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DOCKET

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DATE APR 09 2012

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April 13, 2012

David L. Harlow, Director
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California Energy Commission
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California Energy Commission
Dockets Office, MS-4
Docket No. 09-RENEW EO-01
1516 Ninth Street
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Re: Detailed Comments on Draft Revised DRECP Biological Goals and Objectives

Dear Mr. Harlow:

Thank you for the opportunity to read and comment on the DRECP Draft Biological Goals and Objectives (BGOs) released March 21, 2012. We provided our initial feedback on this document verbally at the workshop held in Sacramento on March 28, 2012 and in written comments submitted on April 5, 2012. Attached to this letter are two documents, 1) Specific comments directly in the draft BGO document, and 2) Documents that include biological goals objectives for public lands within the California Desert Conservation Area (CDCA).

We strongly believe the biological goals and objectives for public lands should be included in the conservation framework of the DRECP. These goals and objectives were methodically developed by the Bureau of Land Management (BLM) through a lengthy public planning process which began in 1976 and includes various plan amendments which were adopted by BLM over the past 30 years. The most recent, comprehensive amendments covered the entire CDCA based on planning subregions (i.e., West Mojave, Northern and Eastern Mojave, Northern and Eastern Colorado) and

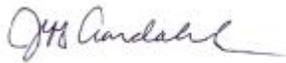
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addressed conservation of various special status species, all of which are covered species under the DRECP. Furthermore, the conservation framework for public lands in the CDCA reflects the statutory requirements for management of the CDCA contained in Section 601 of the Federal Land Policy and Management Act (FLPMA). We have provided information on specific BLM plans containing these biological goals and objectives in the attachment. If you need assistance in obtaining these plans and where the biological goals and objectives are documented, please let us know.

Please contact us if you have questions or need clarification about our detailed comments.

Sincerely,



Jeff Aardahl
California Representative
Defenders of Wildlife



Stephanie Dashiell
California Desert Associate
Defenders of Wildlife



Helen O'Shea
Natural Resources Defense Council

Attachments

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Date:	March 21, 2012
To:	Dave Harlow, Director of the DRECP Scott Flint, DRECP Program Manager, California Energy Commission DRECP Stakeholder Committee
Cc:	Renewable Energy Action Team (REAT)
From:	ICF International, Dudek
Subject:	DRAFT Revised DRECP Biological Goals and Objectives

This is a draft consultant work product prepared with the guidance of the REAT Agencies for the development of the DRECP Biological Goals and Objectives (BGOs). This draft does not include all BGOs; as additional BGOs are developed, they will be added to future drafts. Full review of this draft is underway by the REAT Agencies, and input from the REAT Agencies, as well as DRECP stakeholders, will also be reflected in future drafts.

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Acronyms and Abbreviations

BGOs	Biological Goals and Objectives
BLM	Bureau of Land Management
DBH	diameter at breast height
DPS	Distinct Population Segment
DRECP	Desert Renewable Energy Conservation Plan
NHD	National Hydrography Dataset
NVCS	National Vegetation Classification System
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
PCS	Preliminary Conservation Strategy
REAT	Renewable Energy Action Team
SWA	State Wildlife Area
USGS	U.S. Geological Survey

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Draft Memorandum Revised Biological Goals and Objectives

Introduction

This memorandum outlines draft Plan-wide Biological Goals and Objectives (BGOs) for the Desert Renewable Energy Conservation Plan (DRECP). Initial discussions regarding BGOs began with a stakeholder meeting in March 2011, followed by development of a Framework Conservation Strategy (FCS) Report (May 2011) and a Preliminary Conservation Strategy (PCS) (October 2011). Further conversations with stakeholders lead to development of a Conceptual Model (Figure 1). This model articulates how Plan-wide BGOs and other information contribute to the development of specific BGOs for the DRECP, which relate more directly to the proposed Covered Activities. A detailed description of the Conceptual Model is provided as Appendix A to this memorandum.

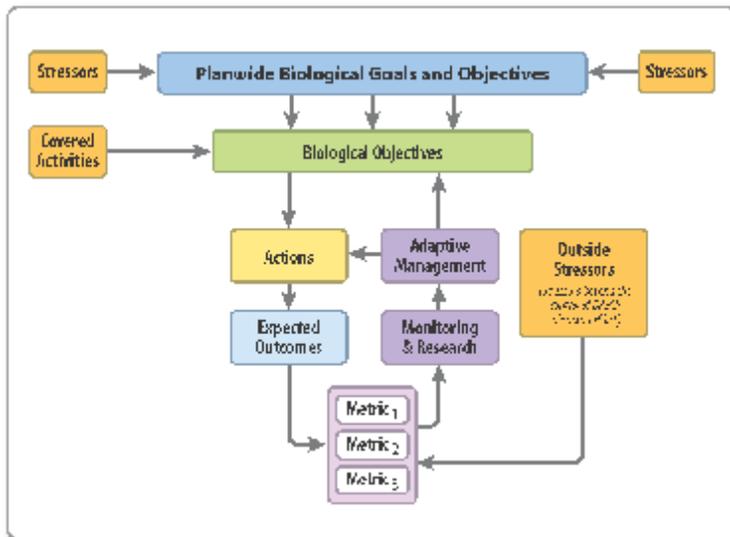


Figure 1. DRECP Conservation Strategy Conceptual Model

The Plan-wide BGOs outlined in this memorandum follow the three-tiered approach for presented in the PCS and based on the concepts of scale: landscape, natural community, and species. They have

Comment [SD1]: Defenders: Please clarify to what extent this plan will address stressors to covered species that are not related to renewable energy development/covered activities.

Comment [SD2]: Defenders: Stressors also inform the biological objectives. There should be an arrow from stressors to biological objectives. The scope of the biological objectives needs to be clarified - do objectives only relate to stressors caused by renewable energy development?

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since received initial input from stakeholders and Renewable Energy Action Team (REAT) agencies and have been refined to provide greater specificity based on key ecological processes, factors critical to species and community conservation (see Tables in Appendix B), and stressors to covered species (See Figures in Appendix C), including climate change.

Through a process of iterative review and revision, the goals and objectives will continue to be refined as they are applied during the creation of the conservation strategy, the delineation of a reserve design, and the evaluation of alternative development scenarios.

Comment [SD3]: Defenders: Please clarify how each component works together to inform the specific BGOs.

Comment [SD4]: Defenders: We do not think that BGOs should be altered based on different development scenarios. BGOs are traditionally developed based on the best available information on the current condition and trend of the species/community. Once established, the BGOs should help inform the level of development appropriate for the planning area.

Goals and Objectives Development Process

The Plan-wide BGOs were developed hierarchically at the landscape, natural community, and species levels based on information from the following resources, work products and deliverables (Figure 1).

- 1 Documented components of ecosystem processes and constituent habitat types from the FCS Report,
- 1 DRECP National Vegetation Classification System (NVCS) land cover map,
- 1 Natural Community descriptions in the PCS,
- 1 Species Profiles,
- 1 Factors Critical to Species and Community Conservation (Appendix B),
- 1 Conservation Planning ("Stressor") Diagrams for individual species (or groups of similar species) (Appendix C), and
- 1 Statistical- and Expert-based Habitat Models.

For each species an overarching goal is to conserve (protect and manage) viable self-sustaining populations in the Plan Area. For some species, the landscape- or natural community-level BGOs will achieve this overarching goal and additional species-specific goals and objectives were not developed. Species-specific goals and objectives are developed for those species that require additional protection and/or management not addressed at the landscape or natural community levels. To reduce redundancy, species goals and objectives that apply to multiple species are stated only once for those species.

Comment [SD5]: Defenders: We recommend the use of the ISA's overarching goal: "Contribute to the persistence, distribution, and diversity of the desert biota and all its natural components and processes today and into the future, while accommodating renewable energy development and adapting to climate change"

Comment [JA6]: Defenders: We recommend that the DRECP use "throughout the Plan Area" instead of "in." We have highlighted other occurrences where we recommend changing the language to "throughout".

Comment [JA7]: Defenders: To the extent that they are used to achieve efficient conservation of regional ecosystems in the planning area, "umbrella" or "keystone" species should be addressed, defined and explained here.

Comment [SD8]: Defenders: In addition to species goal summaries, we recommend organizing the covered species in tabular form with columns to indicate which landscape/community BGOs relate to each species.

Comment [JA9]: Defenders: Use legal and regulatory definition from ESA, NCCP Act, etc.

Comment [JA10]: Defenders: These are actions intended to achieve "conservation." The conservation goals and objectives, and actions, should be two separate but related components.

In addition, the conservation benefits of all landscape, natural-community, and species level BGOs will be described in the Species Goals Summaries (See Examples in Appendix D). Complete Species Goals Summaries will be written once the biological goals and objectives are finalized.

The term "conserve" as used in the Plan-wide BGOs below includes land acquisition, other forms of land protection (e.g., conservation easements), the contribution of additional legal protections to

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publicly owned land, and land management for native species and ecological processes. The specific mechanisms for conservation may be described in more detail within the geographic targets once the impact analysis is concluded and the conservation strategy is developed. The amount of land conserved will be scaled in proportion to impacts. Other terms such as “protect,” “maintain,” and manage will be made more specific once the reserve design is complete, and there is an understanding of the nature of the management action (e.g., acquisition, increased protection) relative to a given area or natural community.

Comment [JA11]: Defenders: Are “mechanisms” the actions?

Comment [JA12]: Defenders: Conservation lands need to be protected in perpetuity from adverse impacts from any land use activity and not limited to renewable energy development. This will require establishing a baseline condition and trend and eliminating stressors that are contributing to a downward trend.

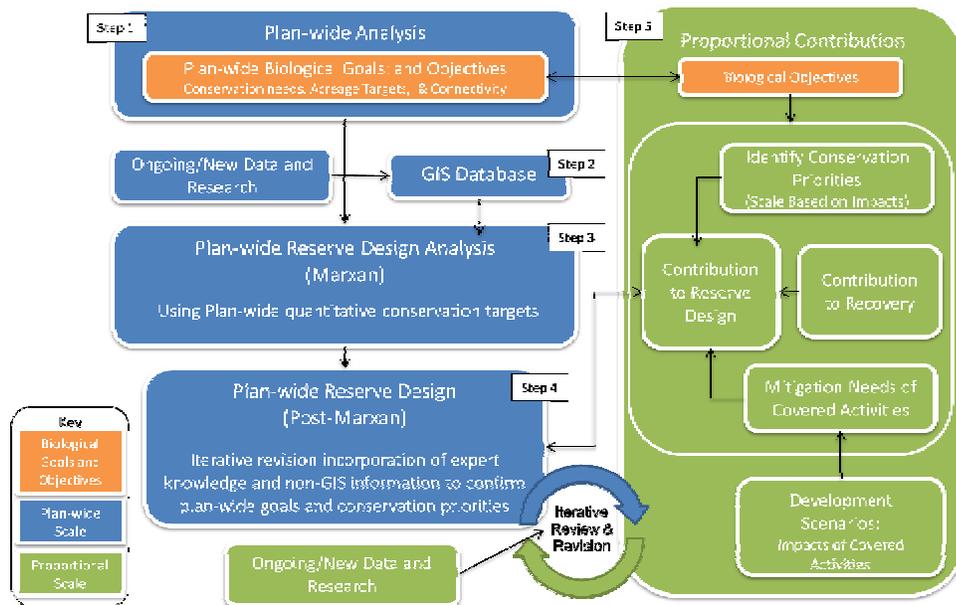


Figure 2. Integration of DRECP Biological Goals with the Plan-wide Reserve Design Process

The current iteration of the BGOs reflects DRECP goals and objectives for the entire Plan Area. Once, Marxan and post-Marxan analyses are complete and the development scenarios are evaluated that information will be used to establish the proportional contribution of the DRECP, including identification of high-priority conservation areas within the reserve design. The BGOs for the DRECP will be made specific, measurable, and time-bound, as applicable. Some items currently listed as sub-bullets under the DRECP plan-wide objectives may ultimately be integrated into the proportional HCP/NCCP objectives.

Comment [SD13]: Defenders: There is no link in this diagram between the biological objectives and the Marxan analysis. It seems that you would want the biological objectives to inform the conservation targets for the Marxan. Please clarify.

Comment [SD14]: Defenders: Isn't this still part of the post-Marxan process?

Comment [SD15]: Defenders: In addition, we recommend prioritizing the BGOs based on need, ease of implementation and certainty.

Table 1 lists the codes used for the different goals and objectives.

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Table 1. Landscape, Natural Community, Species Group, and Species Codes

Landscape, Natural Community, Species or Species Group	Code
Landscape	L
Dune Community	DUNC
Forest Community	FORC
Grassland Community	GRAC
Riparian Community	RIPC
Rocky, Barren and Unvegetated Community	RBUC
Scrub and Chaparral Community	SCCC
Wetland Community	WETC
Woodland Community	WOOC
Carbonate Plants Species	CAPL
Dune Species	DUPL
Fish Species	FISH
Narrow Endemic Plants	NEPL
Raptors	RAPT
Riparian Birds	RIBI
Wetland Birds	WEBI
Scrub and Chaparral Species	SCCP
Bell's Vireo	BEVI
Amargosa River Vole	ARVO
Arroyo Toad	ARTO
Bakersfield Cactus	BACA
Barefoot Gecko	BAGE
Bighorn Sheep	BHSH
Burrowing Owl	BUOW
California Black Rail	CABR
California Condor	CACO
Coast Horned Lizard	CHLI
Desert Tortoise	DETO
Golden Eagle	GOEA
Mojave Ground Squirrel	MGSQ
Mojave Tarplant	MOTA
Swainson's Hawk	SWHA
Tehachapi Pocket Mouse	TEPM
Willow Flycatcher	WIFL

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Table 2. Summary of Conservation Targets for NVCS Constituents

Natural Communities and NVCS Constituents	Conservation Target Acreage (TBD)
Dune Community	—
North American warm desert dunes and sand flats	—
Forest Community	—
California montane conifer forest	—
Grassland Community	—
California Annual and Perennial Grassland	—
Mediterranean California naturalized annual & perennial grassland	—
Southern Great Basin semi-desert grassland	—
Riparian Community	—
Southwestern North American Riparian, Flooded and Swamp Forest/Scrubland	—
Southwestern North American introduced riparian scrub	—
Southwestern North American riparian evergreen and deciduous woodland	—
Southwestern North American riparian/wash scrub	—
Rocky, Barren, and Unvegetated Community	—
California Cliff, Scree, and Other Rock Vegetation	—
Desert Playa	—
North American warm desert bedrock cliff and outcrop	—
Sierra Nevada cliff and canyon	—
Scrub and Chaparral Community	—
California mesic chaparral	—
California pre-montane chaparral	—
California xeric chaparral	—
Central and Southern Californian coastal sage scrub	—
Shadscale-saltbush cool semi-desert scrub	—
Intermontane seral shrubland	—
Inter-Mountain Dry Shrubland and Grassland	—
Madrean Warm Semi-Desert Wash Woodland/Scrub	—
Sonoran-Coloradan semi-desert wash woodland scrub	—
Arizonan upland Sonoran desert scrub	—
Lower bajada and fan Mojavean-Sonoran desert scrub	—
Western Mojave and Western Sonoran Desert borderland chaparral	—
Inter-Mountain West mesic tall sagebrush shrubland and steppe	—

Comment [SD16]: Defenders: What is the timeline for finalizing this table?

Comment [SD17]: Defenders: Consider developing conservation targets in terms of percentage to account for any uncertainties in the extent of a natural community. Throughout the document the BGOs are presented in terms of acreage, not percentage of habitat or area. We recommend reconsideration of this approach.

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Natural Communities and NVCS Constituents	Conservation Target Acreage (TBD)
Wetland Community	—
Great Basin cool semi-desert alkali basin	—
Open Water	—
Southwestern North American salt basin and high marsh	—
Western North American Freshwater Marsh	—
Arid west freshwater emergent marsh	—
Woodland Community	—
California Forest and Woodland	—
California broadleaf forest and woodland	—
California montane conifer forest	—
Western Great Basin montane conifer woodland	—
Rocky Mountain mesic subalpine forest and woodland	—

NVS = National Vegetation Classification System

Comment [SD17]: Defenders: Consider developing conservation targets in terms of percentage to account for any uncertainties in the extent of a natural community. Throughout the document the BGOs are presented in terms of acreage, not percentage of habitat or area. We recommend reconsideration of this approach.

Landscape-Level Goals and Objectives

Goal L1: Create a DRECP-wide, landscape-scale reserve system consisting of a mosaic of all constituent natural communities that ~~is can~~ **adaptive** to changing conditions (including activities that are not covered by the plan) ~~and that~~ includes temperature and precipitation gradients, elevation gradients, and a diversity of geological facets accommodate range contractions and expansions in response to climate change;.

- i Objective L1.1: Conserve a total of _ acres of natural habitat (Table 2) within the Plan Area supporting an interconnected network of core conservation areas.
- i Objective L1.2: Conserve critical landscape-level habitat linkages within the Plan Area to allow movement and gene flow for covered and other native species between **core** conservation areas identified by the DRECP Reserve Design Analysis.
- i **Objective L1.3: Conserve all **connections** between neighboring mountain ranges to allow passage of resident wildlife by protecting corridors that are at least **three miles** wide.**
 - i Chuckwalla-Little Chuckwalla-Palen connections
 - i Bristol-Marble-Ship-Old Woman connections
 - i North Rosamond-Tehachapi connection
 - i Panamint-Argus connection
 - i Palo Verde-Mule-Little Chuckwalla connections
 - i Mule-McCoy connection
 - i Chuckwalla-Eagle-Coxcomb connections

Comment [JA18]: Defenders: What does this mean? What percent of conservation areas fall within "core" areas?

Comment [SD19]: Defenders: There should be an objective that explicitly references the comprehensive linkage studies that have already been completed.

Comment [JA20]: Defenders: References for these linkages should be included. Are they from the State Essential Habitat Connectivity study, SC Wildlands linkages reports or others? Some of these appear to be more recent linkages identified for Bighorn sheep (from CDFG).

Comment [JA21]: Defenders: This appears arbitrary and too limited. Please provide a citation to support this width.

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- i Old Woman-Turtle-Whipple connections
- i Bullion-Sheephole-Coxcomb connections
- i Clark-Mesquite-Kingston connections
- i Big Maria-Little Maria-McCoy connections
- i Soda-Avawatz-Ord-Funeral connections
- i Eagle-Granite-Palen-Little Maria connections
- i Granite-Iron-Old Woman connections
- i McCoy-Little Maria-Big Maria connections
- i Big Maria-Little Maria-Turtle connections
- i Northeast edge of the San Bernardino Mountains between Arrastre Creek and Furnace Canyon, including Arctic and Cushenbury canyons, Terrace and Jacoby springs, along Nelson Ridge, and near Onyx Peak.

i **Objective L1.4:** Protect unique landscape features, important landforms, and rare or unique vegetation types identified ~~within~~ throughout the Plan Area.

- i *Many of these features will be identified by on-the-ground knowledge from agency resource specialists and field biologists. Important mapped datasets are listed below for context.*
 - i Desert wash resource elements including areas mapped by the United States Geological Survey (USGS), National Wetlands Inventory (NWI), National Hydrography Dataset (NHD), USGS, including the Central Mojave Vegetation Map Project, and the Bureau of Land Management (BLM).
 - i Riparian, playa, seeps/springs, and desert wash resource elements, including areas mapped by the USGS; NWI; NHD; USGS, including the Central Mojave Vegetation Map Project; and BLM.

Goal L2: **Promote** ecological processes in the Plan Area that sustain and reestablish natural communities and native species.

i **Objective L2.1:** Maintain natural surface- and ground-water processes in the DRECP **reserve** system, including runoff regimes, percolation, storage, and recharge that serve to maintain vegetation for natural communities, including riparian, playa, seeps/springs, and desert wash resource **elements**.

i **Objective L2.2:** Maintain geomorphic processes that create bank habitat and regeneration sites (through sediment transport and sand/silt deposition) for plants and wildlife.

i **Objective L2.3:** Conserve floodplain groundwater recharge, input of large wood and other organic matter, and sediment deposition in the floodplain by maintaining floodplain fluvial

Comment [SD22]: Defenders: Could include under this objective complete protection for seeps and springs and linkages between species habitats and water sources.

Comment [JA23]: Defenders: Need to make sure this includes all Dry Desert Wash Woodlands in the Colorado Desert region and the Dissected Fans landform from the NECO Plan amendments, and all Mesquite Woodlands plan-wide.

Comment [JA24]: Defenders: Suggest "Preserve"

Comment [JA25]: Defenders: Will this be adequate coverage in the planning area? Reserves haven't been decided yet.

Comment [JA26]: Defenders: Desert Dry Wash Woodlands and Mesquite Woodlands need to be specified.

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processes and protecting natural floodplain inundation zones to the 100-year flood plain. Focus protection in target areas within the following riverine systems and drainages:

- i Owens River
- i New River
- i Carrizo Creek
- i San Felipe Creek
- i Big Rock Creek
- i Amargosa River
- i Lower Colorado River
- i Alamo River
- i Vallecito Creek
- i Little Rock Creek
- i Mojave River (especially Mojave River Fork Regional Park, Mojave Narrows Regional Park, George Air Force Base to Hinkley Road, and Barstow to Afton Canyon).

i Objective L2.4: Conserve undeveloped and natural areas within the watersheds of important riverine and drainage systems identified in the DRECP reserve system, including:

- i Owens watershed (Owens River)
- i Amargosa watershed (Amargosa River)
- i Mojave watershed (Mojave River)
- i Colorado watershed (Lower Colorado River)
- i Imperial watershed (New and Alamo rivers)
- i Anza Borrego watershed (Vallecito, Carrizo, and San Felipe creeks)
- i Antelope watershed (Little Rock and Big Rock creeks)

i Objective L2.5. Promote a fire regime that supports natural communities and covered species in areas where reduced or increased fire frequency is a known cause of the decline of natural communities, vegetation or wildlife.

i Objective L2.6: Prevent new infestations and decrease from existing baseline conditions invasive plant species that negatively affect natural communities and covered and native species where such impacts are a known or likely cause of decline, especially Sahara mustard, African mustard, Russian thistle, and invasive annual grasses.

i Objective L2.7: Conserve sand transport corridors between the sand dunes and their sand sources, including upland sediment source areas (usually dry lakes or ephemeral rivers, and mountainous canyons/associated alluvial fans)

- i Afton Canyon—Soda Lake—Devil's Playground—Kelso dunes
- i Ward—Rice—McCoy
- i Bristol Trough—Cadiz dunes—Danby—Rice dunes
- i Pinto Wash—Palen—Ford Dry Lake—Palo

Comment [JA27]: Defenders: Groundwater in basins that contribute to maintaining these surface water features need to be included in conservation areas. The Amargosa and Mojave Rivers, in particular, are dependent on groundwater input.

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- i Clark's Pass/Pinto Valley—Dale Lake dunes—Ford-Palen dunes
- i Panamint Valley
- i Shadow—Ivanpah—Kelso
- i Superior—Grass
- i Stewart—Pahrump—Mesquite
- i Greenwater—McLain Park
- Verde Mesa (collectively the Chuckwalla Valley dune system)
- i Death Valley—Amargosa River—Dumont dunes
- i Fenner—Clipper
- i Death Valley—Amargosa—Silurian
- i Silurain—Valjean
- i Pahrump—California

Natural Community-level Goals and Objectives

Dune Community

In addition to the landscape goals and objectives that will ~~contribute to conserving~~ the Dune Community and its NVCS constituents (North American warm desert dunes) (Table 2), the following goals and objectives have also been developed for this community.

Goal DUNC1: Protect and enhance extensive dune systems with diverse morphology and structure distributed within the Plan Area.

i Objective DUNC1.1: Conserve __acres existing North American warm desert active and stabilized dunes, including adjacent transitional sand sheet and hummock habitats within the deposition zones, within the 16 major dune systems in the Plan Area:

- i Olancha dunes
- i Death Valley (Mesquite) dunes
- i Dumont dunes
- i Cadiz dunes
- i Algodones dunes/East Mesa
- i Danby dunes
- i Means dunes
- i Rice Valley dunes
- i Panamint dunes
- i Ibx-Saratoga dunes
- i Kelso dunes
- i Palen sand dunes
- i Chuckwalla Valley dunes
- i Little Dumont dunes
- i Salton Sea dunes
- i Ballarat dunes

i Objective DUNC1.2: Conserve dry lake beds that function as sand sources for transport corridors and dune systems:

- i Rosamond Dry Lake
- i Harper Dry Lake

Comment [JA28]: How would dune systems be "enhanced"?

Comment [JA30]: Defenders: This is within DVNP and designated wilderness. Relevant to DRECP?

Comment [JA29]: Defenders: This is within DVNP and designated wilderness. Relevant to DRECP?

Comment [JA31]: Defenders: This is within DVNP. Relevant to DRECP?

Comment [JA32]: Defenders: This is in the Mojave National Preserve and designated wilderness. Relevant to DRECP?

Comment [JA33]: Defenders: Never heard of this dune area.

Comment [JA34]: Within a DOD installation. Relevant to DRECP?

