600
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,830,000	61,000	6,000	500	16,000	83,000
Mojave and Great Basin upper bajada and toeslope	1,334,000	4,000	400	—	400	5,000
Shadscale - saltbush cool semi-desert scrub	281,000	2,000	300	10	500	3,000
Southern Great Basin semi-desert grassland	100	0	0	—	—	0
Dunes						
North American warm desert dunes and sand flats	281,000	1,000	10	0	600	2,000
Grassland						
California Annual and Perennial Grassland	230,000	2,000	800	0	804	4,000
California annual forb/grass vegetation	8,000	70	40	—	10	100

Table IV.7-2
Plan-Wide Impact Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	2,000	80	40	600	3,000
Mojavean semi-desert wash scrub	30,000	100	60	0	70	300
Riparian	600	10	0	—	0	10
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	3,000	20	20	1,000	4,000
Southwestern North American riparian evergreen and deciduous woodland	6,000	30	10	—	10	50
Southwestern North American riparian/wash scrub	66,000	500	70	30	400	1,000
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	—	0	0
Californian warm temperate marsh/seep	400	0	0	—	0	10
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	1,000	100	0	200	1,000
Open Water	209,000	2,000	200	100	1,000	3,000
Playa	78,000	30	0	0	0	40
Southwestern North American salt basin and high marsh	260,000	2,000	500	0	200	3,000
Wetland	8,000	70	20	—	30	100
Other Land Cover						
Agriculture	711,000	13,000	1,000	600	9,000	23,000
Developed and Disturbed Areas	447,000	300	60	20	60	500
Not Mapped	7,000	40	10	0	30	90

Table IV.7-2
Plan-Wide Impact Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Rural	114,000	1,000	300	70	700	3,000
Total	**19,011,000**	**109,000**	**12,000**	**2,000**	**36,000**	**158,000**

[1] Available lands includes 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), short-term and long-term wind impacts, geothermal project area impacts, and transmission impacts. 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, 35 rare alliances have the potential to be impacted under the No Action Alternative totaling approximately 4,000 acres of impacts. Impacts to rare natural communities would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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

Impacts to riparian and wetland natural communities could result in adverse effects to jurisdictional waters and wetlands. Under the No Action Alternative, impacts to riparian and wetland natural communities is not prohibited by existing laws and regulations, but impacts to riparian and wetland natural communities identified as jurisdictional waters and wetlands would be regulated by existing federal and state laws and regulations. Approximately 8,000 acres of riparian communities and approximately 7,000 acres of wetland communities would be impacted under the No Action Alternative. 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 riparian and wetland impacts could result in adverse effects to jurisdictional waters and wetlands without avoidance, minimization and mitigation measures necessary to comply with existing federal and state laws and regulations.

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% (2,000 acres) of playa would be impacted by Covered Activities under the No Action Alternative. The majority of impacts would be associated with solar (1,000 acres), with 300 acres of wind impacts, 1,000 acres of transmission impacts, and 100 acres of geothermal impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Seep/Spring

Seeps occur within DFAs and transmission corridors and potential impacts to seep/spring have the potential to occur in the following ecoregion subareas: Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, 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, Providence and Bullion Mountains, and West Mojave and Eastern Slopes.

Major Rivers

Major rivers occur within the Plan Area and potential impacts to major rivers under the No Action Alternative have the potential to occur to the Amargosa, Colorado, and Mojave Rivers. Impacts to major rivers would be adverse absent implementation of avoidance measures.

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 under the No Action Alternative. Impacts to ephemeral drainages would be adverse absent implementation of avoidance and minimization measures.

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

Siting, construction, decommissioning, and 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. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of renewable energy development 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 analyzed based on the potential for overlap between natural community mapping and the estimated distribution of renewable energy development.

Approximately 28% of the Plan Area is assumed to be potentially available for renewable energy development under the No Action Alternative. Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants, could occur anywhere not prohibited from this development. These impacts would mostly occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas, which would experience most of the terrestrial operational impacts. 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.

Dust and Dust Suppressants

Overall, most natural communities and plant 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 (Lovich and Ennen 2011). These natural communities are primarily affected by renewable energy development in the West Mojave and Eastern Slopes and to a lesser extent in the Cadiz Valley and Chocolate Mountains, subarea. 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 areas anticipated for renewable energy development in the West Mojave and Eastern Slopes subarea, with a smaller distribution in the Providence and Bullion Mountains and Kingston and Funeral Mountains subareas. Therefore, considering the distribution of renewable energy development 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. This degradation of vegetation resulting from the creation of dust during operations and maintenance of renewable energy development would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

The application of dust suppressants can result in chemical and physical changes to an ecosystem, alter hydrological function of soils and drainage areas, and increase pollutant

loads in surface water. As a result, riparian and wetland natural communities are particularly affected by the use of dust suppressants. These natural communities are most prevalent near areas of anticipated renewable energy development in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas with smaller distributions in the West Mojave and Eastern Slopes and the Kingston and Funeral Mountains subareas. As such, these subareas would contain the largest potential amount of vegetation degradation because of dust suppressants. This vegetation degradation resulting from the use of dust suppressants during renewable energy development would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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 natural community type conversion. Within the Plan Area desert scrub natural communities would be primarily affected by renewable energy development within the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes 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 and can create advantageous circumstances for invasive plants to grow. Within the Plan Area the potential impacts from renewable energy development on woodland, chaparral and coastal scrubs, and grassland natural communities would be located mostly 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.

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, vegetation degradation may still result from fire and fire management as a result of renewable energy development and would require implementation of avoidance, minimization, and compensation measures to offset these impacts. Alternatively, fire management activities may have a beneficial impact on

biological resources, such as fuel load reduction activities in areas dominated by non-native invasive species (e.g., salt cedar hot spots).

Invasive Plants

The introduction of invasive plants can be caused by siting, construction, and operation of renewable energy 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, including both natural communities and plant Covered Species, 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. As such, the most vegetation degradation caused by introduction of invasive plants are expected to be distributed through the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. The potential vegetation degradation effects could result from siting, construction, and operation of renewable energy facilities, and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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 majority of impacts to plant and wildlife species and their habitat under the No Action Alternative would occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas. However, there would also be substantial impacts to plant and wildlife species and their habitat in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. Table IV.7-3 provides the Plan-wide impact analysis for Covered Species habitat.

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. Suitable habitat for several bird Covered Species would be impacted in the West Mojave and Eastern Slopes subarea, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, yellow-billed cuckoo and Yuma clapper rail. Suitable habitat for bighorn sheep, California leaf-nosed bat, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. 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.

Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be primarily from solar energy development, but would also include impacts from transmission. Impacted suitable habitat would be mostly desert scrub (60%) in this subarea. The Cadiz Valley and Chocolate Mountains subarea provides suitable habitat for amphibians and reptiles, including Agassiz's desert tortoise, flat-tailed horned lizard and Mojave fringe-toed lizard that would be impacted. Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma clapper rail. Suitable habitat would be impacted for all Covered mammals in the Cadiz Valley and Chocolate Mountains subarea, except for Mohave ground squirrel.

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy and transmission development, but would also include impacts from wind and geothermal 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, riparian 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. 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. Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be minimal (300 acres). Only 700 acres of impacts would occur to bighorn sheep mountain habitat in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Only two covered plant species, flat seeded spurge and little San Bernardino Mountains linanthus, would have minimal impacts (10 acres) to suitable habitat in the Imperial Borrego subarea.

The only Covered amphibian or reptile in the Kingston and Funeral Mountains subarea with suitable habitat that would be impacted is the Agassiz's desert tortoise and no Covered fish suitable habitat would be impacted in this subarea. There is suitable habitat for several bird Covered Species in the Kingston and Funeral Mountains subarea that would be impacted, including Bendire's thrasher, burrowing owl, golden eagle, Least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo. Suitable habitat for

bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat would be impacted in this subarea.

In the Mojave and Silurian Valley subarea suitable habitat for the following Covered Species would be impacted under the No Action Alternative: Agassiz's desert tortoise, Mojave fringe-toed lizard, Bendire's thrasher, burrowing owl, golden eagle, Least Bell's vireo, Swainson's hawk, tricolored blackbird, western yellow-billed cuckoo, bighorn sheep, Mohave ground squirrel, California leaf-nosed bat, pallid bat, Townsend's big-eared bat, and Mojave monkeyflower.

In the Providence and Bullion Mountains subarea, the following Covered Species would be impacted: Agassiz's desert tortoise, Mojave fringe-toed lizard, burrowing owl, golden eagle, Least Bell's vireo, tricolored blackbird, western yellow-billed cuckoo, bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Impacts to plant and wildlife species and their habitat would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts consistent with existing applicable laws and regulations.

Table IV.7-3
Plan-Wide Impact Analysis for Species Habitat – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	9,830,000	52,000	6,000	40	9,000	67,000
Flat-tailed horned lizard	753,000	9,000	900	700	5,000	15,000
Mojave fringe-toed lizard	1,097,000	13,000	40	—	5,000	18,000
Tehachapi slender salamander	48,000	300	100	—	10	400
Bird						
Bendire's thrasher	2,140,000	6,000	500	100	1,000	7,000
Burrowing owl	5,264,000	42,000	8,000	1,000	21,000	72,000
California black rail	197,000	2,000	200	100	2,000	4,000
California condor	1,240,000	8,000	4,000	—	3,000	14,000
Gila woodpecker	106,000	900	80	60	400	1,000
Golden eagle – foraging	6,672,000	33,000	2,000	30	7,000	43,000
Golden eagle – nesting	4,427,000	13,000	2,000	10	1,000	16,000
Greater sandhill crane	617,000	11,000	700	600	8,000	21,000
Least Bell's vireo	226,000	900	200	10	200	1,000

Table IV.7-3
Plan-Wide Impact Analysis for Species Habitat – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Mountain plover	828,000	14,000	2,000	600	9,000	25,000
Southwestern willow flycatcher	317,000	2,000	400	100	2,000	5,000
Swainson's hawk	1,458,000	10,000	3,000	300	6,000	20,000
Tricolored Blackbird	271,000	2,000	1,000	10	1,000	5,000
Western yellow-billed cuckoo	152,000	700	70	—	200	1,000
Yuma clapper rail	51,000	300	20	20	300	700
Fish						
Desert pupfish	8,000	100	20	10	100	300
Mohave tui chub	300	0	0	—	—	0
Owens pupfish	18,000	—	—	—	—	—
Owens tui chub	17,000	—	—	—	—	—
Mammal						
Bighorn sheep – inter-mountain habitat	3,809,000	18,000	700	—	2,000	20,000
Bighorn sheep – mountain habitat	6,648,000	18,000	500	40	2,000	21,000
California leaf-nosed bat	7,135,000	48,000	500	400	15,000	64,000
Mohave ground squirrel	2,403,000	10,000	5,000	—	2,000	17,000
Pallid bat	16,385,000	84,000	9,000	800	23,000	116,000
Townsend's big-eared bat	14,651,000	80,000	8,000	700	22,000	110,000
Plant						
Alkali mariposa-lily	119,000	1,000	500	—	300	2,000
Bakersfield cactus	278,000	2,000	900	—	400	3,000
Barstow woolly sunflower	154,000	1,000	600	—	100	2,000
Desert cymopterus	205,000	1,000	600	—	60	2,000
Little San Bernardino Mountains linanthus	282,000	300	30	0	30	400
Mojave monkeyflower	160,000	200	100	—	100	500
Mojave tarplant	265,000	1,000	500	—	200	2,000
Owens Valley checkerbloom	147,000	0	0	—	0	10
Triple-ribbed milk-vetch	7,5218,000	20	—	—	0	20

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

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 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 have been 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.7-4 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, 29,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under the No Action Alternative. Within the Eastern Mojave Recovery Unit, 12,000 acres of desert tortoise important areas would be impacted under the No Action Alternative. Within the Western Mojave Recovery Unit, 21,000 acres of TCAs and linkage habitat would be impacted under the No Action Alternative. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species that would likely reduce the impacts reported here; however, these impacts to desert tortoise important areas would be adverse and would require mitigation

Table IV.7-4
Plan-Wide Impact Analysis for Desert Tortoise – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	387,000	7,000	—	300	8,000
	Linkage	469,000	5,000	—	20	5,000
	TCA	3,130,000	10,000	—	6,000	17,000
Colorado Desert Total		*3,985,000*	*23,000*	—	*7,000*	*29,000*
Eastern Mojave	Linkage	784,000	8,000	—	—	8,000
	TCA	2,095,000	4,000	—	—	4,000
Eastern Mojave Total		*2,880,000*	*12,000*	—	—	*12,000*
Western Mojave	Linkage	1,206,000	11,000	800	2,000	14,000
	TCA	2,313,000	4,000	2,000	2,000	8,000
Western Mojave Total		*3,519,000*	*15,000*	*3,000*	*3,000*	*21,000*
Total		**10,384,000**	**49,000**	**3,000**	**10,000**	**62,000**

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

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. There are no impacts from geothermal development to desert tortoise recovery units under the No Action Alternative. 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). 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 the No Action Alternative, 63 territories have nests in or within 1 mile of the area available for renewable energy and transmission development under the No Action Alternative, and the breeding areas of these territories could be impacted by renewable energy and transmission development depending on the siting of specific projects. Under the No Action Alternative, 105 territories have nests in or within 4 miles of the area available for renewable energy and transmission development under the No Action Alternative, and the use areas of these territories could be impacted by renewable energy and transmission development depending of the siting of specific projects. Existing laws and regulations would require avoidance, minimization, and compensation for any take of golden eagles.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under the No Action Alternative, approximately 21,000 acres of mountain habitat and 20,000 acres of intermountain habitat would be impacted. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species.

For Mohave ground squirrel, Mohave ground squirrel important areas have been identified that include key population centers, linkages, expansion areas, and climate change extension areas (see Mohave ground squirrel BGOs in Appendix C). Table IV.7-5 provides an impact analysis for these Mohave ground squirrel important areas. Under the No Action Alternative, approximately 3,000 acres of Mohave ground squirrel key population centers would be impacted and 5,000 acres of impact would occur in climate change extension areas. A total of 1,000 acres of impact to linkage and expansion areas would occur under the No Action Alternative. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this state listed and BLM sensitive species that would likely reduce the impacts reported here; however, these impacts to Mohave ground squirrel would be adverse and would require mitigation.

Table IV.7-5
Plan-Wide Impact Analysis for Mohave Ground Squirrel – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	508,000	2,000	900	200	3,000
Linkage	384,000	700	400	—	1,000
Expansion Area	224,000	200	100	—	300
Climate Change Extension	552,000	3,000	1,000	400	5,000
Total	**1,668,000**	**6,000**	**3,000**	**700**	**9,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Lands.

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. There are no impacts from geothermal development on Mohave ground squirrel important 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.

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

- Approximately 4,143,000 acres desert tortoise
- Approximately 6,000 acres southwestern willow flycatcher, including the Amargosa River, Mojave River, and Willow Creek units
- Approximately 800 acres for desert pupfish, including the Carrizo Wash, Fish Creek Wash, and San Felipe Creek units
- Approximately 2,000 acres for Parish's daisy in the Northeast Slope unit.

Although the Peninsular bighorn sheep Distinct Population Segment (DPS) is not a Covered Species, approximately 47,000 acres of critical habitat for the Peninsular bighorn sheep DPS also occurs in the Plan Area (excluding military, Open OHV Areas, and tribal lands) in the Carrizo Canyon and South Santa Rosa Mountain units.

Under the No Action Alternative, a total of approximately 26,000 acres of impact to desert tortoise critical habitat would have the potential to occur, including 16,000 acres in the Chuckwalla unit, 4,000 acres in the Fremont-Kramer unit, 2,000 acres in the Ivanpah unit, 700 acres in the Ord-Rodman unit, 200 acres in the Pinto Mountain unit, and 2,000 acres in the Superior-Cronese unit. For desert pupfish, approximately 5 acres of impact to critical habitat would occur under the No Action Alternative including 1 acre in the Carrizo Wash and 4 acres

in the San Felipe Creek units. No impact to Parish's daisy critical habitat would occur under the No Action Alternative. Under the No Action Alternative, approximately 30 acres of impact to the Mojave River critical habitat unit for southwestern willow flycatcher would have the potential to occur. For the Peninsular bighorn sheep DPS, approximately 100 acres of impact to designated critical habitat would have the potential to occur under the No Action Alternative.

Siting, construction, and operation of renewable energy 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 renewable energy development 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 are estimated to by the overlap between the location of sensitive wildlife, and the likely distribution of renewable energy development across subareas.

Approximately 28% of the Plan Area is assumed to be potentially available for renewable energy development under the No Action Alternative. Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including the disturbance of wildlife from the creation of noise, predator avoidance behavior, as well as light and glare, could occur anywhere not prohibited from this development. These impacts would mostly occur in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas, which would experience most of the terrestrial operational impacts. 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

Birds during the nesting seasons are expected to be particularly sensitive to noise effects from the use of mechanical equipment and vehicles associated with the operation and maintenance of renewable energy facilities. For bird Covered Species the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas are the subareas expected to be primarily affected. Smaller mammals such as the Mohave ground squirrel and reptiles like 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. Effects on the habitat for these Covered Species mostly occurs in

the West Mojave and Eastern Slopes, Mojave and Silurian Valley, and Cadiz Valley and Chocolate Mountains subareas. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes, Mojave and Silurian Valley, and Cadiz Valley and Chocolate Mountains subareas, and to a lesser extent in the as well as the Imperial Borrego Valley subarea.

The magnitude and extent of adverse noise effects on wildlife would depend on site-specific factors including the distance of the wildlife from the noise source. Appropriate siting and design of renewable energy development away from wildlife habitat would reduce potential noise-related impacts. However, disturbance of wildlife may still result from noise caused by renewable energy development and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Predator Avoidance Behavior

Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to renewable energy development. Desert bighorn sheep use visual cues to assess and escape predators and may not utilize foraging habitat or water sources in proximity to renewable energy development. In addition, nesting bird species may experience behavioral changes that reduce foraging and breeding opportunities or lead to avoidance of suitable foraging habitat. These wildlife species are spread throughout the Plan Area; however, the greatest amount of renewable energy terrestrial operational impacts would be located in the West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and Imperial Borrego Valley subareas. Wildlife disturbance resulting from predator avoidance behavior caused by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Light and Glare

Light and glare created by security lighting and reflective materials at renewable energy facilities can alter wildlife behavior including foraging, migration, and breeding. However, lighting can act through various biological mechanisms and can result in greatly different effects to individual species including diurnal predators, such as bats and insectivorous birds, which may exploit night lighting that increases prey detectability. 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.

Assuming full build out of the renewable energy generation and transmission under the No Action Alternative, terrestrial operational impacts from renewable energy development

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

Impacts to habitat for bats from renewable energy development would mainly be located in the Cadiz Valley and Chocolate Mountains subarea. Migratory birds that fly during the night may be attracted to aviation safety lighting on high structures such as met towers and turbines and become reluctant to fly into the dark once attracted to the lighted area. For bird Covered Species the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains are the subareas where adverse effects from light and glare are expected to be primarily occur. Therefore, considering the distribution of potential renewable energy development and impacts on habitat for species sensitive from light and glare the largest magnitude of wildlife disturbance is expected to occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas, and to a lesser extent in the Imperial Borrego Valley subarea. Some standard industry practices are typically used to reduce lighting and glare resulting from renewable energy development. However, disturbance of wildlife would still result from light and glare caused by renewable energy development and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Non-Covered Species

Detailed habitat models were not developed for special-status species not covered by the DRECP (Non-Covered Species) identified in Volume III, Chapter III.7, Section III.7.6.4, Table III.7-57. Alternatively, impacts to Non-Covered Species were determined by evaluating the impacts to all natural communities associated with a given species using the methodology described in Section IV.1.4. The links between Non-Covered Species and associated natural communities (Table III.7-57) were derived using: (1) the actual natural communities mapped (as described in Section III.7.4 and identified on Figures III.7-3 through III.7-13) at the locations of the species' occurrences (CDFW 2013), and (2) habitat requirements for the species as described in the Baseline Biology Report (Appendix Q), and the California Wildlife Habitat Relationships species' descriptions and range maps (Zeiner et al. 1988–1990). If a discrepancy was found, such as a known riparian obligate species occurring within an upland habitat community, it was assumed that the natural community mapping was at a scale that did not capture the smaller riparian habitat. In cases such as this, the mapped natural community identified through GIS analysis was replaced in Table III.7-57 (see Section III.7.6.4) with a general habitat description as described in DRECP habitat models, if available, and range maps presented by CDFW's CWHR Program range maps (Zeiner et al. 1988–1990).

Table IV.7-6 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. 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.

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
California Forest and Woodland/ Desert Conifer Woodland	Californian Broadleaf Forest and Woodland Californian Montane Conifer Forest Great Basin Pinyon-Juniper Woodland	72,000 78,000 287,000	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	Tehachapi Slender Salamander, Golden Eagle, California Condor, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, Parish's Daisy, Bakersfield cactus
Desert Scrub/ Chaparral Communities	Arizonan upland Sonoran Desert scrub Intermontane Deep or Well-Drained Soil Scrub Intermontane Seral Shrubland Inter-Mountain	57,000 106,000 74,000	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	Golden Eagle, California Condor, Bendire's Thrasher, Burrowing Owl, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, Desert Kit Fox, Mohave

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
	Dry Shrubland and Grassland	437,000	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, 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,	Ground Squirrel, Burro Deer, 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, Bakersfield Cactus, Parish's Daisy, Barstow woolly sunflower, Owens Valley checkerbloom
	Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000		
	Lower bajada and Fan Mojavean–Sonoran Desert Scrub	10,859,000		
	Mojave and Great Basin Upper Bajada and Toeslope	1,333,000		
	Shadescale – Saltbush Cool Semi-Desert Scrub	279,000		
	Southern Great Basin Semi-Desert Grassland	100		
	Californian Mesic Chaparral	4,000		
	Californian Pre-Montane Chaparral	1,000		
	Californian Xeric Chaparral	24,000		
	Central and South Coastal California Seral Scrub	1,000		
	Central and South Coastal Californian	54,000		

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
	coastal sage scrub Western Mojave and Western Sonoran Desert Borderland Chaparral	24,000	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/Desert Outcrop and Badlands	North American Warm Desert Bedrock Cliff and Outcrop North American Warm Desert Dunes and Sand Flats	1,613,000 230,000	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	flat-tailed horned lizard, Mojave fringe-toed lizard, Golden Eagle, California Condor, Pallid Bat, California Leaf-nosed Bat, Townsend's Big-eared Bat, Desert Kit Fox

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
			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	
Grassland	California Annual and Perennial Grassland California Annual Forb/Grass Vegetation	230,000 8,000	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	Golden Eagle, Burrowing Owl, Mountain Plover, Bendire's Thrasher, Desert Kit Fox
Riparian/ Wetlands	Madrean Warm Semi-Desert Wash Woodland/ Scrub Mojavean Semi-Desert Wash Scrub Riparian Sonoran-Coloradan Semi-Desert Wash Woodland/ Scrub Southwestern North American Riparian Evergreen and Deciduous	697,000 30,000 1,000 191,000 6,000	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, vermillion 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 myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo	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, burro deer, Tehachapi slender salamander, Desert pupfish, Mohave tui chub, Owens pupfish,

Table IV.7-6
Cross-Reference Between Natural Communities for Primary Associated Non-Covered and Covered Species

General Communities	Natural Communities	Available Lands (acres)	Primary Associated Non-Covered Species	Primary Associated Covered Species
	Woodland		County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails	Owens tui chub, Owens Valley checkerbloom
	Southwestern North American Riparian/Wash Scrub	66,000		
	Arid West Freshwater Emergent Marsh	4,000		
	Californian Warm Temperate Marsh/Seep	400		
	North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000		
	Playa	78,000		
	Southwestern North American Salt Basin and High Marsh	261,000		
	Wetland	8,000		
Agriculture/ Rural Land Cover	N/A	718,000	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	burrowing owl, mountain plover, greater sandhill crane, and Swainson's hawk

Table IV.7-7 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 natural communities, particularly sensitive habitats such as dune communities, riparian communities, and arid west freshwater emergent marsh areas, would require implementation of avoidance, minimization, and compensation measures to offset these impacts. 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 2.5% and agricultural/rural land cover at approximately 8% (see Table IV.7-8).

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	437,000	1,500	600	0	200	2,300	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,	13,303,000	70,000	8,000	500	18,000	96,500	0.7%

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's							

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-	1,894,000	10,000	200	100	3,000	13,300	0.7%

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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							
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	2,100	1,000	0	1,000	3,700	1.5%

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
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, vermillion 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 myotispocketed free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails	1,652,000	9,000	1,100	200	3,500	13,800	0.8%
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird,	825,000	14,000	1,300	1,000	10,000	26,300	3.2%

Table IV.7-7
Plan-Wide Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat							

[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] This amount assumes the loss of conservation value for all land fragmented by the well fields.

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

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

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

Under the No Action Alternative, impacts to designated critical habitat for Non-Covered Species would have the potential to occur from transmission. Specifically impacts would potentially occur to approximately 30 acres of Amargosa nitrophila critical habitat, approximately 40 acres of arroyo toad critical habitat, approximately 10 acres of Ash Meadow gumplant critical habitat, approximately 80 acres of Pierson's milk-vetch critical habitat, and 100 acres of Peninsular bighorn sheep. These calculations of impacts from transmission are 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.

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 avoidance and minimization measures. Under existing laws and regulations, renewable energy and transmission projects would be

required to implement seasonal restrictions and other avoidance measures including pre-construction nesting bird surveys and impact setbacks determined 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.7-8 shows Plan-wide impacts to the Desert Linkage Network by ecoregion subarea anticipated under the No Action Alternative. Overall 1.1% of the Desert Linkage Network would be impacted under the No Action Alternative. The percent of the Desert Linkage Network impacted in each subarea would range from 0% for the Panamint Death Valley, Piute Valley and Sacramento Mountains, and Owens River Valley subareas to 2.7% of the Cadiz Valley and Chocolate Mountains subarea. Overall, solar would account for 69% of the impacts to the Desert Linkage Network, wind would account for 6%, and transmission would account for 25%. Geothermal would not account for any impacts under the No Action Alternative. Wind project areas would account for proportionally greater impacts in the West Mojave and Eastern Slopes subarea (31% of the total impacts in the subarea) and Pinto Lucerne Valley and Eastern Slopes subarea (17% of the total impacts in the subarea). The magnitude of impacts to the function of habitat linkages depends on site-specific factor. Impacts to Desert Linkage Network habitat linkages would be adverse and would require mitigation to avoid impacting habitat linkage function in the subareas where impacts are anticipated under the No Action Alternative.

Table IV.7-8
Plan-Wide Impact Analysis for the Desert Linkage Network – No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	890,000	16,000	—	8,000	24,000
Imperial Borrego Valley	155,000	100	—	200	300

Table IV.7-8
Plan-Wide Impact Analysis for the Desert Linkage Network – No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Kingston and Funeral Mountains	174,000	4,000	—	—	4,000
Mojave and Silurian Valley	510,000	10	—	1,000	1,000
Owens River Valley	19,000	—	—	—	—
Panamint Death Valley	204,000	—	—	—	—
Pinto Lucerne Valley and Eastern Slopes	272,000	200	100	300	600
Piute Valley and Sacramento Mountains	152,000	—	—	—	—
Providence and Bullion Mountains	426,000	5,000	—	200	5,000
West Mojave and Eastern Slopes	863,000	5,000	2,000	800	8,000
Total	**3,666,000**	**30,000**	**3,000**	**11,000**	**43,000**

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

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. There are no impacts from geothermal development to desert linkage network under the No Action Alternative.

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

Migratory Birds

Migration patterns across the Plan Area are discussed in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in Impact 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 No Action Alternative, wind is a substantial proportion of the overall generation mix. Development would mostly be located in the West Mojave, bordering the Tehachapi and San Bernardino Mountains, impacts are most likely to occur in areas between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the

north of Edwards AFB including Searles Lake, Koehn Lake China Lake and Harper Lake. In this alternative, no wind development is anticipated in areas adjacent to the Colorado River and wind development in the Imperial Valley would be relatively limited although it may affect wetlands and agricultural foraging lands to the south of the Salton Sea, but little else.

Solar development would be expected throughout the West Mojave and Eastern Slopes subarea. Development would occur in natural communities to the north of Edwards AFB and to east of Tehachapi Mountains as well as along both HWY 14 and HWY 395 corridors and in agricultural land surrounding Lancaster, including Antelope Valley. Development would result in a 1.8 fold increase in solar generation over baseline. Impacts would occur between key migratory features like the Tehachapi pass, and the dry lakes in the northern Mojave including Searles Lake, Koehn Lake and Harper Lake. In addition, solar development is expected in the in the Kingston and Funeral Mountain subarea, which could have indirect impacts on the Amargosa River ACEC/WSR through potential adverse effects on hydrological resources.

In the Cadiz and Chocolate Mountains subarea, the No Action alternative would lead to a 6.3-fold increase over baseline. This would result in a string of solar generation facilities along the I-10 corridor, in McCoy Valley, and in the disturbed and agricultural lands around Blythe. Development would effectively appear as a string of lakes on a known migratory linkage for birds between the Colorado River corridor, Coachella Valley and further west towards the coast. Development around the Salton Sea would, as now, be on the southern, western and eastern shores. Impacts from solar development in Imperial Borrego Valley would result in a 2.4-fold increase over baseline, and are likely to result in the direct loss of foraging habitat in the agricultural lands south of the Salton Sea. Like the I-10 corridor impacts, development would result in a landscape dotted with highly reflective facilities that mimic open water, that may lead to increased collision.

Impacts from development to migratory corridors would be adverse. Adverse impacts would require each project to implement surveying and siting as well as minimization measures to ensure reduction and avoidance of impacts. Further compensation measures may be necessary to offset adverse effects and would be implemented on a project by project basis.

Application of avoidance and minimization measures would reduce the overall impacts to migratory bird populations. However, operation and maintenance activities may adversely impact migratory birds. While it may be feasible to survey, site and monitor projects to minimize loss of habitat within the Plan Area, residual operational impacts may not be adequately mitigated through compensation strategies. For example, where the full range of the species life cycle i.e., overwintering, migration and breeding, is not within the jurisdiction of the permitting agencies, application of adequate compensation strategies may be

infeasible. Additional steps would be necessary to ensure projects do not adversely impact migratory birds within the Plan Area. After application of the mitigation measures, operational impacts on migratory birds from the No Action Alternative would be adverse and would require mitigation.

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 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.

Under the No Action Alternative, siting and construction of renewable energy development would not be confined to DFAs, and the impacts of this development could occur anywhere not prohibited from such development and would follow past and current development patterns. Approximately 6,286,000 acres (28% of the DRECP Area) are assumed could be available for renewable energy development under the No Action Alternative. These areas would be subject to potential adverse habitat fragmentation effects.

Renewable energy and transmission development in remote and intact landscapes would result in adverse habitat fragmentation effects. Using the terrestrial intactness analysis for the DRECP Plan Area, approximately 60% of the areas available for development under the No Action Alternative are characterized by low or moderately low terrestrial intactness. Approximately 40% of the areas available for development under the No Action Alternative are characterized as areas with moderately high to high terrestrial intactness. Development in moderately high to high terrestrial intactness area would result in adverse habitat fragmentation and population isolation effects that would require mitigation to avoid and minimize habitat fragmentation and population isolation impacts.

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 the No Action Alternative, 96% of the impacts from Covered Activities would occur below 4,000 feet, including 49% of the impacts occurring below 1,000 feet and 33% between 2,000 and 4,000 feet. As the majority of impacts occur 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 99% of the geothermal impacts are at elevations below 1,000 feet, including 62% below sea level. Solar impacts also tend to be concentrated in the lower elevations, with 45% of impacts below 1,000 feet. Wind impacts tend to be at higher elevations, with 82% of impacts at elevations above 2,000 feet. Transmission impacts also tend to be concentrated in the lower elevations, with 93% of impacts below 3,000 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 the No Action Alternative 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 the No Action Alternative, the vast majority (88%) of impacts would occur to plains, with these impacts spread across the different impact types, including 67% from solar, 7% from wind, 1% from geothermal, and 24% 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 the No Action Alternative 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 the No Action Alternative, total impacts would be progressively less with increasing slope. The large majority (82%) of impacts would occur on slopes less than 5%, and 95% of impacts would occur on slopes up to 20%. On slopes less than 20%, impacts would be spread across the different impacts types, including 68% from solar, 7% from wind, 1% from geothermal, and 23% 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 the No Action Alternative 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 the No Action Alternative, impacts 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.

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

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

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

However, operation and Maintenance activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. The No Action alternative would result 164,000 acres of permanent conversion of natural desert communities with 31,000 acres of impacts (16% of the total ground disturbance) within areas characterized as disturbed land cover types.

All impacts to Kingston and Funeral Mountains, Providence and Bullion Mountains would be in natural communities, and therefore more likely to increase predation rates on susceptible species in these sub-region like desert tortoise, Mojave fringe-toed lizard, and nesting birds. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the solar PEIS Solar Energy Zone (SEZ) 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 is likely to increase predation.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains or areas to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird, golden eagle, as well as small amphibians like the Tehachapi slender salamander and mammals like the Mohave ground squirrel. Solar development in these subareas is likely to occur in already disturbed agricultural landscapes around Lancaster or to the west of Edwards AFB. Any development to the North of Edwards is likely to affect Mohave ground squirrel.

Typical management practices for the No Action would include the development of a Common Raven Control Plan that 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.7-9 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan, and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the overlap between the species habitat models and the likely distribution of wind generation across the subarea

The expected distribution of wind generation in the No Action Alternative would result in 80% of all collisions risks occurring in West Mojave and Eastern slopes, and 2% of collisions could occur in Pinto Lucerne Valley and Eastern Slopes, with 17% of all collision likely to occur in Imperial Borrego Valley. Overall, the No Action Alternative would result in a median of 14,000 collisions per year for birds and 63,000 collisions per year for bats across the Plan Area.

In the No Action Alternative, 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 birds like least Bell's Vireo, Yuma clapper rail, and California black rail.

Wind projects would result in adverse impacts to covered bird and bat species. Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each plan would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

Table IV.7-9
Plan-Wide Impact Analysis for Estimated Range of Collisions per Year for Birds and Bats by Subarea – No Action Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	0	—	—	—	—	—	—
Imperial Borrego Valley	462	700	2,000	9,000	900	11,000	65,000
Kingston and Funeral Mountains	0	—	—	—	—	—	—
Mojave and Silurian Valley	0	—	—	—	—	—	—
Owens River Valley	0	—	—	—	—	—	—
Panamint Death Valley	0	—	—	—	—	—	—
Pinto Lucerne Valley and Eastern Slopes	64	100	300	1,000	100	2,000	9,000
Piute Valley and Sacramento Mountains	0	—	—	—	—	—	—
Providence and Bullion Mountains	0	—	—	—	—	—	—
West Mojave and Eastern Slopes	2,194	3,000	11,000	42,000	4,000	51,000	307,000
Grand Total	**2,721**	**4,000**	**14,000**	**52,000**	**5,000**	**63,000**	**381,000**

[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

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

Solar

Collision with power towers, heliostats, and solar arrays, and injury or mortality from exposure to concentrated 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 vary in relation to the anticipated quantity and location of solar facilities in each alternative.

The No Action Alternative would contain approximately 6,286,000 acres of potential development areas, and is estimated to result in 108,000 acres of ground disturbance from anticipated solar energy development.

Assuming full build out of the anticipated solar capacity, most of the risks to avian and bat species would be in the Cadiz Valley and Chocolate Mountains, within which 37% of the total anticipated solar development would occur. The Imperial Borrego Valley, West Mojave and Eastern Slopes, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas would contain smaller proportions of development, with 19%, 17%, 16%, and 12% of the impacts respectively. Impacts of solar would be evenly distributed along the Nevada border and along the Colorado River corridor. Development would also be expected in the agricultural areas bordering the Salton Sea and across the agricultural areas of the Western Mojave, including Antelope Valley, Apple Valley and areas North of Edwards AFB. The east Riverside region and consequently the migratory travel routes for wetland species between the Colorado River, the Salton Sea and the Coachella Valley would receive the highest impacts associated with solar development.

Solar projects would result in adverse impacts to covered bird and bat species. Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each project would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

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 be similar in distribution to the generation facilities. Most of the affected areas would be in Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley and the Mojave and Silurian subareas, with 8,000 acres, 3,000 acres, 1,000 acres of terrestrial impacts anticipated respectively. The remaining 1,000 acres of terrestrial impacts would be spread throughout Mojave and Silurian Valley and Providence and Bullion Mountains 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, anticipated delivery lines in Chuckwalla Valley, which would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains, and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering Covered

Species, due to their location, especially in bad weather when flocks of migratory birds may be forced down.

Large scale development of transmission as anticipated within the plan area would result in adverse impacts to Covered Species. In the No Action Alternative, projects would be analyzed on a project by project basis. Development of lines would follow recommendations of Avian Power Line Interaction Committee (APLIC), where feasible, Each project would require an avian protection plan that would require the implementation of avoidance, minimization, and compensation measures to offset likely collision impacts.

The level of impact on Non-Covered Species would be similar to the Covered Species for each of the renewable energy types discussed above. Under the No Action Alternative, projects would be analyzed on a case-by-case basis and preparation and implementation of plans that detail avoidance, minimization, and compensation measures, are expected to address and offset collision impacts to Non-Covered bird and bat species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

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

Table IV.7-10
Plan-Wide Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	20	50	0	70
Burrowing owl	170	130	0	300
California condor[1]	0	0	0	0
California black rail	60	10	0	70
Gila woodpecker	60	10	0	70
Golden eagle[2]	n/a	n/a	n/a	n/a
Least Bell's vireo	60	0	0	60
Mountain plover	80	90	0	170

Table IV.7-10
Plan-Wide Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Greater sandhill crane	20	0	0	20
Southwestern willow flycatcher	100	10	0	120
Swainson's hawk	20	40	0	60
Tricolored blackbird	40	130	0	160
Western yellow billed cuckoo	60	10	0	70
Yuma clapper rail	60	10	0	70
Grand Total Avian Species	**750**	**490**	**0**	**1,240**
California leaf-nosed bat	20	0	0	20
Pallid bat	30	200	0	230
Townsend's big-eared bat	60	40	0	100
Grand Total Bat Species	**110**	**240**	**0**	**350**

Notes:
[1] It was assumed that take for California condor would not be permitted under No Action Alterative as it is a fully protected species.
[2] Take of Golden Eagle would be permitted based on current Eagle Act permit regulations.

Laws and Regulations

Existing laws and regulations would reduce the impacts of renewable energy development projects in the absence of the DRECP. Relevant regulations are presented in the Regulatory Setting in Volume III. Note that because this EIR/EIS addresses amendments to BLM's land use plans, these plans are addressed separately and are not included in this section. The requirements of the following relevant laws and regulations would reduce impacts through avoidance, minimization, and mitigation requirements:

- Federal Endangered Species Act
- Migratory Bird Treaty Act
- Bald and Golden Eagle Protection Act
- Clean Water Act
- Executive Order 11990 Protection of Wetlands
- Fish and Wildlife Coordination Act
- Bureau of Land Management Policy
- California Endangered Species Act
- California Fish and Game Code

- State of California Fully Protected
- Native Plant Protection Act
- California Desert Native Plants Act
- Porter-Cologne Water Quality Control Act
- Wild and Scenic River Act

Mitigation

Mitigation that would apply to future renewable energy and transmission development under the No Action Alternative is assume to be similar in nature to the mitigation that has been adopted for approved renewable energy and transmission development projects in the Plan Area. The types of mitigation that has been required for these projects and would assumed to be required for these projects under the No Action Alternative include:

- Avoidance and Minimization Mitigation Measures
  - Siting and design studies for resource avoidance and minimization
  - Bird use studies
  - Pre-construction nesting bird surveys
  - Biological construction monitoring
  - Worker education
  - Best management practices for water quality and invasive species
  - Species translocation
  - Bird and bat conservation strategies
- Compensation Mitigation Measures
  - Habitat acquisition (fee title or conservation easement)
  - Habitat restoration and enhancement
  - Habitat management actions

IV.7.3.1.1.2 Impacts from Reserve Design in No Action Alternative

The No Action Alternative has no reserve design, but without approval of an action alternative, there would be continued protection of existing protected areas (e.g., Wilderness areas, National and State Parks, etc.). Additionally, the existing BLM land use plans within the Plan Area would continue to be implemented under the No Action Alternative. These existing plans identify various land designations such as existing ACECs, SRMAs, National Scenic and Historic Trails with associated management actions. Under the

No Action Alternative, project-specific mitigation required for renewable energy and transmission projects developed under the No Action that results in habitat conservation cannot be quantified and was not included in this analysis. The following provides an analysis of the conservation provided by existing protected areas and BLM land designations in the DRECP area, organized by landscape, natural communities, and species. Section IV.7.3.1.2 provides a conservation analysis on BLM-administered lands only under the No Action Alternative and Section IV.7.3.1.4 provides a conservation analysis on nonfederal lands only for the No Action Alternative.

Landscape

Habitat Linkages

Table IV.7-11 shows the conservation of the Desert Linkage Network under the No Action Alternative. Overall, 48% (1,758,000 acres) of the Desert Linkage Network habitat linkage areas occur in areas of existing protected areas or in existing BLM conservation designations. Conservation of habitat linkage areas in the subareas would be variable, ranging from 800 acres (4%) in the Owens River Valley to 446,000 acres (50%) in the Cadiz Valley and Chocolate Mountains subarea. Overall, existing BLM conservation designations account for 59% of the total conservation and Existing Protected Areas account for 41%.

Table IV.7-11
Plan-Wide Conservation Analysis for the Desert Linkage Network – No Action Alternative

Subarea	Available Lands (acres)	Existing Protected Areas[1] (acres)	Existing BLM Land Use Plan Conservation Designation[2] (acres)	Total Conservation (acres)
Cadiz Valley and Chocolate Mountains	890,000	187,000	259,000	446,000
Imperial Borrego Valley	155,000	14,000	1,000	16,000
Kingston and Funeral Mountains	174,000	28,000	46,000	74,000
Mojave and Silurian Valley	510,000	172,000	197,000	369,000
Owens River Valley	19,000	40	700	800
Panamint Death Valley	204,000	108,000	60	108,000
Pinto Lucerne Valley and Eastern Slopes	272,000	16,000	24,000	40,000
Piute Valley and Sacramento Mountains	152,000	14,000	88,000	102,000
Providence and Bullion Mountains	426,000	144,000	67,000	211,000
West Mojave and Eastern Slopes	863,000	45,000	347,000	392,000
Grand Total	**3,666,000**	**727,000**	**1,031,000**	**1,758,000**

[1] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[2] Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas 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). Conservation of riparian areas and wetlands, which co-occur with many of these hydrological resources, is provided below under Natural Communities.

Playa

Playa totals 322,000acres in the Plan Area. Overall, 35% (113,000 acres) would be conserved under the No Action Alternative. Existing Conservation would account for 83% of the conservation, and existing ACECs would account for 18%.

Seep/Spring

There are 427 seep/spring locations in the Plan Area. Overall, 59% (252 locations) of the seep/spring locations would be conserved under the No Action Alternative. The conservation of seep/spring under the No Action Alternative would be relatively high in most subareas. These include Cadiz Valley and Chocolate Mountains (95%, 5 locations), Kingston and Funeral Mountains (61%, 48 locations), Mojave and Silurian Valley (84%, 21 locations), Panamint Death Valley (86%, 35 locations), Piute Valley and Sacramento Mountains (75%, 14 locations), and Providence and Bullion Mountains (92%, 60 locations). Subareas with lower conservation of seep/spring include Imperial Borrego Valley (45%, 9 locations), Owens River Valley (74%, 28 locations), Pinto Lucerne Valley and Eastern Slopes (37%, 25 locations), and West Mojave and Eastern Slopes (59%, 252 locations). Overall, Existing Conservation would account for 69% of the conservation of seep/spring, and existing ACECs would account for 31%.

Major Rivers

Overall, 43% of the major rivers would be conserved under the No Action Alternative, including 84% of the Amargosa River, 31% of the Colorado River, 28% of the Mojave River,

and 0% of the Owens River. Existing conservation would account for 74% of the conservation of the major rivers and existing ACECs would account for 27%.

Dune and Sand Resources

Overall, 47% (704,000 acres) of dunes and sand resources would be conserved under the No Action Alternative. At least 70% of dunes and sand resources would be conserved in 2 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Mojave and Silurian Valley at 84% (170,000 acres) and Panamint and Death Valley at 72% (101,000acres). Subareas with lower conservation of dunes and sand resources under the No Action Alternative are Cadiz Valley and Chocolate Mountains at 31% (184,000 acres), Imperial Borrego Valley at 55% (72,000 acres), Kingston and Funeral Mountains at 53% (36,000 acres), Owens River Valley at less than 1% (10 acres), Providence and Bullion Mountains at 37% (92,000 acres), Pinto Lucerne Valley and Eastern Slopes at 58% (35,000 acres), Piute Valley and Sacramento Mountains at 57% (30 acres), and West Mojave and Eastern Slopes at 36% (13,000 acres).

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 the No Action Alternative, the majority of available lands would be conserved at most elevation classes above sea level. The average conservation of elevation classes above sea level would be 59%. The majority of Plan Area lands for most elevation classes above sea level will be conserved under the No Action Alternative 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 almost all elevation classes allows for the conservation of the greatest range and diversity of natural communities and Covered Species habitats. Conserving the majority of most elevation classes 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 13,906,000 acres, or 73% of the Plan Area. Conservation of the plains landform under the No Action Alternative would include 51% 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 the No Action Alternative would include 77% of canyons/deeply incised streams, 77% of mountain tops/high ridges, and 74% of open slopes. As the majority of Plan Area lands for all landforms will be conserved under the No Action Alternative, 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 the No Action Alternative would range from 48% of slopes up to 5% to 92% of slopes over 100%, with 83% of slopes less than 20% conserved under the No Action Alternative. All slope classes above 5% slope would have at least 70% conservation. The majority of Plan Area lands within each slope class except for below 5% slope will be conserved under the No Action Alternative 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 the No Action Alternative, conservation of aspects would range from 13% for flat terrain to 62% of west aspect. The majority of Plan Area lands for each aspect class except for flat terrain will be conserved under the No Action Alternative 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. 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.7-12 shows the conservation to natural communities under the No Action Alternative. A conservation summary by general community is provided below.

California forest and woodlands

Overall, approximately 29,000 acres (20%) of California forest and woodlands would be conserved under the No Action Alternative. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea, but conservation would also occur in the West Mojave and Eastern Slopes subarea.

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, and bighorn sheep. California forest and woodlands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of California forest and woodlands would provide conservation of suitable habitat for these species.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 17,000 acres (16%) of chaparral and coastal scrubs would be conserved under the No Action Alternative. The majority of conservation would occur in the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Eastern Slopes, and Mojave and Silurian Valley subareas.

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.7-7. Therefore, conservation of chaparral and coastal scrubs would provide conservation of suitable habitat for these species.

Desert conifer woodlands

Overall, approximately 169,000 acres (59%) of desert conifer woodlands would be conserved under the No Action Alternative. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and Providence and Bullion Mountains subareas, but conservation would occur in nine of the ten subareas.

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, and bighorn sheep. Desert conifer woodlands also provide

habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of desert conifer woodlands would provide conservation of suitable habitat for these species.

Desert outcrop and badlands

Overall, approximately 1,078,000 acres (67%) of desert outcrop and badlands would be conserved under the No Action Alternative. The majority of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas, but there are over 1,000 acres of conservation of desert outcrop and badlands in each of the Plan Area's subareas.

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. 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.7-7. Therefore, conservation of desert outcrop and badlands would provide conservation of suitable habitat for these species.

Desert scrubs

Overall, approximately 7,708,000acres (58%) of desert scrubs would be conserved under the No Action Alternative. The majority of the conserved acreage would occur in the Kingston and Funeral Mountains, Providence and Bullion Mountains, Mojave and Silurian Valley, and Panamint Death Valley subareas. However, conservation of desert scrubs is well distributed with conservation in every subarea of the Plan Area. As the most prevalent desert scrub natural community in the Plan Area, lower bajada and fan Mojavean–Sonoran desert scrub accounts for the majority of the conservation of desert scrub communities.

Desert scrubs provide habitat for the following Covered Species: golden eagle, California condor, Bendire's thrasher, burrowing owl, pallid bat, California leaf-nosed bat, Townsend's big-eared bat, Mohave ground squirrel, bighorn sheep, desert tortoise, flat-tailed horned lizard, Mojave fringe-toed lizard, triple-ribbed milk-vetch, alkali mariposa-lily, desert cymopterus, Mojave tarplant, Little San Bernardino Mountains linanthus, Mojave monkeyflower, and Bakersfield cactus. Desert scrubs also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of desert scrubs would provide conservation of suitable habitat for these species.

Dunes

Overall, approximately 181,000acres (64%) of dunes would be conserved under the No Action Alternative. The majority of the conserved acreage would occur in the Owens River Valley, Imperial Borrego Valley, and Panamint Death Valley subareas. The remaining conserved acreage is distributed throughout the remaining subareas.