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- | | | | |
|---|------------------|---|---------------------|
| i | China Lake | i | Kelso Wash/Dry Lake |
| i | Twentynine Palms | i | Dale Lake |
| i | Searles Lake | i | Bristol Lake |
| i | Melville Lake | i | Cuddeback Lake |
| i | Cronese Lakes | i | Silurian Lake |
| i | Bicycle Lake | i | Coyote Lake |
| i | Lavic Lake | i | Bagdad Lake |
| i | Mesquite Lake | i | Silver Dry Lake |
| i | Leach Lake | i | Palen Lake |
| i | Ford Dry Lake | i | Danby Lake |
| i | Cadiz Lake | i | Panamint Dry Lake |

Comment [JA35]: Defenders: Within a DOD withdrawn area. Relevant to DRECP?

Comment [JA39]: Defenders: Is this the Devils Playground which is the terminus of the Mojave River and adjacent to Kelso Dunes in the Mojave National Preserve? Relevant to DRECP?

Comment [JA36]: Defenders: This is within Fort Irwin. Relevant to the DRECP?

Comment [JA37]: Defenders: This is within MCAGCC. Relevant to DRECP?

Comment [JA38]: Defenders: This is within Fort Irwin and a bombing range. Relevant to DRECP?

Comment [JA40]: Defenders: Added this one.

Goal DUNC2: ~~Promote~~ Maintain, restore and protect a biologically diverse dune communities throughout the planning area that support ~~y~~ characterized by endemic or other native plant and wildlife species unique to psammophytic communities, including transitional areas encompassing the full array of sand-related habitats, including sand sheets, creosote and mesquite hummocks, etc.

- i Objective DUNC2.1: Enhance acres of the dune community by promoting a diverse mosaic of open sand types and native dune vegetation structure.
- i Objective DUNC2.2: Maintain soil conditions (increasing productivity or maintaining soil sterility as applicable) conducive to native dune plant communities.
- i Objective DUNC2.3: Decrease non-native invasive plants (e.g., Russian thistle, Sahara mustard, non-native grasses (e.g., *Schismus*, *Bromus*, *Stipa capensis*) and non-native forbs (e.g., *Erodium*) and prevent new infestations through integrated management of dune systems where such impacts are a known or suspected cause of decline in dune habitat quality, including loss or reduction of native dune plants (e.g., Algodones Dunes sunflower, Peirson's milk-vetch, sand food, and Wiggin's croton) or wildlife (e.g., Mojave fringe-toed lizard).
- i Objective DUNC2.4: Decrease populations of common ravens¹ in dune systems where such impacts are a known or suspected cause of decline in wildlife species (e.g., Mojave fringe-toed lizard).

Comment [JA41]: Defenders: Not sure how to "enhance" which implies some dunes are in need of improved natural condition. Should this be "Preserve"?

Comment [JA42]: Defenders: Not sure if this is necessary or realistic.

Comment [JA43]: Defenders: Dunes infested with these species should be identified here.

Comment [JA44]: Defenders: Are these dune areas the off road vehicle open areas and heavily used by the public?

¹ A raven management plan will be developed as a management action to achieve the BGOS and described as part of the Conservation Strategy

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Forest Community

In addition to the landscape goals and objectives that will ~~contribute to conserving~~ the Forest Community and its NVCS constituents (Table 2), the following goals and objectives have also been developed for this community.

Goal FORC1: Protect, ~~restore and enhance~~ the forest natural community to promote biodiversity and ecological function and to benefit covered or native species dependent on, or closely associated with, forest habitats throughout the Plan Area.

- i Objective FORC1.1: Conserve __ acres of California montane conifer forest within the DRECP reserve ~~system~~, including important habitat elements such as cavity and snag nesting habitat.

[Note to Reader: BGOs for this community are under review and may be expanded to include additional goals and objectives.]

Comment [JA45]: Defenders: What is this reserve area? What about conserving the montane coniferous forest outside of the reserve? Or should all such forested areas be included in the reserve and subject to a conservation target of say 99% for example?

Grassland Community

In addition to the landscape goals and objectives that will contribute to conserving the Grassland Community and its NVCS constituents (Table 2), the following goals and objectives have also been developed for this community.

Goal GRAC1: Protect and enhance the grassland community to promote biodiversity and ecological function and to benefit covered and other species dependent on or closely associated with grassland habitat throughout the Plan Area.

- i Objective GRAC1.1: Conserve a total of __ acres of the grassland community (Table 2) within the DRECP reserve ~~system~~ such that grassland vegetation is conserved in the following general regions and habitat areas:

- i California Annual and Perennial Grassland, primarily along the western edge of the Plan Area from the Tehachapi-Piute Mountains in Kern County south to the San Geronio Mountains in San Bernardino County.
- i California Annual and Perennial Grassland along the western Plan Area boundary near Borrego Springs and farther south at Anza-Borrego Desert State Park.
- i **Galletta grass associations in the Central and Eastern Mojave, and Colorado Desert regions.**

Comment [JA46]: Defenders: Hasn't been established yet. What about management of these communities plan-wide that fall outside of the reserves?

- i Objective GRAC1.2: Increase the quality and extent of the native species of the grassland natural community by restoring or enhancing __ acres of grassland vegetation by ~~maintaining~~ native perennial grasses, reducing non-native grasses, and promoting historical fire frequency to create habitat suitable for target species².

Comment [JA47]: Defenders: This standard should also include restoring natural abundance in some areas affected by livestock, horses and burros/ and possibly some areas burned by human-caused fires.

² Any enhancement actions proposed, including weed removal, will be refined in a Methods Section of the Conservation Strategy if determined to be part of the DRECP proportional contribution BGOs.

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- i Manage livestock grazing in target areas to **promote- restore** rangeland **health**, **and improve** habitat for covered grassland species, **and restore natural abundance of native grasses depleted by excessive grazing by livestock and free-roaming burros and horses.**
- i Manage wild horse and burro populations in target areas to reduce vegetation trampling and soil compaction to improve habitat for covered grassland **species.**
- i Enhance California Annual and Perennial Grassland through the removal of invasive plants.
- 1 Objective GRAC1.3: Reduce the threat of invasive competitors and nonnative predators (or reduce conditions that subsidize native predators) that negatively impact covered and other native species in target grassland areas.
 - i Decrease populations of common ravens in grasslands where such impacts are a known or suspected cause of decline in covered grassland **species.**
- 1 Objective GRAC1.4: Increase the number of underground burrows in target grassland areas by **promoting** burrowing rodents and maintaining soil conditions suitable for burrows (i.e., preventing anthropogenic **uses** that compact soil).
 - i Ground squirrels in burrowing owl habitat in grassland communities.
 - i Grassland areas in the Tehachapi Mountains.
 - i Desert tortoise habitat in grassland **communities.**

Comment [JA48]: Defenders: What about a strict target date for action? BLM already has these requirements in place but generally fails to take necessary actions to restore these areas in a timely manner.

Comment [JA49]: Defenders: Any ideas where these areas are? Any survey data showing where trampling and soil compaction are problems?

Comment [JA50]: Defenders: Is this considered to be a problem in any grassland areas?

Comment [JA51]: Defenders: Prohibiting rodenticides?

Comment [JA52]: Defenders: Off road vehicles? Concentrated livestock grazing?

Comment [JA53]: Defenders: Please identify areas where Desert tortoises occur in grassland communities.

Riparian Community

In addition to the landscape goals and objectives that will **contribute to conserving** the Riparian Community and its NVCS constituents (Table 2), the following goals and objectives have also been developed for this community.

Goal RIPC1: Protect and enhance the riparian community to promote biodiversity and ecological function and to benefit covered and other species dependent on or closely associated with the community throughout the Plan Area.

- 1 Objective RIPC1.1: Conserve a **total of** __ acres of the riparian community (Table 2) within the DRECP **reserve** system such that riparian vegetation is conserved in the following general regions or habitat areas:
 - i Lower Colorado River, including Havasu National Wildlife Refuge (NWR), Palo Verde Ecological Reserve, Cibola NWR, Imperial NWR, Laguna Dam, and Mitrty Lake State Wildlife Area (SWA).
 - i Mojave River
 - i Whitewater Canyon

Comment [JA54]: Defenders: All or 100%, at least on public lands.

Comment [JA55]: Defenders: Yet to be determined. What about riparian communities plan-wide instead?

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- i Saratoga Springs
- i Amargosa Canyon
- i Kane Spring
- i Old Woman Springs
- i Salt Creek
- i Horse Thief Canyon
- i Dove Spring Canyon
- i Cottonwood Spring
- i Bonanza Spring
- i Mopah Spring
- i Iron Mt. Pumping Station
- i Eastern Slope of the Sierra Nevada Canyons with perennial streams and springs
- i Northern slope of the San Bernardino Mountains with perennial streams and springs
- i Kingston Range
- i Owens River
- i Mesquite Dry Lake
- i Post Office Spring, Panamint Valley
- i Warm Sulfur Spring, Panamint Valley
- i Cronese Dry Lakes

[Note to Reader: This list is under review and may be substantially expanded to include additional riparian areas.]

- i Objective RIPC1.2: Increase the quality and extent of the riparian natural community (e.g., cover and biomass) by restoring or enhancing __ acres of riparian vegetation to create habitat for target species within each system and by reducing anthropogenic impacts in the riparian community, including the following areas:

- i Lower Colorado River area in Bell's vireo, elf owl, and gilded flicker habitat.
- i In habitat for least Bell's vireo and other native nesting birds at target sites in the Borrego Population Unit.
- i In habitat for arroyo toad in Mojave Forks area, Little Rock Creek, and Little Horsethief Creek.

Comment [JA56]: Defenders: This is within DVNP. Relevant to DRECP? I'm not aware of any threats?

Comment [JA57]: Defenders: This is largely within the Wild and Scenic River, ACEC and Wilderness. Expand to include the Amargosa River as a whole.

Comment [JA58]: Defenders: Is this Horsethief Spring in the Kingston Range?

Comment [JA59]: Defenders: The entire canyon or just the spring? Which Cottonwood Spring?

Comment [JA60]: Defenders: Please explain the importance of inclusion of this.

Comment [JA61]: Defenders: What is meant by "within each system"?

Comment [JA62]: Defenders: This should include livestock grazing, wild horses and burros, off-road vehicle use and water diversion

Comment [JA63]: Defenders: Location for this?

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- i **Mojave River throughout Afton Canyon and between Victorville and Barstow.**
- i In habitat in the Amargosa River area for Amargosa River vole, Amargosa niterwort and Ash Meadows gumplant. Access by wild horses to Amargosa River habitat for Amargosa River vole and Ash Meadows gumplant.
- i **Resident and migratory bird riparian habitats in the Eastern slope of the Sierra Nevada (eliminate adverse impacts caused by livestock grazing and motorized vehicle use).**
- i **Riparian habitat associated with the Owens River (eliminate adverse impacts caused by livestock grazing and motorized vehicle use).**
- 1 **Objective RIPC1.3: Reduce the threat of invasive plant species in riparian areas that negatively affect covered and native species through effective control of tamarisk.**
 - i Tamarisk in suitable habitat for least Bell's vireo and other native nesting birds at target sites in the Borrego Population Unit.
 - i Tamarisk in selected areas along the Lower Colorado River to benefit Bell's vireo, western yellow-billed cuckoo, elf owl, and Gila woodpecker (note: tamarisk management in areas occupied by nesting willow flycatchers along the Lower Colorado River should only be undertaken with extreme caution to prevent large-scale habitat loss for the flycatcher).
 - i Tamarisk in the Amargosa River to improve habitat quality for the Amargosa River vole and Ash Meadows gumplant.
 - i Tamarisk in Red Rock Canyon and Last Chance Canyon to improve habitat quality for Red Rock tarplant and possibly Mojave tarplant.
 - i **Tamarisk in the Eastern Sierra Canyons (Dove Spring, Horse, Sage, Indian Wells, Nine-mile and Five-mile Canyons)**
 - i **Tamarisk in Mesquite Dry Lake**
- 1 **Objective RIPC1.4: Maintain and enhance natural hydrological and geomorphological conditions in riverine and drainage systems to promote riparian vegetation and to increase habitat for target species.**
 - i Natural springs feeding the Amargosa River to restore natural surface and subsurface hydrology to benefit species such as Amargosa River vole and Ash Meadows gumplant.
 - i Manage the Mojave River to benefit species such as arroyo toad in the upper Mojave River and native riparian birds throughout system.
 - i Manage the Lower Colorado River to restore or maintain natural surface and subsurface hydrology to augment habitat value for Bell's vireo, willow flycatcher, western yellow-billed cuckoo, elf owl, Gila woodpecker, gilded flicker, and other native riparian birds.

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- i Manage and enhance natural hydrological conditions along the alkali meadows and springs along the Owens River to prevent competition of upland species such as rabbitbrush and rhizomatous grass species with Owens Valley checkerbloom and to prevent meadow succession.

Goal RIP2: Protect rare habitats associated with the riparian natural community.

- i Objective RIP2.1: Conserve seeps, springs, and areas of surface water (oases) associated with desert riparian and dry wash woodland communities throughout the plan area to provide water, shade, and food resources for native birds and other covered species including, but not limited to the following named areas and general regions of high value.

- i Riparian vegetation associated with the Salton Sea border (Imperial County)
- i New River (Imperial County)
- i Alamo River (Imperial County)
- i Agua Caliente Springs (San Diego County)
- i Borrego Springs (San Diego County)
- i Bow Willow Springs (San Diego County)
- i Dos Cabezas Spring (San Diego County)
- i Carrizo Marsh (San Diego County)
- i Saratoga Spring (San Bernardino County)
- i Mojave River (especially in Victorville, Camp Cady, near Helendale, and Afton Canyon areas) (San Bernardino County)
- i Morongo Valley (San Bernardino County)
- i Lower Colorado River (e.g., Adobe Lake, Big Hole Slough, Blankenship Bend, BR Lagoon, Cibola Lake, Clear Lake, Draper Lake, Ehrenberg, Ferguson Lake, Gila Confluence, Headgate Dam, Lake Havasu-Neptune, Mitty Lake SWA, Picacho East, Taylor Lake, Topock Marsh, and Walker Lake) (San Bernardino, Riverside, Imperial counties)
- i Twentynine Palms (San Bernardino County)
- i Box S Spring (San Bernardino County)
- i Old Woman Spring (San Bernardino County)
- i Amargosa River (especially in Shoshone, Tecopa and Amargosa Valley areas) (Inyo County)
- i Shoshone thermal springs and alkali seeps (Inyo County)
- i Tecopa thermal springs and alkali seeps (Inyo County)
- i Furnace Creek Ranch (Inyo County)
- i Scotty's Castle (Inyo County)
- i Owens River (Inyo County)
- i Indian Joe Spring Ecological Reserve
- i Other saline and alkaline springs in Death Valley
- i Other various unnamed seep/springs in the Owens Valley; Inyo, Coso, and Argus ranges; Eastern Sierra range; eastern Mojave mountain ranges; eastern slopes of the Tehachapi Range; northern slopes of the San Gabriel Mountains; northern and eastern slopes of the San Bernardino Mountains; and Chocolate Mountains in Imperial County.

Comment [JA64]: Defenders: The Mesquite Woodland community should be a stand-alone category or a sub-category under Riparian. All the Mesquite Woodlands should be protected. Examples to include are those occurring in the Cronese Dry Lakes, Mesquite Dry Lake, Chicago Valley, California Valley, Mojave River Wash, Koehn Dry Lake Basin. These areas may not be captured with the existing categories because they don't have permanent surface water.

Comment [JA65]: Defenders: Shoreline?

Comment [JA69]: Defenders: What about the segment that is located in San Bernardino County

Comment [JA70]: Defenders: Private inholding within DVNP.

Comment [JA66]: Defenders: Within DVNP. Relevant to DRECP?

Comment [JA71]: Defenders: National Historic Property within DVNP

Comment [JA67]: Defenders: Big Morongo Canyon?

Comment [JA72]: Defenders: Relevant to DRECP?

Comment [JA68]: Defenders: Correct?

Comment [JA73]: Defenders: Check to see if the Argus Range is within the planning boundary

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- 1 Objective RIPC2.2: Conserve migration stopover and wintering sites for migrant birds and sub-regional dispersers in the following riverine and drainage systems.
 - i Lower Colorado River
 - i Mojave River
 - i Amargosa River
 - i Alamo River
 - i Salton Sea
 - i Owens River
 - i New River
 - i Eastern Sierra Canyons with perennial streams and wetlands (e.g., Cottonwood Canyon, Dove Spring, Sage Canyon, Indian Wells Canyon, Short Canyon, Sand Canyon, Nine-mile Canyon, Five-mile Canyon)

Rocky, Barren, and Unvegetated Community

In addition to the landscape goals and objectives that will contribute to conserving the Rocky, Barren, and Unvegetated Community and its NVCS constituents (Table 2), the following goals and objectives have also been developed for this community.

Goal RBUC1: Protect the rocky, barren, and unvegetated natural community to promote biodiversity and ecological function and to benefit species dependent on, or closely associated with, rocky, barren, and unvegetated habitats (e.g., playas and dry lakes) throughout the Plan Area.

- 1 Objective RBUC1.1. Conserve __ acres of rocky, barren, and unvegetated vegetation types (Table 2) within the DRECP reserve system such that unique habitat elements associated with this vegetation type are preserved.
 - i California cliff, scree and other rock vegetation
 - i desert playa
 - i North American warm desert bedrock cliff and outcrop
 - i Sierra Nevada cliff and canyon
- 1 Objective RBUC1.2: Conserve migration stopover sites for migrant birds and sub-regional dispersers in the following playas:
 - i Searles Dry Lake east of Trona and Koehn Dry Lake northeast of California City where spring fed wetlands expand with winter rains that produce highly productive alkali meadows and mudflats
 - i Harper Dry Lake near Barstow
 - i Silver and Silurian Dry Lakes north of Baker
 - i Panamint Dry Lake

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- i Owens Lake
- i Cronese Dry Lakes

[Note to Reader: This list is under review and may be substantially expanded to include additional dry lakes and playas.]

Scrub Chaparral Community

In addition to the landscape goals and objectives that will contribute to conserving the Scrub and Chaparral Community and its NVCS constituents (Table 2), the following goals and objectives have also been developed for this community.

Goal SCCC1: Protect the scrub and chaparral communities to promote biodiversity and ecological function and to benefit species dependent on, or closely associated with, scrub and chaparral habitats throughout the Plan Area.

- i Objective SCCC1.1: Conserve __ acres of scrub and chaparral community vegetation types (Table 2) within the reserve system such that scrub and chaparral vegetation is conserved in the following general regions and habitat areas and along environmental gradients (including elevation) and in transitional areas.

- i California mesic chaparral
- i California pre-montane chaparral
- i Central and Southern Californian coastal sage scrub
- i Shadscale-saltbush cool semi-desert scrub
- i Intermontane seral shrubland
- i Sonoran-Coloradan semi-desert wash woodland scrub
- i Arizonan upland Sonoran desert scrub
- i Lower bajada and fan Mojavean-Sonoran desert scrub
- i Western Mojave and Western Sonoran Desert Borderland chaparral
- i Inter-Mountain West mesic tall sagebrush shrubland and steppe.

- i Objective SCCC1.2: Increase the quality and extent of the desert scrub community in degraded areas by removing invasive species and reducing stressors to create suitable habitat for target species throughout the plan area.

- i Reduce anthropogenic uses that cause ground surface and vegetation disturbances, including uses, such as intensive livestock grazing and off-road vehicle use that damage cryptobiotic (biological soil) crust and the soils structure and texture depended upon by burrowing covered species.

Goal SCCC2: Protect rare habitats associated with the scrub and chaparral natural community.

- i Objective SCCC2.1: Conserve and protect representative examples of rare vegetation association and alliances identified within the scrub/chaparral community to maintain the

Comment [JA74]: Defenders: Hasn't been established yet. Standard should apply throughout the plan area.

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integrity of the following (additional community types and specific areas to be identified through the Reserve Design Analysis).

- i Joshua Tree Woodland
- i Warm Interior Chaparral
- i **Oak Woodlands ?**
- i Colorado Desert scrub, wash, and microphyllous woodland habitats including ironwood, mesquite, palo verde, smoke tree, condalia, and other associated species.

[Note to Reader: This list is under review and may be substantially expanded to include additional rare habitats.]

Wetland Community

In addition to the landscape goals and objectives that will contribute to conserving the Wetland Community and its NVCS constituents (Table 2), the following goals and objectives have also been developed for this community.

Goal WETC1: Protect the wetland community to promote biodiversity and ecological function and to benefit covered and other species dependent on or closely associated with wetland systems throughout the Plan Area.

- i Objective WETC1.1: Conserve a total of __ acres of the wetland community (Table 2) within the DRECP reserve system such that wetland vegetation is conserved in the following general regions or habitat areas.
 - i Marshes along the Salton Sea shoreline and associated drainages that provide habitat for American peregrine falcon, California black rail, greater sandhill crane, Yuma clapper rail, and desert pupfish.
 - i Marshes along the New River (e.g., near Seeley and the entrance to the Salton Sea), All American Canal (e.g., southeast of El Centro), Coachella Canal, Holtville main drain, and Alamo River (e.g., Finney Lake) that provide habitat for California black rail, greater sandhill crane, and Yuma clapper rail.
 - i Wetland habitats along the Mojave River that provide habitat for Mojave tui chub, **Western pond turtle, riparian birds**, including the Camp Cady Wildlife Area, **Afton Canyon** and isolated ponds at the terminus of the Mojave River at Soda Springs.
 - i Wetland habitats along and associated with the Owens River and Valley, including Tinemaha Reservoir that provide habitat for American peregrine falcon and bald eagle, and the Owens River areas that provide habitat for Owens pupfish (i.e., Well 368 and Mule Springs), Owens tui chub (i.e., Owens Lake, irrigation ditches and ponds near Lone Pine and

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Big Pine, and elsewhere along the Owens River), and/or Owens Valley checkerbloom (moist alkaline meadows and seeps).

- i **Wetland habitats at Owens Lake, Haiwee Reservoir and Little Lake that support migratory and wintering birds.**
- i Marshes associated with the Amargosa River that provide habitat for Amargosa River vole, Amargosa niterwort (Carson Slough and Tecopa Hot Springs), and Ash Meadows gumplant (Carson Slough).
- i Areas of the Lower Colorado River not proposed for conservation by the Lower Colorado River MSCHP and within the DRECP plan area, including potential sites within [update this list once new Arizona BLM boundary is incorporated into plan area] the Havasu NWR, Palo Verde Ecological Reserve, Cibola NWR, Imperial NWR, Laguna Dam, Imperial Wildlife Area, and Mittry Lake SWA and Imperial Division lands of the Bureau of Land Management that provide habitat for American peregrine falcon, bald eagle, California black rail, greater sandhill crane, and Yuma clapper rail.

Goal WETC2: Increase the quality and extent of the wetland community by improving hydrology and water quality and reducing non-native species to create habitat for covered and other native species.

- i **Objective WETC2.1: Maintain ~~adequate~~ hydrology and increase the cover of native marsh species such as bulrush (*Scirpus* spp.), rush (*Juncus* spp.) cattail (*Typha* spp.), and pickleweed (*Salicornia* spp.) that provide nesting, cover and/or foraging habitat for native birds (including California black rail, and greater sandhill crane) and other marsh species.**
 - i Lower Colorado River, Salton Sea, Alamo River, and New River for California black rail, greater sandhill crane, and Yuma clapper rail.
 - i **Owens Lake, Haiwee Reservoir and Little Lake**
- i **Objective WETC2.2: Maintain alkaline soils and salt grass-dominated meadow that provide habitat for wetland species, including, but not limited to, Amargosa River vole (adjacent to marsh), Amargosa niterwort, and Ash Meadows gumplant.**
 - i Lower Colorado River, New River, All American Canal, Coachella Canal, Alamo River, and Holtville main drainage.
 - i Mojave River in the Camp Cady, **Afton Canyon** and Soda Springs area.
 - i Amargosa River area **including the Grimshaw Lake Basin.**
 - i Targeted areas on Salton Sea shoreline.
 - i **Owens Lake, Little Lake**
 - i **Mesquite Dry Lake (Inyo County)**

Comment [JA75]: Defenders: Probably should be "ground and surface waters" because hydrology is a science not a resource.

Comment [JA76]: Defenders: This is especially relevant for Little Lake because of increased pumping of groundwater from Rose Valley to sustain geothermal steam fields at Coso.