Dune communities provide habitat for the following Covered Species: Mojave fringe-toed lizard, flat-tailed horned lizard, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Dune communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of desert dunes would provide conservation of suitable habitat for these species.

Grasslands

Overall, approximately 32,000 acres (13%) of grasslands would be conserved under the No Action Alternative. The majority of the conserved acreage would occur in the Pinto Lucerne Valley and Eastern Slopes, but there would also be substantial conservation in the Mojave and Silurian Valley and West Mojave and Eastern Slopes subareas.

Grassland communities provide habitat for the following Covered Species: golden eagle, burrowing owl, mountain plover, and Bendire's thrasher. Grasslands also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Therefore, conservation of grasslands would provide conservation of suitable habitat for these species.

Riparian

Overall, approximately 494,000 acres (50%) of riparian communities would be conserved under the No Action Alternative. About half of the conserved acreage would occur in the Cadiz Valley and Chocolate Mountains and Providence and Bullion Mountains subareas. As the most prevalent riparian natural community in the Plan Area, Madrean Warm Semi-Desert Wash Woodland/Scrub accounts for the majority (74%) of the conservation of riparian communities.

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. 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.7-7. Therefore, conservation of riparian communities would provide conservation of suitable habitat for these species.

Wetlands

Overall, approximately 310,000 acres (36%) of wetland communities would be conserved under the No Action Alternative. Over half of the conserved acreage would occur in the Panamint Death Valley and West Mojave and Eastern Slopes subareas with the remaining conserved acreage distributed throughout the remaining subareas. As the most prevalent wetland natural communities in the Plan Area, conservation of North American warm desert alkaline scrub and herb playa and wet flat and Southwestern North American salt basin and high marsh account for the majority (93%) of the conservation of riparian communities.

Wetland communities provide habitat for the following Covered Species: California black rail, Yuma clapper rail, California leaf-nosed 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. Wetland communities also provide habitat for the Non-Covered Species associated with this community as identified in Table IV.7-7. Conservation of wetland communities would benefit these species.

Table IV.7-12
Plan-Wide Conservation Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
California Forest and Woodland				
Californian broadleaf forest and woodland	72,000	1,000	500	2,000
Californian montane conifer forest	78,000	25,000	3,000	27,000
Chaparral and Coastal Scrub Community (Cismontane Scrub)				
Californian mesic chaparral	4,000	20	–	20
Californian pre-montane chaparral	1,000	–	20	20
Californian xeric chaparral	24,000	3,000	10	3,000
Central and south coastal California seral scrub	1,000	–	–	–

Table IV.7-12
Plan-Wide Conservation Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Central and South Coastal Californian coastal sage scrub	54,000	2,000	3,000	5,000
Western Mojave and Western Sonoran Desert borderland chaparral	24,000	9,000	–	9,000
Desert Conifer Woodlands				
Great Basin Pinyon - Juniper Woodland	287,000	159,000	10,000	169,000
Desert Outcrop and Badlands				
North American warm desert bedrock cliff and outcrop	1,613,000	799,000	279,000	1,078,000
Desert Scrub				
Arizonan upland Sonoran desert scrub	57,000	43,849	200	44,000
Intermontane deep or well-drained soil scrub	107,000	30,000	31,000	60,000
Intermontane seral shrubland	74,000	1,000	1,000	3,000
Inter-Mountain Dry Shrubland and Grassland	437,000	97,000	84,000	180,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	76,000	8,000	10,000	18,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	10,830,000	4,529,000	1,862,000	6,391,000
Mojave and Great Basin upper bajada and toeslope	1,334,000	837,000	121,000	957,000
Shadscale - saltbush cool semi-desert scrub	281,000	37,000	16,000	54,000
Southern Great Basin semi-desert grassland	100	0	40	40
Dunes				
North American warm desert dunes and sand flats	281,000	145,000	35,000	181,000
Grassland				
California Annual and Perennial Grassland	230,000	23,000	7,000	31,000

Table IV.7-12
Plan-Wide Conservation Analysis for Natural Communities – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
California annual forb/grass vegetation	8,000	400	1,000	1,000
Riparian				
Madrean Warm Semi-Desert Wash Woodland/Scrub	697,000	193,000	172,000	365,000
Mojavean semi-desert wash scrub	30,000	7,000	7,000	13,000
Riparian	600	30	—	30
Sonoran-Coloradan semi-desert wash woodland/scrub	191,000	70,000	35,000	105,000
Southwestern North American riparian evergreen and deciduous woodland	6,000	500	100	600
Southwestern North American riparian/wash scrub	66,000	7,000	2,833	10,000
Wetland				
Arid West freshwater emergent marsh	4,000	40	—	40
Californian warm temperate marsh/seep	400	0	10	10
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	310,000	135,000	30,000	164,000
Open Water	209,000	23,000	80	23,000
Playa	78,000	400	70	400
Southwestern North American salt basin and high marsh	260,000	30,000	92,000	122,000
Wetland	8,000	30	50	90
Other Land Cover				
Agriculture	711,000	6,000	4,000	10,000
Developed and Disturbed Areas	447,000	3,000	9,000	12,000
Rural	114,000	900	2,000	3,000
Not Mapped	7,000	200	60	300
Total	**19,011,000**	**7,226,000**	**2,818,000**	**10,044,000**

[1] Available lands include the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[3] Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas 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.7-13 shows the conservation of Covered Species habitat under the No Action Alternative. The majority of the habitat conserved under the No Action Alternative is associated with the Kingston and Funeral Mountains, Providence and Bullion Mountains, Cadiz Valley and Chocolate Mountains and Mojave and Silurian Valley subareas.

Much of the habitats for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that occur in both the Existing Protected Areas and BLM Existing ACECs. Flat-tailed horned lizard habitat is only conserved in the Imperial Borrego Valley, mostly in existing conservation areas. Tehachapi slender salamander habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM Existing ACECs.

The majority of the habitat conservation of covered bird species under the No Action Alternative is in Existing Protected Areas. Conservation of Bendire's thrasher, burrowing owl and least Bell's vireo occurs in all subareas of the Plan Area, and except for burrowing owl is mainly in Existing Protected Areas.

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 Existing ACECs. Golden eagle has the largest total conservation of suitable habitat for all covered bird species. The conservation of golden eagle is widespread in the Plan Area with most of the conservation in BLM Existing ACECs. Swainson's hawk is primarily associated with the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Owens River Valley subareas; of these subareas, the majority of suitable habitat is conserved in Existing Protected Areas.

Gila woodpecker are mainly conserved in the Cadiz Valley and Chocolate Mountains subarea and most of the conserved areas are in Existing Protected Areas. Conservation of mountain plover suitable habitat is divided between Existing Protected Areas and BLM Existing ACECs in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is mostly within Existing Protected Areas. All conservation (2%) of suitable habitat for Owens pupfish and Owens tui chub occurs within existing conservation under the No Action Alternative.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is divided between BLM Existing ACECs and Existing Protected Areas. The majority of Mohave ground squirrel suitable habitat conservation is within BLM Existing ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in Existing Protected Areas.

Conservation of plant species is highly variable under the No Action Alternative.

Table IV.7-13
Plan-wide Conservation Analysis for Species Habitat – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amphibian/Reptile				
Agassiz's desert tortoise	9,830,000	3,688,000	2,260,000	5,948,000
Flat-tailed horned lizard	753,000	151,000	142,000	292,000
Mojave fringe-toed lizard	1,097,000	400,000	97,000	497,000
Tehachapi slender salamander	48,000	300	3,000	3,000
Bird				
Bendire's thrasher	2,140,000	1,196,000	269,000	1,464,000
Burrowing owl	5,264,000	475,000	941,000	1,416,000
California black rail	197,000	21,000	8,000	29,000
California condor	1,240,000	81,000	118,000	198,000
Gila woodpecker	106,000	10,000	2,000	13,000
Golden eagle–foraging	6,672,000	2,930,000	1,416,000	4,346,000
Golden eagle–nesting	4,427,000	2,676,000	373,000	3,049,000
Greater sandhill crane	617,000	6,000	1,000	7,000
Least Bell's vireo	226,000	86,000	24,000	109,000
Mountain plover	828,000	7,000	7,000	14,000
Southwestern willow flycatcher	317,000	17,000	7,000	25,000
Swainson's hawk	1,458,000	20,000	33,000	54,000
Tricolored Blackbird	271,000	11,000	6,000	17,000
Western yellow-billed cuckoo	152,000	15,000	6,000	21,000
Yuma clapper rail	51,000	10,000	2,000	11,000

Table IV.7-13
Plan-wide Conservation Analysis for Species Habitat – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Fish				
Desert pupfish	8,000	900	90	1,000
Mohave tui chub	300	200	–	200
Owens pupfish	18,000	300	–	300
Owens tui chub	17,000	300	–	300
Mammal				
Bighorn sheep – inter-mountain habitat	3,809,000	1,882,000	524,000	2,406,000
Bighorn sheep – mountain habitat	6,648,000	4,070,000	597,000	4,667,000
California leaf-nosed bat	7,135,000	3,106,000	1,288,000	4,394,000
Mohave ground squirrel	2,403,000	204,000	737,000	941,000
Pallid bat	16,385,000	6,785,000	2,661,000	9,446,000
Townsend's big-eared bat	14,651,000	5,832,000	2,203,000	8,035,000
Plant				
Alkali mariposa-lily	119,000	200	400	600
Bakersfield cactus	278,000	20,000	55,000	75,000
Barstow woolly sunflower	154,000	3,000	86,000	90,000
Desert cymopterus	205,000	7,000	102,000	109,000
Little San Bernardino Mountains linanthus	282,000	87,000	3,000	90,000
Mojave monkeyflower	160,000	27,000	79,000	106,000
Mojave Tarplant	265,000	48,000	70,000	118,000
Owens Valley checkerbloom	147,000	2,000	300	3,000
Parish's daisy	188,000	82,000	5,000	87,000
Triple-ribbed milk-vetch	8,000	5,000	70	5,000

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

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[3] Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes 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.7-14 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, 75% of TCAs, linkage habitat, and high priority habitat would be conserved under the No Action Alternative. Within the Eastern Mojave Recovery Unit, 82% of the important areas would be conserved under the No Action Alternative. Within the Western Mojave Recovery Unit, 74% of TCAs and linkage habitat would be conserved under the No Action Alternative. Existing federal and state laws and regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species that would likely contribute additional conservation than is reported here.

Table IV.7-14
Plan-Wide Conservation Analysis for Desert Tortoise – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Colorado Desert	High Priority Habitat	387,000	157,000	0	157,000
	Linkage	469,000	126,000	4,000	130,000
	TCA	3,130,000	1,544,000	1,175,000	2,719,000
Colorado Desert Total		*3,985,000*	*1,827,000*	*1,178,000*	*3,005,000*
Eastern Mojave	Linkage	784,000	421,000	14,000	435,000
	TCA	2,096,000	1,758,000	173,000	1,931,000
Eastern Mojave Total		*2,880,000*	*2,179,000*	*186,000*	*2,366,000*
Western Mojave	Linkage	1,206,000	370,000	56,000	426,000
	TCA	2,313,000	1,059,000	1,108,000	2,166,000
Western Mojave Total		*3,519,000*	*1,429,000*	*1,163,000*	*2,592,000*
Total		**10,384,000**	**5,435,000**	**2,528,000**	**7,963,000**

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

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

3 Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes 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.7-15 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 55% of key population centers and 42% of linkages would be conserved under the No Action Alternative. Expansion areas and climate change extension areas would be conserved at 29% and 67% respectively. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federally sensitive and state listed species that would likely contribute additional conservation than is reported here.

Table IV.7-15
Plan-Wide Conservation Analysis for Mohave Ground Squirrel – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Key Population Center	509,000	44,000	234,000	278,000
Linkage	384,000	30,000	133,000	163,000
Expansion Area	224,000	19,000	47,000	66,000
Climate Change Extension	552,000	77,000	293,000	370,000
Total	**1,668,000**	**170,000**	**707,000**	**877,000**

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

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

3 Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes 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 89% of the desert tortoise designated critical habitat would be conserved under the No Action Alternative (78% conserved if non-BLM inholdings within the existing BLM ACECs are excluded). For southwestern willow flycatcher, approximately 19% of the southwestern willow flycatcher designated critical habitat would be conserved under the No Action Alternative (17% conserved if non-BLM inholdings within the existing BLM ACECs are excluded). For desert pupfish, approximately 75% of the desert pupfish designated critical habitat would be conserved under the No Action Alternative. For Parish's daisy, approximately 56% of the Parish's daisy designated critical habitat would be conserved under the No Action Alternative (43% conserved if non-BLM inholdings within the existing BLM ACECs are excluded).

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within the Plan Area. Table IV.7-16 shows the total amount of Critical Habitat and the amount within each Plan-wide reserve designation for Non-Covered Species. These reserve designations would be considered beneficial impacts for biological resources. With the exception of arroyo toad, all or a substantial portion of each species' Critical Habitat are within an existing protected area or within a BLM conservation designation.

Table IV.7-16
Plan-Wide Conservation Analysis for Critical Habitat Within Existing BLM Land Use Plans for Non-Covered Species – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amargosa nitrophila	1,000	0	1,000	1,000
Amargosa vole	5,000	1,400	2,000	3,400
Arroyo toad	4,000	0	0	0
Ash Meadows gumplant	300	0	300	300
Cushenbury buckwheat	600	0	4,000	600
Cushenbury milk-vetch	1,000	0	8,000	1,000
Cushenbury oxytheca	100	0	80	100
Lane Mountain milk-vetch	14,000	3,000	10,000	14,000
Pierson's milk-vetch	12,000	3,000	9,000[4]	12,000
Peninsular Bighorn sheep	47,000	41,000	300	41,300

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

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[3] Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

[4] Approximately 9,000 acres 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.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes 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.7.3.1.2 Impacts on BLM Lands of Existing BLM Land Use Plans in No Action Alternative

Under the No Action Alternative, the existing BLM land use plans within the Plan Area would continue to be implemented on BLM lands. These plans allow for renewable energy development in certain land designations, including SEZs and Solar PEIS Variance lands. Also, as has been the case for individual solar, wind, and transmission projects approved on BLM land up to now, these projects would be approved along with a project-specific LUPA if required. If a solar project were proposed in a SEZ, no LUPA would be required. Likewise, the existing plans identify various land designations such as existing protected areas, ACECs, SRMAs, and National Scenic and Historic Trails with associated management actions.

Impact Assessment

The following provides the assessment of impacts and mitigation for renewable energy and transmission development on BLM-administered lands under the No Action Alternative. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9).

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

Table IV.7-17 shows the impacts to natural communities under the No Action Alternative on BLM Land.

<u>California forest and woodlands</u>

Overall, approximately 200 acres of California forest and woodlands would be impacted under the No Action Alternative on BLM Land. Most of this impact would be from solar development in the West Mojave and Eastern Slopes subarea, but there would also be

impacts from wind and transmission development in the West Mojave and Eastern Slopes subarea and from solar, wind, and transmission development in the Pinto Lucerne Valley and Eastern Slopes subarea. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 80 acres of chaparral and coastal scrubs would be impacted under the No Action Alternative on BLM Land. 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. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert conifer woodlands

Overall, approximately 200 acres of desert conifer woodlands would be impacted under the No Action Alternative on BLM Land. Impacts to desert conifer woodlands would be from solar development in the Kingston and Funeral Mountains subarea, and solar, wind, and transmission development in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert outcrop and badlands

Overall, approximately 9,000 acres of desert outcrop and badlands would be impacted under the No Action Alternative on BLM Land. Most of these impacts would be from solar development in the Cadiz Valley and Chocolate Mountains subarea. There are also substantial impacts in the Imperial Borrego Valley subarea. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert scrubs

Overall, approximately 59,000 acres of desert scrubs would be impacted under the No Action Alternative on BLM Land. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and Kingston and Funeral Mountains subareas, but there would also be substantial impacts in the Providence and Bullion Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. Impacts to this community may

have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Dunes

Overall, approximately 1,000 acres of dunes would be impacted under the No Action Alternative on BLM Land. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountain, Imperial Borrego Valley, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Grasslands

Overall, approximately 200 acres of grasslands would be impacted under the No Action Alternative on BLM Land. Impacts would primarily occur in the Pinto Lucerne Valley and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and West Mojave and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Riparian

Overall, approximately 6,000 acres of riparian communities would be impacted under the No Action Alternative on BLM Land. Impacts would primarily occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Wetlands

Overall, approximately 3,000 acres of wetland communities would be impacted under the No Action Alternative on BLM Land. Impacts would primarily occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Table IV.7-17
Impact Analysis for Natural Communities Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California Forest and Woodland						
Californian broadleaf forest and woodland	11,000	50	30	—	0	80
Californian montane conifer forest	34,000	70	30	—	10	100
Chaparral and Coastal Scrub Community (Cismontane Scrub)						
Californian mesic chaparral	500	0	0	—	0	0
Californian pre-montane chaparral	300	0	0	—	—	0
Californian xeric chaparral	5,000	10	0	—	10	30
Central and south coastal California seral scrub	20	0	0	—	0	0
Central and South Coastal Californian coastal sage scrub	13,000	20	10	—	20	50
Western Mojave and Western Sonoran Desert borderland chaparral	200	0	0	—	0	0
Desert Conifer Woodlands						
Great Basin Pinyon - Juniper Woodland	50,000	200	50	—	20	200
Desert Outcrop and Badlands						
North American warm desert bedrock cliff and outcrop	1,203,000	7,000	100	90	1,000	9,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	3,000	10	0	0	—	10
Intermontane deep or well-drained soil scrub	69,000	20	20	—	30	60
Intermontane seral shrubland	5,000	0	0	—	0	10
Inter-Mountain Dry Shrubland and Grassland	282,000	500	200	0	90	800
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	100	50	—	0	200

Table IV.7-17
Impact Analysis for Natural Communities Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,078,000	43,000	2,000	300	10,000	54,000
Mojave and Great Basin upper bajada and toeslope	407,000	3,000	50	—	50	3,000
Shadscale - saltbush cool semi-desert scrub	103,000	1,000	10	0	100	1,000
Southern Great Basin semi-desert grassland	50	0	0	—	—	0
Dunes						
North American warm desert dunes and sand flats	125,000	900	0	0	300	2,000
Grassland						
California Annual and Perennial Grassland	28,000	80	20	0	70	200
California annual forb/grass vegetation	1,000	10	0	—	—	10
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	2,000	40	30	300	2,000
Mojavean semi-desert wash scrub	11,000	40	10	0	20	60
Sonoran-Coloradan semi-desert wash woodland/scrub	123,000	2,000	10	10	1,000	4,000
Southwestern North American riparian evergreen and deciduous woodland	400	0	0	—	0	0
Southwestern North American riparian/wash scrub	10,000	100	10	10	200	300
Wetland						
Arid West freshwater emergent marsh	10	—	—	—	—	—
Californian warm temperate marsh/seep	0	0	0	—	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	146,000	800	70	0	100	1,000

Table IV.7-17
Impact Analysis for Natural Communities Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Open Water	700	10	0	0	10	20
Playa	26,000	30	0	0	0	30
Southwestern North American salt basin and high marsh	121,000	1,000	200	—	60	1,000
Wetland	100	0	0	—	0	0
Developed and Disturbed Areas						
Agriculture	6,000	100	10	10	100	300
Developed and Disturbed Areas	44,000	20	0	1	10	30
Not Mapped	700	0	0	0	0	0
Rural	3,000	40	10	0	20	70
Total	**9,433,000**	**62,000**	**3,000**	**400**	**14,000**	**79,000**

[1] Available lands includes 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), short-term and long-term wind impacts, geothermal project area impacts, and transmission impacts. 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 39 rare natural community alliances mapped in the Plan Area on BLM land, 22 rare alliances have the potential to be impacted under the No Action Alternative on BLM land totaling approximately 1,000 acres of impacts. Impacts to rare natural communities would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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

Impacts to riparian and wetland natural communities could result in adverse effects to jurisdictional waters and wetlands. Under the No Action Alternative on BLM lands, impacts to riparian and wetland natural communities is not prohibited by existing federal laws and regulations, but impacts to riparian and wetland natural communities identified as jurisdictional waters and wetlands would be regulated by existing federal laws and

regulations. Approximately 6,000 acres of riparian communities and approximately 3,000 acres of wetland communities would be impacted under the No Action Alternative under the BLM LUPA. 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 riparian and wetland impacts could result in adverse effects to jurisdictional waters and wetlands without avoidance, minimization and mitigation measures necessary to comply with existing federal laws and regulations.

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% (1,000 acres) of playa would be impacted by Covered Activities under the No Action Alternative on BLM land. The majority of impacts would be associated with solar (1,000 acres), with 80 acres of wind impacts, and 200 acres of transmission impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Seep/Spring

Seeps occur within the Plan Area and potential impacts to seep/spring have the potential to occur under the No Action Alternative on BLM land in the following ecoregion subareas: Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Piute Valley and Sacramento Mountains, and West Mojave and Eastern Slopes. Impacts to seeps and springs would be adverse absent implementation of avoidance measures.

Major Rivers

Major rivers occur within the Plan Area on BLM land and potential impacts to major rivers under the No Action Alternative have the potential to occur to the Amargosa, Colorado, and Mojave Rivers. Impacts to major rivers would be adverse absent implementation of avoidance measures.

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 under the No Action Alternative. Impacts to ephemeral drainages would be adverse absent implementation of avoidance and minimization measures.

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

Siting, construction, and operation of renewable energy development 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 renewable energy development on BLM Land that could 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 renewable energy development across subareas on BLM Land.

Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants, could occur anywhere not prohibited from this development. On BLM Land these impacts would mostly occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas, which would experience most of terrestrial operational impacts on BLM Land. 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.

Dust and Dust Suppressants

Natural communities are susceptible to vegetation 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 (Lovich and Ennen 2011). Generally, impacts to these natural communities from renewable energy development on BLM Land are anticipated to be located within the Cadiz Valley and Chocolate Mountains subarea. Plant Covered Species on BLM Land, that could also experience vegetation degradation from dust, would mainly be affected by renewable energy development in the Imperial Borrego Valley subarea. Therefore, considering the distribution of renewable energy development that would cause dust as well as the sensitive natural communities and plant Covered

Species the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas could experience the greatest magnitude of vegetation degradation resulting from dust. Vegetation degradation resulting from dust caused by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Riparian and wetland natural communities would be susceptible to the adverse effects of dust suppressants including chemical and physical changes to an ecosystem, altered hydrological function of soils and drainage areas, and increase pollutant loads in surface water. The largest amount of impacts to riparian and wetland natural communities from renewable energy development is expected to be located in the Cadiz Valley and Chocolate Mountains, with less severe adverse effects occurring in the Kingston and Funeral Mountains and Imperial Borrego Valley subareas. Vegetation degradation resulting from the application of dust suppressants during renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Fire and Fire Management

Renewable energy development could result in increased flammable invasive annual plants and anthropogenic ignitions of fires that can cause conversion of natural communities and degrade vegetation. Desert scrub natural communities are naturally slow to recover from fire episodes, which can lead to long-term community type conversion. Approximately 59,000 acres of the impacts to desert scrubs throughout the Plan Area would occur on BLM Land under No Action Alternative. On BLM Land, these impacts would mainly occur within the Cadiz Valley and Chocolate Mountains subarea.

Construction and maintenance of fire breaks and other fire management techniques would typically result in the removal of vegetation from woodland, chaparral, and grassland natural communities. Approximately 200 acres of California forest and woodlands, 80 acres of the Plan-wide effects to chaparral natural communities, and 200 acres of the Plan-wide effects to grassland natural communities would be impacted on BLM Land, under No Action Alternative. These impacts from renewable energy development, which correspond to the amount of potential vegetation degradation resulting from 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, Kingston and Funeral Mountains, and Cadiz Valley and Chocolate Mountains subareas. Vegetation degradation result from fire and fire management for renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Invasive Plants

The adverse effects of invasive plants introduced as a result of renewable energy development 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 the same risk of adverse effects from the introduction of invasive plants. Therefore, the most vegetation degradation caused by introduction of invasive plants is anticipated to occur in the Cadiz Valley and Chocolate Mountains subarea where most of the impacts to natural communities on BLM Land would be located. Plant Covered Species found on BLM Land would also experience potential vegetation degradation as a result of renewable energy development. The Imperial Borrego Valley is expected to have the majority of impacts to plant Covered Species on BLM Land. As such, the adverse effects resulting from the introduction of invasive plants from renewable energy development would be greatest in the Cadiz Valley and Chocolate Mountains as well as the Imperial Borrego Valley subareas. Vegetation degradation resulting from the introduction of invasive plants by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

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 majority of the impacts to plant and wildlife species and their habitat under the BLM LUPA would occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains and Providence and Bullion Mountains subareas. Table IV.7-18 provides the BLM LUPA impact analysis for Covered Species habitat.