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- i Franklin Dry Lake or Playa (near Death Valley Junction)
- i Coyote Dry Lake (San Bernardino County) – need to verify if saltgrass is present
- i Objective WETC2.3: Eradicate, if feasible, decrease relative to baseline conditions, or prevent the spread of predators, invasive competitors, and other non-native species that negatively impact covered and other native species in target wetland areas.³
 - i Wild horses along the Amargosa River.
 - i Largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), brown trout (*Salmo trutta*), bluegill (*Lepomis macrochirus*), mosquitofish (*Gambusia affinis*), crayfish (*Pastifasticus leniusculus*), and bullfrogs (*Lithobates catesbeianus*) in Owens River and associated ditches and drainages.
 - i Bass, catfish (Ictaluridae), mosquitofish, and bullfrog in the Mojave River.
 - i Tilapia (*Tilapia* spp.), sailfin molly (*Poecilia latipinna*), longjaw mudsucker (*Gillichthys mirabilis*), mosquitofish, pothole livebearers (*Poeciliopsis grucii*), and several members of the families Centrarchidae (sunfishes), Ictaluridae (catfish), and Cyprinidae (minnows), as well as freshwater snails (*Melanooides tuberculata* and *M. granifera*), crayfish, Rio Grande leopard frog (*Lithobates berlandieri*), and bullfrogs in desert pupfish habitats.
- i Objective WETC2.4: Prevent new infestations, eradicate if feasible, and decrease from existing baseline conditions invasive plant species that negatively affect covered and native species, including:
 - i Tamarisk in selected areas along the Lower Colorado River to benefit California black rail and other native species such as bighorn sheep and mule deer (note: tamarisk management in areas occupied by nesting southwestern willow flycatchers along the Lower Colorado River should only be undertaken with extreme caution to prevent large-scale habitat loss for the flycatcher).
 - i Cattails in Owens pupfish habitat.
 - i Tamarisk in the Amargosa River to improve habitat suitability for wetland species, including Amargosa River vole and Ash Meadows gumplant.
 - i Tamarisk along all portions of the Mojave River
 - i Tamarisk at Mesquite Dry Lake
 - i Tamarisk in the Eastern Sierra Canyons
 - i Nonnative plant species in Rabbit Spring to benefit endemic plant species including Parish's alkali grass.

Comment [JA77]: Defenders: Should livestock be included?

³ The DRECP does not intend to conduct management actions in the waters of the Salton Sea, but in wetland and riparian areas that are part of the DRECP reserve system.

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Goal WETC3: Protect rare habitats associated with the wetland community.

i Objective WETC3.1: Conserve open water, marshes, seeps, springs, and areas of surface water (oases), associated with wetland communities to provide water, cover, and food resources for covered and other native species, including the following named areas and general regions of high value.

- i Open water and marsh habitat associated with the Salton Sea border (Imperial County)
- i Open water and marsh habitat associated with Lower Colorado River (San Bernardino, Riverside, Imperial counties)
- i Marsh habitat associated with New River (Imperial County)
- i Marsh habitat associated with Alamo River (Imperial County)
- i San Felipe Springs/San Sebastian Marsh (desert pupfish, San Diego County)
- i Anza Borrego State (desert pupfish, San Diego County)
- i Hot Mineral Spa Wash (desert pupfish, Imperial County)
- i Rabbit Springs (Parish's alkali grass, San Bernardino County)
- i Mojave River (Camp Cady and Soda Springs area) (Mojave tui chub, San Bernardino County)
- i Morningstar Mine at Mojave National Preserve (Mojave tui chub, San Bernardino County)
- i Amargosa River (especially in Shoshone, Tecopa and Amargosa Valley areas) (Inyo County)
- i Shoshone thermal springs and alkali seeps (Inyo County)
- i Tecopa thermal springs and alkali seeps (Inyo County)
- i Saratoga Springs (San Bernardino County)
- i Salt Creek (Death Valley)
- i Cottonball Marsh (Death Valley)
- i Big Sand Spring (Sodaville milk-vetch, Death Valley)
- i Saline-alkaline wetlands along the Owens River (Inyo County)
- i Seasonal wetlands at Searles Dry Lake east of Trona (San Bernardino County)
- i Seasonal wetlands at Koehn Dry Lake (Kern County)
- i Harper Dry Lake northwest of Barstow (San Bernardino County)

Comment [JA78]: Defenders: Shoreline?

Comment [JA80]: Defenders: Within DVNP. Relevant to DRECP?

Comment [JA81]: Defenders: Within DVNP. Relevant to DRECP?

Comment [JA82]: Defenders: Within DVNP and designated wilderness. Relevant to DRECP?

Comment [JA79]: Defenders: Wetland here?

i Objective WETC3.2: Conserve migration stopover and wintering sites for migrant birds and sub-regional dispersers in the following wetland areas:

- i Lower Colorado River
- i Salton Sea
- i Mojave River
- i Owens River
- i Owens Lake
- i New River
- i Alamo River
- i Searles Dry Lake
- i Koehn Dry Lake
- i Harper Dry Lake

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- i Amargosa River
- i Grimshaw Lake
- i Haiwee Reservoir
- i Little Lake
- i Panamint Dry Lake
- i Silver Dry Lake (seasonal)
- i Silurian Dry Lake (seasonal)
- i Mesquite Dry Lake
- i Palen Dry Lake

Woodland Community

In addition to the landscape goals and objectives that will contribute to conserving the Woodland Community and its NVCS constituents (Table 2), the following goals and objectives have also been developed for this community.

Goal WOOC1: Protect and enhance the woodland community to promote biodiversity and ecological function and to benefit covered and other native species dependent on or closely associated with woodland habitat throughout the Plan Area.

i Objective WOOC1.1: Conserve a total of __ acres of woodland community vegetation types (Table 2) within the DRECP reserve system such that woodland vegetation is protected in the following general or habitat areas.

- i California forest and woodland along the eastern flanks of the Tehachapi and southern Sierra Nevada Mountain ranges.
- i California forest and woodland along the northern flanks of the San Bernardino and San Gabriel Mountain ranges.
- i Californian-Vancouverian montane and foothill forest along the northern and eastern flanks of the San Bernardino Mountain and northern flank of San Gabriel Mountain ranges.
- i Californian-Vancouverian montane and foothill forest along the eastern flanks of the Tehachapi and southern Sierra Nevada Mountain ranges.
- i Intermountain basins pinyon-juniper woodland in ~~eastern-the Mojave~~ and Great Basin mountain ranges, including the Kingston Range, Clark Mountain Range, Nopah Range, Funeral Mountains, New York Mountains, Providence Mountains, Granite Mountains.
- i Intermountain basins pinyon-juniper woodland along the northern and eastern flanks of the San Bernardino Mountain and northern flank of San Gabriel Mountain ranges.
- i Intermountain basins pinyon-juniper woodland along the eastern flanks of the Tehachapi and southern Sierra Nevada Mountain ranges.

Comment [JA83]: Defenders: Should be throughout the plan area, as stated in the goal

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- i Rocky Mountains subalpine and high montane coniferous forest along the eastern flanks of the Tehachapi and Southern Sierra Nevada Mountain ranges.
- i California montane coniferous forest within the Plan Area, including important habitat elements such as cavity and snag nesting habitat.
- i **Objective WOOC1.2: Increase the quality and extent of the woodland natural community to create habitat suitable for covered and other native species within each system.**
 - i Reduce rates of cowbird parasitism in riparian nesting **birds**.
 - i Maintain or re-establish native perennial grasses in the woodlands understory.
 - i Reduce anthropogenic impacts in the following areas:
 - i Intermountain basins pinyon-juniper woodland in eastern Mojave mountain ranges, including the Kingston Range, Clark Mountain Range, Nopah Range, Funeral Mountains, New York Mountains, Providence Mountains, Granite Mountains.
 - i Broadleaf woodland systems in the Tehachapi and southern Sierra Mountain ranges that provide habitat for Tehachapi slender salamander.
 - i Pinyon-juniper woodland in the Tehachapi Mountains that provides habitat for Tehachapi pocket mouse.
- i **Objective WOOC1.3: Decrease relative to baseline conditions and prevent the spread of disease, predators, parasites, invasive competitors, and other invasive species that negatively impact covered and other native species in target woodland areas, including:**
 - i Diseases, destructive insects, and parasites of broad-leaf woodlands and forests and coniferous **forests**.
 - i Competition by European starlings with native cavity nesters in broad-leaf and coniferous forests and woodlands.
 - i Access by pet and feral cats.
 - i Access by feral pigs, including broad-leaf woodland areas in the Tehachapi and southern Sierra Mountain ranges occupied by Tehachapi slender salamander.
 - i Access by **wild horses and feral burros to intermountain basins pinyon-juniper woodland in eastern Mojave mountain ranges, including the Kingston Range, Clark Mountain Range, Nopah Range, Funeral Mountains, New York Mountains, Providence Mountains, Granite Mountains.**
 - i Mistletoe **infestations** of pinyon-juniper woodlands.
 - i **Mesquite Woodlands**
 - i Invasion by Argentine ants.

Comment [JA84]: Defenders: Should probably be moved to the Riparian Community objectives. Include all known Cowbird nesting areas including the Eastern Sierra Canyons.

Comment [JA85]: Defenders: Not sure if this is possible or relevant to the DRECP

Comment [JA86]: Defenders: Should livestock be included?

Comment [JA87]: Defenders: Is this detrimental to the Community? I thought it occurred naturally, just as it does in Mesquite. Mistletoe berries are an important food source for various species including the Phainopepla, at least in Mesquite.

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- 1 Objective WOOC1.4: Prevent new infestations of invasive plant species and decrease from existing baseline conditions species that negatively affect woodlands and their constituent covered and other native species where such impacts are a known or likely cause of decline:
 - i Non-native grasses such as cheatgrass (*Bromus tectorum*) in intermountain basins pinyon-juniper woodland that compete with seedlings and saplings for water and nutrients.
 - i Non-native grasses and forbs such as cheat grass, slender wild oat (*Avena barbata*), wild oat (*A. fatua*), ripgut brome (*B. diandrus*), Japanese brome (*A. japonicas*), red brome (*B. madritensis spp. rubens*), and tocolate (*Centurea melitensis*) in California forest and woodland and Californian-Vancouverian montane and foothill forest.

Comment [JA88]: Defenders: Not sure if it is feasible to prevent new infestations or decrease existing ones. The latter may be potentially feasible by eliminating livestock.

Goal WOOC2: Promote a biologically diverse woodland community characterized by endemic or other native plant wildlife species unique to the woodland community.

- 1 Objective WOOC2.1: Maintain or increase woodland stands with diverse age structures (i.e., a natural mix of adults, saplings, and seedlings); tree sizes including snags and large oaks >50 cm diameter at breast height (DBH); and a mix of dense and open canopy and sparse woodlands (i.e., savannahs) to protect old trees, to promote natural recruitment of woodlands, and to benefit woodland species.
- 1 Objective WOOC2.2: Maintain or re-establish through wildfire management a natural fire regime in woodlands, including pinyon-juniper woodland.

Species-Level Goals and Objectives

The primary overarching goal for all covered species is as follows:

Goal SPEC1: Protect, manage, and contribute to recovery of viable self-sustaining populations throughout the species natural distribution in the Plan Area, including sufficient habitat to adapt to environmental fluxuations and habitat connectivity to facilitate genetic exchange among populations.

This overarching species goal will be met through the landscape and natural community level goals and objectives for the following list of covered species. Therefore, additional species-specific goals and objectives were not developed:

- | | |
|--------------------------------|--------------------------------|
| i western yellow-billed cuckoo | i bank swallow |
| i American peregrine falcon | i Tehachapi slender salamander |
| i greater sandhill crane | i flat-tailed horned lizard |
| i bald eagle | i Mojave fringe-toed lizard |

Comment [JA89]: Defenders: It appears nearly all of the goals and objectives for the species can be achieved through conservation of their habitats at the landscape and natural community levels. Please consider streamlining the plan by not restating habitat conservation goals and objectives that can be met through landscape and natural communities conservation.

Comment [JA90]: Defenders: Clarify if this refers to populations of all species, covered species or certain target species acting as surrogates.

Comment [JA91]: Defenders: Need to clarify this means landscape level habitat linkages.

Comment [JA92]: Defenders: We agree with this approach because conservation of species is tied directly to habitat conservation. We think that nearly all species conservation needs can be met through conservation of their habitats at the landscape and natural community levels. We recommend expanding this list of species.

Comment [JA93]: Defenders: Does this mean that the habitat-based goals and objectives are sufficient to cover these 8 species? Clarify how this will be verified.

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For the other covered species not listed above, additional species-specific goals and objectives are needed to meet this overarching species goal. Those additional species-specific goals are listed below for the following species:

- | | |
|--|---|
| i Swainson's hawk | i Cushenbury buckwheat |
| i gilded flicker | i Algodones Dunes sunflower |
| i willow flycatcher (southwestern willow flycatcher) | i Bakersfield cactus |
| i California condor | i Owens Valley checkerbloom |
| i Gila woodpecker | i arroyo toad |
| i elf owl | i barefoot gecko |
| i Yuma clapper rail | i desert tortoise |
| i Bell's vireo (Arizona and Least) | i golden eagle |
| i desert pupfish | i burrowing owl |
| i Owens pupfish | i white-tailed kite |
| i Mohave tui chub | i Tehachapi pocket mouse |
| i Amargosa River vole | i alkali mariposa-lily |
| i bighorn sheep (peninsular and desert) | i desert cymopterus |
| i Mohave ground squirrel | i Barstow woolly sunflower |
| i Cushenbury oxytheca | i Little San Bernardino Mtns. linanthus |
| i Cushenbury milk-vetch | i Mojave monkeyflower |
| i Peirson's milk-vetch | i White-margined beardtongue |
| i triple-ribbed milk-vetch | i Parish's phacelia |
| i Mojave tarplant | i Parish's alkali grass |
| i Parish's daisy | i coast horned lizard |

In some cases, the additional species-specific goals are apply to a group of similar species (e.g., raptors, riparian birds) and so were combined to minimize redundancy.

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Plants

Carbonate Plants

In addition to the goals and objectives developed for landscapes and natural communities that will benefit covered carbonate plants, the following goal and objectives will contribute to SPEC1 for carbonate plants.

Goal CAPL1 (SPEC1): Maintain or increase the distribution of covered carbonate plant (Cushenbury buckwheat, Cushenbury milk-vetch, Cushenbury oxytheca, Parish's daisy) populations in suitable carbonate substrates in the northeastern San Bernardino Mountains foothills by __%.

- 1 Objective CAPL1.1: Protect and enhance carbonate substrates in the northeastern San Bernardino Mountains foothills that provide suitable habitat for the covered carbonate plants.
- 1 Objective CAPL1.2: Increase the distribution of covered carbonate plants by restoring carbonate vegetation communities, including restoring populations of covered carbonate plants by revegetation with seed/cuttings.
- 1 Objective CAPL1.3: Enhance degraded carbonate substrates by restoring the soil surface characteristics and open vegetation communities suitable for covered carbonate plants, including providing a supply of carbonate material derived from upstream or upslope limestone, dolomite, or quartz monzonite parent rock.

Goal CAPL2: Increase the number of populations of covered carbonate plant species by __%.

- 1 Objective CAPL2.1: Promote the restoration of degraded carbonate soils and vegetation communities, including restoring populations of covered plants by revegetation with carbonate plant propagules.
- 1 Objective CAPL2.2: Protect or enhance carbonate substrates and vegetation communities in the vicinity of existing populations of covered carbonate plants to allow for expansion of populations into those areas.

Dune Plants

In addition to the goals and objectives developed for landscapes and natural communities that will benefit covered dune plant species, the following goal and objectives will contribute to SPEC1 for dune plants.

Goal DUPL1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of covered dune plant species (Algodones Dunes sunflower, Peirson's milk-vetch) and contribute to their recovery in the Plan Area.

- 1 Objective DUPL1.1: Increase the reproductive success of dune plants by __% over the permit term in target areas where low seed set has caused a decline in covered dune plants.

Comment [JA94]: Defenders: What does the WEMO Plan amendment for these species contain? It was the subject of ESA Consultation and a management plan was finalized addressing the 4 carbonate endemic plants. One important aspect of the habitat is that the issue was triggered by valid mining claims for high grade limestone overlying much of the best habitat.

Please ask BLM for the Carbonate Endemic Plant Management Plan and incorporate the conservation measures into the DRECP. Is this plan sufficient to meet the requirements of the NCCP Act and HCP within the DRECP framework? If so, we recommend adopting it for the DRECP.

Comment [JA95]: Defenders: What does the BLM Imperial Sand Dunes Management Plan and biological opinion require for listed species? Known threat is off-road vehicle use.

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- 1 Objective DUPL1.2: Increase critical pollinators such as the white-faced digger bee (for Peirson's milk-vetch at Algodones Dunes) in areas where plants are not regenerating relative to baseline conditions.

Narrow Endemic Plants

In addition to the goals and objectives developed for landscapes and natural communities that will benefit covered narrow endemic plants, the following goal and objectives will contribute to SPEC1 for narrow endemic plants.

Goal NEPL1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of covered narrow endemic plant species (Owens Valley checkerbloom, Parish's alkali grass) and contribute to their recovery in the Plan Area.

- 1 Objective NEPL1.1: Decrease non-native invasive plants and prevent new infestations through an integrated management approach where such impacts are a known or suspected cause of decline in habitat quality for narrow endemic plants.

Parish's Alkali Grass

The following objectives for Parish's alkali grass will contribute to NEPL1/SPEC1.

- 1 Objective PAGR1.1: Conserve Rabbit Spring, the single occurrence of Parish's alkali grass.
- 1 Objective PAGR1.2: Preserve the hydrological regime and water table that maintain suitable moist soil conditions during the growing season at Rabbit Spring required by Parish's alkali grass.

Owens Valley Checkerbloom

The following objectives for Owens Valley checkerbloom will contribute to NEPL/SPEC1.

- 1 Objective OVCH1.1: Conserve ___ occurrences of Owens Valley checkerbloom.
- 1 Objective OVCH1.2: Maintain the groundwater-sustained water table that supports the mesic meadow conditions required by Owens Valley checkerbloom at target sites in the Owens Valley.

Scrub and Chaparral Community Plants

In addition to the goals and objectives developed for landscapes and natural communities that will benefit scrub and chaparral community plants, the following goal and objectives will contribute to SPEC1 for these plants.

Goal SCCP1: Maintain or increase the distribution, population size, or number of populations of covered scrub and chaparral community plant species (alkali mariposa lily, Barstow woolly sunflower,

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desert cymopterus, Little San Bernardino Mountains linanthus, Mojave monkeyflower, triple-ribbed milk-vetch, White-margined beardtongue) and contribute to their recovery in the Plan Area.

- 1 Objective SCCP1.1: Increase the reproductive success of covered scrub/chaparral plants by ___%.

Comment [JA96]: Defenders: How will this be achieved? What about preserving habitat for known populations and suitable habitat based on soils and topography? What are the known stressors?

Bakersfield Cactus

The following objectives for Bakersfield cactus will contribute to SCCP1/SPEC1.

- 1 Objective BACA1.1: Conserve Bakersfield cactus habitat in the vicinity of the Eastern Slopes and Tehachapi-Piute Mountains ecoregion subsections.
- 1 Objective BACA1.2: Conserve ___ known occurrences of Bakersfield cactus.

Mojave Tarplant

The following objectives for Bakersfield cactus will contribute to SCCP1/SPEC1.

Goal MOTA1: Contribute to the recovery of the Mojave tarplant by protecting, enhancing, and managing habitat and promoting the ecosystem functions that maintain the species throughout the Plan Area.

- 1 Objective MOTA1.1: Conserve ___all___ known occurrences of Mojave tarplant.

Comment [JA97]: Defenders: If all of these objectives are habitat-based, then the species should receive adequate conservation through the landscape and natural communities goals and objectives. Please clarify why species-specific actions are needed.

Fish

In addition to the goals and objectives developed for landscapes and natural communities, the following goals and objectives will contribute to SPEC1 for covered fish species.

Goal FISH1 (SPEC 1): Maintain or increase the distribution, population size, or number of populations of covered fish species (desert pupfish, Owens pupfish, Mohave tui chub, Owens tui chub) and contribute to their recovery in the Plan Area.

- 1 Objective FISH1.1: Promote low-turbidity, low-velocity waters and well-developed beds of aquatic plants in the Owens Valley with a focus on enhancing habitat suitability for native fish species, including Owens pupfish and Owens tui chub.
 - 1 Occupied sites at Well 368 and Mule Spring, and potential recovery sites by introduction of native fish species at Cartago Springs Wildlife Area and Blackrock Waterfowl Management Area.
 - 1 Mule Spring, Black Rock, and Southern Owens (Cabin Bar Ranch population was found on the southwest shore of Owens Dry Lake).

Comment [JA98]: Defenders: What about Amargosa River pupfish and Speckled dace in the Amargosa River? Are they covered species?

Goal FISH2: Protect the genetic integrity of covered fish (desert pupfish, Owens pupfish, Mohave tui chub, Owens tui chub) in the Plan Area.

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- 1 Objective FISH2.1: Where and when appropriate, establish __ new native populations of desert pupfish, Mojave tui chub, Owens pupfish, and Owens tui chub.
- 1 Objective FISH2.2: Maintain or enhance genetic connectivity of covered fish species.
- 1 Objective FISH2.3: Prevent hybridization between Owens tui chub and Lahontan tui chub (*Siphateles bicolor obesus*) by establishing isolated populations of Owens tui chub with barriers to prevent invasion.

Desert Pupfish

The following objectives for desert pupfish will contribute to FISH1/SPEC1.

- 1 Objective FISH2.4: Prevent new infestations, eradicate if feasible, and decrease from existing baseline conditions **Hydrilla** (*Hydrilla verticillata*) in known desert pupfish habitat.

Comment [JA99]: Defenders: Tamarisk, too?

Reptiles and Amphibians

Arroyo Toad

In addition to the goals and objectives developed for landscapes and natural communities that will benefit arroyo toad, the following goal and objectives will contribute to SPEC1 for arroyo toad.

Goal ARTO1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of arroyo toad and contribute to its recovery by **protecting, enhancing, and managing habitat and promoting the ecosystem functions that maintain the species throughout the Plan Area.**

- 1 Objective ARTO1.1: Conserve Arroyo toad habitat within the Desert Slope Recovery Unit, including the following areas:
 - i Subregion 9—Little Rock Creek, Little Horsethief Creek, Rancho Los Flores area, Mojave River (West Fork, Mojave Forks Dam area).
 - i Subregion 10—San Felipe and Vallecito creeks.
- 1 Objective ARTO1.2: Decrease, relative to baseline conditions, and prevent the spread of Crayfish, bullfrog, and non-native fish that adversely impact arroyo toad in Little Rock Creek, Horsethief Creek, and occupied areas of the Mojave River.

Comment [JA100]: Defenders: Is there a natural community that this species is associated with? If so, is there a need to address habitat protection here? May be redundant.

Same comment applies to all other species where there conservation is adequately covered at the landscape or natural community level

Barefoot Gecko

In addition to the goals and objectives developed for landscapes and natural communities that will benefit barefoot gecko, the following goal and objectives will contribute to SPEC1 for barefoot gecko.

Goal BAGE1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of barefoot gecko and contribute to its recovery in the Plan Area.

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- 1 Objective BAGE1.1: Conserve __% of suitable habitat for barefoot gecko.
- 1 Objective BAGE1.2: Conserve __ acres of suitable habitat for barefoot gecko along the eastern face of the Peninsular Ranges in eastern San Diego County and extreme western Imperial County.
- 1 Objective BAGE1.3: Decrease human-caused mortality, relative to baseline conditions, by patrolling target areas.

Coast Horned Lizard

In addition to the goals and objectives developed for landscapes and natural communities that will benefit coast horned lizard, the following goal and objective will contribute to SPEC1 for coast horned lizard.

Goal CHLI1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of coast horned lizard and contribute to its recovery in the Plan Area.

- 1 Objective CHLI1.1: Prevent access by domestic dogs and cats to occupied coast horned lizard habitat within the Plan-wide reserve system. Decrease, relative to baseline conditions, prevent the spread of, or preclude access to predators or invasive competitors that negatively impact covered and other native species in target grassland areas.

Comment [JA101]: Defenders: Yet to be developed. How much habitat will be in the reserve?

Desert Tortoise

In addition to the goals and objectives developed for landscapes and natural communities that will benefit desert tortoise, the following goal and objectives will contribute to SPEC1 for desert tortoise.

Goal DETO1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of desert tortoise and contribute to its recovery in throughout the Plan Area.

- 1 Objective DETO1.1: Acquire and maintain _acres of suitable habitat for desert tortoise (e.g., Maxtent habitat model score >0.5; USGS 2010).
- 1 Objective DETO1.2: Reduce the spread of disease, especially upper respiratory disease syndrome (URDS) in desert tortoises, relative to baseline conditions, in target areas.
- 1 Objective DETO1.3: Reduce the level of predation, particularly to young and juvenile desert tortoises, caused by increases in opportunistic predators (e.g., common raven, coyote).
- 1 Objective DETO1.4: Decrease human-caused mortality, including vehicular collision, relative to baseline conditions, by patrolling target areas.
- 1 Objective DETO1.5: Increase burrow availability in areas where burrows are limiting by establishing artificial burrows.
- 1 Objective DETO1.6: Establish a desert tortoise education program for the general public.

Comment [JA102]: Defenders: Domestic dogs and cats, too.

Comment [JA103]: Defenders: Need to include highway fencing as per recovery plan and CDCA Plan in specific areas.

Comment [JA104]: Defenders: Not sure if this will work or if it is necessary. Tortoises dig their own burrows.

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Birds

Raptors

In addition to the goals and objectives developed for landscapes and natural communities, the following goals and objectives will contribute to SPEC1 for covered raptor species.

Goal RAPT1 (SPEC1): Maintain the distribution, population size, or number of populations of covered raptor species (burrowing owl, California condor, Golden eagle, Swainson's hawk, white-tailed kite) and contribute their recovery ~~in~~ throughout the Plan Area.

- Objective RAPT1.1: Reduce, relative to baseline, mortality of covered raptor species related to ingestive poisoning of anthropogenic waste (e.g., microtrash, lead, antifreeze, and other contaminants).
- Objective RAPT1.2: Eliminate the use of rodenticides and promote prey populations for Swainson's hawk, white-tailed kite, and burrowing owl in target grassland areas.
- Objective RAPT1.3: Minimize wind turbine- and transmission-related mortality of covered raptor species through proper site characterization, turbine siting, turbine and related facility design criteria, and best management practices related to facility and turbine operation.
- Objective RAPT1.4: Conserve __ acres to protect foraging habitat for Swainson's hawk and white-tailed kite.
 - Imperial Valley within five miles of perennial water bodies
 - Lower Colorado River Valley
- Objective RAPT1.5: Protect __ acres of agriculture in the Imperial Valley, Lower Colorado River Valley, ~~or~~ and West Mojave within three miles of forested riparian areas, or other stands of deciduous trees suitable for nesting white-tailed kite and Swainson's hawk (West Mojave only).
- Objective RAPT1.6: Conserve Swainson's hawk habitat in Southern Great Basin semi-desert grassland in the Homer, Antelope, Fremont, Indian Wells, and Owens watersheds, within the Mojave National Preserve and near Haiwee Reservoir.
- Objective RAPT1.7: Conserve __ acres of agricultural in the West Mojave to support of bird-friendly farming.
 - conservation easements
 - agricultural preserves
 - subsidies to alfalfa farmers
- Objective RAPT1.8: Increase raptor viability by reducing the preponderance of illegal dumping and hunting with lead throughout the Plan Area for all raptors and in the following areas specifically for golden eagle:

Comment [JA105]: Defenders: Add Golden eagle and Prairie falcon

Comment [JA106]: Defenders: Needs to include designated high-value raptor habitats where no development is allowed, especially for Golden eagle and California condor.

Comment [JA107]: Defenders: Golden eagle foraging occurs several miles from nesting areas and the primary prey is Jackrabbit. The actions need to include foraging habitats on bajadas and valleys surrounding nesting territories, and not limited only to the mountainous terrain.

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- i Piute Range including Piute Creek **area**
- i Newberry Mountains and Granite **Mountains**
- i Red Mountain/El Paso **Mountains**
- i Calico **Mountains**
- i Clark **Mountains**
- i Ord **Mountains**
- i Rodman **Mountains**
- i **Cady Mountains and eastern Mojave Valley**

Comment [JA108]: Defenders: Add Piute Valley

Comment [JA109]: Defenders: Add Stoddard and Lucerne Valleys

Comment [JA110]: Defenders: Add southern Indian Wells, Fremont and southern Searles Valleys

Comment [JA111]: Defenders: Add Coyote Dry Lake Basin and Coolgardie Mesa

Comment [JA112]: Defenders: Add Ivanpah and Shadow Valleys

Comment [JA113]: Defenders: Add Stoddard Valley

Comment [JA114]: Defenders: Add Johnson and Stoddard Valleys

Burrowing Owl

The following objectives for burrowing owl will contribute to RAP1/SPEC1.

- i Objective BUOW1.1: Acquire and/or maintain _acres of suitable habitat for burrowing owl in and around population centers and parts of historic range that allow for maintenance and expansion of populations.
 - i Southern Owens River Valley
 - i West Mojave including areas west of Victorville
 - i Eastern Mojave desert within large areas of suitable habitat near documented occurrence records
 - i Imperial Valley east of Brawley and south of the Salton Sea
 - i Lower Colorado River Valley
- i Objective BUOW1.2: Increase burrowing owl viability by reducing mortality from vehicle traffic in occupied areas or suitable habitat.
 - i provide roadway **signage** and, where feasible
 - i implement and patrol speed **limits**
 - i restrict nighttime **traffic**.
 - i **Close unmaintained dirt roads within known/occupied Burrowing owl habitats, especially in areas with high level of off road vehicle use (this includes any kind of motorized vehicle)**

Comment [JA115]: Defenders: Not sure this would be effective

Comment [JA116]: Defenders: What is an appropriate vehicle speed to reduce mortality. Is this on secondary and unmaintained dirt roads?

Comment [JA117]: Defenders: Where?

Riparian Birds

In addition to the goals and objectives developed for landscapes and natural communities that will benefit covered riparian birds, the following goal and objectives will contribute to SPEC1 for riparian birds.

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Goal RIBI1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of covered riparian bird species (Bell's vireo, least Bell's vireo, willow flycatcher, southwestern willow flycatcher, Gila woodpecker, gilded woodpecker, elf owl) and contribute to their recovery in the Plan Area.

- i Objective RIBI1.1: Increase the reproductive success of covered riparian birds by __%.
- i Objective RIBI1.2: Decrease, relative to baseline conditions, and prevent the spread of brown-headed cowbird parasitism on Bell's vireo, willow flycatcher, southwestern willow flycatcher and other native passerines in the Lower Colorado River and potentially Mojave River.
- i Objective RIBI1.3: Decrease, relative to baseline conditions, and prevent the spread of competition for cavity nesting sites by European starlings with Gila woodpecker, gilded woodpecker and elf owl in the Lower Colorado River.

Bell's Vireo

The following objectives for Bell's vireo will contribute to RIBI1/SPEC1.

- i Objective BEVI1.1: Increase the quality and extent of early to mid-successional riparian vegetation with a well-developed understory of dense shrubs.
 - i Vallecito, San Felipe, Carrizo (including Carrizo Marsh), Agua Caliente, Bow Willow, and Coyote creeks in the Borrego Population Unit.
 - i Lower Colorado River
 - i Mojave River
 - i Amargosa River
 - i Owens River
 - i Eastern Sierra Canyons (Dove Spring Canyon, Sage Canyon, Indian Wells Canyon, Nine-mile Canyon, Five-mile Canyon)

Willow Flycatcher

The following objectives for willow flycatcher will contribute to RIBI1/SPEC1.

- i Objective WIFL1.1: Increase the quality and extent of a dense mid-story and understory riparian vegetation location near surface water or saturated soils:
 - i Lower Colorado River Recovery Unit, including the following sites: Adobe Lake, Big Hole Slough, Blankenship, BR Lagoon, Cibola Lake, Clear Lake, Draper Lake, Ehrenberg, Ferguson Lake, Gila Confluence, Headgate Dam, Lake Havasu-Neptune, Mittry Lake SWA, Picacho East, Taylor Lake, Topock Marsh, and Walker Lake.

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- i Basin and Mojave Recovery Unit, including the following sites: Owens River—Big Pine, Owens River—Lone Pine Creek, Mojave River—Mojave Forks, Mojave River—Oro Grande, Mojave River—Upper Narrows, Mojave River—Victorville I-15, Holcomb Creek—Little Bear, and San Felipe Creek—San Felipe.
- i Eastern Sierra Canyons (Cottonwood Creek, Dove Spring Canyon, Sage Canyon, Indian Wells Canyon, Sand Canyon, Nine-mile Canyon, Five-mile Canyon)
- i Kelso Creek

Wetland Birds

In addition to the goals and objectives developed for landscapes and natural communities that will benefit covered wetland birds, the following goal and objectives will contribute to SPEC1 for wetland birds.

Goal WEBI1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of covered wetland bird species (California black rail, Yuma clapper rail) and contribute to their recovery in the Plan Area.

- i Objective WEBI1.1: Eradicate, if feasible, decrease relative to baseline conditions, or prevent the spread of common ravens and raccoons in wetlands where such impacts are known or suspected to cause the decline of covered wetland bird species (e.g., California black rail, Yuma clapper rail).

California Black Rail

The following objectives for California black rail will contribute to WEBI/SPEC1.

- i Objective CBRA1.1: Increase the quality and extent of marsh habitat with a focus on maintaining adequate hydrology and increasing the cover of common threesquare (*Schoenoplectus pungens*) and arrowweed (*Pluchea sericea*), specifically associated with California black rail habitat.

Comment [JA118]: Defenders: Locations?

Mammals

Amargosa River Vole

In addition to the goals and objectives developed for landscapes and natural communities that will benefit Amargosa river vole, the following goal and objectives will contribute to SPEC1 for Amargosa river vole.

Goal AMVO1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of Amargosa river vole and contribute to its recovery in the Plan Area.

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- i Objective AMVO1.1: Decrease, relative to baseline conditions, access by cats to Amargosa River habitat for Amargosa River vole in the Plan-wide reserve system.

Comment [JA119]: Defenders: Feral dogs, too?

Bighorn Sheep

In addition to the goals and objectives developed for landscapes and natural communities that will benefit bighorn sheep, the following goals and objectives will contribute to SPEC1 for bighorn sheep.

Goal BISH1: Create a landscape-scale reserve system for the desert bighorn metapopulation (Nelson's bighorn sheep and Peninsular distinct population segment [DPS]) that is adaptive to changing conditions, including range shifts, contractions, expansions, and recolonizations in response to local extirpations and to climate change, temperature and precipitation gradients.

- i Objective BISH1.1: Conserve __ acres of mountain habitat for Nelson's bighorn sheep throughout its range in the Plan Area, in the following mountain range management units known to support bighorn sheep (defined by CDFG):
 - i Marble Mountains
 - i Clipper Mountains
 - i Kelso Peak and Old Dad Peak
 - i Clark, Kingston, and Mesquite Mountains
 - i Sheephole Mountains
 - i South Bristol Mountains
 - i Cady Mountains
 - i San Gorgonio Wilderness Area (eastern portion within Plan Area)
- Objective BISH1.2: Conserve __ acres of mountain habitat for Nelson's bighorn sheep throughout its range in the Plan Area in the following other mountain ranges:
 - i Amargosa Range/Funeral Mountains
 - i Southern Panamint Range
 - i Southern Argus Range
 - i Slate Range
 - i Greenwater Range
 - i Black Mountains
 - i Owlshhead Mountains
 - i Avawatz Mountains
 - i Granite Mountains (in northeast Mojave)
 - i Black Hills/Pilot Knob/Robbers Mountain area
 - i Resting Spring Range
 - i Newberry Mountains
 - i Rodman Mountains
 - i Ord Mountains
 - i Granite Mountains (in southern Mojave)
 - i Bullion Mountains
 - i Old Woman Mountains
 - i Dead Mountains
 - i Sacramento Mountains
 - i Chemehuevi Mountains
 - i Whipple Mountains
 - i Turtle Mountains
 - i Iron Mountains

Comment [JA120]: Defenders: Within DVNP and designated wilderness. Relevant to DRECP?

Comment [JA121]: Defenders: Within DVNP and designated wilderness. Relevant to DRECP?

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- i Nopah Range
 - i Sperry Hills
 - i Mescal Range
 - i Ivanpah Mountains
 - i Silurian Hills
 - i Soda Mountains
 - i Providence Mountains
 - i New York Mountains
 - i Piute Range
 - i Piute Mountains
 - i Old Dad Mountains
 - i Mule Mountains
 - i Little Chuckwalla Mountains
 - i Pinto Mountains
 - i Hexie Mountains
 - i Eagle Mountains
 - i Coxcomb Mountains
 - i Palen-McCoy Mountains
 - i Little Maria Mountains
 - i Big Maria Mountains
 - i Riverside Mountains
 - i Chuckwalla Mountains
 - i Chocolate Mountains
 - i Palo Verde Mountains
 - i Little Mule Mountains
- Objective BISH1.3: Conserve acres of intermountain habitat for Nelson's bighorn sheep throughout its range in the Plan Area in the following areas:
 - i Death Valley between the Panamint Range and the Amargosa Range/Funeral Mountains, Greenwater Range, Black Mountains, and Avawatz Mountains
 - i Panamint Valley between Argus Range and Panamint Range
 - i Searles Valley between the Argus Range, Slate Range, Granite Mountains (northeast Mojave), and Black Hills/Pilot Knob/Robbers Mountain area
 - i Pilot Knob Valley between the Slate Range, the Granite Mountains (northeast Mojave), Owlshhead Mountains, and the Avawatz Mountains
 - i Greenwater Valley between the Black Mountains and Greenwater Range
 - i Amargosa Valley between the
 - i Habitat between Shadow Mountain and Turquoise Mountain area and Old Dad Mountain
 - i Mojave River Wash and Devil's Playground between the Cady Mountains and Bristol Mountains and the Kelso Mountains and Old Dad Mountain
 - i Ivanpah Valley between Ivanpah Mountains and New York Mountains
 - i Clipper Valley between the Bristol Mountains, Granite Mountains (east-central Mojave), and Providence Mountains and the Clipper Mountains
 - i Fenner Valley between Clipper Mountains and Old Woman Mountains
 - i Piute Valley between Piute Range and Dead Mountains

Comment [JA122]: Defenders: We suggest conserving 99% of these linkage habitats.

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Peninsular DPS

- Objective BISH1.5: Conserve __ acres of mountain habitat for the Peninsular bighorn sheep DPS within the Plan Area in the following areas:
 - Along the lower slopes of the Fish Creek Mountains and Coyote Mountains and in the Carrizo Wash area connecting the two ranges.
 - Along the eastern slopes of the Jacumba Mountains and Tierra Blanca Mountains.
 - Along the lower slopes of the Vallecito Mountains.
 - Along the lower slopes of the Santa Rosa Mountains.
- Objective BISH1.6: Maintain or enhance access to available water sources in mountain habitats to support drinking, lactation and lambing, including perennial and seasonal (i.e., winter storm monsoonal runoff) streams and rivers, springs, oases, and potholes in rocks, as available, or artificial water catchments (guzzlers).
 - Julian Wash (bighorn sheep, Imperial County)
 - Marshes, seeps, and springs associated with the East Mesa, Imperial County.
- Objective BISH1.7: Increase the number of subpopulations in the metapopulations by restoring bighorn sheep to suitable but currently vacant mountain habitats that are connected to occupied areas by maintainable intermountain travel corridors.

Goal BISH2: Remove or reduce potential threats and environmental stressors to maintain and enhance bighorn sheep populations.

- Objective BISH2.1: Increase relative to baseline conditions access to water and food sources by minimizing competition with bighorn sheep, domestic livestock, and feral burros and reducing anthropogenic uses that inhibit access to water sources, especially during the lambing season.
- Objective BISH2.2: Control transmission of livestock diseases to bighorn sheep by eliminating direct contact between bighorn sheep and cattle, domestic sheep, and domestic and feral goats in target areas.
- Objective BISH2.3: Decrease relative to baseline conditions mountain lion predation where predation levels are artificially high due to deer introductions.
- Objective BISH2.4: Prevent accidental drowning and pathogen transmission at artificial water catchments (guzzlers).

Comment [JA124]: Defenders: Please add critical corridors/crossing points for Peninsular bighorn, such as along I-8 in eastern San Diego County and western Imperial County.

Comment [JA125]: Defenders: We recommend adding "restore" where access has been prevented by certain activities that can be modified or eliminated.

Comment [JA126]: Defenders: Please clarify what "available" means.

Comment [JA127]: Defenders: The list needs to be expanded to include all waters within suitable mountainous habitats.

Comment [JA128]: Defenders: These suitable but unoccupied habitats need to be identified. These should include ranges where populations have been extirpated.

Comment [JA129]: Defenders: The CDCA Plan provides for elimination of cattle grazing in occupied bighorn sheep ranges south of I-40. Thus, grazing in the Ord Mountain Allotment should be eliminated.

Comment [JA130]: Defenders: We recommend adding fences that inhibit or prevent bighorn access in this category. These may include vehicle control, riparian protection and livestock pasture fences. Please consult with CDFG to identify such fences.

Comment [JA131]: Defenders: Where have such introductions occurred in the planning area? The only place that comes to mind is the Mid Hills area within the Mojave National Preserve where CDFG introduced Rocky Mountain mule deer in the 1950s.

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Mojave Ground Squirrel

In addition to the goals and objectives developed for landscapes and natural communities that will benefit Mohave ground squirrel, the following goal and objectives will contribute to SPEC1 for Mohave ground squirrel.

Goal MGS1: Create a landscape-scale reserve system for Mohave ground squirrel that is adaptive to changing conditions, including range shifts, contractions and expansions in response to climate change, and temperature and precipitation gradients.

- 1 Objective MGS1.1: Conserve __ acres of desert scrub habitat for Mohave ground squirrel in relatively undisturbed areas that include historic records and would maintain the historic range of the population to accommodate expansion and contraction of the species, including the following target areas.

- i Fort Irwin area
- i Lucerne Valley area

- 1 Objective MGS1.2: Decrease relative to baseline conditions and restrict future use of rodenticides and other harmful pesticides adjacent or in close proximity to occupied or suitable unoccupied Mohave ground squirrel habitat.

- 1 Objective MGS1.3: Conserve 99% of Mojave ground squirrel habitat around this species' population centers and parts of its historic range that allow for conservation and recovery of the species, including, but not limited to, within and surrounding the four core areas identified by Leitner (2008).

- i Coso Range—Olancho
- i Little Dixie Wash
- i Coolgardie Mesa—Superior Valley
- i Edwards Air Force Base

- 1 Objective MGS1.4: Increase the quality and extent of the Mojave ground squirrel habitat in degraded areas by restoring __ acres of desert scrub in the following core and linkage areas:

- i Edwards AFB-Kramer Junction-Boron area northwest to Fremont Valley via Peerless Valley area lands north of California City (part of the Sierra Nevada-Edwards AFB linkage identified by Penrod et al. 2012).
- i Edwards AFB-Kramer Junction-Boron area north to Rand Mountains via linkage west of and parallel to Highway 395 (part of the China Lake South Range-Edwards AFB linkage identified by Penrod et al. 2012).
- i Fremont Valley to Indian Wells Valley-Little Dixie Wash via Red Rock Canyon State Park (part of the Sierra Nevada-Edwards AFB linkage identified by Penrod et al. 2012).

Comment [JA132]: Defenders: The current Mohave Ground Squirrel Habitat Management Plan Area that BLM designated in the West Mojave Plan process needs to be included here.

Comment [JA133]: Defenders: What about more recent and current records from 1970 to present? These should be recognized as well as the known occupied range in establishing a conservation reserve for this species.

Comment [JA134]: Defenders: Much of the historic range that is now largely void of this species is in the Victor Valley, Apple Valley, and developed areas of the Antelope and Indian Wells Valleys. Recolonization of these areas is probably unrealistic given the amount of development and private land. This situation makes it even more important to protect suitable habitat within the BLM-designated Habitat Management Plan Area

Comment [JA135]: Defenders: When the USGS MGS habitat suitability model is published, we recommend that 99% of suitable habitat be protected from any land use activity that would eliminate habitat.

Comment [JA136]: Defenders: Population centers have not been thoroughly established. Need to include areas of documented occurrence in surveys from about 1970 to present including especially the BLM MGS records from 1974 to 1980.

Comment [JA137]: Defenders: These may be some of the areas of highest habitat quality but they do not include all of the more suitable habitat for this species. See BLM's records for field studies from 1974 through 1980 as well as Appendix M of the West Mojave Plan (BLM, 2005)

Comment [JA138]: Defenders: Need to identify stressors, including continued domestic sheep grazing. Grazing should be eliminated from these core and linkage habitats to increase habitat quality by increasing forage supply, eliminating soil compaction and burrow collapse.

Comment [JA139]: Defenders: Need to add habitat conservation - recommend that 99% of habitat within these areas be protected from development.

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- i Indian Wells Valley-Little Dixie Wash to Searles Valley via valley between El Paso Mountains and Ridgecrest (part of the southern branch of the China Lake North Range–China Lake South Range linkage identified by Penrod et al. 2012).
- i Indian Wells Valley-Little Dixie Wash to Ross Valley (Cosa/Olancho core area) via linkage paralleling Highway 395 (part of the Sierra Nevada–China Lake North linkage identified by Penrod et al. 2012).
- i Coolgardie Mesa to Pilot Knob via Superior Valley (contained within the China Lake South Range Landscape Block identified by Penrod et al. 2012).
- i Pilot Knob to Searles Valley via Christmas Canyon (mostly contained within the China Lake South Range Landscape Block identified by Penrod et al. 2012).
- i Pilot Knob to Peerless Valley- Edwards AFB-Kramer Junction-Boron areas via Almond Cove-Cuddeback Dry Lake area (part of east branch of China Lake South Range–Edwards AFB linkage identified by Penrod et al. 2012).

Tehachapi Pocket Mouse

In addition to the goals and objectives developed for landscapes and natural communities that will benefit Tehachapi pocket mouse, the following goal and objectives will contribute to SPEC1 for Tehachapi pocket mouse.

Goal TPMO1 (SPEC1): Maintain or increase the distribution, population size, or number of populations of Tehachapi pocket mouse and contribute to its recovery in the Plan Area.

- i Objective TPMO1.1: Conserve Tehachapi pocket mouse habitat within the Santa Clara–Calleguas, Antelope, Fremont, and Grapevine watersheds.

Objective TPMO1.2: Prevent access by domestic dogs and cats to occupied Tehachapi pocket mouse habitat within the Plan-wide reserve system.

Literature Cited

Leitner, P. 2008. "Current Status of the Mohave Ground Squirrel." Transactions of the Western Section of the Wildlife Society 44:11-29.

Penrod, K., P. Beier, E. Garding, and C. Cabañero. 2012. A Linkage Network for the California Deserts. Produced for the Bureau of Land Management and The Wildlands Conservancy. Produced by Science and Collaboration for Connected Wildlands, Fair Oaks, CA. www.scwildlands.org and Northern Arizona University, Flagstaff, Arizona, <http://oak.ucc.nau.edu/pb1/>.

Comment [SD140]: Defenders: There is a plethora of literature on general principles of developing BGOs for conservation plans as well as literature specific to species, communities and landscape-level processes in the plan area. We recommend consulting and drawing from this body of literature in establishing the next round of BGOs.

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Appendix A

Explanation of DRECP Conservation Strategy Conceptual Model

Desert Renewable Energy Conservation Plan
Conservation Strategy Conceptual Model

1.0 Introduction

The following describes a proposed architecture (or conceptual model) for developing a Conservation Strategy for the Desert Renewable Energy Conservation Plan (DRECP). The proposed approach is adopted from a similar process (referred to as the Logic Chain) developed for use in crafting a conservation strategy for the Bay Delta Conservation Plan.

The purpose of the conceptual model is to (1) **standardize terminology used in the planning process,** (2) **increase clarity and specificity regarding the expected outcomes of plan implementation, and** (3) **illustrate how monitoring and new information would inform plan implementation through adaptive management.** By articulating what the conservation strategy is trying to accomplish and how it intends to achieve its objectives, the DRECP conceptual model facilitates both evaluation of the initial plan and assessment of its efficacy during implementation.

2.0 DRECP Conceptual Model

Figure A-1 below shows a graphical representation of the DRECP Conceptual Model. Key elements of the model are described on the following pages.

Comment [SD141]: Defenders: In general, this section should be revised to explain the overall framework in a much more explicit and clear manner. Many of the sentences are incomplete and the descriptions/definitions of the various components are minimal.

Comment [SD142]: Defenders: This document still needs to work on explicitly defining terms, e.g. what is the difference between stressors and threats? What is the difference between biological objectives and conservation actions?

Comment [SD143]: Defenders: It is still unclear to us if this plan is addressing all stressors to species or only those stressors related to Covered Activities.

Comment [SD144]: Defenders: This has not been addressed at all in this plan and should begin immediately.

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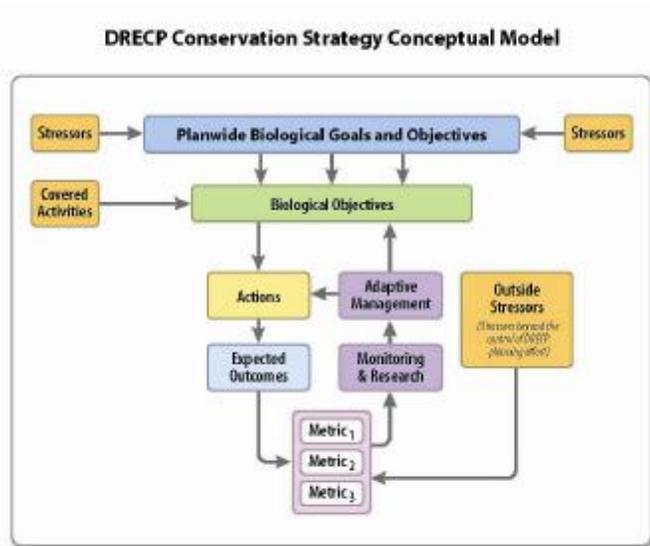


Figure A-1. DRECP Conservation Strategy Conceptual Model

2.1 Overall Architecture

As shown in Figure A-1, the conceptual model consists of three basic tiers that reflect different aspects of plan development and implementation. The first tier, shown in the first three rows in Figure A-1, involves identifying overarching goals (Global/Planwide Goals), identifying stressors or threats to the species, articulating Covered Activities, and then establishing specific biological goals and objectives that reflect the Planwide Goals, Stressors, and Covered Activities. The second tier, shown as a yellow box in Figure A-1, involves formulating actions or conservation measures (including reserve design) and assessing the expected outcomes associated with those actions. The third tier, shown in purple and blue in Figure A-1, involves monitoring and adjustments during implementation through the adaptive management program, including potential revisions to the conservation measures and/or adjustments to the biological goals and objectives. Each element of the conceptual model is described in more detail below.