Renewable energy development in the Cadiz Valley and Chocolate Mountains subarea would mostly be from solar development, but would also include impacts from 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 that would be impacted for amphibians and reptiles, including Agassiz's desert tortoise, flat-tailed horned lizard and Mojave fringe-toed lizard. There are impacts to suitable habitat for several bird Covered Species in the Cadiz Valley and Chocolate Mountains subarea, including Bendire's thrasher, burrowing owl, gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, and mountain plover. Suitable habitat for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat would be impacted in this subarea.

Renewable energy development within the Kingston and Funeral Mountains subarea would be entirely from solar energy development. The Kingston and Funeral Mountains subarea

provides suitable habitat for one reptile, Agassiz's desert tortoise, that would be impacted. Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, golden eagle, least Bell's vireo, and yellow-billed cuckoo. Impacts to suitable habitat for the following Covered mammals occurs in the Kingston and Funeral Mountains subarea: bighorn sheep, California leaf-nosed bat, desert kit fox, pallid bat, and Townsend's big-eared bat.

Renewable energy development within the Providence and Bullion Mountains subarea would be primarily from solar energy development, but would also include impacts from transmission development. The Providence and Bullion Mountains subarea provides suitable habitat for Agassiz's desert tortoise and Mojave fringe-toed lizard that would be impacted. Impacts would occur to suitable habitat for the following three covered bird species in this subarea: burrowing owl, golden eagle, and yellow-billed cuckoo. Impacts to suitable habitat for the following Covered mammals occurs in the Providence and Bullion Mountains subarea: bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Impacts to plant and wildlife species and their habitat would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts consistent with existing applicable laws and regulations.

Table IV.7-18
Impact Analysis for Species Habitat within
Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	5,763,000	37,000	2,000	20	4,000	43,000
Flat-tailed horned lizard	422,000	5,000	500	400	2,000	7,993
Mojave fringe-toed lizard	733,000	10,000	10	—	3,000	13,000
Tehachapi slender salamander	7,000	40	20	—	0	70
Bird						
Bendire's thrasher	772,000	3,000	200	20	300	4,000
Burrowing owl	1,695,000	12,000	2,000	200	5,000	19,000
California black rail	31,000	100	10	10	400	600
California condor	243,000	1,000	500	—	200	2,000
Gila woodpecker	38,000	60	0	0	30	90

Table IV.7-18
Impact Analysis for Species Habitat within Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Golden eagle - foraging	3,916,000	26,000	900	10	5,000	32,000
Golden eagle - nesting	2,405,000	9,000	400	0	800	10,000
Greater sandhill crane	3,000	50	10	0	40	100
Least Bell's vireo	69,000	400	30	0	30	400
Mountain plover	7,000	100	20	10	60	200
Southwestern willow flycatcher	46,000	10	30	10	200	300
Swainson's hawk	113,000	300	100	0	200	700
Tricolored Blackbird	13,000	40	20	0	20	80
Western yellow-billed cuckoo	19,000	30	0	—	40	70
Yuma clapper rail	5,000	30	0	0	90	100
Fish						
Desert pupfish	500	0	0	0	0	10
Mohave tui chub	—	—	—	—	—	—
Owens pupfish	4,000	—	—	—	—	—
Owens tui chub	4,000	—	—	—	—	—
Mammal						
Bighorn sheep – inter-mountain habitat	2,199,000	14,000	400	—	1,000	16,000
Bighorn sheep – mountain habitat	3,567,000	13,986	200	30	900	15,000
California leaf-nosed bat	4,446,000	37,588	200	200	10,000	48,000
Mohave ground squirrel	1,010,000	3,000	1,000	—	300	4,508
Pallid bat	8,908,000	57,000	3,000	400	13,000	72,000
Townsend's big-eared bat	7,564,000	53,000	2,000	300	12,000	68,000
Plant						
Alkali mariposa-lily	2,000	0	0	—	0	10
Bakersfield cactus	77,000	400	200	—	50	700
Barstow woolly sunflower	72,000	600	300	—	28	900
Desert cymopterus	67,000	400	200	—	10	600

Table IV.7-18
Impact Analysis for Species Habitat within Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Little San Bernardino Mountains linanthus	73,000	100	10	0	0	100
Mojave monkeyflower	115,000	30	50	—	80	200
Mojave Tarplant	136,000	400	200	—	70	700
Owens Valley checkerbloom	55,000	0	0	—	0	0
Parish's daisy	85,000	60	10	—	20	100
Triple-ribbed milk-vetch	4,000	0	—	—	0	0

[1] Available lands includes 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), short-term and long-term wind impacts, geothermal project area impacts, and transmission impacts. 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.7-19 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, 24,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under the No Action Alternative. Within the Eastern Mojave Recovery Unit, 9,000 acres of desert tortoise important areas would be impacted under the No Action Alternative. Within the Western Mojave Recovery Unit, 14,000 acres of TCAs and linkage habitat would be impacted under the No Action Alternative. Existing federal laws and regulations would require avoidance, minimization, and compensation for impacts to this federal listed species on BLM-administered lands that would likely reduce the impacts reported here; however, these impacts to desert tortoise important areas would be adverse and would require mitigation.

Table IV.7-19
Impact Analysis for Desert Tortoise Important Areas within Existing BLM Land Use Plans – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	354,000	6,000	-	200	7,000
	Linkage	406,000	4,000	-	20	4,000
	TCA	1,728,000	9,000	-	5,000	14,000
Colorado Desert Total		*2,488,000*	*19,000*	-	*5,000*	*24,000*
Eastern Mojave	Linkage	728,000	6,000	-	-	6,000
	TCA	239,000	3,000	-	-	3,000
Eastern Mojave Total		*967,000*	*9,000*	-	-	*9,000*
Western Mojave	Linkage	797,000	8,000	100	1,000	9,000
	TCA	964,000	2,572	1,000	1,000	5,000
Western Mojave Total		*1,761,000*	*11,000*	*2,000*	*2,000*	*14,000*
Total		**5,216,000**	**39,000**	**2,000**	**7,000**	**48,000**

[1] Available lands includes 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), short-term and long-term wind impacts, and transmission impacts. There are no impacts from geothermal development to desert tortoise recovery units under the No Action Alternative. 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 the No Action Alternative, 52 territories have nests in or within 1 mile of the area available for renewable energy and transmission development under the No Action Alternative, and the breeding areas of these territories could be impacted by renewable energy and transmission development depending on the siting of specific projects. Under the No Action Alternative, 98 territories have nests in or within 4 miles of the area available for renewable energy and transmission development under the No Action Alternative, and the use areas of these territories could be impacted by renewable energy and transmission development depending of the siting of specific projects. Existing laws and regulations would require avoidance, minimization, and compensation for any take of golden eagles.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under the No Action Alternative on BLM land, approximately 15,000 acres of mountain habitat and 16,000 acres of intermountain habitat would be impacted. Existing federal regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species.

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.7-20 provides an impact analysis for these Mohave ground squirrel important areas in the BLM LUPA area. The No Action Alternative would result in 4,000 acres of Mojave ground squirrel important areas. Existing federal regulations would require avoidance, minimization, and compensation for impacts to this BLM sensitive species that would likely reduce the impacts reported here; however, these impacts to Mohave ground squirrel would be adverse and would require mitigation.

Table IV.7-20
Impact Analysis for Mohave Ground Squirrel Important Areas within Existing BLM Land Use Plans – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	300,000	800	400	100	1,000
Linkage	278,000	400	200	–	600
Expansion Area	93,000	200	90	–	300
Climate Change Extension	282,000	1,000	600	200	2,000
Total	**953,000**	**3,000**	**1,000**	**300**	**4,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Lands.

Notes: Total reported acres include solar and ground-mounted distributed generation (GMDG), short-term and long-term wind impacts, and transmission impacts. There are no impacts from geothermal development on Mohave ground squirrel important 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.

Siting, construction, and operation of renewable energy 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 renewable energy development on BLM Land that would result in noise, predator avoidance behavior, or light and glare.

Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including the disturbance of wildlife due to the creation of noise, predator avoidance behavior, as well as light and glare, could occur anywhere not prohibited from this development. On BLM Land these impacts would mostly occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas, which would experience most of the 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

Bird Covered Species, in particular during the nesting seasons, are expected to be sensitive to adverse noise effects generated by mechanical equipment and vehicles associated with the operation and maintenance of renewable energy facilities. The largest amount of impacts to bird Covered Species habitat on BLM Land would be located in the Cadiz Valley and Chocolate Mountains subarea. Smaller mammals, such as the Mohave ground squirrel, and reptiles, such the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. Overall, impacts on BLM Land to the habitat for these Covered Species would mostly occur in the Cadiz Valley and Chocolate Mountains subarea. As such, the disturbance of wildlife from noise is estimated to predominantly occur in the Cadiz Valley and Chocolate Mountains subarea. This disturbance of wildlife resulting from noise generated by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Predator Avoidance Behavior

The effects of predator avoidance behavior, including reduced foraging and breeding opportunities or avoidance of suitable foraging habitat can occur for some wildlife in response to renewable energy development. Different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to renewable energy development. However, the most disturbance of wildlife from predator avoidance behavior is estimated to occur in the Cadiz Valley and Chocolate Mountains subarea, where most of the terrestrial operational impacts from renewable energy development on BLM Land are anticipated. As a result, disturbance of wildlife resulting from predator avoidance behavior caused by renewable energy development would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

Light and Glare

Exposure of wildlife to light and glare from security lighting and reflective materials at renewable energy facilities 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. Under the No Action Alternative the most terrestrial operational impacts from renewable energy development on BLM Land are expected to occur in the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. Similarly, impacts from solar projects on BLM Land would primarily occur in the Cadiz Valley and Chocolate Mountains subarea, while the Kingston and Funeral Mountains and Providence and Bullion Mountains would also experience a lesser degree of terrestrial operational impacts from solar development.

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 renewable energy development on BLM Land are predicted to mainly be located in the Cadiz Valley and Chocolate Mountains subarea. Migratory birds that fly during the night may be attracted to aviation safety lighting. For bird Covered Species the Cadiz Valley and Chocolate Mountains, Kingston and Funeral Mountains, and West Mojave and Eastern Slopes are the subareas containing most of the anticipated impacts to bird Covered Species habitat on BLM Land. Therefore, considering the distribution solar and other renewable energy technologies and impacts on habitat for species sensitive light and glare the greatest wildlife disturbance is anticipated to occur in the Cadiz Valley and Chocolate Mountains subarea and to a lesser extent in Kingston and Funeral Mountains as well as the West Mojave and Eastern Slopes subareas.

Non-Covered Species

Potential impacts to Non-Covered Species on BLM land were analyzed as described in Section IV.7.3.1.1. Table IV.7-21 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 impact to potential habitat across all technology types is less than 1%, with the exception of the agriculture/rural land cover areas at approximately 3.2%.

As additional analysis, Table IV.7-7 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. The type of environmental protections afforded to certain sensitive natural communities, e.g., riparian or wetlands, that would protect Covered Species would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur. For example, the non-covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher. 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 No Action Alternative, impacts to designated critical habitat for Non-Covered Species on BLM lands would have the potential to occur. Specifically impacts would potentially occur to approximately 30 acres of Amargosa nitrophila critical habitat, approximately 10 acres of Ash Meadow gumplant critical habitat, approximately 80 acres of Lane Mountain milk-vetch critical habitat, and 40 acres of Peninsular bighorn sheep critical habitat. In addition, 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 under the No Action Alternative. Therefore, implementation of avoidance, minimization, and compensation measures would be needed to offset these impacts.

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	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	300	100	0	30	430	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,	6,990,000	48,000	2,300	300	10,300	60,900	0.9%

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[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,	1,328,000	8,000	100	100	1,300	9,500	0.7%

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-							

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	margined beardtongue, flat-seeded spurge							
Grassland	Coast horned lizard, American peregrine falcon, bank swallow, Ferruginous hawk, long-eared owl, northern harrier, white-tailed kite, Amargosa vole, American badger, spotted bat, Cushenbury milk-vetch, Cushenbury oxytheca, short-joint beavertail cactus	29,000	100	20	0	100	220	0.8%
Riparian/ Wetlands	Arroyo toad, California red-legged frog, Coast horned lizard, Couch's spadefoot, Western pond turtle, American peregrine falcon, Arizona Bell's vireo, bald eagle, bank swallow, Crissal thrasher, gilded flicker, elf owl, Inyo California towhee, loggerhead shrike, long-eared owl, Lucy's warbler, northern harrier, redhead, vermillion 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 myotispocketed	940,000	6,000	350	50	1,700	8,100	0.9%

Table IV.7-21
BLM LUPA Impact Analysis for Natural Communities and Associated Non-Covered Species –No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	9,000	140	20	10	120	290	3.2%

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 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 avoidance and minimization measures. Under existing laws and regulations, renewable energy and transmission projects would be required to implement seasonal restrictions and other avoidance measures including pre-construction nesting bird surveys and impact setbacks determined 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.7-22 shows impacts to the Desert Linkage Network by ecoregion subarea anticipated under the No Action Alternative for the BLM LUPA. Overall 1.2% of the Desert Linkage Network would be impacted. The percentage of the Desert Linkage Network impacted in each subarea would range from 0% for the Panamint Death Valley, Piute Valley and Sacramento Mountains, and Owens River Valley subareas to 2.5% of the Cadiz Valley and Chocolate Mountains subarea. Overall, solar would account for 74% of the impacts to the Desert Linkage Network, wind would account for 4%, and transmission would account for 22%. Geothermal would not account for any impacts under the No Action Alternative. Wind project areas would account for proportionally greater impacts in the West Mojave and Eastern Slopes subarea (34% of the total impacts in the subarea) and Pinto Lucerne Valley and Eastern Slopes subarea (21% of the total impacts in the subarea). The magnitude of impacts to the function of habitat linkages depends on site-specific factor. Impacts to Desert Linkage Network habitat linkages would be adverse and would require

mitigation to avoid impacting habitat linkage function in the subareas where impacts are anticipated under the No Action Alternative.

Table IV.7-22
Impact Analysis for the Desert Linkage Network
Within Existing BLM Land Use Plans – No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	709,000	12,000	-	5,000	18,000
Imperial Borrego Valley	145,000	100	-	80	200
Kingston and Funeral Mountains	138,000	3,000	-	-	3,000
Mojave and Silurian Valley	371,000	8	-	700	700
Owens River Valley	15,000	-	-	-	-
Panamint Death Valley	110,000	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	149,000	100	60	100	300
Piute Valley and Sacramento Mountains	111,000	-	-	-	-
Providence and Bullion Mountains	377,000	4,000	-	200	4,000
West Mojave and Eastern Slopes	389,000	2,000	1,000	100	3,000
Total	**2,514,000**	**22,000**	**1,000**	**7,000**	**29,000**

[1] Available lands includes 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), short-term and long-term wind impacts, and transmission impacts. There are no impacts from geothermal development to desert linkage network under the No Action Alternative. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Migratory Birds

Migration patterns across the Plan Area are discussed in the typical impacts section (Section IV.7.2.1.3) and quantification of operational impacts to avian and bat species are discussed in Impact 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 No Action, wind generation is a small proportion of the overall generation mix on BLM administered DFAs. Wind related Covered Activities on BLM managed DFAs are divide between the West Mojave and Eastern Slopes, Pinto Lucerne Valley and Cadiz and Chocolate

Mountain Subareas. Wind development would mostly occur on the eastern slopes of the Tehachapi Mountains and in the mountainous areas around Lucerne Valley. Key migratory resources affected would include routes between the passes of the Tehachapi Mountains and San Bernardino Mountains, and the temporary lakes and wetland refuges on and to the north of Edwards AFB. Smaller amounts of wind development would also occur in the Cadiz and Chocolate Mountains subarea to the north west of Blythe in the McCoy wash area. These areas are near the Colorado River migratory corridor, and may affect migratory bird movement to and from the Coachella Valley. No further wind development in Imperial Borrego Valley is anticipated in the No Action Alternative.

Solar development would mainly be focused on the BLM Solar SEZ in Cadiz and Chocolate Mountain subarea, with smaller quantities developed in the Imperial Borrego Valley subarea. The No Action Alternative would result in new solar generation facilities in the along the I-10 corridor to the west side of the Colorado River. This may give the appearance of a string of lakes on known migratory linkages for birds between the Colorado River and Coachella Valley. Similarly, development in the West Mojave and Eastern slopes, Pinto Lucerne Valley would occur in areas 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 west side of the East Mesa ACEC, and include areas to the west of the Salton Sea that include the Truckhaven geothermal resource area and areas to the east of the Salton Sea in the foothills of the Chocolate Mountains. In the No Action Alternative it was assumed that extensive solar development would be undertaken on the border with Nevada in the Providence and Bullion Mountain subarea.

Adverse impacts would require each project to implement surveying and siting as well as minimization measures to ensure reduction and avoidance of migratory birds and associated resources. Further compensation measures may be necessary to offset adverse effects and would be implemented on a project-by-project basis.

Application of avoidance and minimization measures would reduce the overall impacts to migratory bird populations. It may be feasible to survey, site and monitor projects to minimize loss of habitat within the Plan Area, but residual operational impacts may not be adequately mitigated through compensation strategies. For example, where the full range of a species life cycle, i.e., overwintering, migration and breeding, is not within the jurisdiction of the permitting agencies, application of adequate compensation strategies may be infeasible. Additional steps would be necessary to ensure projects do not adversely impact migratory birds within the Plan Area. After application of the mitigation measures, operational impacts on migratory birds from the No Action Alternative would be adverse and would require mitigation.

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. Under the No Action Alternative, renewable energy development would not be confined to DFAs and fragmentation and population isolation effects could occur anywhere renewable energy development is not prohibited and is assumed to be distributed in a pattern that follows past and current patterns. Also as described in the Plan-wide analysis, approximately 40% of the area available to renewable energy development under the No Action Alternative is characterized by moderately high terrestrial intactness to high terrestrial intactness. Siting and construction of renewable energy and transmission in these intact areas would result in adverse habitat fragmentation and population isolation effects. 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 environmental gradients would follow the same overall pattern as Plan-wide impacts. The effects of habitat fragmentation and population isolation would be adverse and would require mitigation to avoid and minimize impacts.

Impact BR-8: Construction of generation facilities or transmission lines would result in increased avian 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 Desert, Lucerne Valley and Imperial Borrego Valley or surrounding Blythe are already disturbed, with relatively high levels of human activity that supplement predators such as common ravens and coyotes, and support covered predator species such as resident burrowing owls and migrant Swainson's hawk. Therefore, covered operational activities in already disturbed rural and agricultural landscapes would result in increased predation, but the amount of predation increase is unknown.

However, Covered Activities in undisturbed desert habitat are likely to disproportionately supplement predators, increase predator density and consequently increase predation rates on Covered Species. The No Action alternative would result 78,000 acres of permanent

conversion of natural desert communities with 300 acres of impacts (less than 1% of the total ground disturbance) within areas characterized by disturbed land cover types.

All impacts to Kingston and Funeral Mountains, Providence and Bullion Mountains would be in natural communities, and therefore more likely to increase predation rates on susceptible species in these sub-region like desert tortoise, Mojave fringe-toed lizard, and nesting birds. Much of the development in the Cadiz and Chocolate Mountains subarea, would be expected in the solar PEIS SEZ adjacent to the I-10 corridor in eastern Riverside County. This area may already experience increased predator densities resulting from existing human development, the additional impact of further development would therefore be attenuated to a degree not currently known. However, development in more remote parts to the subarea is likely to increase predation.

Wind and solar development in the West Mojave and Eastern Slopes and the Pinto Lucerne Valley and Eastern Slopes subareas may supplement predators in undisturbed environments including parts of the Tehachapi Mountains or areas to the north of Edwards AFB. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird, golden eagle, as well as reptiles like desert tortoise and small amphibians like the Tehachapi slender salamander and mammals like the Mohave ground squirrel.

Typical management practices for the No Action would include the development of a Common Raven control plan that 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.

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.7-23 are indicative of the overall annual collision rates for all bird and bat species, not just Covered Species. The range of collision rates is estimated for the final full build-out of wind over the life of the Plan and is based on the range of collision rates in existing published and gray literature. While it is possible to provide a range of possible collision rates, it is not feasible to estimate the collision rate for each Covered Species, but only infer the propensity for a species to be at risk from collision by the overlap between the species habitat models and the likely distribution of wind generation across the subarea

Overall, the No Action Alternative would result in a median of 3,000 collisions per year for birds and 15,000 collisions per year for bats across the Plan Area. The expected distribution of wind generation in the No Action Alternative would result in 75% of all collisions occurring in West Mojave and Eastern slopes, and 6% of collisions could occur in Pinto Lucerne Valley and Eastern Slopes, with 19% of all collision likely to occur in Imperial Borrego Valley.

In the No Action Alternative, 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 Lucerne Valley and Eastern Slopes 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, with fewer impacts on wetland birds like Yuma clapper rail and California black rail. Impacts to California-leaf nosed bat, pallid bat and Townsend's big-eared bat may occur throughout the plan area.

Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each plan would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

Table IV.7-23
BLM LUPA Impact Analysis for Estimated Range of Collisions per Year for Birds and Bats by Subarea – No Action Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	0	-	-	-	-	-	-
Imperial Borrego Valley	124	200	600	2,000	200	3,000	17,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	37	100	200	700	100	800	5,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0		-	-	-	-	-

Table IV.7-23
BLM LUPA Impact Analysis for Estimated Range of Collisions per Year for Birds and Bats by Subarea – No Action Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
West Mojave and Eastern Slopes	492	700	3,000	9,000	1,000	11,000	69,000
Grand Total	**652**	**1,000**	**3,000**	**13,000**	**1,000**	**15,000**	**91,000**

[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 No Action Alternative impacts to avian and bat species from solar development assume full build out of the anticipated solar capacity. BLM administered lands would see a 6.6-fold increase in collision risks relative to baseline. Approximately 32% of the collision risks would occur in the Cadiz Valley and Chocolate Mountains, with, 23% in Imperial Borrego Valley, 31% in West Mojave and Eastern Slopes, and the remaining 8% spread across the rest of the Plan Area.

The development in the Cadiz Valley and Chocolate Mountains subarea would occur in the solar PEIS SEZ adjacent to the I-10 corridor, and in McCoy Wash. Species impacted by Covered Activities 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, southwestern willow flycatcher, Swainson's hawk, and Yuma clapper rail, 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 Lucerne

Valley and Eastern Slopes subarea would be spread throughout the Lucerne Valley. Species impacted would include golden eagle, Bendire's thrasher, and burrowing owl.

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 West Mojave and Eastern Slopes, Cadiz Valley and Chocolate Mountains, and the Imperial Borrego Valley subareas, with 5,000 acres, 14,000 acres, 12,000 acres of terrestrial impacts anticipated respectively. The remaining 5,000 acres of terrestrial impacts would be spread throughout Mojave and Silurian Valley and Providence and Bullion Mountains 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, especially in bad weather when flocks of migratory birds may be forced down.

Impacts from transmission projects would be analyzed on a project by project basis. Development of lines would follow recommendations of APLIC, where feasible, Avian protection plan would be developed for each project on a project by project basis. Each project would result in adverse impacts to avian species and would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

The level of impact on Non-Covered Species would be similar to Covered Species for each of the renewable energy types discussed above. Under the No Action Alternative, projects would be analyzed on a case-by-case basis and preparation and implementation of plans that detail avoidance, minimization, and compensation measures, are expected to address and offset collision impacts to Non-covered bird and bat 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.7-24
BLM LUPA Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	10	10	0	20
Burrowing owl	50	40	0	90
California condor	0	0	0	0
California black rail	30	0	0	30
Gila woodpecker	30	0	0	30
Golden eagle	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	30	20	0	50
Greater sandhill crane	10	0	0	10
Southwestern willow flycatcher	50	0	0	50
Swainson's hawk	10	10	0	20
Tricolored blackbird	10	30	0	40
Western yellow billed cuckoo	30	0	0	30
Yuma clapper rail	30	0	0	30
Grand Total Avian Species	**300**	**120**	**0**	**420**
California leaf-nosed bat	10	0	0	10
Pallid bat	10	50	0	60
Townsend's big-eared bat	30	10	0	40
Grand Total Bat Species	**50**	**60**	**0**	**110**

[1] California condor would not be permitted under No Action Alterative, as it is fully protected species.
[2] Take of Golden Eagle would be permitted based on current Eagle Act permit regulations.

IV.7.3.1.2.1 Impacts of Changes to BLM Land Designations

The No Action Alternative has no reserve design, but without approval of an action alternative, there would be continued protection and management of existing protected areas (e.g., Wilderness areas, National and State Parks, etc.) and existing BLM land designation areas on BLM-administered lands. These existing plans identify various land designations such as existing ACECs, SRMAs, Management Areas, Wildlife Habitat Management Areas, National Scenic and Historic Trails, and Wild and Scenic Rivers with

associated management actions. Under the No Action Alternative, project-specific mitigation required for renewable energy and transmission projects developed under the No Action that results in habitat conservation cannot be quantified and was not included in this analysis. The following provides an analysis of the conservation provided by existing protected areas and BLM land designations on BLM-administered lands in the DRECP area, organized by landscape, natural communities, and species.

Existing BLM land use plans have also established Special Recreation Management Areas (SRMAs) and have inventoried and managed lands with Wilderness Characteristics. These designations and management areas are overlays that specify particular management and uses for specific areas. These land designations may co-occur with the other BLM designations (e.g., ACECs). Where these land designations do no co-occur with existing protected areas or ACECs on BLM-administered lands, they were not included in the conservation analysis for biological resources provided in this section.

Landscape

Habitat Linkages

Table IV.7-25 shows the conservation of the Desert Linkage Network under the No Action Alternative for the BLM LUPA. Overall, 53% (1,338,000 acres) of the Desert Linkage Network habitat linkage areas occur in areas of existing conservation or in existing BLM conservation designations. Conservation of habitat linkage areas in the subareas would be variable, ranging from 800 acres (5%) in the Owens River Valley to 90,000 acres (81%) in the Piute Valley and Sacramento Mountains subarea. Overall, existing BLM conservation designations account for 39% of the total conservation and Existing Protected Areas account for 61%.

Table IV.7-25
Conservation Analysis for the Desert Linkage Network
Within Existing BLM Land Use Plans - No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Cadiz Valley and Chocolate Mountains	709,000	170,000	210,000	380,000
Imperial Borrego Valley	145,000	14,000	1,000	15,000
Kingston and Funeral Mountains	138,000	9,000	43,000	52,000
Mojave and Silurian Valley	371,000	133,000	159,000	292,000
Owens River Valley	15,000	40	700	800
Panamint Death Valley	110,000	27,000	60	27,000
Pinto Lucerne Valley and Eastern Slopes	149,000	2,000	22,000	24,000

Table IV.7-25
Conservation Analysis for the Desert Linkage Network
Within Existing BLM Land Use Plans - No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Piute Valley and Sacramento Mountains	111,000	8,000	81,000	90,000
Providence and Bullion Mountains	377,000	139,000	58,000	197,000
West Mojave and Eastern Slopes	389,000	13,000	247,000	261,000
Total	**2,514,000**	**516,000**	**823,000**	**1,338,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) that overlap with BLM-administered land, such as wilderness areas.
[3] Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs). Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes 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 the No Action Alternative 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 161,000 acres in the Plan Area on BLM land. Overall, 16% (26,000 acres) would be conserved under the No Action Alternative on BLM land. Existing Conservation would account for 40% of the conservation, while existing ACECs would account for 60%.

Seep/Spring

There are 158 seep/spring locations in the Plan Area on BLM land. Overall, 62% (98 locations) of the seep/spring locations would be conserved under the No Action Alternative on BLM land. The conservation of seep/spring under the No Action Alternative on BLM land would be relatively high in most subareas. These include Cadiz

Valley and Chocolate Mountains (95%, 5 locations), Imperial Borrego Valley (32%, 1 location), Kingston and Funeral Mountains (39%, 10 locations), Mojave and Silurian Valley (76%, 8 locations), Owens River Valley (12%, 1 location), Panamint Death Valley (63%, 8 locations), Piute Valley and Sacramento Mountains (83%, 13 locations), Pinto Lucerne Valley and Eastern Slopes (37%, 11 locations), Providence and Bullion Mountains (100%, 23 locations), and West Mojave and Eastern Slopes (69%, 18 locations). Overall, Existing Conservation would account for 46% of the conservation of seep/spring, while existing ACECs would account for 54%.

Major Rivers

Overall, 81% of the major rivers would be conserved under the No Action Alternative on BLM land, including 83% of the Amargosa River and 77% of the Mojave River. Existing Conservation would account for 43% and existing ACECs would account for 57%.

Dune and Sand Resources

Overall, 40% (394,000 acres) of dunes and sand resources would be conserved under the No Action Alternative on BLM land. At least 50% of dunes and sand resources would be conserved in 3 subareas in the Plan Area that contain substantial acreage of dunes and sand resources, including Imperial Borrego Valley at 60% (69,000 acres), Mojave and Silurian Valley at 80% (36,000 acres), and West Mojave and Eastern Slopes at 96% (8,000 acres). Subareas with lower conservation of dunes and sand resources under the No Action Alternative on BLM land are Cadiz Valley and Chocolate Mountains at 34% (178,000 acres), Kingston and Funeral Mountains at 46% (20,000 acres), Providence and Bullion Mountains at 41% (77,000 acres), and Pinto Lucerne Valley and Eastern Slopes at 37% (5,000 acres).

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 the No Action Alternative on BLM Land would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-26 shows the conservation to natural communities under the No Action Alternative on BLM land.

California forest and woodlands

Overall, approximately 21,000 acres (457%) of California forest and woodlands would be conserved under the No Action Alternative on BLM Lands, which is approximately 71% of

the conserved acreage of California forest and woodland compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 6,000 acres (33%) of chaparral and coastal scrubs would be conserved under the No Action Alternative on BLM Lands, which is more proportionally than would be conserved Plan-wide, but is approximately 35% of the conserved acreage of chaparral and coastal scrubs compared to the Plan-wide conservation of this general community. Conservation would occur in the Pinto Lucerne Valley and Eastern Slopes, Mojave and Silurian Valley, and West Mojave and Eastern Slopes subareas.

Desert conifer woodlands

Overall, approximately 35,000 acres (70%) of desert conifer woodlands would be conserved under the No Action Alternative on BLM Lands, which is more proportionally than would be conserved Plan-wide, but is only approximately 21% of the conserved acreage of desert conifer woodlands compared to the Plan-wide conservation of this general community. The majority of conservation would occur 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 802,000 acres (67%) of desert outcrop and badlands would be conserved under the No Action Alternative on BLM Land, which is the same proportion of available lands conserved Plan-wide, but is approximately 74% of the total acreage of conserved desert outcrop and badlands Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas.

Desert scrubs

Overall, approximately 3,970,000 acres (57%) of desert scrubs would be conserved under the No Action Alternative on BLM Land, which is roughly the same proportion of available lands conserved Plan-wide, but is approximately 52% of the total acreage of conserved desert scrubs Plan-wide. The majority of conservation would occur in the Cadiz Valley and Chocolate Mountains, Providence and Bullion Mountains, Kingston and Funeral Mountains, and Mojave and Silurian Valley subareas.

Dunes

Overall, approximately 66,000 acres (53%) of dunes would be conserved under the No Action Alternative on BLM Land, which is both a lesser proportion of available lands conserved Plan-wide and only accounts for approximately 36% of the total acreage of conserved dunes Plan-wide. The majority of the conservation would occur in the Imperial Borrego Valley subarea.

Grasslands

Overall, approximately 14,000 acres (49%) of grasslands would be conserved under the No Action Alternative on BLM Land, which is a greater proportion of available lands compared to that conserved Plan-wide, but is approximately 45% of the total acreage of conserved grasslands Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea.

Riparian

Overall, approximately 311,000 acres (48%) of riparian communities would be conserved under the No Action Alternative on BLM Land, which is slighter less proportionally of available lands than is conserved Plan-wide and accounts for approximately 63% of the total acreage of conserved riparian communities Plan-wide. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Piute Valley and Sacramento Mountains subareas.

Wetlands

Overall, approximately 98,000 acres (34%) of wetland communities would be conserved under the No Action Alternative on BLM Land, which accounts for approximately 32% of the total acreage of conserved wetland communities Plan-wide. Most of the conservation would occur in the West Mojave and Eastern Slopes, Mojave and Silurian Valley, and Kingston and Funeral Mountains subareas.

Table IV.7-26
Conservation Analysis for Natural Communities
Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
California forest and woodland				
Californian broadleaf forest and woodland	11,000	500	400	900

Table IV.7-26
Conservation Analysis for Natural Communities
Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Californian montane conifer forest	34,000	18,000	2,000	20,000
Chaparral and coastal scrub community (Cismontane scrub)				
Californian mesic chaparral	500	—	—	—
Californian pre-montane chaparral	300	—	20	20
Californian xeric chaparral	5,000	2,000	10	2,000
Central and south coastal California seral scrub	20	—	—	—
Central and South Coastal Californian coastal sage scrub	13,000	2,000	2,000	4,000
Western Mojave and Western Sonoran Desert borderland chaparral	200	20	—	20
Desert conifer woodlands				
Great Basin Pinyon - Juniper Woodland	50,000	27,000	8,000	35,000
Desert outcrop and badlands				
North American warm desert bedrock cliff and outcrop	1,203,000	563,000	239,000	802,000
Desert Scrub				
Arizonan upland Sonoran desert scrub	3,000	1,000	200	2,000
Intermontane deep or well-drained soil scrub	69,000	16,000	27,000	42,000
Intermontane seral shrubland	5,000	10	1,000	1,000
Inter-Mountain Dry Shrubland and Grassland	282,000	73,000	68,000	141,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	24,000	4,000	7,000	11,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	6,078,000	1,975,000	1,493,000	3,468,000
Mojave and Great Basin upper bajada and toeslope	407,000	164,000	111,000	275,000
Shadscale - saltbush cool semi-desert scrub	103,000	17,000	13,000	30,000

Table IV.7-26
Conservation Analysis for Natural Communities
Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Southern Great Basin semi-desert grassland	50	—	40	40
Dunes				
North American warm desert dunes and sand flats	125,000	34,000	32,000	66,000
Grassland				
California Annual and Perennial Grassland	28,000	10,000	4,000	14,000
California annual forb/grass vegetation	1,000	0	700	700
Riparian				
Madrean Warm Semi-Desert Wash Woodland/Scrub	502,000	103,000	139,000	243,000
Mojavean semi-desert wash scrub	11,000	1,000	6,000	7,000
Sonoran-Coloradan semi-desert wash woodland/scrub	122,000	28,000	31,000	59,000
Southwestern North American riparian evergreen and deciduous woodland	400	0	70	70
Southwestern North American riparian/wash scrub	10,000	600	2,000	3,000
Wetland				
Arid West freshwater emergent marsh	10	—	—	—
Californian warm temperate marsh/seep	0	—	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	146,000	13,000	26,000	39,000
Open Water	700	0	60	70
Playa	26,000	300	60	400
Southwestern North American salt basin and high marsh	121,000	2,000	57,000	59,000
Wetland	100	—	10	10

Table IV.7-26
Conservation Analysis for Natural Communities
Within Existing BLM Land Use Plans – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Other Land Cover				
Agriculture	6,000	0	400	400
Developed and Disturbed Areas	44,000	200	4,589	5,000
Rural	3,000	0	40	40
Not Mapped	700	0	40	40
Total	**9,433,000**	**3,054,000**	**2,275,000**	**5,329,000**

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

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) that overlap with BLM-administered land, such as wilderness areas.

[3] Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs) on BLM-administered lands. Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands on BLM-administered lands. 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.7-27 shows the conservation of Covered Species habitat under the BLM No Action Alternative. Generally, the percent conservation of Covered Species habitat in available lands is highly variable,. The majority of the habitat conserved under the No Action Alternative is associated with the Kings and Funeral Mountains, Providence and Bullion Mountains, Cadiz Valley and Chocolate Mountains and Mojave and Silurian Valley subareas.

Much of the habitats for Agassiz's desert tortoise and Mojave fringe-toed lizard are widespread throughout the subareas and occur in both the BLM Existing ACECs and Existing Protected Areas. Flat-tailed horned lizard habitat is only conserved in the Imperial Borrego Valley, mostly in BLM Existing ACECs. Tehachapi slender salamander habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM Existing ACECs.

The majority of the habitat conservation of covered bird species under the No Action Alternative is in Existing Protected Areas but varies across ecoregion subareas.

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

Existing ACECs. Golden eagle has the largest total conservation of suitable habitat for all covered bird species. The conservation of golden eagle is widespread in the Plan Area with most of the conservation in Existing Protected Areas. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes and Owens River Valley subareas; of these subareas, the majority of suitable habitat is conserved in BLM Existing ACECs.

Gila woodpecker is mainly conserved in the Cadiz Valley and Chocolate Mountains subarea and most of the conserved areas are in Existing Protected Areas. Conservation of mountain plover suitable habitat is mostly in BLM Existing ACECs in the West Mojave and Eastern Slopes subarea.

Conservation of suitable habitat for desert pupfish is mostly in the Imperial Borrego Valley in BLM Existing ACECs. Mohave tui chub suitable habitat is not conserved under the BLM No Action Alternative. All conservation of suitable habitat for Owens pupfish (8%) and Owens tui chub (8%) occurs within Existing Protected Areas under the BLM No Action Alternative.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is divided between BLM Existing ACECs and Existing Protected Areas. At least half of the conservation of burro deer, desert kit fox and Mohave ground squirrel, suitable habitat is from BLM Existing ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in Existing Protected Areas.

Conservation of plant species ranges from less than 3% of suitable habitat for Owens Valley checkerbloom to 91% of suitable habitat for triple-ribbed milk-vetch. The proportion of suitable habitat conserved in Existing Protected Areas and BLM Existing ACECs conservation varies by species.

Table IV.7-27
Conservation Analysis for Species Habitat Within
Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amphibian/Reptile				
Agassiz's desert tortoise	5,763,000	1,850,000	1,802,000	3,652,000
Flat-tailed horned lizard	422,000	36,000	128,000	163,000
Mojave fringe-toed lizard	733,000	212,000	82,000	293,000
Tehachapi slender salamander	7,000	—	1,000	1,000

Table IV.7-27
Conservation Analysis for Species Habitat Within Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Bird				
Bendire's thrasher	772,000	266,000	241,000	506,000
Burrowing owl	1,695,000	142,000	669,000	811,000
California black rail	31,000	1,000	6,000	7,000
California condor	243,000	37,000	95,000	132,000
Gila woodpecker	38,000	700	2,000	3,000
Golden eagle - foraging	3,916,000	1,214,000	1,183,000	2,397,000
Golden eagle - nesting	2,405,000	1,322,000	315,000	1,637,000
Greater sandhill crane	3,000	0	300	300
Least Bell's vireo	69,000	28,000	19,000	46,000
Mountain plover	7,000	80	2,000	2,000
Southwestern willow flycatcher	46,000	5,000	5,000	10,000
Swainson's hawk	113,000	3,000	19,000	22,000
Tricolored Blackbird	13,000	5,000	1,000	6,000
Western yellow-billed cuckoo	19,000	4,000	4,000	8,000
Yuma clapper rail	5,000	30	1,000	1,000
Fish				
Desert pupfish	500	20	90	100
Mohave tui chub	—	—	—	—
Owens pupfish	4,000	300	—	300
Owens tui chub	4,000	300	—	300
Mammal				
Bighorn sheep – inter-mountain habitat	2,199,000	766,000	453,000	1,220,000
Bighorn sheep – mountain habitat	3,567,000	1,807,000	525,000	2,332,000
California leaf-nosed bat	4,446,000	1,414,000	1,095,000	2,509,000
Mohave ground squirrel	1,010,000	94,000	500,000	594,000
Pallid bat	8,908,000	2,978,000	2,157,000	5,135,000
Townsend's big-eared bat	7,564,000	2,288,000	1,788,000	4,076,000
Plant				
Alkali mariposa-lily	2,000	0	300	300
Bakersfield cactus	77,000	3,000	47,000	50,000
Barstow woolly sunflower	72,000	400	56,000	56,000

Table IV.7-27
Conservation Analysis for Species Habitat Within Existing BLM Land Use Plans – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Desert cymopterus	67,000	4,000	54,000	57,000
Little San Bernardino Mountains linanthus	73,000	6,000	2,000	9,000
Mojave monkeyflower	115,000	23,000	71,000	94,000
Mojave Tarplant	136,000	29,000	56,000	85,000
Owens Valley checkerbloom	55,000	2,000	300	2,000
Parish's daisy	85,000	34,000	5,000	39,000
Triple-ribbed milk-vetch	4,000	4,000	0	4,000

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

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[3] Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs) on BLM-administered lands. Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands on BLM-administered lands. 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.7-28 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, 71% of TCAs, linkage habitat, and high priority habitat would be conserved under the No Action Alternative on BLM land. Within the Eastern Mojave Recovery Unit, 67% of the important areas would be conserved under the No Action Alternative on BLM land. Within the Western Mojave Recovery Unit, 75% of TCAs and linkage habitat would be conserved under the No Action Alternative on BLM land. Existing federal laws and regulations would require avoidance, minimization, and compensation for impacts to this federally listed species that would likely contribute additional conservation than is reported here.

Table IV.7-28
Conservation Analysis for Desert Tortoise Important Areas Within Existing BLM Land Use Plans – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Colorado Desert	High Priority Habitat	354,000	156,000	0	156,000
	Linkage	406,000	126,000	4,000	129,000
	TCA	1,728,000	454,000	1,021,000	1,475,000
Colorado Desert Total		*2,488,000*	*735,000*	*1,025,000*	*1,760,000*
Eastern Mojave	Linkage	728,000	418,000	13,000	430,000
	TCA	239,000	56,000	161,000	217,000
Eastern Mojave Total		*967,000*	*474,000*	*174,000*	*648,000*
Western Mojave	Linkage	797,000	368,000	52,000	420,000
	TCA	964,000	129,000	776,000	905,000
Western Mojave Total		*1,761,000*	*498,000*	*828,000*	*1,325,000*
Total		**5,216,000**	**1,707,000**	**2,026,000**	**3,733,000**

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

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

[3] Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs) on BLM-administered lands. Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands on BLM-administered lands. 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.7-29 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 64% of key population centers and 43% of linkages would be conserved under the No Action Alternative on BLM land. Expansion areas and climate change extension areas would be conserved at 53% and 87% respectively on BLM land. Existing federal laws and regulations would require avoidance, minimization, and compensation for impacts to this federally sensitive species that would likely contribute additional conservation than is reported here.

Table IV.7-29
Conservation Analysis for Mohave Ground Squirrel Important Areas Within Existing BLM Land Use Plans – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Key Population Center	300,000	18,000	173,000	191,000
Linkage	278,000	24,000	95,000	119,000
Expansion Area	93,000	5,000	43,000	49,000
Climate Change Extension	282,000	45,000	202,000	247,000
Total	**953,000**	**93,000**	**513,000**	**605,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas.
[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).
[3] Existing BLM Land Use Plan Conservation Designations include existing Areas of Critical Environmental Concern (ACECs) on BLM-administered land. Conservation reported here includes existing BLM Land Use Plan conservation designations on BLM-administered lands only.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands on BLM-administered land. 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.

Non-Covered Species Critical Habitat

Ten Non-Covered Species have Critical Habitat within BLM LUPA Lands. Table IV.7-30 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. With the exception of arroyo toad, 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.7-30
Conservation Analysis for Critical Habitat within Existing BLM Land Use Plans for Non-Covered Species – No Action Alternative

Species	Available Lands[1]	Existing Protected Areas (acres)[2]	Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amargosa nitrophila	1,000	0	1,000	1,000
Amargosa vole	4,000	1,000	2,000	3,000
Arroyo toad	30	0	0	0
Ash Meadows gumplant	300	0	300	300
Cushenbury buckwheat	400	0	400	430
Cushenbury milk-vetch	900	0	800	800
Cushenbury oxytheca	80	0	80	80
Lane Mountain milk-vetch	10,000	0	10,000	10,000
Pierson's milk-vetch	12,000	3,000	9,000[4]	12,000
Peninsular bighorn sheep	7,000	5,000	300	5,300

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

2 Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs).

3 Existing BLM Land Use Plan conservation designation reports the conservation in the full existing Areas of Critical Environmental Concern (ACECs) designation, which includes BLM and non-BLM inholdings within the designation. Of the approximately 2,966,000 acres of Existing BLM Land Use Plan conservation designations in the Plan Area, approximately 2,395,000 acres occur on BLM-administered lands and approximately 571,000 acres occur on non-BLM inholding lands. Section IV.7.3.1.2 provides a conservation analysis of existing BLM Land Use Plan conservation designations under the No Action Alternative on BLM-administered lands only.

4 Approximately 9,000 acres 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.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. Acreages are reported within available lands, which includes 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.7.3.1.3 Impacts of Natural Community Conservation Plan in No Action Alternative

The NCCP would apply to all lands within the Plan Area. In the absence of Plan implementation, the NCCP would not be approved and no incidental take permits would be issued under the NCCP. Projects would continue to be considered by the appropriate lead agency on an individual basis. The impacts that would occur in the absence of the NCCP would be the same as those described in Section IV.7.3.1.1.1 (Plan-wide analysis).

IV.7.3.1.4 Impacts of General Conservation Plan in No Action Alternative

As described in Volume II, the GCP would apply to nonfederal lands in the Plan Area. In the absence of Plan implementation, the GCP would not be approved and no incidental take permits would be issued under the GCP. Projects would continue to be considered by the appropriate lead agency on an individual basis. The impacts that would occur in the absence of the GCP would be the same as those described in Section IV.7.3.1.1.1 (Plan-wide analysis), but would be specific to nonfederal lands.

Impact Assessment

The following provides the assessment of impacts and mitigation for renewable energy and transmission development on nonfederal lands under the No Action Alternative. Impacts are organized by biological resources impact statement (i.e., BR-1 through BR-9).

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

Table IV.7-31 shows the impacts to natural communities under the No Action Alternative under the GCP. An effects summary by general community is provided below.

California forest and woodlands

Overall, approximately 800 acres of California forest and woodlands would be impacted under the No Action Alternative under the GCP. Most of this impact would be from solar development in the West Mojave and Eastern Slopes subarea, but there would also be impacts from wind and transmission development in the West Mojave and Eastern Slopes subarea and minimal impacts from solar and transmission development in the Pinto Lucerne Valley and Eastern Slopes subarea. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 1,000 acres of chaparral and coastal scrubs would be impacted under the No Action Alternative under the GCP. 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. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert conifer woodlands

Overall, approximately 1,000 acres of desert conifer woodlands would be impacted under the No Action Alternative under the GCP. Impacts to desert conifer woodlands would be from solar development in the Kingston and Funeral Mountains subarea, and from solar, wind, and transmission development in the West Mojave and Eastern Slopes and Pinto Lucerne Valley and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert outcrop and badlands

Overall, approximately 2,000 acres of desert outcrop and badlands would be impacted under the No Action Alternative under the GCP. Most of these impacts would be from renewable energy development in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Desert scrubs

Overall, approximately 36,000 acres of desert scrubs would be impacted under the No Action Alternative under the GCP. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountains and West Mojave and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Dunes

Overall, approximately 700 acres of dunes would be impacted under the No Action Alternative under the GCP. Most of these impacts would occur in the Cadiz Valley and Chocolate Mountain, Kingston and Funeral Mountains, and Providence and Bullion Mountains subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Grasslands

Overall, approximately 3,000 acres of grasslands would be impacted under the No Action Alternative under the GCP. Impacts would primarily occur in the West Mojave and Eastern Slopes subarea. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Riparian

Overall, approximately 3,000 acres of riparian communities would be impacted under the No Action Alternative under the GCP. Impacts would primarily occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Wetlands

Overall, approximately 4,000 acres of wetland communities would be impacted under the No Action Alternative under the GCP. Impacts would primarily occur in the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas. Impacts to this community may have an adverse effect and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Table IV.7-31
Impact Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
California forest and woodland						
Californian broadleaf forest and woodland	61,000	300	200	—	10	500
Californian montane conifer forest	44,000	200	100	—	0	300
Chaparral and coastal scrub community (Cismontane scrub)						
Californian mesic chaparral	3,000	10	10	—	10	30
Californian pre-montane chaparral	1,000	10	0	—	0	10
Californian xeric chaparral	19,000	100	60	—	60	200
Central and south coastal California seral scrub	1,000	10	0	—	0	10
Central and South Coastal Californian coastal sage scrub	42,000	300	100	0	160	545
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	60	30	—	40	100

Table IV.7-31
Impact Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Desert conifer woodlands						
Great Basin Pinyon - Juniper Woodland	104,000	600	300		200	1,000
Desert outcrop and badlands						
North American warm desert bedrock cliff and outcrop	220,000	1,000	40	30	600	2,000
Desert Scrub						
Arizonan upland Sonoran desert scrub	8,000	10	0	0	—	10
Intermontane deep or well-drained soil scrub	24,000	100	60	—	70	200
Intermontane seral shrubland	68,000	600	300	—	300	1,000
Inter-Mountain Dry Shrubland and Grassland	152,000	700	300	0	100	1,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	300	100	—	10	400
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,262,000	18,000	4,000	300	7,000	28,000
Mojave and Great Basin upper bajada and toeslope	228,000	2,000	300	—	400	2,000
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	300	10	400	2,000
Southern Great Basin semi-desert grassland	80	0	0	—	—	0
Dunes						
North American warm desert dunes and sand flats	34,000	500	10	0	200	700
Grassland						
California Annual and Perennial Grassland	196,000	2,000	800	0	700	3,000
California annual forb/grass vegetation	7,000	70	30		10	100

Table IV.7-31
Impact Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Riparian						
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	500	40	10	300	800
Mojavean semi-desert wash scrub	17,000	100	50	0	50	200
Riparian	600	10	0	—	0	10
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	600	10	10	200	800
Southwestern North American riparian evergreen and deciduous woodland	6,000	20	10	—	10	40
Southwestern North American riparian/ wash scrub	47,000	400	60	20	200	700
Wetland						
Arid West freshwater emergent marsh	4,000	0	0	—	0	0
Californian warm temperate marsh/seep	400	0	0	—	0	0
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	37,000	300	0	0	100	400
Open Water	114,000	1,000	100	90	700	2,000
Playa	52,000	0	0	0	0	10
Southwestern North American salt basin and high marsh	112,000	900	300	0	200	1,000
Wetland	8,000	60	20	—	30	100
Other Land Cover						
Agriculture	693,000	12,000	1,000	600	9,000	23,000
Developed and Disturbed Areas	399,000	300	60	20	40	400
Not Mapped	4,000	40	10	0	20	70

Table IV.7-31
Impact Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Rural	110,000	1,000	300	70	7,000	3,000
Total	**5,430,000**	**46,000**	**9,000**	**1,000**	**21,000**	**77,000**

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

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 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 46 rare natural community alliances mapped in the Plan Area on nonfederal land, 34 rare alliances have the potential to be impacted under the No Action Alternative on nonfederal land totaling approximately 2,000 acres of impacts. Impacts to rare natural communities would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

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

Impacts to riparian and wetland natural communities could result in adverse effects to jurisdictional waters and wetlands. Under the No Action Alternative, impacts to riparian and wetland natural communities is not prohibited by existing laws and regulations, but impacts to riparian and wetland natural communities identified as jurisdictional waters and wetlands would be regulated by existing federal and state laws and regulations. Approximately 2,600 acres of riparian communities and approximately 4,000 acres of wetland communities would be impacted under the No Action Alternative under the GCP. 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 riparian and wetland impacts could result in adverse effects to jurisdictional waters and wetlands without avoidance, minimization and mitigation measures necessary to comply with existing federal and state laws and regulations.