Comment [SD145]: Defenders: Again, please define the scope of the plan in terms of addressing stressors that relate directly to Covered Activities or any stressor affecting the species (OHV use, grazing, invasive species, etc)

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2.2 Global/Planwide Goals

Broad plan goals established in the DRECP Planning Agreement as well as appropriate existing species recovery plan goals. Overall DRECP program goals, as outlined in the Planning Agreement include:

- 1 Provide for the long-term conservation and management of Covered Species **throughout** within the Planning Area
- 1 Preserve, restore, and enhance natural communities and ecosystems that support Covered Species **within-throughout** the Planning Area

Comment [SD146]: Defenders: Please include here the overarching goal from the ISA: *Contribute to the persistence, distribution, and diversity of the desert biota and all its natural components and processes today and into the future, while accommodating renewable energy development and adapting to climate change.*

2.3 Stressors

Stressors are physical, chemical, or biological factors (or conditions) that affect covered species, natural communities, and/or important ecosystem processes. The precise contribution of each stressor to a species' population may be uncertain and there may be disagreement regarding which stressors are having the biggest effect. In many cases stressors interact and it may be a combination of various stressors that are affecting a species. Describing the stressors (and assumptions about them) is an important step in constructing a conservation plan and in managing adaptively as the plan is implemented. For example, clear statements regarding where a stressor occurs, which species it impacts, and how certain we are that the stressor is important will help focus DRECP and prioritize conservation measures. Some stressors may be beyond our control (e.g. annual weather patterns). Similarly, some problems may be beyond the geographical or legal scope of any given conservation plan. These are referred to as "*Outside Stressors*" in the conceptual model.

Comment [SD147]: Defenders: DRECP should note where there is uncertainty due to lack of information.

Comment [SD148]: Defenders: Reference the "Stressor diagrams" here and explain how the stressor diagrams fit into the overall framework for the BGOs.

Comment [SD149]: Defenders: The stressors that will not be addressed by the plan need to be explicitly stated with justification for why they are not addressed.

2.4 Covered Activities

Development activities that will be covered under the permit. The list of Stressors (including Outside Stressors) and Covered Activities are used to inform the Biological Goals and Objectives.

Comment [SD150]: Defenders: Not a complete sentence.

Comment [SD151]: Defenders: How are these used in the overall BGO framework. Where does this list reside? In Appendix B? If so, please reference the Table here.

2.5 Biological Goals and Objectives

Identify the plan's intent to contribute to the Global Goals and Objectives. Specific definitions for goals versus objectives are provided below.

- 1 **Biological Goals:** Broad guiding principles for the conservation strategy that define the overall vision of the Plan. Biological goals are typically qualitative.
- 1 **Biological Objectives:** Conservation targets or desired conditions. They articulate a desired outcome resulting from implementation of the Plan's conservation measures. Objectives provide a basis for assessing whether the conservation measures will cumulatively achieve the Plans Goals. To the extent feasible, objectives should be measurable and quantitative.

Comment [SD152]: Defenders: Please expand on the critical importance of BGOs: 1) allow for evaluation of how effective proposed reserve design is; 2) allows for greater understanding of tradeoffs; 3) strong influence on the amount of conservation area needed; 4) provide a vision for achieving conservation success.

Comment [SD153]: Defenders: It is not clear what is meant by this sentence. Please elaborate.

Comment [SD154]: Defenders: The goals also provide a vision for how we will achieve conservation success.

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2.6 Actions

Specific actions implemented to achieve the biological goals and objectives. Conservation measures should be described in terms of their relation to identified stressors and how they would be expected to benefit natural communities and covered species. The collection of all conservation measures reflects the overall “*Conservation Strategy*”.

Comment [SD155]: Defenders: Not a complete sentence.

Comment [SD156]: Defenders: Please distinguish between conservation actions and conservation measures.

2.7 Expected Outcomes

Expected results of implementing the conservation measures. In order to understand the value of each action, and to assess the overall conservation strategy, the planning process will include various tools and analyses to make detailed and, where possible, quantitative estimates of expected outcomes from each conservation measure.

Comment [SD157]: Defenders: Not a complete sentence.

Comment [SD158]: Defenders: this is very vague and it is unclear how this will work in practice.

2.8 Metrics

Specific attributes that will be measured to assess the performance of the conservation measures. Several metrics may be established for each conservation measure. Metrics will feed into the overall monitoring program.

Comment [SD159]: Defenders: Not a complete sentence.

Comment [SD160]: Defenders: This is very vague. Will this be elaborated upon in the Adaptive Management and Monitoring Plan?

2.9 Monitoring and Research

Implementation activities intended to evaluate performance of the plan and develop new information that can be used to improve plan implementation through the adaptive management program. Information gathered from monitoring and research will be synthesized and evaluated to assess the performance of the overall conservation strategy.

Comment [SD161]: Defenders: Incomplete sentence again and also very vague. If details on this section are not yet available, please clarify when they will be available.

Comment [JA162]: Defenders: This needs to be done in a timely manner so that if conservation goals and objectives are not being met there is a safety mechanism to preclude additional development until effective actions are identified and implemented to address the effects of stressors.

2.10 Adaptive Management

Process for assimilating monitoring and research data and assessing the need to potentially adjust conservation measures.

Comment [SD163]: Defenders: Incomplete sentence. This section is critical to the success of this plan, especially with the identified data gaps and missing information. If details on the adaptive management plan are not available, please specify when they will be available and how the Adaptive Management plan fits into the conservation strategy framework as a whole. Establishing an Adaptive Management and Monitoring Program will require an intensive collaborative effort that incorporates the latest science and integrates data over vast areas.

3.0 Application to Plan Development

How the DRECP Conservation Strategy Conceptual Model will be applied to plan development is shown graphically in Figure A-2 on the next page. The figure shows when different elements of the conceptual model will be engaged through the planning process and how they relate to specific plan deliverables. Figure A-3, shows an example of how the various elements of the conceptual model would be applied to a particular species.

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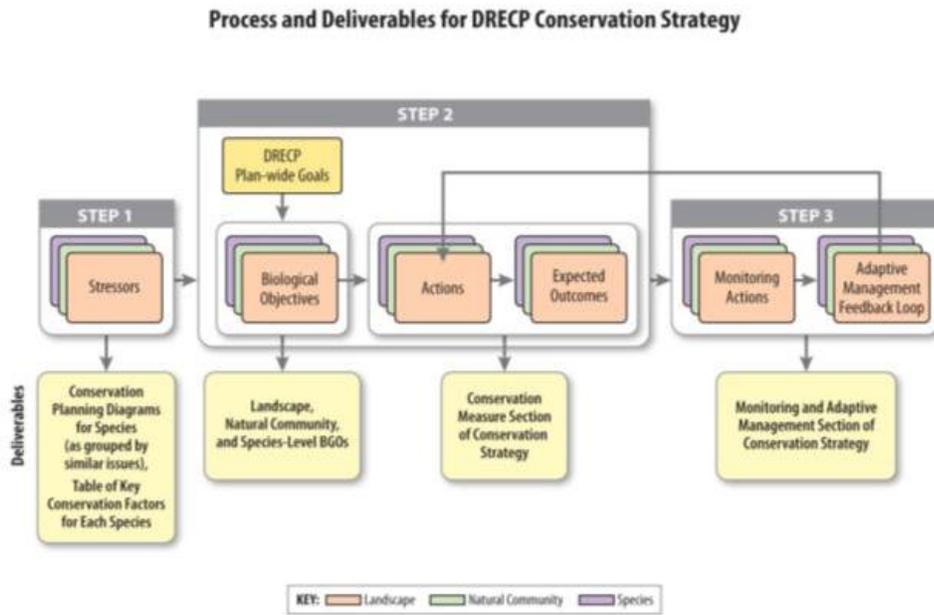


Figure A-2. Process and Deliverables for DRECP Conservation Strategy

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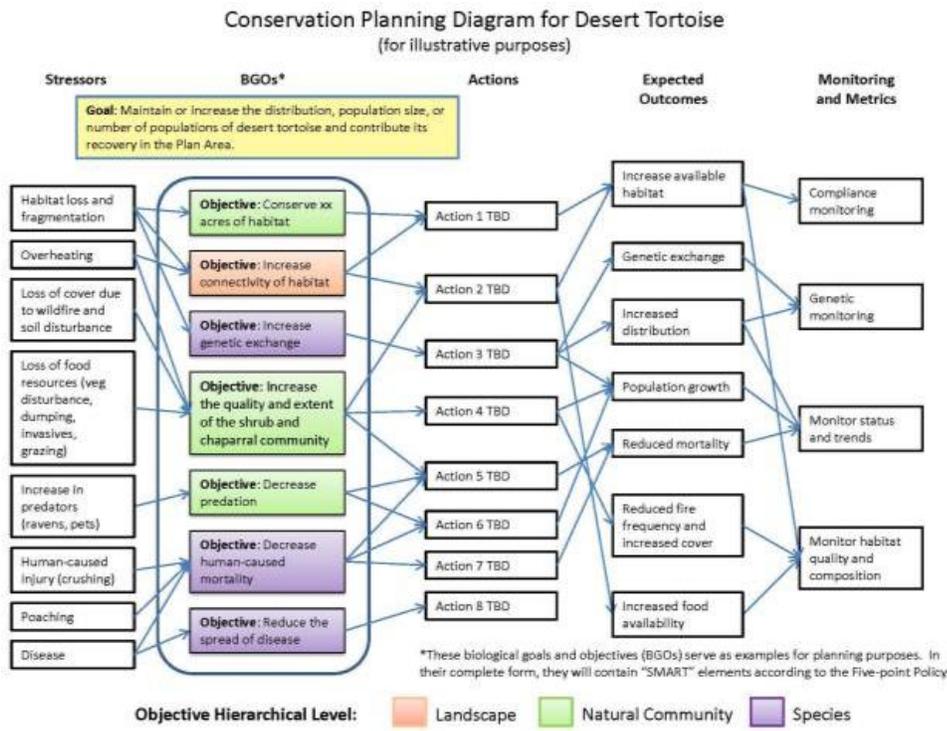


Figure A-3. DRECP Conservation Planning Conceptual Diagram for Desert Tortoise

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Appendix B

Factors Critical to Species and Community Conservation

Comment [SD164]: Defenders: This table is very useful. We recommend clarifying in the table which landscape issues/ecological process issues/threats and stressors are understood and which have a greater degree of uncertainty. This could be accomplished by including asterisk for those that are less known/have more uncertainty or by adding another column titled “uncertainties or key data gaps” and listing the data gaps in this column. The known or suspected locations where the stressors and threats are occurring need to be identified so that conservation actions can be directed to these areas.

TableB-1. Summary of Key Conservation Factors for DRECP Covered Species based on Natural Communities, Landscape and Ecological Processes, and Environmental Stressors/Threats

Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Amargosa Endemics				
Amargosa beardtongue	<ul style="list-style-type: none"> Scrub and Chaparral community Woodland community 	<ul style="list-style-type: none"> Known from the southern Great Basin floristic province east of the Sierra Nevada, the Desert province in the northern desert mountains, and in western Nevada 	<ul style="list-style-type: none"> Host to the silvery blue butterfly (<i>Glaucopsyche lygdamus</i>) Pollination 	<ul style="list-style-type: none"> Habitat degradation and fragmentation Road expansion Cattle and over-grazing Mine tailings and trash Off-highway vehicle use Human activity/trampling
Amargosa niterwort	<ul style="list-style-type: none"> Wetlands community 	<ul style="list-style-type: none"> Endemic to Carson Slough and Ash Meadows Sub-regional habitat connectivity within DRECP Plan Area 	<ul style="list-style-type: none"> Moist alkaline soils Subsurface irrigation 	<ul style="list-style-type: none"> Hydrological alteration² Climate change² Soil disturbance (soil crust)² Development (road construction) Mining (mineral) Trampling (wild horses)² Recreation (OHVs)² Invasive plants²

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Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Amargosa vole	<ul style="list-style-type: none"> Wetlands community 	<ul style="list-style-type: none"> Endemic to Amargosa River Sub-regional habitat connectivity within DRECP Plan Area 	<ul style="list-style-type: none"> Marsh habitat and hydrology 	<ul style="list-style-type: none"> Habitat loss and/or degradation (burning, grazing, development of marsh habitat)² Hydrological alteration (diversions, channelization, barriers to natural springs)² Invasive plants (tamarisk)² Climate change² Predation (cats) Competition (potentially house mouse)
Ash meadows gumplant	<ul style="list-style-type: none"> Scrub and Chaparral community Grassland community Rocky, Barren, and Unvegetated community 	<ul style="list-style-type: none"> Endemic to mesic meadows within Carson Slough Sub-regional habitat connectivity within DRECP Plan Area (?) 	<ul style="list-style-type: none"> Standing water or high groundwater levels and areas with sun exposure Fine-textured alkali and alkali clay soils (?) 	<ul style="list-style-type: none"> Habitat fragmentation³ Invasive plants (tamarisk)² Hydrological alterations (surface and ground water reductions)² Climate change² Mining (clay) Trampling (wild horses)² Recreation (OHVs)²

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Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Bats				
California leaf-nosed bat	<ul style="list-style-type: none"> Mines and Caves Riparian community Scrub and Chaparral community 	<ul style="list-style-type: none"> In California, the California leaf-nosed bat occurs in the desert regions of eastern San Bernardino (i.e., excluding the western Mojave region), Riverside, and San Diego counties and all of Imperial County. Desert riparian communities are very spatially-limited resources that are used by a large number of bat species. 	<ul style="list-style-type: none"> Inter-specific competition Management of desert riparian communities, including hydrology and species composition, is important for maintaining a diverse bat community. 	<ul style="list-style-type: none"> Disturbances of roost sites due to human entrance, mine closures, and mine reactivation Loss and degradation of desert riparian habitats Development of golf courses and residential housing Pesticides Wind energy facilities
Pallid bat	<ul style="list-style-type: none"> Rocky, Barren, and Unvegetated Community All land covers (except developed and disturbed) 	<ul style="list-style-type: none"> Widespread throughout the western United States Inhabits rocky outcrops, cliffs, and spacious crevices with access to open habitats for foraging 	<ul style="list-style-type: none"> Day roost selection, fidelity, and liability (flexibility) and social roosting Ectoparasites Foraging and food partitioning mechanisms Lighting Predation 	<ul style="list-style-type: none"> Disturbances of roost sites through vandalism, extermination, and destruction of buildings and recreational activities Pesticides and heavy metals Habitat modification or degradation (i.e., conversion to agriculture, prescribed fires, wildfires). Predation by urban-related predators Wind energy facilities

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Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Townsend's big-eared bat	<ul style="list-style-type: none"> Abandoned mines Woodland community Forest community Riparian community Scrub and Chaparral community 	<ul style="list-style-type: none"> In the U.S., it occurs in a continuous distribution in all of the western states and east into western South Dakota, northwestern Nebraska, southwestern Kansas, western Oklahoma, and western Texas. 	<ul style="list-style-type: none"> Inter-specific competition Lighting may affect predator-prey relationships among bats 	<ul style="list-style-type: none"> Human disturbances of roost sites Reduced foraging habitat from agricultural conversion Pesticides Wind energy facilities
Western mastiff bat	<ul style="list-style-type: none"> Rocky, Barren, and Unvegetated Community Woodland community Forest community Scrub and Chaparral community Grassland community Agriculture 	<ul style="list-style-type: none"> It is widespread in the southwestern United States, the northern portion of Baja California, Mexico, and south into central mainland Mexico. 	<ul style="list-style-type: none"> Inter-specific competition 	<ul style="list-style-type: none"> Urbanization causing human disturbances of roost sites and habitat loss Inundation of roosting sites by water development and storage reservoirs Extermination of colonies from buildings. Highway projects Recreational rock climbing Mining and quarry operations (although roost sites may also be created). Grazing and meadow management activities on foraging habitat Pesticides and other environmental contaminants Wind energy facilities
Hoary bat	<ul style="list-style-type: none"> Woodland community Forest community Riparian community Scrub and Chaparral community Wetland community 	<ul style="list-style-type: none"> Most widespread of all North American bat species. 	<ul style="list-style-type: none"> Inter-specific competition Lighting may affect predator-prey relationships among bats Maternity roost site selection 	<ul style="list-style-type: none"> Loss of roosting habitat due to timber harvest Pesticides Barbed wire fences Disturbances of day roosts in trees Collisions with artificial structures, especially wind energy facilities

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Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Western red bat	<ul style="list-style-type: none"> Woodland community Forest community Riparian community Scrub and Chaparral community 	<ul style="list-style-type: none"> Although the species has a wide range, there are relatively few records for the western red bat outside of California. The Central Valley is the breeding center in California. 	<ul style="list-style-type: none"> Inter-specific competition Lighting may affect predator-prey relationships among bats 	<ul style="list-style-type: none"> Loss and degradation of well-developed riparian zones that support larger, mature trees Pesticides Human activities Wind energy facilities Collisions with tall buildings and towers
Carbonate Plants				
Cushenbury buckwheat	<ul style="list-style-type: none"> Woodland community Scrub and Chaparral community 	<ul style="list-style-type: none"> Probably endemic to the San Bernardino Mountains Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Intact natural carbonate substrates (primarily limestone) Open areas with low accumulation of organic material 	<ul style="list-style-type: none"> Mining (including dust)² Recreation (OHVs, camping, firewood collection, and dust generation)² Fire suppression² Climate change² Lighting (pollinators and seed dispersers)
Cushenbury milk-vetch	<ul style="list-style-type: none"> Woodland community Scrub and Chaparral community 	<ul style="list-style-type: none"> Endemic to the San Bernardino Mountains Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Intact natural carbonate substrates (both limestone and dolomite) Open areas with low accumulation of organic material 	<ul style="list-style-type: none"> Mining (including dust)² Recreation (OHVs, camping, firewood collection, and dust generation)² Fire suppression² Climate change² Lighting (pollinators and seed dispersers)
Cushenbury oxytheca	<ul style="list-style-type: none"> Woodland community Scrub and Chaparral community 	<ul style="list-style-type: none"> Endemic to the San Bernardino Mountains Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Intact natural carbonate substrates (both limestone and dolomite) Open areas with low accumulation of organic material 	<ul style="list-style-type: none"> Mining (limestone) (including dust)² Lighting (pollinators and seed dispersers) Invasive plants² Development (powerline maintenance, hydroelectric development)

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Parish's daisy	<ul style="list-style-type: none"> Woodland community Scrub and Chaparral community 	<ul style="list-style-type: none"> Mostly endemic to calcareous slopes of San Bernardino Mountains, with a few collections from granitic areas of eastern San Bernardino Mountains and quartz monzonite areas in the Little San Bernardino Mountains Local habitat connectivity 	<ul style="list-style-type: none"> Carbonate alluvium Pollination 	<ul style="list-style-type: none"> Mining (limestone) (including dust)² Lighting (pollinators and seed dispersers) Recreation (camping, firewood collection, and dust generation)² Fire suppression² Climate change² Energy development Road and residential development
San Bernardino Mountains dudleya	<ul style="list-style-type: none"> Woodland community Forest community 	<ul style="list-style-type: none"> Known only from the San Bernardino Mountains. 	<ul style="list-style-type: none"> Associated with limited pebble plain habitat 	<ul style="list-style-type: none"> Development Foot traffic Limestone mining Vehicles. Non-native plants Illegal dumping
Desert Scrub and Chaparral				
Alkali mariposa-lily	<ul style="list-style-type: none"> Scrub and Chaparral community Wetland community 		<ul style="list-style-type: none"> Hydrology (periodic natural inundation) 	<ul style="list-style-type: none"> Urbanization and road construction Grazing and trampling Hydrological alternations and water diversions that lower the water table Military operations Dumping Grading

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Barstow woolly sunflower	<ul style="list-style-type: none"> Scrub and Chaparral community Grassland community Rocky, Barren, and Unvegetated community 	<ul style="list-style-type: none"> Endemic to the west-central Mojave Desert Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Bare areas with little soil that frequently contain a shallow subsurface caliche layer 	<ul style="list-style-type: none"> Development activities (energy and housing, highway and road improvements, pipelines) Grazing (sheep)² Recreation (OHVs)² Mining Other human activities (dumping)²
Desert cymopterus	<ul style="list-style-type: none"> Scrub and Chaparral community Rocky, Barren, and Unvegetated community 	<ul style="list-style-type: none"> Primarily Rogers Dry Lake, Harper Dry Lake, Cuddeback Dry Lake, and Superior Dry Lake basins Sub-regional habitat connectivity (?) 	<ul style="list-style-type: none"> Sandy soils on alluvial fans and basins and stabilized sand fields Precipitation 	<ul style="list-style-type: none"> Habitat loss and fragmentation³ Development (oil, gas, utilities, renewable energy)² Recreation (OHVs)² Grazing (sheep)² Climate change²
Flat-tailed horned lizard	<ul style="list-style-type: none"> Dune community Scrub and Chaparral community 	<ul style="list-style-type: none"> Endemic to southeastern California within 3 regional populations (Coachella Valley; the west side of the Salton Sea/Imperial Valley; and the east side of the Imperial Valley) Sub-regional habitat connectivity (populations subdivided by Interstates 8 and 10) 	<ul style="list-style-type: none"> Stabilized sand dunes (species tends to avoid active and unstable wind-blown dunes) 	<ul style="list-style-type: none"> Habitat loss and/or degradation (agriculture, urban, highways, canals, railroads, military activities, utilities, and geothermal, oil, gas and wind energy)² Recreation (OHVs)² Predation Mining (mineral extraction) Invasive plants² Wildfire² Pesticides and contaminants Grazing (cattle)²

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Little San Bernardino Mtns. linanthus	<ul style="list-style-type: none"> Scrub and Chaparral community 	<ul style="list-style-type: none"> Restricted to the mouth of Dry Morongo Canyon near the City of Desert Hot Springs and the north side of Joshua Tree National Park south of State Highway 62 in the Little San Bernardino Mountains and from Whitewater Canyon in the eastern San Bernardino Mountains to Palm Springs. 	<ul style="list-style-type: none"> Hydrology Competition for resources from invading non-native species 	<ul style="list-style-type: none"> Urbanization Off-Highway Vehicle (OHV) use Flood control activities Illegal dumping Invasive non-native species Increased fire frequency Ground water loss Soil erosion
Mojave monkeyflower	<ul style="list-style-type: none"> Scrub and Chaparral community Rocky, Barren, and Unvegetated community 	<ul style="list-style-type: none"> Endemic to west-central Mojave Desert, primarily Barstow southeast to Newberry Springs Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Precipitation Pollination and dispersal 	<ul style="list-style-type: none"> Development (solar, wind and roads) Mining Grazing² Invasive plants² Habitat Fragmentation/potential inbreeding Climate change² BLM land exchanges Off-road vehicle use
Orocopia sage	<ul style="list-style-type: none"> Scrub and Chaparral community 	<ul style="list-style-type: none"> Restricted to extreme southeastern California, in Imperial, Riverside, and San Bernardino counties 	<ul style="list-style-type: none"> Pollination Hydrology (associated with alluvial fans adjacent to desert washes) 	<ul style="list-style-type: none"> Increased dust levels resulting from vehicle movement or explosions of ordnance Off-highway vehicles Invasive species Human trampling Changes to hydrological regimes Threats to pollinators

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Parish's phacelia	<ul style="list-style-type: none"> Scrub and Chaparral community 	<ul style="list-style-type: none"> Known in California from four sites east and south of Barstow in San Bernardino County and one site in Stewart Valley near the Nevada border in Inyo County. However, it is more widely distributed in Nevada, and has also been identified from one location in Arizona. 	<ul style="list-style-type: none"> Associated with clay and alkaline soils on playas and alkali sinks Pollination Hydrology 	<ul style="list-style-type: none"> Military expansion and activities Off-road vehicles Access road construction Powerlines Overgrazing by cattle and horses
Triple-ribbed milk-vetch	<ul style="list-style-type: none"> Scrub and Chaparral community 	<ul style="list-style-type: none"> Limited to western portion of DRECP Plan area in Wathier Landing, Catclaw Flat, upper Mission Creek, Dry Morongo Creek, Big Morongo Canyon (two occurrence locations), Long Canyon, and Key's Ranch (unvouchered) Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Barren rocky slopes and ridges Precipitation (?) Pollination/dispersal (deme populations, waifs) (?) 	<ul style="list-style-type: none"> Development (construction/maintenance of gas and oil pipelines, residential) Recreation (OHVs)² Fire suppression² Flooding² Climate change²
White-margined beardtongue	<ul style="list-style-type: none"> Scrub and Chaparral community Dune community 	<ul style="list-style-type: none"> Known from only four general locations: two in the Mojave Desert of Southern Nevada, one in the Mojave Desert of southeast California, and one in the Sonoran Desert of northwest Arizona. 	<ul style="list-style-type: none"> Pollination Vegetation structure of habitat (more likely in canopy inter-spaces) Fluvial processes and sediment transport 	<ul style="list-style-type: none"> Wind and solar project development Military expansion and activities Highways, roads, and off-road vehicles Powerlines and pipelines Trampling