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

Approximately 1% (600 acres) of playa would be impacted by Covered Activities under the No Action Alternative under the GCP. The majority of impacts would be associated with solar (400 acres), with 20 acres of wind impacts, 100 acres of transmission impacts, and 1 acre of geothermal impacts. Ecoregion subareas of potential impacts to playas include the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian Valley, Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Seep/Spring

Seeps occur within the Plan Area and potential impacts to seep/spring have the potential to occur under the No Action Alternative under the GCP in the following ecoregion subareas: Imperial Borrego Valley, Kingston and Funeral Mountains, Mojave and Silurian 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.

Major Rivers

Major rivers occur within the Plan Area under the GCP and potential impacts to major rivers under the No Action Alternative have the potential to occur to the Amargosa, Colorado, and Mojave Rivers. Impacts to major rivers would be adverse absent implementation of avoidance measures.

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 under the No Action Alternative. Impacts to ephemeral drainages would be adverse absent implementation of avoidance and minimization measures.

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

Siting, construction, and 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. The degree to which these factors contribute to the degradation of vegetation corresponds to the distribution of renewable energy development 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 renewable energy development across subareas in the GCP.

Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including vegetation degradation from dust, dust suppressants, fire, fire management, and invasive plants, could occur anywhere not prohibited from this development. Within the GCP these impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains, subareas, which would experience most of the terrestrial operational impacts in the GCP. 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.

Dust and Dust Suppressants

Natural communities, and in particular natural communities containing Mohave desert shrubs, are susceptible to vegetation 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. Under the No Action Alternative impacts to these natural communities are expected to mostly occur in the West Mojave and Eastern Slope, the Imperial Borrego Valley, and the Cadiz Valley and Chocolate Mountains subareas. Plant Covered Species, that could also experience vegetation degradation from dust, would mainly be impacted by renewable energy development in the West Mojave and Eastern Slopes subarea, which contains the majority of expected impacts to plant Covered Species habitat within the GCP. Considering the distribution of renewable energy development that would cause dust as well as the sensitive natural communities and plant Covered Species the West Mojave and Eastern Slopes subarea is expected to experience the greatest magnitude of vegetation degradation resulting from dust.

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. Approximately 6,300 acres of the impacts that are estimated to occur to wetland and riparian natural communities in the GCP under No Action Alternative. The Imperial Borrego Valley subarea would experience the most impacts to riparian and wetland natural communities in the GCP from dust suppressant. As such, vegetation degradation may resulting from the use of dust suppressants by

renewable energy development would require implementation of avoidance, minimization, and compensation measures to offset these impacts.

Fire and Fire Management

The increased presence of flammable invasive annual plants and anthropogenic ignitions of fires can cause the conversion of natural communities and degrade vegetation. Due to their slower speed of recovery, desert scrub natural communities are more susceptible to natural community conversion from fires. Within the GCP approximately 36,000 acres of the impacts to desert scrubs are expected to occur under No Action Alternative. The majority of these impacts within the GCP are predicted to occur within the West Mojave and Eastern Slopes and to a lesser extent in the Cadiz Valley and Chocolate Mountains and the Imperial Borrego Valley subareas.

Fire management techniques can also result in the direct removal of vegetation and create advantageous circumstances for invasive plants to grow. Under the No Action Alternative, renewable energy development would impact approximately 800 acres of California forest and woodlands, 1,000 acres of impacts to chaparral natural communities, and 3,000 acres of impacts to grassland natural communities are anticipated within the GCP. The potential vegetation degradation to these susceptible natural communities from vegetation removal during fire management are anticipated to predominantly occur in the West Mojave and Eastern Slopes subarea. As such, implementation of specific avoidance, minimization, and compensation measures would be required to offset these impacts from fire and fire management.

Invasive Plants

The introduction of invasive plants through creation of disturbed areas or environments that favor invasive plant growth 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 the risk of adverse effects from the introduction of invasive plants. The most vegetation degradation to natural communities caused by the introduction of invasive plants in the GCP is expected to occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas. Plant Covered Species in the GCP would also experience potential vegetation degradation as a result of renewable energy development with the majority of impacts anticipated to occur in the West Mojave and Eastern Slopes subarea. Therefore, the majority of impacts from the introduction of invasive plants in the GCP is predicted to occur in the West Mojave and Eastern Slopes subarea and would require the implementation of avoidance, minimization, and compensation measures to offset these impacts.

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.

Most of the impacts to plant and wildlife species and their habitat under the No Action Alternative would occur in the Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, and West Mojave and Eastern Slopes subareas. However, there would also be substantial impacts to plant and wildlife species and their habitat in the Kingston and Funeral Mountains, Providence and Bullion Mountains, and Mojave and Silurian Valley subareas.

Table IV.7-32 provides the GCP impact analysis for Covered Species habitat. Renewable energy development within the Cadiz Valley and Chocolate Mountains subarea would be entirely from solar energy and transmission development. Typical impacts from these Covered Activities on plant and wildlife species and their habitat is described in Section IV.7.2. 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. Impacts would occur to the following covered bird species in this subarea: Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, least Bell's vireo, mountain plover, southwestern willow flycatcher, western yellow-billed cuckoo, and Yuma clapper rail. Suitable habitat for Covered mammals occurs in the Cadiz Valley and Chocolate Mountains subarea for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat.

Renewable energy development within the Imperial Borrego Valley subarea would be primarily from solar energy and transmission development, but would also include impacts from wind and geothermal development. The Imperial Borrego Valley subarea provides suitable habitat for Agassiz's desert tortoise and flat-tailed horned lizard that would be impacted. 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. Impacts to suitable habitat for desert pupfish, the only fish species with suitable habitat in this subarea, would be minimal (260 acres). Only impacts to mountain habitat would occur to bighorn sheep in this subarea. Impacts to suitable habitat for other covered mammals species would occur for California leaf-nosed bat, pallid bat, and Townsend's big-eared bat. Only minimal impacts (4 acres) from solar effects would occur to suitable habitat for only one covered plant species, little San Bernardino Mountains linanthus.

Renewable energy development in the West Mojave and Eastern Slopes subarea would be primarily from solar development, but would also include impacts from wind and transmission development. 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. There is suitable habitat for several bird Covered Species in the West Mojave and Eastern Slopes subarea that would be impacted, including Bendire's thrasher, burrowing owl, California condor, golden eagle, least Bell's vireo, mountain plover, southwestern willow flycatcher, Swainson's hawk, tricolored blackbird, western yellow-billed cuckoo, and Yuma clapper rail. No covered fish species would be impacted in this subarea. Suitable habitat for bighorn sheep, California leaf-nosed bat, Mohave ground squirrel, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. 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.

The only Covered amphibian or reptile in the Kingston and Funeral Mountains subarea with suitable habitat that would be impacted is the Agassiz's desert tortoise and no Covered fish suitable habitat would be impacted in this subarea. There is suitable habitat for several bird Covered Species in the Kingston and Funeral Mountains subarea that would be impacted, including Bendire's thrasher, burrowing owl, golden eagle, Least Bell's vireo, southwestern willow flycatcher, and western yellow-billed cuckoo. Suitable habitat for bighorn sheep, California leaf-nosed bat, pallid bat, and Townsend's big-eared bat would be impacted in this subarea. In the Mojave and Silurian Valley and Providence and Bullion Mountains subareas suitable habitat for the same Covered Species that would be impacted Plan-wide are also impacted under the GCP (see Section IV.7.3.1.1).

Impacts to plant and wildlife species and their habitat would be adverse and would require implementation of avoidance, minimization, and compensation measures to offset these impacts consistent with existing applicable laws and regulations.

Table IV.7-32
Impact Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Amphibian/Reptile						
Agassiz's desert tortoise	2,256,000	15,000	4,000	20	5,000	24,000
Flat-tailed horned lizard	310,000	4,000	400	300	2,000	7,000
Mojave fringe-toed lizard	168,000	3,000	30	—	2,000	5,000
Tehachapi slender salamander	41,000	200	100	—	10	300

Table IV.7-32
Impact Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Bird						
Bendire's thrasher	405,00	2,000	300	90	800	3,000
Burrowing owl	3,251,000	29,000	7,000	900	16,000	53,000
California black rail	127,000	2,000	200	100	2,000	4,000
California condor	996,000	6,000	3,000	—	3,000	12,000
Gila woodpecker	56,000	800	80	60	400	1,000
Golden eagle - foraging	1,007,000	7,000	1,000	20	2,000	10,000
Golden eagle - nesting	676,000	4,000	1,000	0	600	6,000
Greater sandhill crane	601,000	11,000	700	600	8,000	20,000
Least Bell's vireo	105,000	500	200	10	100	800
Mountain plover	811,000	13,000	2,000	600	9,000	24,000
Southwestern willow flycatcher	258,000	2,000	400	100	2,000	4,000
Swainson's hawk	1,340,000	10,000	3,000	300	6,000	19,000
Tricolored Blackbird	257,000	2,000	1,000	10	1,000	5,000
Western yellow-billed cuckoo	111,000	600	70	—	200	900
Yuma clapper rail	31,000	300	20	20	200	500
Fish						
Desert pupfish	7,000	100	20	10	90	300
Mohave tui chub	100	0	0	—	—	0
Owens pupfish	13,000	—	—	—	—	—
Owens tui chub	13,000	—	—	—	—	—
Mammal						
Bighorn sheep – inter-mountain habitat	464,000	4,000	300	—	700	5,000
Bighorn sheep – mountain habitat	808,000	4,000	400	20	800	5,000
California leaf-nosed bat	979,000	10,000	200	200	5,000	16,000
Mohave ground squirrel	1,329,000	7,000	4,000	—	2,000	13,000
Pallid bat	3,783,000	27,000	6,000	300	10,000	43,000
Townsend's big-eared bat	3,519,000	26,000	5,000	400	10,000	41,000

Table IV.7-32
Impact Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Geothermal Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Plant						
Alkali mariposa-lily	117,000	1,000	500	—	300	2,000
Bakersfield cactus	200,000	1,000	700	—	300	2,000
Barstow woolly sunflower	82,000	600	300	—	70	900
Desert cymopterus	137,000	800	400	—	50	1,000
Little San Bernardino Mountains linanthus	129,000	200	10	0	20	300
Mojave monkeyflower	41,000	200	90	—	30	300
Mojave Tarplant	129,000	600	300	—	90	1,000
Owens Valley checkerbloom	91,000	0	0	—	0	0
Parish's daisy	72,000	70	10	—	50	100
Triple-ribbed milk-vetch	3,000	0	—	—	—	0

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

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 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.7-33 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, 5,000 acres of TCAs, linkage habitat, and high priority habitat would be impacted under the No Action Alternative. Within the Eastern Mojave Recovery Unit, 2,000 acres of desert tortoise important areas would be impacted under the No Action Alternative. Within the Western Mojave Recovery Unit, 7,000 acres of TCAs and linkage habitat would be impacted under the No Action Alternative. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species that would likely reduce the impacts reported here; however, these impacts to desert tortoise important areas would be adverse and would require mitigation.

Table IV.7-33
Impact Analysis for Desert Tortoise Important Areas Within the GCP Area – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Colorado Desert	High Priority Habitat	31,000	1,000	-	20	1,000
	Linkage	63,000	1,000	-	0	1,000
	TCA	269,000	1,000	-	2,000	3,000
Colorado Desert Total		*363,000*	*3,000*	-	*2,000*	*5,000*
Eastern Mojave	Linkage	56,000	1,000	-	-	1,000
	TCA	66,000	900	-	-	800
Eastern Mojave Total		*122,000*	*2,000*	-	-	*2,000*
Western Mojave	Linkage	407,000	3,000	600	700	5,000
	TCA	392,000	2,000	800	400	3,000
Western Mojave Total		*799,000*	*5,000*	*1,000*	*1,000*	*7,000*
Total		**1,284,000**	**10,000**	**1,000**	**3,000**	**14,000**

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

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. There are no impacts from geothermal development to desert tortoise recovery units under the No Action Alternative. 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 the No Action Alternative, 44 territories have nests in or within 1 mile of the area available for renewable energy and transmission development under the No Action Alternative, and the breeding areas of these territories could be impacted by renewable energy and transmission development depending on the siting of specific projects. Under the No Action Alternative, 95 territories have nests in or within 4 miles of the area available for renewable energy and transmission development under the No Action Alternative, and the use areas of these territories could be impacted by renewable energy and transmission development depending of the siting of specific projects. Existing laws and regulations would require avoidance, minimization, and compensation for any take of golden eagles.

For bighorn sheep, bighorn sheep mountain habitat and intermountain (linkage) habitat have been identified in the Plan Area. Under the No Action Alternative on nonfederal land, approximately 5,000 acres of mountain habitat and 5,000 acres of intermountain habitat would be impacted. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species.

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.7-34 provides an impact analysis for these Mohave ground squirrel important areas in the GCP area. Under the No Action Alternative, 5,000 acres of Mohave ground squirrel important areas would be impacted. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this state listed and BLM sensitive species that would likely reduce the impacts reported here; however, these impacts to Mohave ground squirrel would be adverse and would require mitigation.

Table IV.7-34
Impact Analysis for Mohave Ground Squirrel Important Areas Within the GCP Area – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Key Population Center	193,000	900	500	80	1,000
Linkage	103,000	300	200	—	500
Expansion Area	131,000	50	20	—	70
Climate Change Extension	258,000	2,000	900	200	3,000
Total	**684,000**	**3,000**	**2,000**	**300**	**5,000**

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

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. There are no impacts from geothermal development on Mohave ground squirrel important 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.

Siting, construction, and operation of renewable energy 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

renewable energy development within the GCP that would result in noise, predator avoidance behavior, or light and glare.

Siting, construction, and operations of renewable energy development would not be confined to DFAs and is assumed to follow past and current development patterns, under the No Action Alternative. Therefore, the impacts from renewable energy development, including disturbance of sensitive wildlife from noise, predator avoidance behavior, as well as light and glare, could occur anywhere not prohibited from this development. Within the GCP these impacts would mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains, subareas, which would experience most of the renewable energy terrestrial operational impacts in the GCP. 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 generated by the use of mechanical equipment and vehicles during operation and maintenance of renewable energy facilities 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 and 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 the Mojave fringe-toed lizard and flat-tailed horned lizard, could experience increased predation from noise hindering their ability to detect predators. The combined impacts in the GCP to the habitat for these Covered Species would mostly occur in the West Mojave and Eastern Slopes subarea. As such, the disturbance of wildlife from noise would predominantly occur in the West Mojave and Eastern Slopes subarea. These adverse effects would require implementation of avoidance, minimization, and compensation measures to offset these impacts from noise.

Predator Avoidance Behavior

Predator avoidance behavior from renewable energy development can cause wildlife to experience behavioral changes. Although different wildlife species may have varying sensitivities to predator avoidance behavior and may experiences different magnitudes of responses to renewable energy development, these renewable energy developments 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 Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains, subareas where the majority of terrestrial operational impacts in the GCP would occur. The implementation of avoidance,

minimization, and compensation measures would be needed to offset the impacts from predator avoidance behavior resulting from renewable energy development.

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. Terrestrial operational impacts in the GCP resulting from development of all technology types of renewable energy are anticipated to mostly occur in the Imperial Borrego Valley, West Mojave and Eastern Slopes, and Cadiz Valley and Chocolate Mountains subareas. Similarly, the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Cadiz Valley and Chocolate Mountains subareas are estimated to experience of the most terrestrial operational impacts from solar projects in the GCP. Therefore, these subareas would generally have the potential to cause the disturbance of sensitive wildlife from 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 renewable energy development in the GCP would mainly be located in the West Mojave and Eastern Slopes and the Cadiz Valley and Chocolate Mountains subareas. Migratory birds that fly during the night may be attracted to aviation safety lighting. For bird Covered Species the Imperial Borrego Valley and West Mojave and Eastern Slopes are the subareas contain the most impacts to bird Covered Species habitat in the GCP. As such, wildlife disturbance from light and glare is anticipated to occur primarily in the West Mojave and Eastern Slopes subarea and to a lesser extent in the Imperial Borrego Valley as well as the Cadiz Valley and Chocolate Mountains subareas. The implementation of avoidance, minimization, and compensation measures would be needed to offset these impacts.

Non-Covered Species

Potential impacts to Non-Covered Species on BLM Land were analyzed based on impacts to natural communities as described in Section IV.7.3.1.1. Table IV.7-35 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.

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 impact to potential habitat across all technology types is less than 1%, with the exception the desert scrub/chaparral communities at approximately 1.5%, grassland communities at approximately 3%, and within the agriculture/rural land cover areas at approximately 7%.

As additional analysis, Table IV.7-7 provides a cross-reference of natural communities shared between primary Covered and Non-Covered Species. The type of environmental protections afforded to certain sensitive natural communities, e.g., riparian or wetlands, that would protect Covered Species would be expected to also minimize and avoid impacts to the Non-Covered Species that may co-occur. For example, the non-covered yellow-breasted chat often occurs within the same riparian habitat as the covered southwestern willow flycatcher. 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 No Action Alternative, impacts to designated critical habitat for Non-Covered Species on GCP lands would have the potential to occur. Specifically impacts would potentially occur to approximately 40 acres of arroyo toad critical habitat, approximately 10 acres of Lane Mountain milk-vetch critical habitat, and 70 acres of Peninsular bighorn sheep critical habitat. In addition, 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 under the No Action Alternative. Therefore, implementation of avoidance, minimization, and compensation measures would be needed to offset these impacts.

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
California forest and woodland/ Desert conifer woodlands	Coast horned lizard, grey vireo, loggerhead shrike, yellow warbler, American badger, bighorn sheep, fringed myotis, hoary bat, long-eared myotis, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, Amargosa beardtongue, Charlotte's phacelia, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Kern buckwheat, Piute Mountains jewel-flower, purple-nerve cymopterus, San Bernardino Mountains dudleya, short-joint beavertail cactus, Spanish needle onion, Tracy's eriastrum, Cushenbury buckwheat	209,000	1,100	1,000	0	200	1,200	1.1%
Desert Scrub/ Chaparral Communities	Arroyo toad, banded gila monster, Coast horned lizard, Colorado Desert fringe-toed lizard, Couch's spadefoot, rosy boa, bald eagle, bank swallow, Crissal thrasher, Ferruginous hawk, gilded flicker, grey vireo, Le Conte's thrasher, loggerhead shrike, long-eared owl,	3,020,000	23,200	6,000	300	8,600	38,100	1.3%

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Lucy's warbler, northern harrier, yellow warbler, American badger, Arizona myotis, big free-tailed bat, bighorn sheep, cave myotis, fringed myotis, hoary bat, long-eared myotis, Palm Springs pocket mouse, pocketed free-tailed bat, spotted bat, Tehachapi pocket mouse, western mastiff bat, western small-footed myotis, western yellow bat, yellow-eared pocket mouse, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, bare- stem larkspur, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Kelso Creek monkeyflower, Kern buckwheat, Las Animas colubrina, Lane Mountain Milk-Vetch,							

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	Mojave Desert plum, Mojave milkweed, Munz's Cholla, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, Piute Mountains jewel-flower, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Sodaville milk-vetch, short-joint beavertail cactus, Spanish needle onion, Thorne's buckwheat, Tracy's eriastrum, Utah beardtongue, white bear poppy, White-margined beardstongue, Wiggin's croton, Flat-seeded spurge, Parish's phacelia, Parish's alkali grass							
Dunes[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,	254,000	1,500	50	30	1,000	2,580	1%

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	bighorn sheep, cave myotis, bat, spotted bat, western mastiff bat, Yuma myotis, Algodones Dunes sunflower, Ash Meadows gum plant, Amargosa beardtongue, Amargosa niterwort, Charlotte's phacelia, Cima milk-vetch, Coachella Valley milk-vetch, creamy blazing star, desert pincushion, Emory's crucifixion-thorn, flat-seeded spurge, forked buckwheat, Harwood's eriastrum, Harwood's milkvetch, Inyo County star-tulip, Las Animas colubrina, Mojave Desert plum, Mojave milkweed, nine-awned pappus grass, Orcutt's woody aster, Orocopia sage, Palmer's jackass clover, Parish's club cholla, Pierson's milk-vetch, pink fairy-duster, purple-nerve cymopterus, Red Rock poppy, Red Rock tarplant, Robinson's monardella, Rusby's desert-mallow, sand food, Spanish needle onion, Thorne's buckwheat, Utah beardtongue, white bear poppy, Wiggin's croton, Palmer's jackass clover, white-							

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	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	2,000	1,000	0	1,000	3,000	1.5%
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, vermillion 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 myotispocketed	413,000	3,000	500	100	1,100	4,700	1.1%

Table IV.7-35
GCP Impact Analysis for Natural Communities and Associated Non-Covered Species – No Action Alternative

Natural Community	Primary Associated Non-Covered Species	Available Lands (acres)[1]	Solar Impact (acres)[2]	Wind Impact (acres)	Geothermal Impact (acres)[3]	Transmission Impact (acres)	Total Impact (acres)	Percent Impact
	free-tailed bat, spotted bat, western mastiff bat, western yellow bat, Yuma myotis, Ash Meadows gum plant, Inyo County star-tulip, Parish's alkali grass, Parish's phacelia, Amargosa pupfish, Amargosa speckled dace, Amargosa spring snails							
Agriculture/ Rural Land Cover	American peregrine falcon, Bank swallow, loggerhead shrike, long-eared owl, northern harrier, redhead, yellow-headed blackbird, yellow warbler, Arizona myotis, hoary bat, Tehachapi pocket mouse, western mastiff bat, western yellow bat	803,000	13,000	1,300	1,000	16,000	31,300	3.9%

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 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 and the California Fish and Game Code. The potential loss of nesting birds resulting from these activities would be adverse without application of avoidance and minimization measures. Under existing laws and regulations, renewable energy and transmission projects would be required to implement seasonal restrictions and other avoidance measures including pre-construction nesting bird surveys and impact setbacks determined 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.

<u>Desert Linkage Network</u>

Table IV.7-36 shows impacts to the Desert Linkage Network by ecoregion subarea anticipated under the No Action Alternative for the GCP. Overall 1.4% of the Desert Linkage Network would be impacted under the No Action Alternative. The percentage of the Desert Linkage Network impacted in each subarea would range from 0% for the Panamint Death Valley, Piute Valley and Sacramento Mountains, and Owens River Valley subareas to 3.9% of the Cadiz Valley and Chocolate Mountains subarea. Overall, solar would account for 58% of the impacts to the Desert Linkage Network, wind would account for 12%, and transmission would account for 30%. Geothermal would not account for any impacts under the No Action Alternative. Wind project areas would account for proportionally greater impacts in the West Mojave and Eastern Slopes subarea (29% of the total impacts in the subarea) and Pinto Lucerne Valley and Eastern Slopes subarea (13% of the total impacts in the subarea). The magnitude of impacts to the function of habitat linkages depends on site-specific factor. Impacts to Desert Linkage Network habitat linkages would be adverse and

would require mitigation to avoid impacting habitat linkage function in the subareas where impacts are anticipated under the No Action Alternative.

Table IV.7-36
GCP Impact Analysis for the Desert Linkage Network – No Action Alternative

Ecoregion Subarea	Available Lands (acres)[1]	Solar Impact (acres)	Wind Impact (acres)	Transmission Impact (acres)	Total Impact (acres)
Cadiz Valley and Chocolate Mountains	148,000	3,000	-	2,000	6,000
Imperial Borrego Valley	10,000	10	-	100	100
Kingston and Funeral Mountains	12,000	300	-	-	300
Mojave and Silurian Valley	101,000	0	-	600	600
Owens River Valley	4,000	-	-	-	-
Panamint Death Valley	15,000	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	122,000	60	40	200	300
Piute Valley and Sacramento Mountains	24,000	-	-	-	-
Providence and Bullion Mountains	49,000	800	-	40	800
West Mojave and Eastern Slopes	468,000	3,000	1,000	700	5,000
Total	**952,000**	**7,000**	**2,000**	**4,000**	**13,000**

[1] Available lands includes 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), short-term and long-term wind impacts, and transmission impacts. There are no impacts from geothermal development to desert linkage network under the No Action Alternative. 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 the types impacts associated with each technology, in the typical impacts section. The ultimate locations of individual projects are not known. Therefore, in order to conceptualize the anticipated build out of generation in the No Action alternative, the following analysis focuses on the anticipated distribution of different technology types and their relation to known migratory corridors.

In the No Action Alternative, wind is a substantial proportion of the overall generation mix. Development would mostly be located in the West Mojave, bordering the Tehachapi and San Bernardino Mountains, impacts are most likely to occur in areas between the Tehachapi and San Bernardino passes, and the dry lakes and wetland refuges on and to the north of Edwards AFB including Searles Lake, Koehn Lake China Lake and Harper Lake. No wind development is anticipated in areas adjacent to the Colorado River, and wind development in the Imperial Valley would be relatively limited and may affect wetlands and agricultural foraging lands to the south of the Salton Sea, but little else.

Solar development in the West Mojave and Eastern Slopes subarea impacts would occur throughout the subarea, including natural communities to the north of Edwards AFB and to east of Tehachapi Mountains as well as along both HWY 14 and HWY 395 corridors. Development would occur in agricultural land surrounding Lancaster, including Antelope Valley. Development would result in a two-fold increase over baseline, and occur between key migratory features like the Tehachapi pass, and the dry lakes in the northern Mojave including Searles Lake, Koehn Lake and Harper Lake. In the Cadiz and Chocolate Mountains subarea, the No Action alternative would lead to a considerable in solar facilities increase over baseline, which would result in a string of solar generation facilities along the I-10 corridor to the west side of the Colorado River, in McCoy Valley, and in the disturbed and agricultural lands around Blythe. This would effectively appear as a string of lakes on a known migratory linkage for birds between the Colorado River corridor, Coachella Valley and further west towards the coast. Development, around the Salton Sea, would as now, be on the southern, western and eastern shores. Impacts from solar development in Imperial Borrego Valley would result in a 2.4-fold increase over baseline, and are likely to result in the direct loss of foraging habitat in the agricultural lands south of the Salton Sea. Like the I-10 corridor impacts, development would result in a landscape dotted with highly reflective facilities that mimic open water, that may lead to increased collision.

Impacts from development to migratory resources from projects may be adverse and would be implemented on a project by project basis. Adverse impacts would require each project to implement surveying and siting as well as minimization measures to ensure reduction and avoidance of impacts. Further compensation measures may be necessary to offset adverse effects and would be implemented on a project by project basis.

Application of avoidance and minimization measures would reduce the overall impacts to migratory bird populations. However, Covered Activities may adversely impact migratory birds. While it may be feasible to survey, site and monitor projects to minimize loss of habitat within the Plan Area, residual operational impacts may not be adequately mitigated through compensation strategies. For example, where the full range of the species life cycle i.e., overwintering, migration and breeding, is not within the jurisdiction of the permitting agencies, application of adequate compensation strategies may be infeasible. Additional steps

would be necessary to ensure projects do not adversely impact migratory birds within the Plan Area. After application of the mitigation measures, operational impacts on migratory birds from the No Action Alternative would be adverse and would require mitigation.

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. Under the No Action Alternative, renewable energy development would not be confined to DFAs and fragmentation and population isolation effects could occur anywhere renewable energy development is not prohibited and is assumed to be distributed in a pattern that follows past and current patterns. Also as described in the Plan-wide analysis, approximately 40% of the area available to renewable energy development under the No Action Alternative is characterized by moderately high terrestrial intactness to high terrestrial intactness. Siting and construction of renewable energy and transmission in these intact areas would result in adverse habitat fragmentation and population isolation effects. 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 environmental gradients would follow the same overall pattern as Plan-wide impacts. These habitat fragmentation and population isolation effects would be adverse and would require mitigation to avoid and minimize impacts.

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 No Action Alternative would result 51,000 acres of permanent conversion of natural desert communities and with 23,000 acres of impacts (30% of the total ground disturbance) within areas characterized by disturbed land cover types.

Development in the West Mojave and Eastern Slopes subareas may supplement predators in undisturbed habitats including parts of the Tehachapi Mountains and DFAs to the north of Edwards AFB. However, much of the development would be expected in disturbed and agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include nestlings and eggs of Covered Species like tricolored blackbird and golden eagle, mountain plover, Bendire's thrasher, Swainson's hawk, as well as small

reptiles like the Tehachapi slender salamander, and mammals like the Mohave ground squirrel. Covered Activities associated with solar and wind generation in the Mojave and Silurian Valley subarea may be broadly distributed throughout the subarea, to the east of Barstow. Species impacted would include golden eagle, and other nesting birds as well as small mammals and reptiles like desert tortoise. The development in the Cadiz and Chocolate Mountains subarea would be expected in the agricultural and disturbed lands around Blythe. Impacts are likely to increase predation on susceptible species including desert tortoise, Mojave fringe-toed lizard, and nesting bird species. Impacts from Covered Activities are anticipated in Imperial Borrego Valley. Increased predation would affect nesting birds, flat-tailed horned lizard, desert tortoise, and nesting birds.

Typical management practices for the No Action would include the development of a Common Raven Control Plan that 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 wind turbine operational impacts to bird and bat species within the private lands DFAs. The range of collision rates calculated in Table IV.7-37 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 No Action Alternative would result in a median 10,000 collisions per year for birds and 48,000 collisions for bats in DFAs on nonfederal lands. The expected distribution of wind generation indicates that 82% of all collisions would occur in the West Mojave and Eastern Slopes subarea, 16% in the Imperial Borrego Valley subarea.

In the No Action Alternative, development in the West Mojave and Eastern Slopes would affect Bendire's thrasher, burrowing owl, California condor, golden eagle, mountain plover, Swainson's hawk, and tricolored blackbird. Whereas, the small amount of development in the Pinto and Lucerne Valley subarea would mainly affect golden eagle territories and important Bendire's thrasher habitat. In Imperial Borrego Valley subarea development of wind facilities would disproportionately affect overwintering migratory birds such as sandhill crane and, mountain plover, and less likely to affect wetland species like, Yuma clapper rail, and California black rail.

Wind projects would result in adverse impacts to Covered bird and bat Species. Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each plan would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

Table IV.7-37
GCP Impact Analysis for the Estimated Range of Bird and Bat Collisions per Year by Subarea – No Action Alternative

Ecoregion Subarea	# Turbines	Birds (Collisions/Yr)[1]			Bats (Collisions/Yr)[1]		
		Low	*Median*	*High*	*Low*	*Median*	*High*
Cadiz Valley and Chocolate Mountains	0	-	-	-	-	-	-
Imperial Borrego Valley	339	500	2,000	7,000	700	8,000	47,000
Kingston and Funeral Mountains	0	-	-	-	-	-	-
Mojave and Silurian Valley	0	-	-	-	-	-	-
Owens River Valley	0	-	-	-	-	-	-
Panamint Death Valley	0	-	-	-	-	-	-
Pinto Lucerne Valley and Eastern Slopes	27	-	100	500	100	600	4,000
Piute Valley and Sacramento Mountains	0	-	-	-	-	-	-
Providence and Bullion Mountains	0	-	-	-	-	-	-
West Mojave and Eastern Slopes	1,702	3,000	9,000	33,000	3,000	39,000	238,000
Grand Total	**2,069**	**3,000**	**10,000**	**40,000**	**4,000**	**48,000**	**290,000**

[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 No Action Alternative, impacts to avian and bat species from solar development assume full build out of the anticipated solar capacity. Nonfederal lands would see a 2.4-fold increase in collision risks relative to baseline. The distribution of impacts under the GCP would be similar to that which is found in the Plan-wide analysis. 23% of the impacts risks would occur in the Cadiz and Chocolate Mountains, with, 32% in Imperial Borrego Valley, 31% in West Mojave and Eastern Slopes, 6% in the Providence and Bullion Mountains and 7% in the Kingston and Funeral Mountains.

Development in the Cadiz and Chocolate Mountains subarea under the GCP would occur in the agricultural lands around Blythe. Species habitat impacted by Covered Activities include Bendire's thrasher, burrowing owl, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Anticipated impacts in the Imperial Borrego Valley subarea under the GCP would occur in agricultural and natural habitats south and west of the Salton Sea. Birds at risk from solar impacts include Bendire's thrasher, burrowing owl, California black rail, Gila woodpecker, golden eagle, greater sandhill crane, mountain plover, southwestern willow flycatcher, Swainson's hawk, Yuma clapper rail, pallid bat, California leaf-nosed bat, and Townsend's big-eared bat. Development in the West Mojave and Eastern Slopes subareas would occur in the Tehachapi Mountains, areas to the north of Edwards AFB, and agricultural land around Lancaster and in the Antelope Valley. In these areas, susceptible species would include pallid bat, California leaf-nosed bat, Townsend's big-eared bat, tricolored blackbird, golden eagle, mountain plover, Bendire's thrasher, burrowing owls and to a lesser extent Swainson's hawk.

Solar projects would result in adverse impacts to covered bird and bat species. Impacts from wind projects would be analyzed on a project by project basis. Wind projects would develop bird and bat management plans. Each plan would require the implementation of avoidance, minimization, and compensation measures to offset collision impacts.

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 have a similar distribution to the generation facilities. Most of the affected areas on nonfederal lands would be in Cadiz Valley and Chocolate Mountains, Imperial Borrego Valley, West Mojave and Eastern Slopes, and the Mojave and Silurian Valley subareas, with 6,000 acres, 9,000 acres, 4,000 acres, 1,000 acres of terrestrial impacts anticipated respectively. The remaining 1,000 acres of impacts would be spread throughout the remaining subareas.

Both large transmission lines and the network of smaller gen-tie lines would present collision and electrocution hazard to covered bird species. In particular, lines running perpendicular to migratory corridors, and/or close to bird refuges would represent a greater hazard. Such lines would include those anticipated to run parallel to the Tehachapi Mountains and those that would cross the Tehachapi mountain passes. In addition, anticipated delivery lines in Chuckwalla Valley would run parallel to I-10 corridor in the existing transmission corridors. In the Imperial Borrego Valley subarea, lines would run along the along the eastern side of Salton Sea in existing transmission corridors that run parallel to the foothills of the Chocolate Mountains; and would also run from east to west between the Imperial Valley and the San Diego area. All these lines would represent additional risk to migrating and overwintering covered avian species, due to their location, Collision risks in these areas increase during storm events when flocks of migrating birds come down to wait out the storms before continuing their migration.

Large scale development of transmission, as anticipated within the plan area, would result in adverse impacts to Covered Species. In the No Action Alternative, projects would be analyzed on a project by project basis. Development of lines would follow recommendations of APLIC, where feasible. Each project would require an avian protection plan that would require the implementation of avoidance, minimization, and compensation measures to offset likely collision impacts.

The level of impact on Non-Covered Species would be similar to the Covered Species for each of the renewable energy types discussed above. Under the No Action Alternative, projects would be analyzed on a case-by-case basis and preparation and implementation of plans that detail avoidance, minimization, and compensation measures, are expected to address and offset collision impacts to Non-covered bird and bat species.

Operational Impacts Take Estimates for Covered Avian and Bat Species

The following section summaries 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.7-38
GCP Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Bendire's thrasher	10	30	0	40
Burrowing owl	110	100	0	210
California condor	0	0	0	0
California black rail	30	10	0	40

Table IV.7-38
GCP Estimated Total Take for Covered Avian and Bat Species – No Action Alternative

Covered Bird and Bat Species	Solar Impact	Wind Impact	Geothermal Impact	Total Impact
Gila woodpecker	30	10	0	40
Golden eagle	n/a	n/a	n/a	n/a
Least Bell's vireo	30	0	0	30
Mountain plover	50	60	0	110
Greater sandhill crane	10	0	0	10
southwestern willow flycatcher	50	10	0	60
Swainson's hawk	10	30	0	40
Tricolored blackbird	30	100	0	130
Western yellow billed cuckoo	30	10	0	40
Yuma clapper rail	30	10	0	40
Grand Total Avian Species	**450**	**370**	**10**	**830**
California leaf-nosed bat	10	0	0	10
Pallid bat	10	150	0	160
Townsend's big-eared bat	30	30	0	60
Grand Total Bat Species	**50**	**190**	**0**	**240**

[1] It was assumed that take for California condor would not be permitted under No Action Alterative as it is a fully protected species.
[2] Take of Golden Eagle would be permitted based on current Eagle Act permit regulations.

IV.7.3.1.5 Impacts of the Reserve Design under the General Conservation Plan

The No Action Alternative has no reserve design, but without approval of an action alternative, there would be continued protection of existing protected areas (e.g., Wilderness areas, National and State Parks, etc.). Under the No Action Alternative, project-specific mitigation required for renewable energy and transmission projects developed under the No Action that results in habitat conservation cannot be quantified and was not included in this analysis. The following provides an analysis of the conservation provided by existing protected areas on nonfederal lands in the DRECP area, organized by landscape, natural communities, and species.

Landscape

Habitat Linkages

Table IV.7-39 shows the Plan-wide conservation of the Desert Linkage Network under the No Action Alternative for the GCP. Overall, 28% (263,000 acres) of the Desert Linkage Network habitat linkage areas occur in areas of existing conservation or in existing BLM conservation designations. Conservation of habitat linkage areas in the subareas would be

variable, ranging from no conservation in the Owens River Valley to 44,000 acres (43%) in the Mojave and Silurian Valley subarea. Overall, existing BLM conservation designations account for 79% of the total conservation and Existing Protected Areas account for 21%.

Table IV.7-39
Conservation Analysis for the Desert Linkage Network within the GCP Area – No Action Alternative

Subarea	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Cadiz Valley and Chocolate Mountains	148,000	2,000	49,000	50,000
Imperial Borrego Valley	10,000	-	100	100
Kingston and Funeral Mountains	12,000	30	2,000	2,000
Mojave and Silurian Valley	101,000	5,000	38,000	44,000
Owens River Valley	4,000	-	-	-
Panamint Death Valley	15,000	6,000	0	6,000
Pinto Lucerne Valley and Eastern Slopes	122,000	12,000	2,000	15,000
Piute Valley and Sacramento Mountains	24,000	-	7,000	7,000
Providence and Bullion Mountains	49,000	4,000	9,000	13,000
West Mojave and Eastern Slopes	468,000	26,000	100,000	126,000
Grand Total	**952,000**	**56,000**	**208,000**	**263,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas on nonfederal lands

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal land

[3] Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. The following general rounding rules were applied to acreage values: values greater than 1,000 were rounded to nearest 1,000; values less than 1,000 and greater than 100 were rounded to the nearest 100; values of 100 or less were rounded to the nearest 10, and therefore totals may not sum due to rounding. In cases where subtotals are provided, the subtotals and the totals are individually rounded. The totals are not a sum of the rounded subtotals; therefore the subtotals may not sum to the total within the table.

Hydrological Resources

A conservation analysis for hydrological resources is provided below, including playa, seep/spring, and the four major rivers in the Plan Area (i.e., Amargosa, Colorado, Mojave and Owens) under the No Action Alternative 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 75,000acres in the Plan Area under the No Action Alternative within the GCP. Overall, 7% (5,000 acres) would be conserved under the No Action Alternative within the GCP. Existing Conservation would account for 43% of the conservation, while existing ACECs would account for 57%.

Seep/Spring

There are 147 seep/spring locations in the Plan Area under the No Action Alternative within the GCP. Overall, 26% (38 locations) of the seep/spring locations would be conserved under the No Action Alternative within the GCP. The conservation of seep/spring under the No Action Alternative would be relatively low in all subareas. These include Imperial Borrego Valley (48%, 8 locations), Kingston and Funeral Mountains (19%, 3 locations), Mojave and Silurian Valley (59%, 5 locations), Pinto Lucerne Valley and Eastern Slopes (18%, 5 locations), Providence and Bullion Mountains (24%, 2 locations), and West Mojave and Eastern Slopes (30%, 16 locations). Overall, Existing Conservation would account for 43% of the conservation of seep/spring, and existing ACECs would account for 58%.

Major Rivers

Overall, 7% of the major rivers would be conserved under the No Action Alternative under the GCP, including 22% of the Amargosa River, 7% of the Colorado River, 10% of the Mojave River, and 0% of the Owens River. Existing Conservation would account for 77% of the conservation of the major rivers, while existing ACECs would account for 23%.

Dune and Sand Resources

Overall, 9% (20,000 acres) of dunes and sand resources would be conserved under the No Action Alternative within the GCP. The conservation of dunes and sand resources under the No Action Alternative would be relatively low in all subareas. These include Cadiz Valley and Chocolate Mountains at 5% (4,000 acres), Imperial Borrego Valley at 12% (1,000 acres), Kingston and Funeral Mountains at 12% (1,079 acres), Mojave and Silurian Valley at 21% (6,000 acres), Panamint Death Valley at 17% (700 acres), Pinto Lucerne Valley and Eastern Slopes at 3% (500 acres), Providence and Bullion Mountains at 6% (3,000 acres), and West Mojave and Eastern Slopes at 17% (5,000 acres).

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 the No Action Alternative within the GCP would follow the same overall pattern as Plan-wide conservation.

Natural Communities

Table IV.7-40 shows the conservation to natural communities under the GCP. A conservation summary by general community is provided below.

California forest and woodlands

Overall, approximately 8,000 acres (8%) of California forest and woodlands would be conserved under the No Action Alternative under the GCP, which is approximately 29% of the conserved acreage of California forest and woodland compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes subarea.

Chaparral and coastal scrubs (Cismontane scrub)

Overall, approximately 2,000acres (3%) of chaparral and coastal scrubs would be conserved under the No Action Alternative under the GCP, which is approximately 14% of the conserved acreage of chaparral and coastal scrubs compared to the Plan-wide conservation of this general community.

Desert conifer woodlands

Overall, approximately 9,000 acres (8%) of desert conifer woodlands would be conserved under the No Action Alternative under the GCP, which is less proportionally than would be conserved Plan-wide and is only approximately 5% of the conserved acreage of desert conifer woodlands compared to the Plan-wide conservation of this general community. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes, Providence and Bullion Mountains, and West Mojave and Eastern Slopes subareas.

Desert outcrop and badlands

Overall, approximately 109,000acres (50%) of desert outcrop and badlands would be conserved under the No Action Alternative in the GCP, which is a lesser proportion of available lands than is conserved Plan-wide, and is approximately 10% of the total acreage of conserved desert outcrop and badlands Plan-wide. The majority of

conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas.

Desert scrubs

Overall, approximately 685,000 acres (23%) of desert scrubs would be conserved under the No Action Alternative under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide, and is approximately 9% of the total acreage of conserved desert scrubs Plan-wide. The majority of conservation would occur in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Dunes

Overall, approximately 2,000 acres (7%) of dunes would be conserved under the No Action Alternative under the GCP, which is both a lesser proportion of available lands conserved Plan-wide and only accounts for approximately 1% of the total acreage of conserved dunes Plan-wide. Most of the dunes would be conserved in the Mojave and Silurian Valley and Imperial Borrego Valley subareas.

Grasslands

Overall, approximately 12,000 acres (6%) of grasslands would be conserved under the No Action Alternative under the GCP, which is a lesser proportion of available lands compared to that conserved Plan-wide, and is approximately 36% of the total acreage of conserved grasslands Plan-wide. The majority of conservation would occur in the Pinto Lucerne Valley and Eastern Slopes and West Mojave and Eastern Slopes subareas.

Riparian

Overall, approximately 58,000 acres (29%) of riparian communities would be conserved under the No Action Alternative under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide and accounts for approximately 12% of the total acreage of conserved riparian communities Plan-wide. Most of the conservation would occur in the Cadiz Valley and Chocolate Mountains and Imperial Borrego Valley subareas.

Wetlands

Overall, approximately 45,000 acres (14%) of wetland communities would be conserved under the No Action Alternative under the GCP, which is a lesser proportion of available lands than is conserved Plan-wide and accounts for approximately 14% of the total acreage of conserved wetland communities Plan-wide. Most of the conservation would occur in the West Mojave and Eastern Slopes subarea.

Table IV.7-40
Conservation Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
California forest and woodland				
Californian broadleaf forest and woodland	61,000	800	100	1,000
Californian montane conifer forest	44,000	7,000	600	7,000
Chaparral and coastal scrub community (Cismontane scrub)				
Californian mesic chaparral	3,000	20	—	20
Californian pre-montane chaparral	1,000	—	—	—
Californian xeric chaparral	19,000	600	0	600
Central and south coastal California seral scrub	1,000	—	—	—
Central and South Coastal Californian coastal sage scrub	42,000	300	900	1,000
Western Mojave and Western Sonoran Desert borderland chaparral	15,000	600	—	600
Desert conifer woodlands				
Great Basin Pinyon - Juniper Woodland	104,000	7,000	2,000	9,000
Desert outcrop and badlands				
North American warm desert bedrock cliff and outcrop	220,000	68,000	40,000	109,000
Desert Scrub				
Arizonan upland Sonoran desert scrub	8,000	3,000	10	3,000
Intermontane deep or well-drained soil scrub	24,000	2,000	4,000	6,000
Intermontane seral shrubland	68,000	500	10	500
Inter-Mountain Dry Shrubland and Grassland	152,000	21,000	16,000	36,000
Intermountain Mountain Big Sagebrush Shrubland and steppe	48,000	1,000	3,000	4,000
Lower Bajada and Fan Mojavean - Sonoran desert scrub	2,262,000	246,000	363,000	608,000
Mojave and Great Basin upper bajada and toeslope	228,000	13,000	10,000	22,000

Table IV.7-40
Conservation Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Shadscale - saltbush cool semi-desert scrub	157,000	1,000	4,000	5,000
Southern Great Basin semi-desert grassland	80	0	0	0
Dunes				
North American warm desert dunes and sand flats	34,000	800	2,000	2,000
Grassland				
California Annual and Perennial Grassland	196,000	8,000	3,000	11,000
California annual forb/grass vegetation	7,000	400	300	700
Riparian				
Madrean Warm Semi-Desert Wash Woodland/Scrub	96,000	3,000	32,000	36,000
Mojavean semi-desert wash scrub	17,000	3,000	1,000	4,000
Riparian	600	30	—	30
Sonoran-Coloradan semi-desert wash woodland/scrub	34,000	11,000	4,000	15,000
Southwestern North American riparian evergreen and deciduous woodland	6,000	400	70	500
Southwestern North American riparian/wash scrub	47,000	3,000	200	3,000
Wetland				
Arid West freshwater emergent marsh	4,000	40	—	40
Californian warm temperate marsh/seep	400	0	10	10
North American Warm Desert Alkaline Scrub and Herb Playa and Wet Flat	37,000	2,000	4,000	6,000
Open Water	114,000	900	10	800
Playa	52,000	20	10	30
Southwestern North American salt basin and high marsh	112,000	3,000	35,000	38,000
Wetland	8,000	30	50	80

Table IV.7-40
Conservation Analysis for Natural Communities Within the GCP Area – No Action Alternative

Natural Community	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Other Land Cover				
Agriculture	693,000	5,000	4,000	8,000
Developed and Disturbed Areas	399,000	500	5,000	5,000
Rural	110,000	400	2,000	2,000
Not Mapped	4,000	50	0	50
Total	**5,430,000**	**412,000**	**534,000**	**946,000**

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

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal lands

[3] Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. 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.7-40 shows the conservation of Covered Species habitat under the No Action Alternative (before the application of CMAs) GCP. Generally, the percent conservation of Covered Species habitat in available lands is highly variable. The majority of the habitat conserved under the No Action Alternative is associated with the Imperial Borrego Valley and West Mojave and Eastern Slopes subareas.