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Dune				
Algodones Dunes sunflower	<ul style="list-style-type: none"> Dune community 	<ul style="list-style-type: none"> Mainly endemic to Algodones Dunes system and other isolated areas Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Aeolian processes/dune systems Accumulated sand microhabitat 	<ul style="list-style-type: none"> Recreation (off-highway vehicles (OHVs)) Other anthropogenic disturbances Sand transport alteration²
Mojave fringe-toed lizard	<ul style="list-style-type: none"> Dune community Scrub and Chaparral community 	<ul style="list-style-type: none"> Restricted to deposits of loose sand; as a result its distribution is discontinuous throughout its range Endemic to the Mojave and Sonoran deserts of Southern California and western Arizona 	<ul style="list-style-type: none"> Predation Rodent burrows for protection from predators and thermal protection Potentially competition for food with the zebra-tailed lizard (<i>Callisaurus draconoides</i>) Sand movement 	<ul style="list-style-type: none"> Off-road vehicles Disruption of the natural movement of sand caused by roads, windbreaks, and other man-made alterations Habitat loss caused by urban development. Solar energy development
Peirson's milk-vetch	<ul style="list-style-type: none"> Dune community 	<ul style="list-style-type: none"> Endemic to Algodones Dunes Local habitat connectivity 	<ul style="list-style-type: none"> Aeolian processes/active dune systems; slopes less than 20-30% Precipitation Pollination (white-faced digger bee) 	<ul style="list-style-type: none"> Recreation (OHVs and associated development, trampling)² Climate change/hydrological alterations² Grazing² Invasive plants² Other development

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Sand food	<ul style="list-style-type: none"> Dune community Scrub and Chaparral community 	<ul style="list-style-type: none"> Occurs in the Sonoran Desert in southeastern Imperial County, as well as western Arizona and northwestern Mexico 	<ul style="list-style-type: none"> Root parasite primarily dependent on perennial desert shrub hosts Dune stability Non-native plants 	<ul style="list-style-type: none"> Vehicles Military activities Agriculture Habitat loss from the conversion of dune habitat to agricultural lands, residential development, highways, and recreational sites Non-native plants Dune stabilization
Wiggins' croton	<ul style="list-style-type: none"> Dune community 	<ul style="list-style-type: none"> Primarily limited to southeastern Imperial County, including Algodones Dunes Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Stabilized or partially stabilized sand dunes Pollination (?) 	<ul style="list-style-type: none"> Recreation (OHVs)²
Fish				
Desert pupfish	<ul style="list-style-type: none"> Wetland Community and Riparian Community (shallow water of desert springs, small streams, and marshes) 	<ul style="list-style-type: none"> Occurs in desert springs, marshes, and tributary streams of the lower Gila and Colorado River drainages in Arizona, California, and Mexico. 	<ul style="list-style-type: none"> Hydrology Predation, competition, and behavioral interference from non-native fish and invasive snails Natural weather patterns influence cycles of expansion and contraction 	<ul style="list-style-type: none"> Introduction of exotic fish species and invasive snails Modifications to the water conveyance facilities used for irrigating and draining agricultural lands Application of agricultural pesticides Dewatering of some natural spring habitats by groundwater pumping Tamarisk invasion

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Mohave tui chub	<ul style="list-style-type: none"> Wetland Community and Riparian Community (Lacustrine Ponds/ Pools) 	<ul style="list-style-type: none"> Restricted to the Mojave River. 	<ul style="list-style-type: none"> Hydrology Water quality and quantity Adaptation to lacustrine conditions rather than riverine Tapeworms Predation, competition, and habitat alteration from non-native plants and wildlife 	<ul style="list-style-type: none"> The present threatened destruction, modification, or curtailment of its habitat or range Other natural or man-made factors affecting its continued existence (hybridization, introduction of non-native or transplanted species, predation, or competition) Overdraft of Mojave River A parasitic Asian tapeworm was found in Lake Tuendae Non-native plant and wildlife species Inadequacy of existing regulatory mechanisms
Owens pupfish	<ul style="list-style-type: none"> Wetland Community and Riparian Community (Warm, clear, shallow aquatic habitat) 	<ul style="list-style-type: none"> Restricted to the Owens Valley portion of the Owens River in Mono and Inyo counties, California. Small, isolated populations 	<ul style="list-style-type: none"> Predation and competition from non-native species Hydrology Habitat alteration from emergent vegetation 	<ul style="list-style-type: none"> Non-native predators Habitat modification for water diversions that altered Owens River flows Cattail (<i>Typha</i> spp.) encroachment and other emergent vegetation Extinction from stochastic (random) demographic, genetic, and catastrophic environmental events because populations are small and isolated.

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Owens tui chub	<ul style="list-style-type: none"> Wetland Community and Riparian Community (Low-velocity waters) 	<ul style="list-style-type: none"> Endemic to the Owens Basin (Owens Valley, Round Valley, and Long Valley) of Inyo and Mono Counties, California. Small, isolated populations 	<ul style="list-style-type: none"> Predation and competition from, and hybridization with, non-native aquatic predators and other tui chub subspecies and hybrids Requires aquatic vegetation and gravel substrates for spawning Hydrology and water quality Alteration of aquatic habitat by invasive emergent plants Disease 	<ul style="list-style-type: none"> Extensive habitat destruction and modification Invasive emergent plants that alter aquatic habitat Non-native invasive predators Poor water quality Inappropriate water quantity (including overdrafting of the aquifer in the Owens Valley Groundwater Basin area) Disease Inadequacy of existing regulatory mechanisms Vulnerability and loss of genetic diversity resulting from small isolated populations.
Grassland and Agriculture				
Greater sandhill crane	<ul style="list-style-type: none"> Wetland community Agriculture 	<ul style="list-style-type: none"> Sandhill cranes are winter visitors to the Plan Area at the Central Valley and the Lower Colorado River Valley. 	<ul style="list-style-type: none"> Hydrology Suitable roost sites 	<ul style="list-style-type: none"> Disturbance from farm activities and hunting Collision with power lines Habitat degradation and destruction Shortage of good roosting sites near foraging areas with grain fields Lack of management and control over agricultural crops that provide winter foraging Destruction of roost sites by past and proposed dredging and channelization projects along the Lower Colorado River Conversion of croplands from grain to crops that do not provide good foraging for cranes

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Mountain plover	<ul style="list-style-type: none"> Grassland community Agriculture 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct wintering habitats Migration routes 	<ul style="list-style-type: none"> None identified in literature 	<ul style="list-style-type: none"> Wintering habitat loss and degradation (urban development) Collisions (farm equipment) Pesticides Human disturbance
Swainson's hawk	<ul style="list-style-type: none"> Grassland community Riparian community Agriculture 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct foraging habitats and nesting habitat in Antelope Valley Migration routes 	<ul style="list-style-type: none"> Hydrology/riparian systems 	<ul style="list-style-type: none"> Nesting and foraging habitat conversion Insecticides/pesticides Wildfire² Climate change² Recreation (OHVs)² Human disturbances Interactions/competition with ravens
White-tailed kite	<ul style="list-style-type: none"> Grassland community Agriculture Woodland community Forest community Scrub and Chaparral community 	<ul style="list-style-type: none"> The species' breeding range stronghold in North America is California, with nearly all areas up to the western Sierra Nevada foothills and southeast deserts occupied. 	<ul style="list-style-type: none"> Prey availability and abundance Competition for nest sites with other raptors and corvids 	<ul style="list-style-type: none"> Human disturbance at night roosts and nest sites Urbanization Clean farming techniques and other changes in agricultural practices Competition for nest sites with other raptors and corvids Drought Removal of suitable nesting habitat Reductions in prey abundance with conversion of agriculture

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Wide-Ranging Species				
Bighorn sheep	<ul style="list-style-type: none"> Grassland community Scrub and Chaparral community Riparian community Woodland community Forest community 	<ul style="list-style-type: none"> Relatively high mobility between mountain ranges Inter-mountain connectivity for dispersal Contiguous habitat for seasonal movements Movement limited by manmade physical barriers (e.g., roads, canals, fencing, incompatible land uses) and water resources 	<ul style="list-style-type: none"> Water resources near escape terrain to support reproduction Available nutritious forage to support reproduction 	<ul style="list-style-type: none"> Habitat loss and/or degradation² Climate change (primarily drought which reduces available water resources and nutritious forage during reproduction)² Invasive plants (tamarisk)² Disease transmission associated with domestic sheep and cattle. Competition with domestic livestock for forage and space. Development (fencing, aboveground canals, and highways and freeways that obstruct movement)³ Other human activities (OHVs, noise, aircraft, and pets) Predation (mountain lions, coyotes and bobcats)
Desert tortoise	<ul style="list-style-type: none"> Scrub and Chaparral community Grassland community 	<ul style="list-style-type: none"> Widespread throughout DRECP Plan Area Sub-regional and regional habitat connectivity throughout range in Plan Area Movement affected by incompatible land uses and available refuge (mainly suitable burrow sites) 	<ul style="list-style-type: none"> Soil conditions (soil digability) suitable for burrows Forage quality Temperature and reproduction 	<ul style="list-style-type: none"> Habitat loss and fragmentation (development and agriculture)³ Predation (ravens, cats, dogs, coyotes) Disease Grazing² Recreation (OHVs)² Other human activities (military activities, collecting, trash and garbage) Wildfires² Invasive plants² Climate change²

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Mohave ground squirrel	<ul style="list-style-type: none"> Scrub and Chaparral community Rocky, Barren, and Unvegetated community 	<ul style="list-style-type: none"> Endemic to Western Mojave Sub-regional connectivity, including dispersal habitat 	<ul style="list-style-type: none"> None identified in literature 	<ul style="list-style-type: none"> Habitat loss and fragmentation (urban, agriculture, military, energy, and transportation)³ Recreation (OHVs)² Grazing (cattle and sheep)² Invasive plants² Climate change (especially prolonged drought)² Predation (cats, dogs and ravens) Rodenticides/pesticides
Western burrowing owl	<ul style="list-style-type: none"> Grassland community Scrub and Chaparral community Rocky, Barren, and Unvegetated community Agriculture Developed and Disturbed Areas 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct nesting and foraging habitats Migration and dispersal routes 	<ul style="list-style-type: none"> Suitable burrow sites (e.g., ground squirrel burrows) and prey 	<ul style="list-style-type: none"> Habitat conversion (urban and non-compatible agriculture, flood control) Collisions (vehicles, wind turbines) Pesticides and other contaminants Invasive plants² Climate change² Rodent controls (especially ground squirrels) Predation by dogs and cats
Narrow Endemic Species				
Barefoot gecko	<ul style="list-style-type: none"> Rocky, Barren and Unvegetated community 	<ul style="list-style-type: none"> Endemic to rocky/boulder habitat in eastern San Diego and western Imperial counties Sub-regional habitat connectivity 	<ul style="list-style-type: none"> None identified in literature 	<ul style="list-style-type: none"> Recreation (camping, hiking, rock hounding, collection and habitat destruction by hobbyists and commercial collectors) Development (highway construction) Mining

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Inyo California towhee	<ul style="list-style-type: none"> Riparian community Scrub and Chaparral community 	<ul style="list-style-type: none"> Endemic to southern portion of Argus Range Local habitat connectivity within DRECP Plan Area 	<ul style="list-style-type: none"> Hydrology/dense riparian thickets 	<ul style="list-style-type: none"> Habitat loss and/or degradation (water diversion, trampling by burros, horses, and cattle)² Recreation (OHVs, noise, light, general activity)² Climate change²
Kelso Creek monkeyflower	<ul style="list-style-type: none"> Scrub and Chaparral community Woodland community 	<ul style="list-style-type: none"> Limited to the southern Sierra Nevada Foothills and western edge of the Mojave Desert within the Kern River drainage in the Lake Isabella area 	<ul style="list-style-type: none"> Competition from non-native species Hydrology 	<ul style="list-style-type: none"> Urbanization Off-highway vehicles Agricultural land conversion Road maintenance Cattle grazing Habitat loss due to water inundation Fire suppression activities Competition from non-native species Water developments and impoundments Stochastic extinction events
Kern buckwheat	<ul style="list-style-type: none"> Scrub and Chaparral community Woodland community 	<ul style="list-style-type: none"> Endemic to Kern County, California, there are only three known occurrences in the Sweet Ridge area of southeastern Kern County in the southeastern Sierra Nevada Foothills. 	<ul style="list-style-type: none"> Associated with limited pebble plain habitat Light (prefers full sunlight, appearing to be intolerant of extensive shading) Moisture (tolerant of low moisture conditions) In ability to recolonize disturbed areas 	<ul style="list-style-type: none"> Development of private land for wind turbine generators and other construction Vehicles Stochastic extinction events Grazing Logging and mining

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Lane Mountain milk-vetch	<ul style="list-style-type: none"> Scrub and Chaparral community 	<ul style="list-style-type: none"> Endemic to Brinkman Wash, Coolgardie Mesa, Paradise Valley, and NASA Goldstone north of Barstow Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Host shrubs Thin soils (Jurassic or Cretaceous granitic bedrock) Hydrology and precipitation Pollination 	<ul style="list-style-type: none"> Habitat loss and degradation (surface mining, military training) Recreation (OHVs)² Climate change (drought and loss of host shrubs)² Wildfire² Invasive plants²
Owens Valley checkerbloom	<ul style="list-style-type: none"> Scrub and Chaparral community Riparian community Rocky, Barren, and Unvegetated community Woodland community 	<ul style="list-style-type: none"> Endemic to southern Owens Valley Local habitat connectivity among alkali meadow and spring communities scattered along about 125 kilometers of the Owens River drainage 	<ul style="list-style-type: none"> Moist alkaline meadows and seeps and chenopod (saltbush) scrub Fine, sandy loam with alkaline crusts Pollination 	<ul style="list-style-type: none"> Hydrological alteration (diversion of Owens River and groundwater pumping)² Climate change² Grazing (cattle)² Competition (rhizomatous grass species and upland rubber rabbitbrush)² Meadow succession² Invasive plants (Russian olive, knapweed)²
Parish's alkali grass	<ul style="list-style-type: none"> Wetland community (Alkali springs and seeps) 	<ul style="list-style-type: none"> Only occurs at one location in Southern California, in San Bernardino County, and at scattered locations in northern and eastern Arizona, and western New Mexico 	<ul style="list-style-type: none"> Hydrology/Soil Moisture Invasion by non-native plant species 	<ul style="list-style-type: none"> Ground water pumping Water diversion Flood control Non-native plant species Urban and rural residential development Trampling, soil disturbance/erosion, and surface water runoff resulting from livestock grazing

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Piute Mountains jewel-flower	<ul style="list-style-type: none"> Woodland community Forest community 	<ul style="list-style-type: none"> Restricted to the Piute Mountains of southern High Sierra Nevada in Kern County 	<ul style="list-style-type: none"> Pollination 	<ul style="list-style-type: none"> Maintenance of wind energy facilities Roads and off-highway vehicle use Construction Cattle grazing Logging or mining
Sodaville milk-vetch	<ul style="list-style-type: none"> Wetland community (meadows and seeps) 	<ul style="list-style-type: none"> Endemic to Death Valley/Big Sand Spring in DRECP Plan Area Local habitat connectivity 	<ul style="list-style-type: none"> Hydrology associated with meadows and seeps and moist, open hummocks, flats, and drainages near cool springs Pollination/dispersal (?) 	<ul style="list-style-type: none"> Climate change/ hydrological alterations² Trampling (burros and livestock)² Development Water diversions² Vehicles² Extinction for stochastic impacts related to small distribution and abundance
Thorne's buckwheat	<ul style="list-style-type: none"> Woodland community 	<ul style="list-style-type: none"> Endemic to Fourth of July Canyon in the New York Mountains within Mojave National Park Local habitat connectivity 	<ul style="list-style-type: none"> Soil association with copper (?) Pollination/dispersal (?) 	<ul style="list-style-type: none"> None identified in literature

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(Mountain and Foothill) Woodland				
Bakersfield cactus	<ul style="list-style-type: none"> Grassland community Riparian community Scrub and Chaparral community Woodland community 	<ul style="list-style-type: none"> Restricted to a limited area of central Kern County near Bakersfield in the southern San Joaquin Valley 	<ul style="list-style-type: none"> Competition with non-native grasses for water Pollination 	<ul style="list-style-type: none"> Residential and urban as well as oil development, Off-road vehicle use Sand mining Competition from non-native grasses. Climate change Air pollution (including elevated nitrogen deposition) Loss of pollinators Flooding Loss of genetic diversity
Charlotte's phacelia	<ul style="list-style-type: none"> Scrub and Chaparral community Woodland community 	<ul style="list-style-type: none"> This endemic species occurs in the desert-facing foothills of the Sierra Nevada and the adjacent El Paso Mountains, in Tulare, Inyo, and Kern counties. 	<ul style="list-style-type: none"> Grazing cattle may play a role in seed dispersal, but are also a potential threat 	<ul style="list-style-type: none"> Grazing Off-road vehicles Trampling and collecting by hikers Mining Military expansion and activities
Coast horned lizard	<ul style="list-style-type: none"> Scrub and Chaparral community Grassland community Woodland community Forest community 	<ul style="list-style-type: none"> Found primarily in coastal areas of the southwestern coast of the United States and the Baja Peninsula of northwestern Mexico Extremely high site fidelity Foraging distances and home range size are influenced by lower plant diversity and higher disturbance 	<ul style="list-style-type: none"> Requires sandy soils Availability and abundance of native ant prey (ant specialists) Invasion of non-native ants Predation 	<ul style="list-style-type: none"> Urbanization Disturbance and decline in vegetative density Vehicles Pets increase predation pressure Expansion of the Argentine ant Wildland fires Collecting for pets

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Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Mojave tarplant	<ul style="list-style-type: none"> Riparian community Scrub and Chaparral community 	<ul style="list-style-type: none"> Primarily occurs in southeastern Sierra Nevada range in Kern County and possible Red Rock Canyon Sub-regional habitat connectivity (?); discontinuous populations may already be relictual 	<ul style="list-style-type: none"> Hydrology/seasonally saturated clay and silty soils (seeps and along grassy swales and intermittent creeks) Precipitation Pollination (?) 	<ul style="list-style-type: none"> Hydrological alterations² Recreation (OHVs, (trampling/crushing and soils disturbance)² Climate change² Grazing (livestock trampling at water sources)² Development Road maintenance
Spanish Needle onion	<ul style="list-style-type: none"> Woodland community 	<ul style="list-style-type: none"> Known from two areas in Kern County: Spanish Needle Peak in northern Kern County, and in the Horse Canyon/Jawbone Canyon area in the Tehachapi Mountains area Found in remote, rugged areas 	<ul style="list-style-type: none"> Soil associations (grows in rocky soil and the edge of rock outcrops and talus derived from volcanic and metamorphic rock) 	<ul style="list-style-type: none"> Wind energy development grazing Off-highway vehicle use Road/trail construction Collection
Tehachapi pocket mouse	<ul style="list-style-type: none"> Grassland community Woodland community 	<ul style="list-style-type: none"> Known from a few scattered, isolated localities in the Tehachapi Mountains 	<ul style="list-style-type: none"> Environment modification via burrow digging Predation 	<ul style="list-style-type: none"> Habitat fragmentation and isolation due to increased urbanization and agricultural intensification Isolation of populations makes it vulnerable to local extirpation Surface disturbance Livestock grazing

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Tehachapi slender salamander	<ul style="list-style-type: none"> Riparian community Woodland community 	<ul style="list-style-type: none"> Endemic to two distinct population segments: Caliente Creek drainage and Tehachapi Mountains Local habitat connectivity within each distinct population (the two distinct population segments are geographically isolated) 	<ul style="list-style-type: none"> Talus and rocky slopes and moist habitats Precipitation 	<ul style="list-style-type: none"> Climate change (especially prolonged drought)² Development and road construction Mining Grazing² Flood control projects² Feral pigs²
Tracy's eriastrum	<ul style="list-style-type: none"> Scrub and Chaparral community Woodland community 	<ul style="list-style-type: none"> Limited to two locations in Kern County in the DRECP; more widespread west of DRECP Sub-regional habitat connectivity to populations west of DRECP Plan Area 	<ul style="list-style-type: none"> Associated with or tolerant of disturbances (?) (e.g., occurrences associated with grazing or road-blading) Pollination/dispersal (?) 	<ul style="list-style-type: none"> Competition with other plant species (may not tolerate shading)² Vehicles² Road maintenance (?) Development Grazing (?)²
Raptors				
American peregrine falcon	<ul style="list-style-type: none"> Wetland community 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct resource areas Migration routes 	<ul style="list-style-type: none"> None identified in literature 	<ul style="list-style-type: none"> Collisions and electrocutions Pesticides and contaminants (e.g., organochlorines) Predation (young by ravens and raccoons) Human disturbance and/or pet disturbance (nest sites)

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Bald eagle	<ul style="list-style-type: none"> Riparian community Forest community Woodland community Wetland community 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct resource areas Migration routes 	<ul style="list-style-type: none"> Large, open water resources with nearby roosting and perching sites 	<ul style="list-style-type: none"> Habitat loss (suitable roosting/perching sites near foraging areas) Pesticides and contaminants (organochlorines)² Recreation Mining Logging²
California condor	<ul style="list-style-type: none"> Scrub and Chaparral community Grassland community Rocky, Barren, and Unvegetated community 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct foraging, nesting, and roosting areas Traditional flight corridors (?) 	<ul style="list-style-type: none"> None identified in literature 	<ul style="list-style-type: none"> Contaminants (lead contamination of food resources, ingestion of microtrash and other contaminants such as antifreeze) Collisions and electrocutions (powerlines, towers, and other tall structures) Other human activities (disturbances of nesting and historic roosting areas, attraction to human activities due to habituation)
Golden eagle	<ul style="list-style-type: none"> Forest community Woodland community Scrub and Chaparral community Grassland community Rocky, Barren, and Unvegetated community 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct foraging, nesting, and roosting areas Seasonal migration patterns 	<ul style="list-style-type: none"> None identified in literature 	<ul style="list-style-type: none"> Human activities (disturbance of nest sites) Collisions and/or electrocutions (towers, powerlines, wind turbines, and other structures and vehicles) Contaminants (lead contamination of prey) Wildfires (impacts on prey densities)

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Red Rock Endemics				
Red Rock poppy	Scrub and Chaparral community	Known only from the Rand and El Paso mountains in Kern and San Bernardino counties in the western Mojave Desert	Restricted to certain soil types (primarily associated with volcanic tuff)	Off-Highway Vehicle (OHV) use
Red Rock tarplant	Scrub and Chaparral community	Endemic Red Rock Canyon and Last Chance Canyon Local habitat connectivity	Hydrology associated with seeps and seasonally moist substrates along ephemeral streams (sandy and gravelly washes), low ridges, and road shoulders Pollination (?)	Recreation (OHVs, camping and vehicle parking) Non-native plants (tamarisk) Climate change/ hydrological alterations ²

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Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Riparian				
Arroyo toad	<ul style="list-style-type: none"> Riparian community 	<ul style="list-style-type: none"> Contiguous and connected stream courses with contiguous adjacent uplands 	<ul style="list-style-type: none"> Hydrology (surface and ground water) Geomorphology (e.g., sediment transport and deposition) Natural flood disturbance regimes Water quality 	<ul style="list-style-type: none"> Hydrological and geomorphological alterations (dams (including beaver dams on Mojave River), channelization, diversions)² Invasive plant species (tamarisk, giant reed, ice plant, pampas grass)² Pesticides and contaminants (water quality impacts)² Climate change² Predation (bullfrogs, African clawed frogs, crayfish, non-native fish, Argentine ant, raccoons, striped skunk) Grazing² Recreation (OHVs, fishing, camping, waterplay)² Mining (sand, gravel and recreational gold mining)²
Bank swallow	<ul style="list-style-type: none"> Riparian community 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct resource areas Migration routes 	<ul style="list-style-type: none"> Suitable nesting habitat (vertical banks or bluffs susceptible to erosion of sufficient intensity to maintain a near-vertical aspect with exposure of bare soils; usually riverbanks but also roadcuts and gravel mines) Nearby food sources (flying insects) 	<ul style="list-style-type: none"> Habitat loss and/or degradation (nesting habitat due to bank stabilization such as rip-rap; bank undercutting due to boat wakes and rising water levels in lakes and reservoirs)²

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Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Bell's vireo	<ul style="list-style-type: none"> Riparian community 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct resource areas Migration routes 	<ul style="list-style-type: none"> Hydrology (surface and ground water) Geomorphology (e.g., sediment transport and deposition) Natural flood disturbance regimes 	<ul style="list-style-type: none"> Habitat loss and/or degradation² Hydrological and geomorphological alterations² Invasive plants (tamarisk, giant reed, pampas grass)² Grazing² Recreation (OHVs)² Climate change² Cowbird parasitism Predation (Argentine ants, domestic and feral cats and other mesopredators)
Elf owl	<ul style="list-style-type: none"> Scrub and Chaparral community Riparian community 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct resource areas Migration routes 	<ul style="list-style-type: none"> Hydrology/dense riparian habitat and honey mesquite bosque habitat Nest cavities excavated by woodpeckers (primarily acorn and Gila woodpeckers and flickers) 	<ul style="list-style-type: none"> Habitat loss and degradation (flooding of riparian and bosque habitat, clearing for agriculture or development bank stabilization)² Recreation (OHVs)² Invasive plants (tamarisk)² Competition (Loss of nesting cavities to European starlings)² Climate change²
Gila woodpecker	<ul style="list-style-type: none"> Scrub and Chaparral community Riparian community 	<ul style="list-style-type: none"> Restricted to Lower Colorado River and Brawley areas Capable of short-distance seasonal movements (non-migratory) Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Riparian woodlands, old growth xeric woodlands, and uplands with large, columnar cacti (e.g., giant saguaro) Hydrology 	<ul style="list-style-type: none"> Habitat loss and/or degradation (agriculture, urban, development, water diversions)² Competition (European starlings)² Invasive plants (tamarisk)² Wildfires² Climate change²

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Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Gilded flicker	<ul style="list-style-type: none"> Scrub and Chaparral community Riparian community Woodland community 	<ul style="list-style-type: none"> Restricted to lower Colorado River Sedentary and territorial (i.e., lack of even seasonal movement) Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Large columnar cacti (giant saguaro) and riparian woodlands Hydrology 	<ul style="list-style-type: none"> Habitat loss and/or degradation (agriculture, urban, flood control, groundwater pumping, and severe flooding due to water releases from dams)² Wildfire (riparian habitat)² Recreation (OHVs)² Grazing (livestock impacts to tree saplings)² Invasive plants² Climate change¹
Western yellow-billed cuckoo	<ul style="list-style-type: none"> Riparian community 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct nesting habitat Migration routes 	<ul style="list-style-type: none"> Large, contiguous blocks of dense riparian habitat Hydrology 	<ul style="list-style-type: none"> Nesting habitat loss and/or degradation (agriculture, urban)² Hydrological alteration (groundwater pumping)² Invasive plants (tamarisk)² Pesticides Collisions with windows Climate change (including decoupling of predator-prey relationships)²
Willow flycatcher	<ul style="list-style-type: none"> Riparian community 	<ul style="list-style-type: none"> Highly mobile/able to access disjunct nesting and foraging habitats Migration routes 	<ul style="list-style-type: none"> Hydrology (surface and ground water) 	<ul style="list-style-type: none"> Habitat loss and fragmentation² Altered hydrology and geomorphology (dams and reservoirs, water diversion and groundwater pumping, channelization, flood control)² Invasive plants (tamarisk, giant reed)² Wildfire² Grazing² Climate change² Cowbird parasitism

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Species	Natural Community ¹	Key Landscape Issues	Key Ecological Processes Issues	Known or Potential Environmental Stressors and Threats
Wetlands				
California black rail	<ul style="list-style-type: none"> Wetland community Riparian community 	<ul style="list-style-type: none"> Local habitat connectivity (including uplands and open water) between riparian marshes and wet meadows (movement by running or short distance swimming) Potential dispersal between disjunct habitat, but undocumented 	<ul style="list-style-type: none"> Marsh and wet meadow with surface water or high ground water levels and low daily water fluctuations 	<ul style="list-style-type: none"> Habitat loss and degradation (marsh habitat loss from control of seeps along irrigation canals)² Hydrological alteration (surface and subsurface hydrology, including daily fluctuations)² Climate change² Invasive plants (tamarisk)² Predation (non-native rats cats, and red fox)
Tricolored blackbird	<ul style="list-style-type: none"> Riparian community Wetland community Agriculture Grassland community 	<ul style="list-style-type: none"> Largely endemic to California, more than 90% of the population occurs in the state with more than 75% of the breeding population found in the Central Valley in any given year. 	<ul style="list-style-type: none"> Predation 	<ul style="list-style-type: none"> Loss and degradation of habitat as a result of human activities Agricultural expansion and operations (i.e., harvesting and plowing fields) Predation Poisons and contaminants
Yuma clapper rail	<ul style="list-style-type: none"> Riparian community Wetland community 	<ul style="list-style-type: none"> Primarily limited to Lower Colorado River and Salton Sea in DRECP Plan Area, with potential disjunct occurrences at Harper Dry Lake and Ash Meadows National Wildlife Refuge Sub-regional habitat connectivity Migration routes (?); migratory activity is unclear 	<ul style="list-style-type: none"> Hydrology (surface and ground water) Seasonal flooding/scouring Timing of prey availability (crayfish) 	<ul style="list-style-type: none"> Habitat loss and modification (damming, channelization, and bank stabilization)² Hydrological alteration (e.g., fluctuating water levels)² Mesopredators (e.g., raccoon) Contaminants (e.g., selenium)

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Table B-2. Summary of Conservation and Management Factors for DRECP Covered Species based on Natural Communities

Natural Community	Vegetation Types	Key Landscape Issues	Key Ecological Processes	Ecological Stressors	Associated Species
Dunes	<ul style="list-style-type: none"> North American warm desert dunes and sand flats 	<ul style="list-style-type: none"> Sub-regional habitat connectivity Local habitat connectivity 	<ul style="list-style-type: none"> Aeolian processes Accumulated sand microhabitat Stabilized or partially stabilized sand dunes Precipitation Pollination 	<ul style="list-style-type: none"> Sand transport alteration Grazing Recreation (OHVs and associated development, trampling) Invasive plants Climate change, hydrological alterations 	<ul style="list-style-type: none"> Algodones Dunes sunflower (Dune Group) Peirson's milk-vetch (Dune Group) Wiggin's croton (Dune Group) Pallid bat (Bats group) Mojave fringe-toed lizard (Dune Group) White-margined beardtongue (Desert Scrub and Chaparral Group) Sand food (Dune Group) Flat-tailed horned lizard (Desert Scrub and Chaparral Group)
Wetlands	<ul style="list-style-type: none"> Great Basin cool semi-desert alkali basin Open Water Southwestern North American salt basin and high marsh Arid west freshwater emergent marsh Western North American Freshwater Marsh 	<ul style="list-style-type: none"> Local habitat connectivity for residents Sub-regional habitat connectivity (stopover habitats for migrants and winter residents) 	<ul style="list-style-type: none"> Surface and ground water hydrology Daily and season water fluctuations Water quality 	<ul style="list-style-type: none"> Habitat loss and degradation Pesticides and organochlorines Climate change Invasive plants 	<ul style="list-style-type: none"> American peregrine falcon (Raptors Group) Bald eagle (Raptors Group) California black rail (Wetlands Group) Yuma clapper rail (Wetlands Group) Pallid bat (Bats group) Hoary bat (Bats group) Alkali mariposa-lily (Desert Scrub and Chaparral Group) Greater sandhill crane (Grassland and Agriculture Group) Tricolored blackbird (Wetlands Group) Desert pupfish (Fish Group) Mohave tui chub (Fish Group) Owens pupfish (Fish Group) Owens tui chub (Fish Group)

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Natural Community	Vegetation Types	Key Landscape Issues	Key Ecological Processes	Ecological Stressors	Associated Species
					<ul style="list-style-type: none"> Amargosa niterwort (Amargosa Endemics group) Amargosa vole (Amargosa Endemics group) Parish's alkali grass (Narrow Endemic Species Group) Sodaville milk-vetch (Narrow Endemic Species Group)
Riparian	<ul style="list-style-type: none"> Southwestern North American introduced riparian scrub Southwestern North American riparian evergreen and deciduous woodland Southwestern North American Riparian, Flooded and Swamp Forest/Scrubland Southwestern North American riparian/wash scrub 	<ul style="list-style-type: none"> Local habitat connectivity (within stream) Sub-regional habitat connectivity (stopover habitats for migrants and sub-regional dispersers) 	<ul style="list-style-type: none"> Surface and ground water hydrology Geomorphology and sediment transport (including banks habitats) Saturated soils (along creeks, swales, and intermittent creeks) Soil structure Natural flooding regimes Water quality Prey base and 	<ul style="list-style-type: none"> Habitat loss and degradation Hydrological and geomorphological alterations (dams (including beaver dams on Mojave River), channelization, diversions) Invasive plant species (tamarisk, giant reed, ice plant, pampas grass) Pesticides and contaminants (water quality and prey impacts) Climate change Grazing Recreation (OHVs, fishing, camping, waterplay) Mining (sand, gravel and recreational gold mining) 	<ul style="list-style-type: none"> Arroyo toad (Riparian Group) Bald eagle (Raptors Group) Bank swallow (Riparian Group) Bell's vireo (Riparian Group) California black rail (Wetlands Group) Elf owl (Riparian Group) Gila woodpecker (Riparian Group) Gilded flicker (Riparian Group) Inyo California towhee (Narrow Endemic Species Group) Mojave tarplant (Woodland Group) Owens Valley checkerbloom (Narrow Endemic Species Group) Swainson's hawk (Grassland and Agriculture Group) Tehachapi slender salamander (Woodland Group) Western yellow-billed cuckoo (Riparian Group) Willow flycatcher (Riparian Group) Yuma clapper rail (Wetlands Group) California leaf-nosed bat (Bats group)

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Natural Community	Vegetation Types	Key Landscape Issues	Key Ecological Processes	Ecological Stressors	Associated Species
			<ul style="list-style-type: none"> availability Nest cavities Old growth xeric woodlands Precipitation Pollination 	<ul style="list-style-type: none"> Competition for nest cavities Wildfire Meadow succession to uplands Competition with upland plants 	<ul style="list-style-type: none"> Pallid bat (Bats group) Townsend's big-eared bat (Bats group) Hoary bat (Bats group) Western red bat (Bats group) Bakersfield cactus (Woodland Group) Tricolored blackbird (Wetlands Group) Bighorn sheep (Wide-ranging Species Group)
Scrub and Chaparral	<ul style="list-style-type: none"> Arizonan upland Sonoran desert scrub California mesic chaparral California pre-montane chaparral California xeric chaparral Central and Southern Californian coastal sage scrub Intermontane seral shrubland Inter-Mountain Dry Shrubland and Grassland Inter-Mountain West mesic tall sagebrush shrubland and steppe Lower bajada and fan Mojavean-Sonoran 	<ul style="list-style-type: none"> Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Bare areas with little soil Soil conditions related to burrows and diggability Sandy soils on alluvial fans and basins Forage quality Precipitation Cactus stands (primarily large columnar cacti) 	<ul style="list-style-type: none"> Habitat loss and fragmentation Invasive plants Climate change Wildfire Fire suppression Flooding Grazing Trampling (wild horses, burros) Recreation (OHVs, vehicle parking) Other human activities (dumping, military activities) Competition for nest cavities Competition with other plants 	<ul style="list-style-type: none"> Ash Meadows gumplant (Amargosa Endemics group) Barstow woolly sunflower (Desert Scrub and Chaparral Group) California condor (Raptors Group) Desert tortoise (Wide-ranging Species Group) Desert cymopterus (Desert Scrub and Chaparral Group) Elf owl (Riparian Group) Gila woodpecker (Riparian Group) Gilded flicker (Riparian Group) Golden eagle (Raptors Group) Inyo California towhee (Narrow Endemic Species Group) Mohave ground squirrel (Wide-ranging Species Group) Mojave monkeyflower (Desert Scrub and Chaparral Group) Mojave tarplant (Woodland Group) Owens Valley checkerbloom (Narrow Endemic Species Group)

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	<ul style="list-style-type: none"> desert scrub Madrean Warm Semi-Desert Wash Woodland/Scrub Shadscale-saltbush cool semi-desert scrub Sonoran-Coloradan semi-desert wash woodland scrub Western Mojave and Western Sonoran Desert borderland chaparral 				<ul style="list-style-type: none"> Red Rock tarplant (Red Rock Endemics Group) Tracy's eriastrum (Woodland Group) Triple-ribbed milk-vetch (Desert Scrub and Chaparral Group) Western burrowing owl (Wide-ranging Species Group) California leaf-nosed bat (Bats group) Pallid bat (Bats group) Townsend's big-eared bat (Bats group) Western mastiff bat (Bats group) Hoary bat (Bats group) Western red bat (Bats group) Alkali mariposa-lily (Desert Scrub and Chaparral Group) Little San Bernardino Mtns. Linanthus (Desert Scrub and Chaparral Group) Mojave fringe-toed lizard (Dune Group) Orocopia sage (Desert Scrub and Chaparral Group) Parish's phacelia (Desert Scrub and Chaparral Group) White-margined beardtongue (Desert Scrub and Chaparral Group) Sand food (Dune Group) Kelso Creek monkeyflower (Narrow Endemic Species) Kern buckwheat (Narrow Endemic Species) Bakersfield cactus (Woodland Group)

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					<ul style="list-style-type: none"> Charlotte's phacelia (Woodland Group) Coast horned lizard (Woodland Group) White-tailed kite (Grassland and Agriculture Group) Red Rock poppy (Red Rock Endemics Group) Amargosa beardtongue (Amargosa Endemics group) Cushenbury buckwheat (Carbonate Plants group) Cushenbury milk-vetch (Carbonate Plants group) Cushenbury oxytheca (Carbonate Plants group) Parish's daisy (Carbonate Plants group) Flat-tailed horned lizard (Desert Scrub and Chaparral Group) Bighorn sheep (Wide-ranging Species Group) Lane Mountain milk-vetch (Narrow Endemic Species Group)
Grasslands/ Other Herbaceous Communities	<ul style="list-style-type: none"> California Annual and Perennial Grassland Mediterranean California naturalized annual & perennial grassland Southern Great Basin semi-desert grassland 	<ul style="list-style-type: none"> Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Soil integrity (texture, openness, burrows) 	<ul style="list-style-type: none"> Habitat loss and fragmentation Climate change Invasive plants Wildfire Grazing Trampling (wild horses) Recreation (OHVs) Other human activities (dumping) 	<ul style="list-style-type: none"> Ash meadows gumplant (Amargosa Endemics group) Barstow woolly sunflower (Desert Scrub and Chaparral Group) California condor (Raptors Group) Desert tortoise (Wide-ranging Species Group) Golden eagle (Raptors Group) Mountain plover (Grassland and Agriculture Group) Swainson's hawk (Grassland and Agriculture

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				<ul style="list-style-type: none"> Pesticides and contaminants 	<ul style="list-style-type: none"> Group) Western burrowing owl (Wide-ranging Species Group) Pallid bat (Bats group) Western mastiff bat (Bats group) Bakersfield cactus (Woodland Group) Coast horned lizard (Woodland Group) Tehachapi pocket mouse (Woodland Group) White-tailed kite (Grassland and Agriculture Group) Tricolored blackbird (Wetlands Group) Bighorn sheep (Wide-ranging Species Group)
Rocky, Barren and Unvegetated	<ul style="list-style-type: none"> California Cliff, Scree, and Other Rock Vegetation Desert Playa North American warm desert bedrock cliff and outcrop Sierra Nevada cliff and canyon 	<ul style="list-style-type: none"> Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Soil integrity (texture, openness) 	<ul style="list-style-type: none"> Habitat loss and fragmentation Climate change Invasive species Wildfire Recreation (OHVs) Mining Grazing Other human activities (dumping) 	<ul style="list-style-type: none"> Ash meadows gumplant (Amargosa Endemics group) Barstow woolly sunflower (Desert Scrub and Chaparral Group) California condor (Raptors Group) Desert cymopterus (Desert Scrub and Chaparral Group) Golden eagle (Raptors Group) Mohave ground squirrel (Wide-ranging Species Group) Mojave monkeyflower (Desert Scrub and Chaparral Group) Owens Valley checkerbloom (Narrow Endemic Species Group) Western burrowing owl (Wide-ranging Species Group)

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					<ul style="list-style-type: none"> Pallid bat (Bats group) Western mastiff bat (Bats group) Barefoot gecko (Narrow Endemic Species Group)
Forest	<ul style="list-style-type: none"> California montane conifer forest 	<ul style="list-style-type: none"> Seasonal migration 	<ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Logging 	<ul style="list-style-type: none"> Bald eagle (Raptors Group) Golden eagle (Raptors Group) Pallid bat (Bats group) Townsend's big-eared bat (Bats group) Western mastiff bat (Bats group) Hoary bat (Bats group) Western red bat (Bats group) San Bernardino Mountains dudleya (Carbonate Plants group) Piute Mountains jewel-flower (Narrow Endemic Species Group) Coast horned lizard (Woodland Group) White-tailed kite (Grassland and Agriculture Group) Bighorn sheep (Wide-ranging Species Group)
Woodland	<ul style="list-style-type: none"> California broadleaf forest and woodland California Forest and Woodland California montane conifer forest Rocky Mountain mesic subalpine forest and woodland 	<ul style="list-style-type: none"> Sub-regional habitat connectivity 	<ul style="list-style-type: none"> Precipitation Hydrology 	<ul style="list-style-type: none"> Logging Habitat loss and degradation Wildfire Recreation (OHVs) Grazing Invasive plants Climate change 	<ul style="list-style-type: none"> Bald eagle (Raptors Group) Gilded flicker (Riparian Group) Golden eagle (Raptors Group) Owens Valley checkerbloom (Narrow Endemic Species Group) Tehachapi slender salamander (Woodland Group) Thorne's buckwheat (Narrow Endemic Species)

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Natural Community	Vegetation Types	Key Landscape Issues	Key Ecological Processes	Ecological Stressors	Associated Species
	<ul style="list-style-type: none"> Western Great Basin montane conifer woodland 			<ul style="list-style-type: none"> Competition with other plants 	<ul style="list-style-type: none"> Group) Tracy's eriastrum (Woodland Group) Pallid bat (Bats group) Townsend's big-eared bat (Bats group) Western mastiff bat (Bats group) Hoary bat (Bats group) Western red bat (Bats group) San Bernardino Mountains dudleya (Carbonate Plants group) Kelso Creek monkeyflower (Narrow Endemic Species) Kern buckwheat (Narrow Endemic Species) Piute Mountains jewel-flower (Narrow Endemic Species Group) Bakersfield cactus (Woodland Group) Charlotte's phacelia (Woodland Group) Coast horned lizard (Woodland Group) Spanish Needle onion (Woodland Group) Tehachapi pocket mouse (Woodland Group) White-tailed kite (Grassland and Agriculture Group) Amargosa beardtongue (Amargosa Endemics group) Cushenbury buckwheat (Carbonate Plants group) Cushenbury milk-vetch (Carbonate Plants group) Cushenbury oxytheca (Carbonate Plants group)

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Natural Community	Vegetation Types	Key Landscape Issues	Key Ecological Processes	Ecological Stressors	Associated Species
					<ul style="list-style-type: none"> Parish's daisy (Carbonate Plants group) Bighorn sheep (Wide-ranging Species Group)
Agriculture	<ul style="list-style-type: none"> Agriculture 		<ul style="list-style-type: none"> Hydrology/irrigation Prey availability 	<ul style="list-style-type: none"> Pesticides and other contaminants Reduced prey availability 	<ul style="list-style-type: none"> Mountain plover (Grassland and Agriculture Group) Swainson's hawk (Grassland and Agriculture Group) Western burrowing owl (Wide-ranging Species Group) Pallid bat (Bats group) Western mastiff bat (Bats group) Greater sandhill crane (Grassland and Agriculture Group) White-tailed kite (Grassland and Agriculture Group) Tricolored blackbird (Wetlands Group)

Appendix C
Conservation Planning (“Stressor”) Diagrams

[Note to Reader: The conservation planning (“stressor”) diagrams were part of a process to formulate the Plan-wide Biological Goals and Objectives (BGOs), and only one of several components was used to inform the landscape, natural community, and species level BGOs. Since their completion, the BGOs have continued to develop and, therefore, the diagrams herein may not correspond to the BGOs presented in this memo.]

Comment [SD165]: Defenders: The individual diagrams were not reviewed due to the fact that they appear incomplete at this time.

Comment [SD166]: Defenders: Please clarify what how these stressor diagrams were used and how they fit into the overall framework for the BGOs. Please also specify when these stressor diagrams will be finalized and linked to the BGOs.

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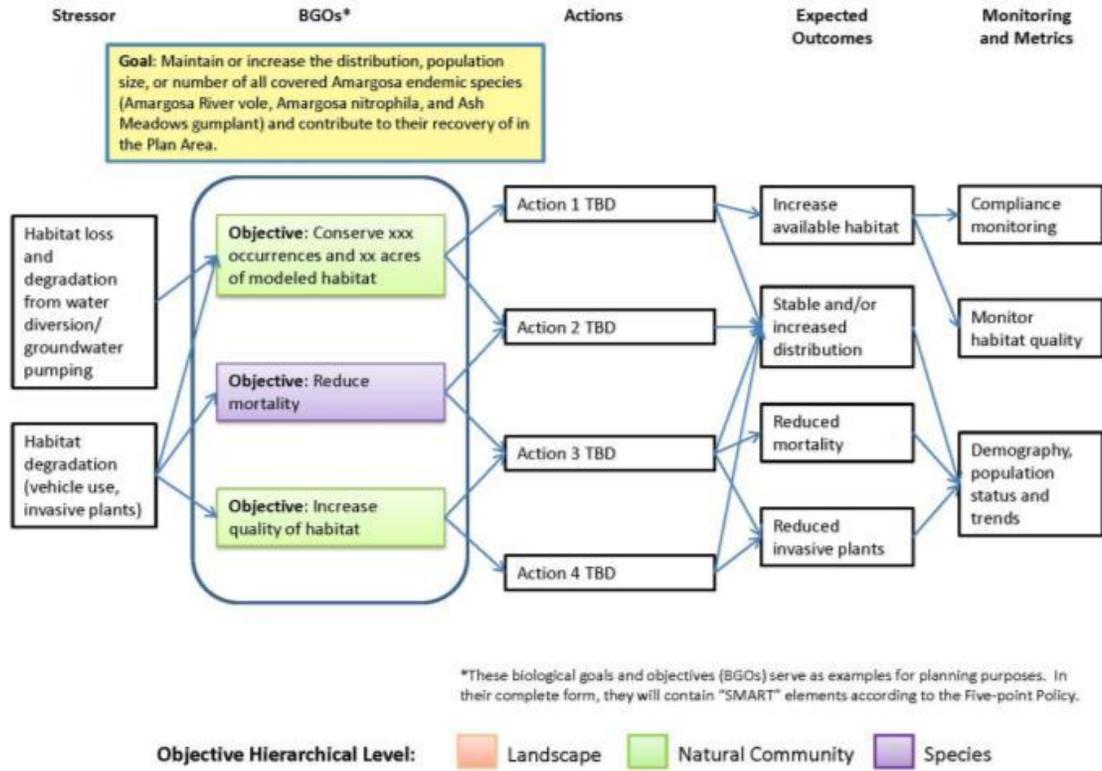


Figure C-1. Conservation Planning Diagram for Amargosa Endemics (for Illustrative Purposes)

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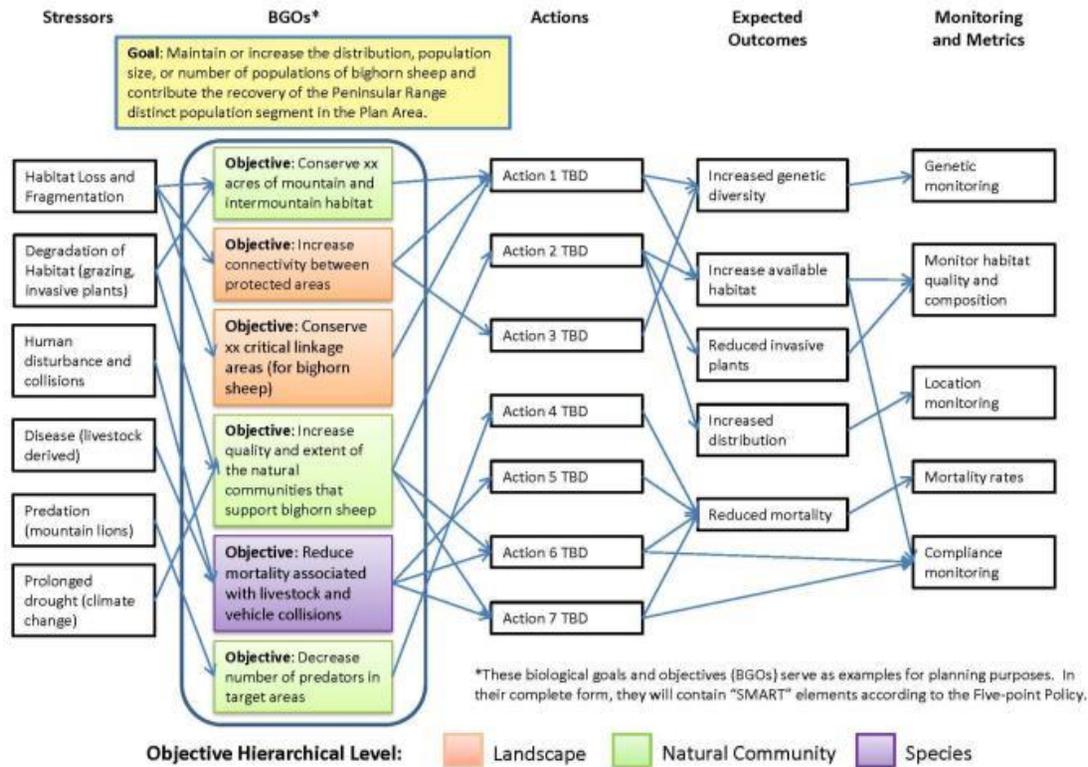