Much of the habitat for desert tortoise and Mojave fringe-toed lizard are in the Mojave Desert in areas that occur in the BLM Existing ACECs. Flat-tailed horned lizard habitat is only conserved in the Imperial Borrego Valley, mostly in Existing Protected Areas. Tehachapi slender salamander habitat occurs in the Tehachapi Mountains where conservation is primarily composed of BLM Existing ACECs.

The majority of the habitat conservation of covered bird species under the No Action Alternative is in BLM Existing ACECs. However, conservation of Bendire's thrasher, burrowing owl and least Bell's vireo occurs in nearly every subarea of the Plan Area, and except for burrowing owl is mainly in Existing Protected Areas. The highest percent conservation of suitable habitat is 29% for golden eagle.

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 Existing Protected Areas. Golden eagle suitable habitat and associated conservation is widespread in the Plan Area with most of the conservation in BLM Existing ACECs. Swainson's hawk is primarily associated with the West Mojave and Eastern Slopes, Imperial Borrego Valley, and Owens River Valley subareas; of these subareas, the majority of suitable habitat is conserved only in the West Mojave and Eastern Slopes subarea.

Most of the suitable habitat for Gila woodpecker is conserved in the Imperial Borrego Valley in Existing Protected Areas. Conservation of mountain plover suitable habitat is divided between Existing Protected Areas and BLM Existing ACECs in the West Mojave and Eastern Slopes and Imperial Borrego Valley subareas.

Conservation of suitable habitat for desert pupfish and Mohave tui chub is entirely within Existing Protected Areas. No conservation of suitable habitat for Owens pupfish occurs under the No Action Alternative and less than 1% conservation occurs for Owens tui chub.

Conservation of suitable habitat for bighorn sheep, both inter-mountain and mountain habitat, is widespread and is divided between BLM Existing ACECs and existing conservation. At least half of the conservation Mojave ground squirrel suitable habitat is from BLM Existing ACECs. Suitable habitat for the covered bat species—California leaf-nosed bat, pallid bat, and Townsend's big-eared bat—is widespread and mainly conserved in BLM Existing ACECs.

Conservation of plant species habitat varies under the No Action Alternative of the GCP. The proportion of suitable habitat conserved in Existing Protected Areas and BLM Existing ACECs also varies by species.

Table IV.7-41
Conservation Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Amphibian/Reptile				
Agassiz's desert tortoise	2,256,000	140,000	457,000	597,000
Flat-tailed horned lizard	310,000	112,000	6,000	118,000
Mojave fringe-toed lizard	168,000	3,000	15,000	19,000
Tehachapi slender salamander	41,000	300	2,000	2,000
Bird				
Bendire's thrasher	405,000	35,000	28,000	63,000
Burrowing owl	3,251,000	73,000	264,000	338,000
California black rail	127,000	5,000	60	5,000
California condor	996,000	43,000	22,000	66,000
Gila woodpecker	56,000	4,000	60	4,000
Golden eagle–foraging	1,007,000	86,000	233,000	318,000
Golden eagle–nesting	676,000	108,000	58,000	166,000
Greater sandhill crane	601,000	5,000	600	6,000
Least Bell's vireo	105,000	9,000	5,000	14,000
Mountain plover	811,000	6,000	5,000	12,000
Southwestern willow flycatcher	258,000	6,000	2,000	8,000
Swainson's hawk	1,340,000	15,000	14,000	29,000
Tricolored Blackbird	257,000	6,000	5,000	11,000
Western yellow-billed cuckoo	111,000	2,000	2,000	4,000
Yuma clapper rail	31,000	3,000	10	3,000
Fish				
Desert pupfish	7,000	800	0	800
Mohave tui chub	100	70	—	70
Owens pupfish	13,000	—	—	—
Owens tui chub	13,000	0	—	0
Mammal				
Bighorn sheep – inter-mountain habitat	464,000	40,000	70,000	110,000
Bighorn sheep – mountain habitat	808,000	149,000	71,000	220,000
California leaf-nosed bat	979,000	137,000	191,000	328,000

Table IV.7-41
Conservation Analysis for Species Habitat Within the GCP Area – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Mohave ground squirrel	1,329,000	51,000	237,000	288,000
Pallid bat	3,783,000	393,000	496,000	889,000
Townsend's big-eared bat	3,519,000	308,000	408,000	716,000
Plant				
Alkali mariposa-lily	117,000	200	80	300
Bakersfield cactus	200,000	17,000	8,000	25,000
Barstow woolly sunflower	82,000	3,000	31,000	34,000
Desert cymopterus	137,000	2,000	49,000	51,000
Little San Bernardino Mountains linanthus	129,000	5,000	400	5,000
Mojave monkeyflower	41,000	100	9,000	9,000
Mojave Tarplant	129,000	19,000	14,000	33,000
Owens Valley checkerbloom	91,000	200	20	200
Parish's daisy	72,000	19,000	800	20,000
Triple-ribbed milk-vetch	3,000	900	70	1,000

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas on nonfederal lands.

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal lands.

[3] Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. 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.7-42 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, 47% of TCAs, linkage habitat, and high priority habitat would be conserved under the No Action Alternative on nonfederal lands. Within the Eastern Mojave Recovery Unit, 18% of the important areas would be conserved under the No Action Alternative on nonfederal lands. Within the Western Mojave Recovery Unit, 45% of TCAs and linkage habitat would be conserved under the No Action Alternative on nonfederal lands. Existing federal and state laws and regulations would require avoidance, minimization, and compensation for impacts to this federal and state listed species that would likely contribute additional conservation than is reported here.

Table IV.7-42
Conservation Analysis for Desert Tortoise
Within the GCP Area – No Action Alternative

Recovery Unit	Reserve	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Colorado Desert	High Priority Habitat	31,000	800	—	800
	Linkage	63,000	100	50	200
	TCA	269,000	16,000	153,000	170,000
Colorado Desert Total		*363,000*	*17,000*	*153,000*	*170,000*
Eastern Mojave	Linkage	56,000	4,000	1,000	5,000
	TCA	66,000	6,000	11,000	18,000
Eastern Mojave Total		*122,000*	*10,000*	*12,000*	*22,000*
Western Mojave	Linkage	407,000	2,000	4,000	6,000
	TCA	392,000	23,000	332,000	355,000
Western Mojave Total		*799,000*	*256,000*	*336,000*	*361,000*
Total		**1,284,000**	**52,000**	**501,000**	**553,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas on nonfederal lands

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal lands

[3] Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. 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.7-43 provides a conservation analysis for these Mohave ground squirrel important areas. Approximately 39% of key population centers and 40% of linkages would be conserved under the No Action Alternative on nonfederal lands. Expansion areas and climate change extension areas would be conserved at 12% and 44% respectively. Existing federal and state regulations would require avoidance, minimization, and compensation for impacts to this federally sensitive and state listed species that would likely contribute additional conservation than is reported here.

Table IV.7-43
Conservation Analysis for Mohave Ground Squirrel
Within the GCP Area – No Action Alternative

Mohave Ground Squirrel Important Area Type	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Nonfederal Inholdings in Existing BLM Land Use Plan Conservation Designation (acres)[3]	Total Conservation (acres)
Key Population Center	193,000	14,000	62,000	75,000
Linkage	103,000	3,000	38,000	41,000
Expansion Area	131,000	13,000	4,000	16,000
Climate Change Extension	258,000	21,000	91,000	112,000
Total	**684,000**	**50,000**	**194,000**	**244,000**

[1] Available lands includes the entire Plan Area excluding military lands, tribal lands, and BLM Open OHV Areas on nonfederal lands

[2] Existing Protected Areas include Legislatively and Legally Protected Lands (LLPAs) and Military Expansion Mitigation Lands (MEMLs) on nonfederal lands

[3] Includes nonfederal inholdings within existing BLM Land Use Plan conservation designations (existing Areas of Critical Environmental Concern (ACECs)). There are no mechanisms to assure the conservation of these nonfederal inholdings within the existing BLM Land Use Plan conservation designations under the No Action Alternative; however, these inholding lands could be used for mitigation for planned or future renewable energy and transmission development under the No Action Alternative.

Notes: Overlaps of Existing BLM conservation designations with Existing Protected Areas are reported in the Existing Protected Areas acreages. 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.

Non-Covered Species Critical Habitat

Eight Non-Covered Species have Critical Habitat within GCP Lands. Table IV.7-44 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. Only one species, bighorn sheep, has Critical Habitat within existing protected areas.

Table IV.7-44
Conservation Analysis for Critical Habitat within the GCP Area for Non-Covered Species – No Action Alternative

Species	Available Lands (acres)[1]	Existing Protected Areas (acres)[2]	Total Conservation (acres)
Amargosa vole	600	0	0
Arroyo toad	4,000	0	0
Cushenbury buckwheat	200	0	0
Cushenbury milk-vetch	200	0	0
Cushenbury oxytheca	30	0	0
Lane Mountain milk-vetch	2,000	0	0
Pierson's milk-vetch	400	0	0
Peninsular bighorn sheep	40,000	36,000	36,000

IV.7.3.1.6 Impacts Outside of Plan Area in No Action Alternative

Outside of the Plan Area, additional transmission lines would be needed to deliver the additional renewable energy to load centers (areas of high demand). It is assumed that new Out of Plan Area transmission lines would use existing transmission corridors between the Plan Area and existing substations in the more populated coastal areas of the state. The Out of Plan Areas through which new transmission lines might be constructed are San Diego, Los Angeles, North Palm Springs-Riverside, and Central Valley. These areas and their biological resources are described in Chapter III.7 (Biological Resources), Section III.7.12.

IV.7.3.1.6.1 Impacts of Transmission Outside of Plan Area

Section IV.7.2 describes the typical biological impacts resulting from preconstruction, construction, operations and maintenance, and decommissioning of transmission infrastructure. These types of impacts would be similar inside and outside of the Plan Area.

Although the new transmission facilities would generally be located near existing infrastructure, native vegetation and habitat types, listed and other special-status species, and jurisdictional resources occur within each of the four areas and could be impacted by

transmission development. Section III.7.12.1.2 identifies sensitive biological resources in each of the four areas.

Impacts to Biological Resources from construction of Out of Plan Area transmission lines would be as follows:

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

As described in Section III.7.12.1.2, a variety of native vegetation types occurs throughout the four areas outside of the Plan Area. Native vegetation provides foraging, breeding, roosting, and migration stopover habitat for native wildlife, including special-status species. Several native vegetation types are rare and considered sensitive by state, federal, or local agencies; these include riparian communities, Joshua tree woodlands, oak woodlands, and others.

Although this analysis assumes that new transmission lines would be constructed within existing corridors, these corridors support both degraded and intact native vegetation. Vegetation removal would occur within new tower footprints, stringing and pulling sites, laydown and staging areas, or any additional associated ground disturbance. Areas with temporary loss of vegetation could be restored or revegetated after construction, but permanent vegetation loss would occur in tower footprints and any new access roads or substation expansion areas outside of existing fencelines. Impacts from permanent and temporary loss of native vegetation could be reduced through mitigation such as restoration or revegetation of temporary impact areas and off-site compensatory mitigation for permanent impacts. Native plants could be salvaged from permanent impact areas for use in revegetating temporary impact areas, or for enhancement in off-site compensation areas.

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

Project proponents are required to obtain a Lake and Streambed Alteration Agreement from CDFW for alterations to streams, lakes, rivers, and other areas that are jurisdictional under California Fish and Game Code Section 1602, including associated riparian areas. Under Section 404 of the federal Clean Water Act, project proponents must obtain permits from the US Army Corps of Engineers for placement of material within jurisdictional waters of the U.S. Under Section 401 of the CWA, proponents must obtain water quality certification from the state Regional Water Quality Control Boards. State and federally jurisdictional waters and wetlands may be located in some areas within the transmission routes outside of the Plan Area. These drainages, wetlands, and other jurisdictional features could be directly impacted by any ground disturbance within the feature, and

could be indirectly impacted by sedimentation and erosion occurring during construction, operation, and decommissioning.

Mitigation strategies to minimize or avoid impacts to jurisdictional waters and wetlands could include delineation and avoidance of jurisdictional features, restoration and compensatory mitigation, minimizing ground disturbance, weed management, and implementation of construction Best Management Practices to minimize erosion, sedimentation, and dust.

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

In addition to direct loss of native vegetation, construction and operation of new transmission lines could indirectly affect vegetation. During construction, excess airborne dust, erosion, and sedimentation may affect plants' productivity and nutritional qualities for wildlife. The introduction or spread of nonnative, invasive weeds can displace native species and degrade vegetation, or even result in type conversion from native communities to weed-dominated vegetation. Use of dust suppressants, exposure to fire, and implementation of fire management techniques could also result in habitat degradation. Operational impacts that could degrade vegetation include ongoing spread of invasive weeds, potential for spills of toxic materials, and dust from access road use or maintenance; however, the risk and magnitude of these impacts would be lower during operation than construction because the level of activity would be substantially lower. Mitigation strategies that could reduce or avoid degradation of vegetation include use of nontoxic soil binders or water for dust suppression, best management practices to minimize risk of spills affecting vegetation, erosion and sedimentation control measures, and weed prevention and management.

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 transmission facilities outside the Plan Area would traverse habitat for listed and special-status species, including desert tortoise, arroyo toad, barefoot banded gecko, Mohave ground squirrel, golden eagle, California condor, least Bell's vireo, coastal California gnatcatcher, southwestern willow flycatcher, a wide variety of rare plants, and other species as described in Section III.7.12.1.2. Direct impacts that could occur during construction include disturbance to or mortality of special-status wildlife, removal of special-status plants, disruption of special-status bird and bat breeding activities if construction occurs during the nesting or roosting seasons, and habitat loss (both short-term and long-term). Potential indirect impacts to special-status species during construction include spread of invasive weeds, and impacts from dust, erosion, sedimentation, and noise/vibration. Potential impacts to special-status species during operation include disruption of aerial

migration and foraging routes and local wildlife corridors; disturbance from corona noise and night lighting; bird and bat collisions with transmission infrastructure; and electrocution of raptors and other birds on power lines. Mitigation strategies to minimize or avoid these impacts include pre-construction surveys, minimizing ground disturbance and vibration, avoidance of occupied and suitable habitat to the extent feasible, revegetation and compensation for impacts to habitat, weed management, implementation of best management practices to minimize dust and water quality impacts, worker education, seasonal restrictions and buffer zones for special-status species, directing permanent lighting away from adjacent habitat, keeping work areas free of trash and micro-trash, minimizing subsidies for common ravens, and construction of facilities according to current APLIC standards to reduce collision and electrocution hazards.

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).

Disturbance to nesting raptors and other native birds that interferes with breeding or otherwise results in loss of a nest, eggs, or nestlings would violate the federal Migratory Bird Treaty Act and the California Fish and Game Code. Removal of vegetation, helicopter use for construction or maintenance, earth moving and other ground disturbance, noise and vibration, and human presence associated with construction and operation of transmission lines outside of the Plan Area could disturb nesting birds if conducted during the breeding season. Mitigation strategies to avoid or minimize these impacts include seasonal restrictions, pre-construction nest surveys, worker education, and buffer zones around active nests.

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.

In general, transmission infrastructure outside of the Plan Area would not substantially affect wildlife movement or habitat linkages for terrestrial species. Due to the intermittent locations and temporary nature of construction activity along a transmission line, wildlife may be temporarily excluded from specific locations but would not be physically prevented from moving around project equipment in the transmission corridor. Wildlife would continue to have access to surrounding habitat. During operation, the widely spaced towers would not physically obstruct wildlife movement; wildlife would move under and around the towers. Transmission access roads may either disrupt or facilitate wildlife movement depending on the mobility of individual species and the road design. However, fatal collisions with transmission lines could disrupt bird and bat movement or migration during operation (see Impact BR-9 for detailed discussion of collision risks). Native wildlife

nursery sites, such as bat maternity roosts, could be indirectly affected by noise, dust, vibration, and human presence or could be directly impacted if areas supporting nursery sites are removed during construction.

Mitigation strategies to minimize or avoid these impacts include pre-construction surveys, minimizing ground disturbance, avoidance of occupied habitat, revegetation and compensation for impacts to habitat, weed management, worker education, seasonal restrictions and buffer zones for nursery sites, and directing permanent lighting away from adjacent habitat. Construction of facilities according to current APLIC standards to reduce collision and electrocution hazards would minimize the potential for transmission lines to interfere with bird and bat 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.

Construction and operation of transmission facilities is unlikely to result in habitat fragmentation and isolation of populations of listed and sensitive plants and wildlife because transmission lines do not create solid obstacles to movement. These facilities are linear, with widely spaced towers, and are expected to be sited within existing transmission corridors. Therefore, there is minimal potential for this impact to occur from transmission outside of the Plan Area.

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

Construction and operation of transmission lines could increase the density of species that prey on listed and sensitive wildlife. During construction, use of water for dust suppression and trash left by workers could attract predators such as coyotes, foxes, and ravens to work areas. During operation, transmission towers can provide supplemental roosting, perching, and nesting habitat for ravens. An increase in the presence of predators could result in increased predation on listed species like the desert tortoise, Mohave ground squirrel, arroyo toad, barefoot banded gecko, and other special-status species.

Mitigation strategies to minimize or avoid these impacts include worker education, keeping work areas free of trash, minimizing subsidies for common ravens and other predators, and using nontoxic soil binders or minimizing the amount of water used for dust suppression.

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.

Transmission facilities would not result in any impacts associated with thermal flux, as this phenomenon is associated with solar “power tower” projects. However, birds could collide

with or be electrocuted on transmission infrastructure. Bird collisions with power lines are a function of several factors, including:

- Behavior, with behaviors such as flushing, courtship displays, and aerial hunting resulting in potential distraction from the presence of power lines;
- High frequency of flights between nesting, feeding, and roosting areas near power lines;
- Wing and body size and vision acuity;
- Environmental conditions such as inclement weather and darkness;
- Engineering aspects of the power line, including design and siting (APLIC 2012).

The transmission lines outside of the Plan Area are not expected to pose a substantial collision risk to bats due to their echolocation ability, though information on bat collisions with transmission lines is minimal (Keeley 2001). Mitigation strategies include construction of transmission facilities according to current APLIC standards to reduce collision and electrocution hazards.

IV.7.3.1.6.2 Impacts of Existing BLM Land Use Plans Outside of Plan Area

Under the No Action Alternative, the existing BLM CDCA land use plan would continue to be implemented on CDCA lands. Under the No Action Alternative, renewable energy projects would still be developed through BLM's existing policies. Impacts on biological resources would be of the types described above in Section IV.7.2.1, with similar mitigation measures being included on a case-by-case basis.

The existing land designations, such as existing protected areas, ACECs, and National Scenic and Historic Trails, would continue to be managed to protect their associated values and resources.

IV.7.3.1.7 CEQA Significance Determination: No Action Alternative

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

The No Action Alternative 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, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. Impacts would predominantly be in desert scrubs, riparian, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of the loss of native vegetation would be avoided and minimized through implementation of typical project-by-

project mitigation measures related to avoidance and minimization. Existing laws and regulations under the No Action Alternative would not require compensation for all the loss of all natural communities in the Plan Area; therefore, the adverse effects from the loss of native vegetation, including rare natural communities and locally rare occurrences, would be a significant and unavoidable impact.

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

The No Action Alternative would result in adverse effects to jurisdictional waters and wetlands. These impacts would occur in riparian and wetland 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, minimized, and compensated through the implementation existing applicable laws and regulations related to jurisdictional waters and wetlands. Implementation of typical mitigation consistent with existing applicable laws and regulations 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.

The No Action Alternative 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, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. Impacts would predominantly be in desert scrubs, riparian, wetlands, grasslands, and desert outcrop and badlands. The adverse effects of vegetation degradation would be avoided and minimized through implementation of typical project-by-project mitigation measures related to avoidance and minimization. Implementation of typical mitigation consistent with existing applicable laws and regulations would reduce the adverse effects of vegetation degradation 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.

The No Action Alternative 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, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and

Providence and Bullion Mountains subareas. These impacts would be widespread across the Plan Area, including substantial impacts to important areas identified for desert tortoise, bighorn sheep, and Mohave ground squirrel. The adverse effects plant and wildlife species loss and habitat loss would be avoided, minimized, and compensated through the implementation of typical mitigation necessary to comply with existing applicable laws and regulations for listed and sensitive plants and wildlife, which would be implemented on a project-by-project basis under the No Action Alternative. These typical mitigation measures would not be expected to offset the magnitude and extent of all the impacts to listed and sensitive plants and wildlife expected under the No Action Alternative because project-by-project mitigation is unlikely to achieve large blocks of contiguous habitat in a connected reserve system across the Plan Area and will lack the inter-agency, coordinated management and monitoring of habitat lands for these species. Therefore, the adverse effects from the loss of listed and sensitive plants and wildlife and their habitat under the No Action Alternative would be a significant and unavoidable impact.

The significance of impact on Non-Covered Species would be as discussed for the Covered Species.

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).

The No Action Alternative has the potential to result in an adverse impact resulting from the loss of nesting birds. These impacts have the potential to occur anywhere renewable energy and transmission projects are implemented under the No Action Alternative. The potential adverse effects to nesting birds would be avoided through the implementation of existing applicable laws and regulations related to nesting birds. Implementation of typical mitigation consistent with existing applicable laws and regulations would reduce the potential adverse effects to 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.

The No Action Alternative 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, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. The potential adverse effects to habitat linkages and wildlife movement would be avoided, minimized, and compensated through the implementation of typical mitigation necessary to comply with existing

applicable laws and regulations for listed and sensitive wildlife and the movement of migratory birds, which would be implemented on a project-by-project basis under the No Action Alternative. These typical mitigation measures would not be expected to offset the magnitude and extent of all the impacts to listed and sensitive wildlife movement and migratory bird movement expected under the No Action Alternative because project-by-project mitigation is unlikely to achieve large blocks of contiguous habitat in a connected reserve system across the Plan Area and will lack the inter-agency, coordinated management and monitoring of habitat lands for species. Therefore, the adverse effects on habitat linkages, wildlife movement, and movement of migratory birds under the No Action Alternative would be a significant and unavoidable impact.

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

The No Action Alternative would have the potential to result in adverse impacts of habitat fragmentation and population isolation. Under the No Action Alternative, the potential adverse effects of habitat fragmentation and population isolation would not be avoided, minimized, or compensated on a project-by-project basis, except as necessary to comply with existing applicable laws and regulation pertaining to listed and sensitive plants and wildlife. Project-by-project mitigation is unlikely to achieve large blocks of contiguous habitat in a connected reserve system across the Plan Area and will lack the inter-agency, coordinated management and monitoring of habitat lands for species; therefore, the adverse effects of habitat fragmentation and population isolation under the No Action Alternative would be a significant and unavoidable impact.

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

The No Action Alternative would result in an increase in predator populations in the Plan Area, which would adversely affect susceptible Covered Species. These impacts have the potential to occur anywhere renewable energy and transmission projects are implemented under the No Action Alternative. The potential adverse effects of increased predation would be avoided and minimized through the implementation of existing applicable laws and regulations related listed and sensitive wildlife. Implementation of typical mitigation consistent with existing applicable laws and regulations would reduce the potential adverse effects of increased predation to a less than significant impact.

The level of impact on Non-Covered Species would be as 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 No Action Alternative 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, but would also occur in the Kingston and Funeral Mountains, Mojave and Silurian Valley, and Providence and Bullion Mountains subareas. The adverse effects of avian and bat injury and mortality would be avoided, minimized, and compensated through the implementation of typical mitigation necessary to comply with existing applicable laws and regulations for avian and bat species, which would be implemented on a project-by-project basis under the No Action Alternative. These typical mitigation measures would not be expected to offset the magnitude and extent of all the avian and bat injury and mortality expected under the No Action Alternative; therefore, the adverse effects from avian and bat injury and mortality would be a significant and unavoidable impact.

The significance of impact on Non-Covered Species would be as discussed for the Covered Species.