Figure C-2. Conservation Planning Diagram for Bighorn Sheep (for Illustrative Purposes)

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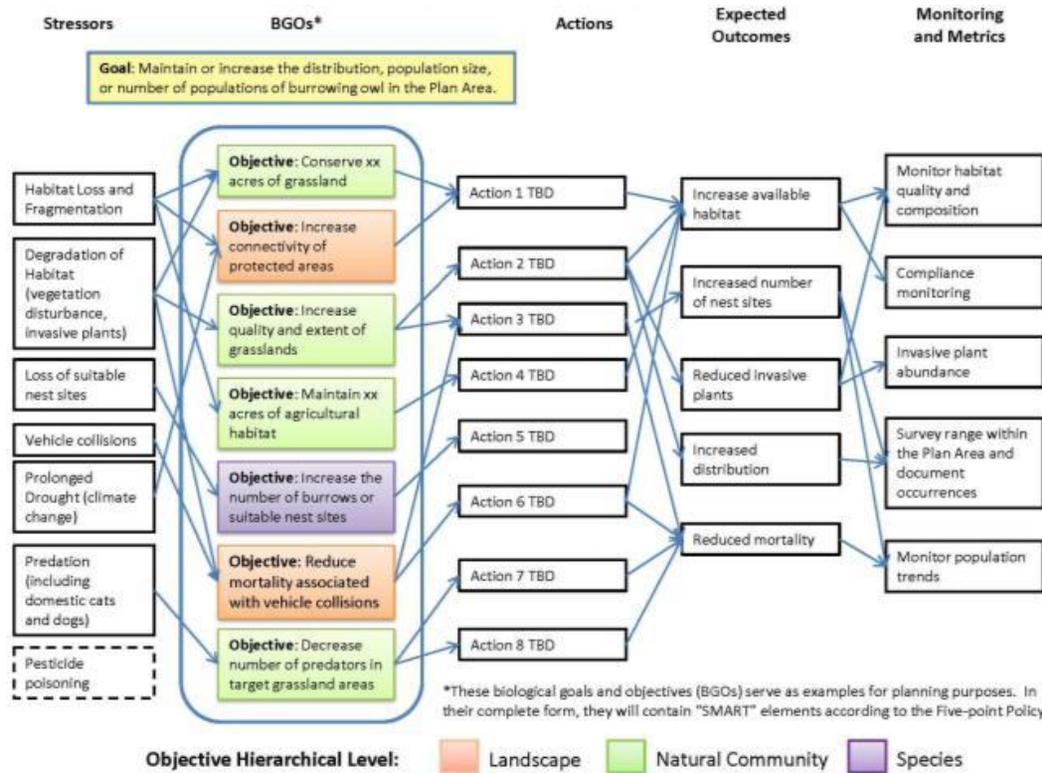


Figure C-3. Conservation Planning Diagram for Burrowing Owl (for Illustrative Purposes)

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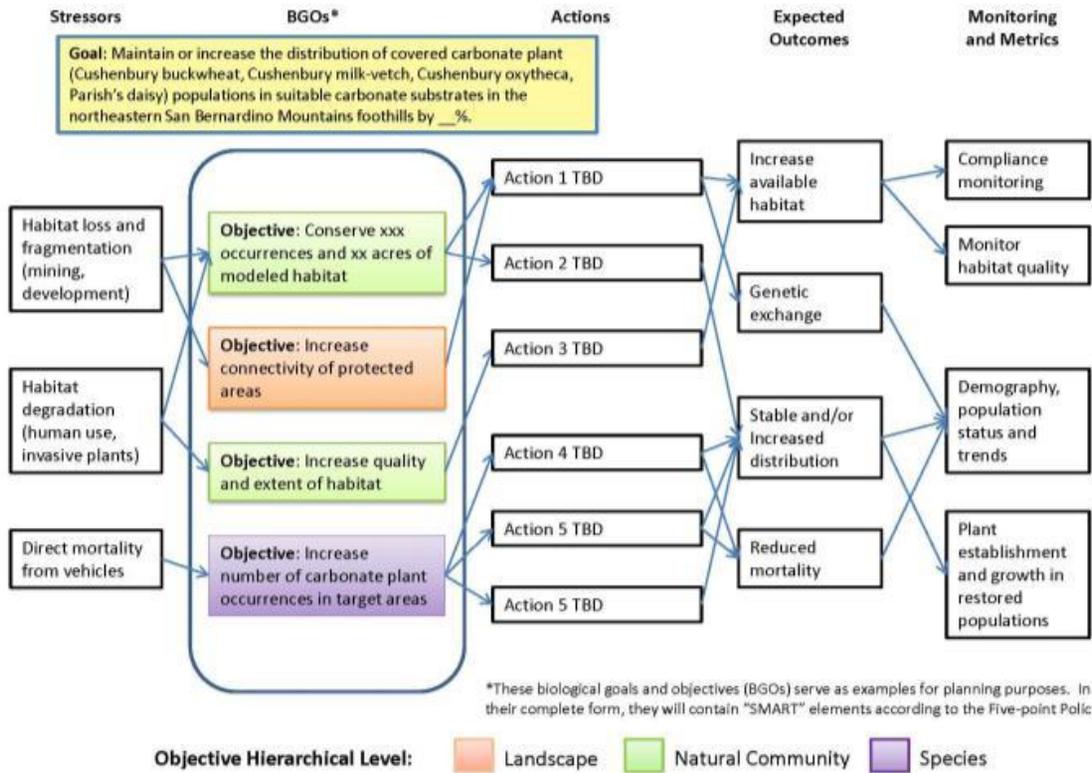


Figure C-4. Conservation Planning Diagram for Carbonate Plants (for Illustrative Purposes)

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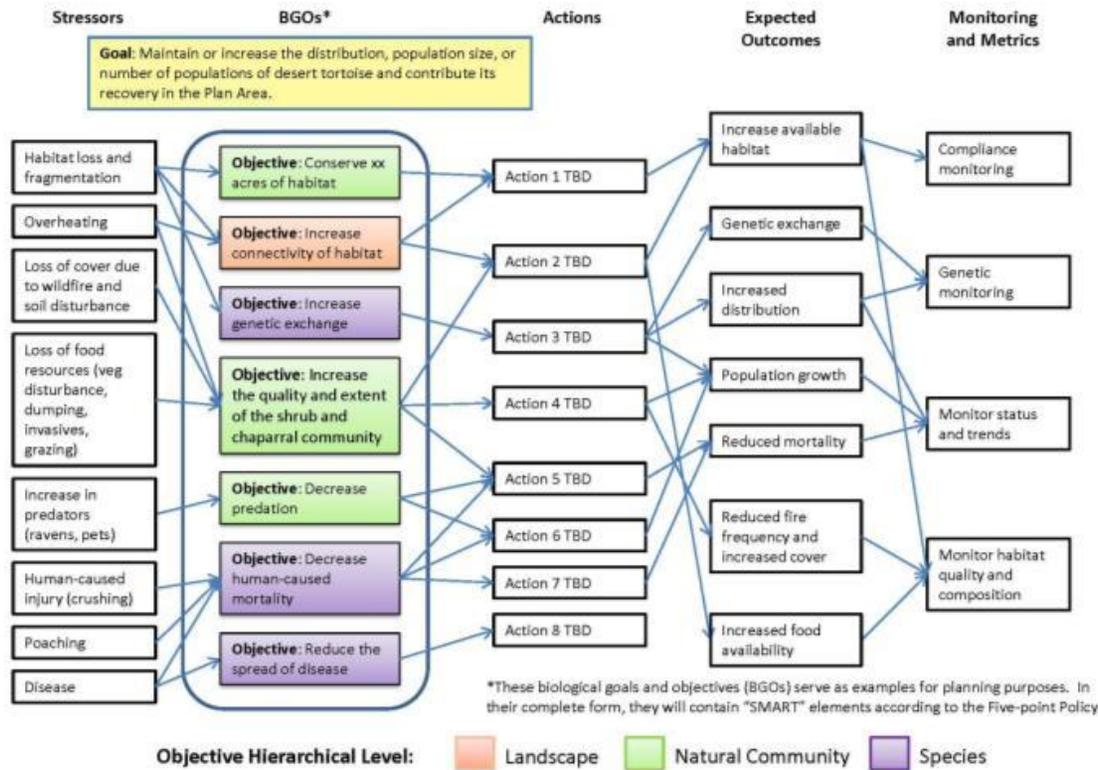


Figure C-5. Conservation Planning Diagram for Desert Tortoise (for Illustrative Purposes)

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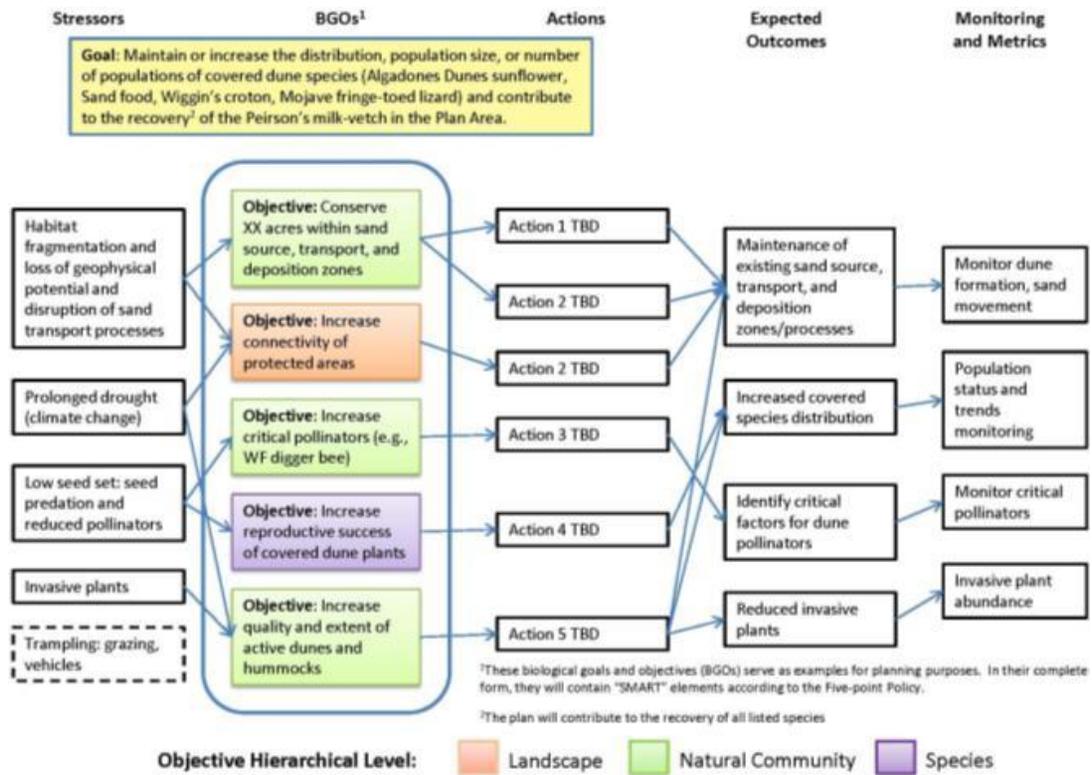


Figure C-6. Conservation Planning Diagram for Dune Community Associated Species (for Illustrative Purposes)

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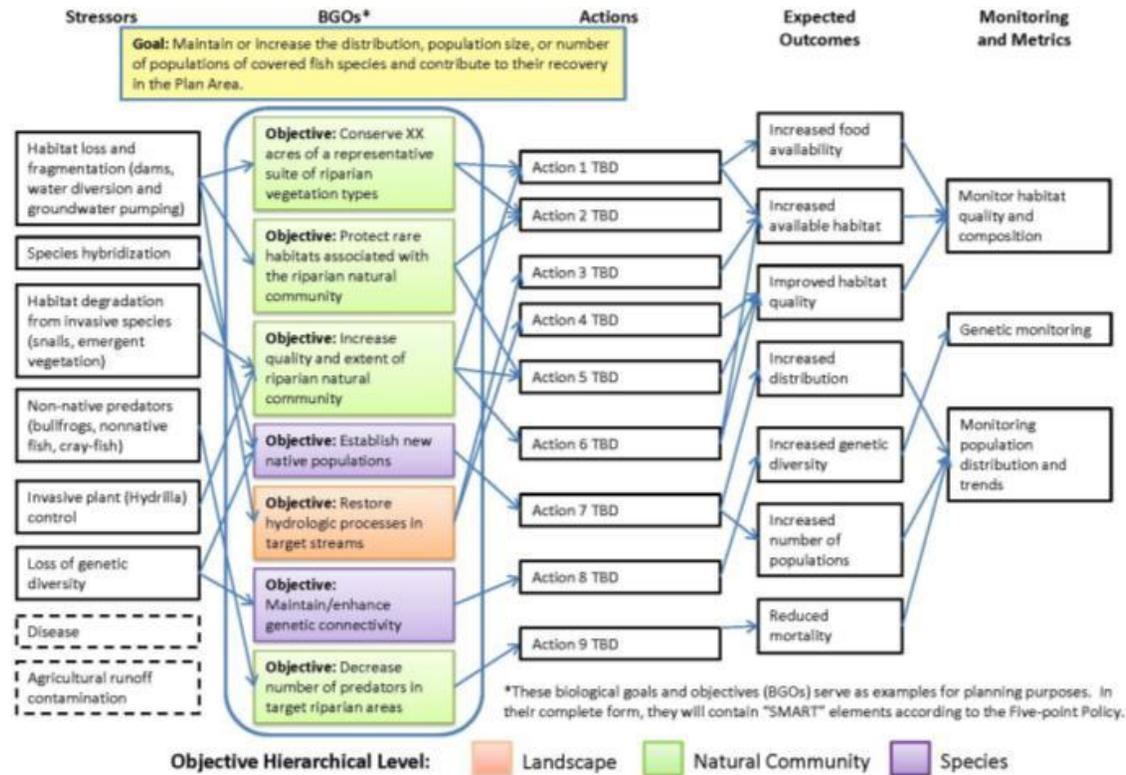


Figure C-7. Conservation Planning Diagram for Fish Species (for Illustrative Purposes)

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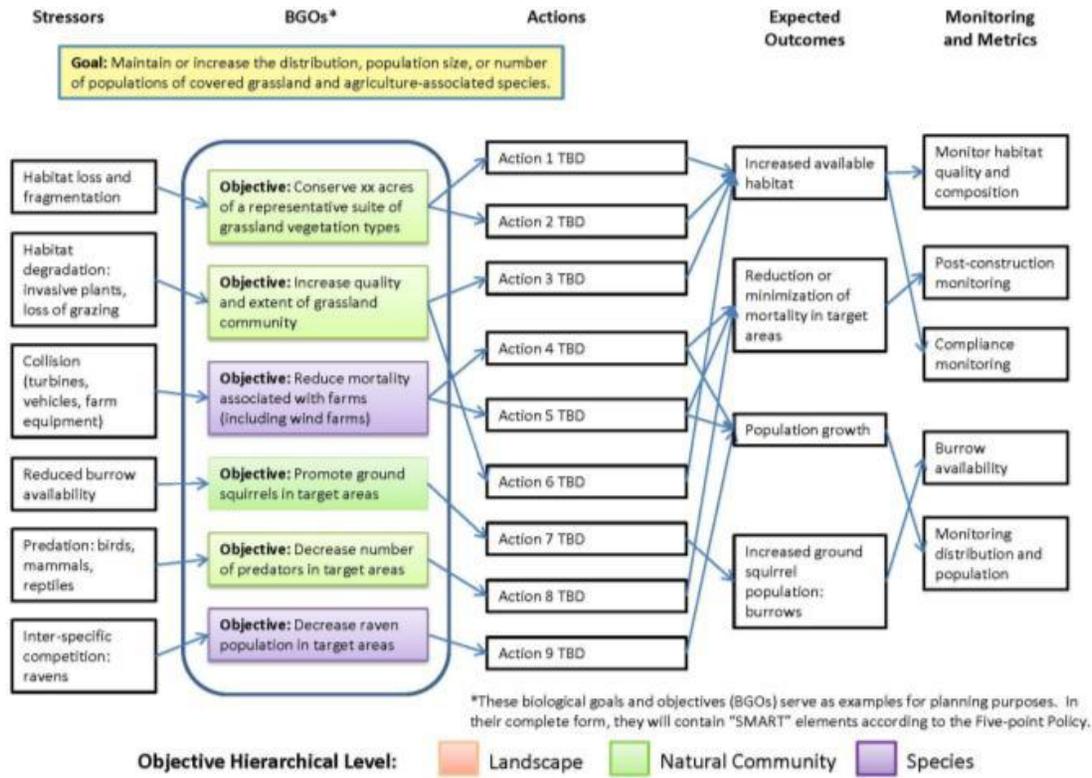


Figure C-8. Conservation Planning Diagram for Grassland and Agricultural Species (for Illustrative Purposes)

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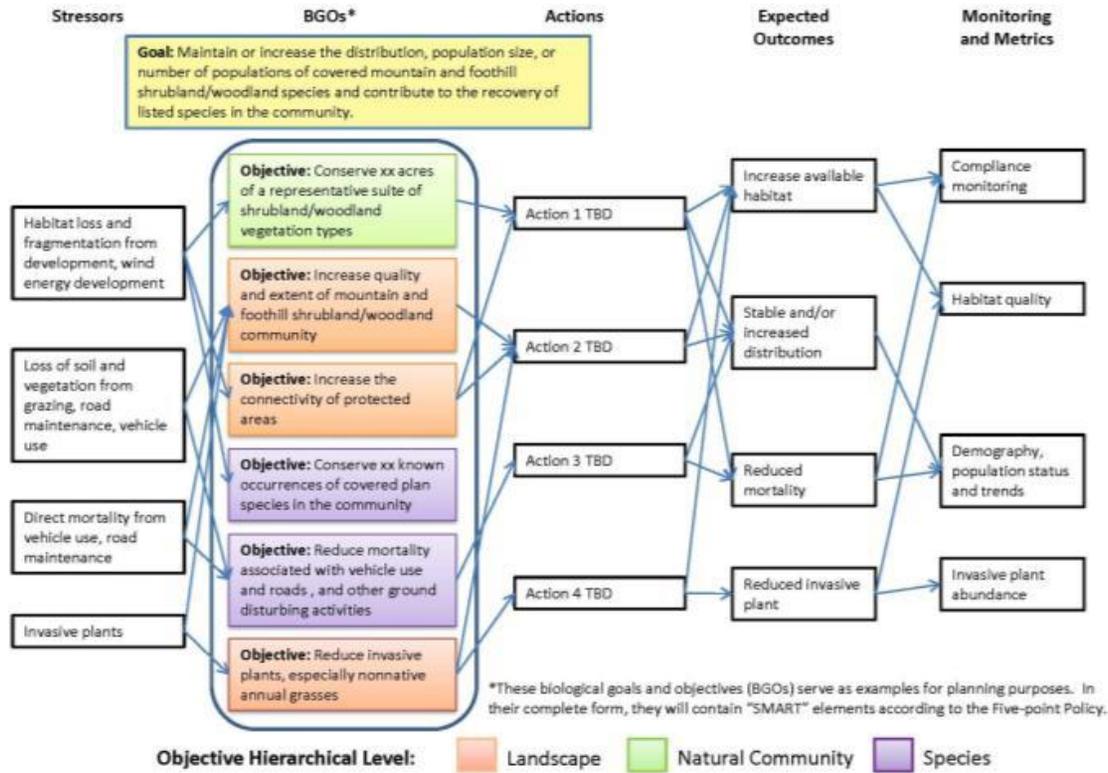


Figure C-9. Conservation Planning Diagram for Woodland Species (for Illustrative Purposes)

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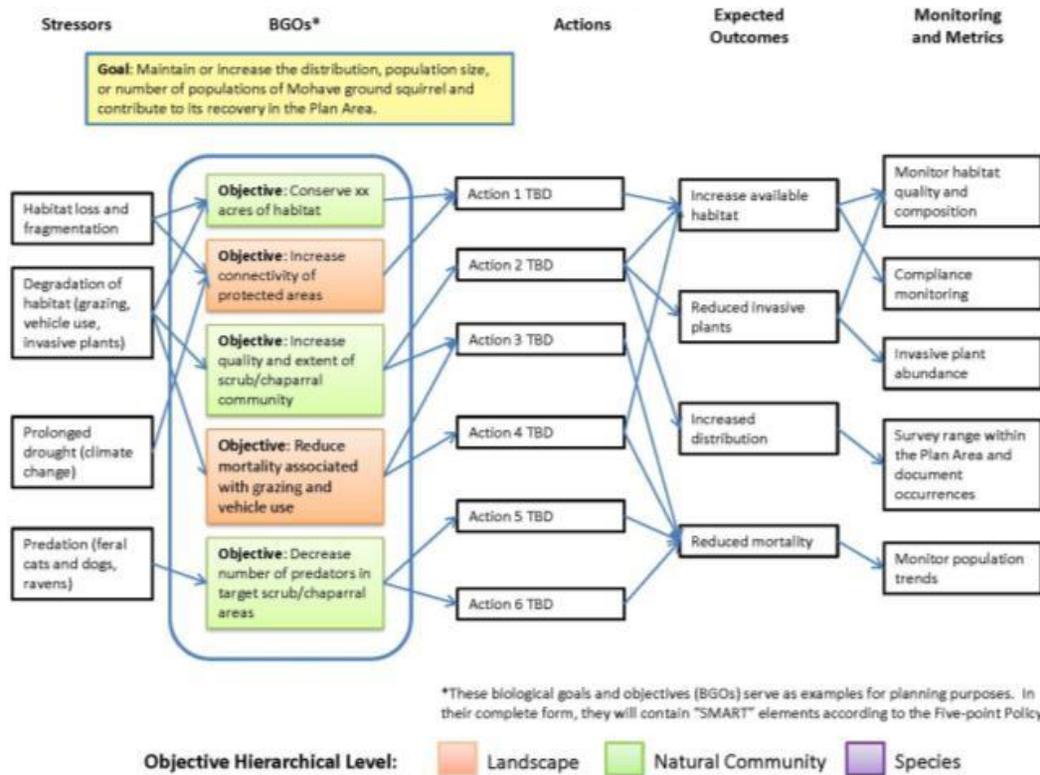


Figure C-10. Conservation Planning Diagram for Mohave Ground Squirrel (for Illustrative Purposes)

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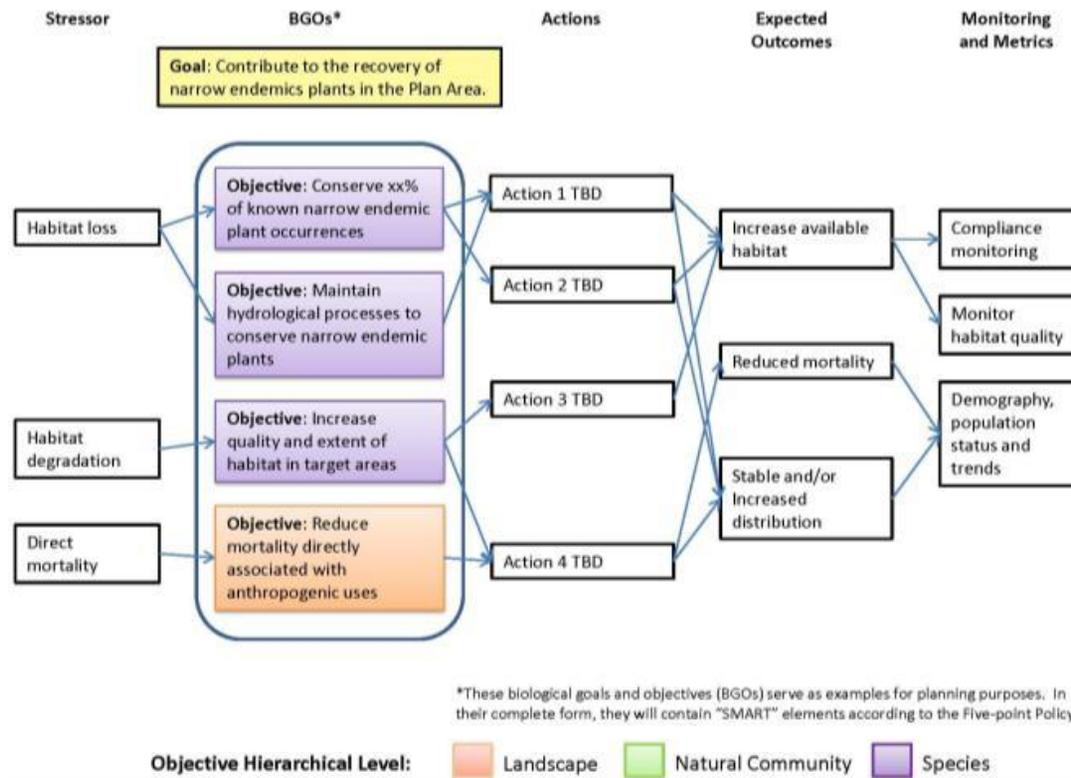


Figure C-11. Conservation Planning Diagram for Narrow Endemic Plants (for Illustrative Purposes)

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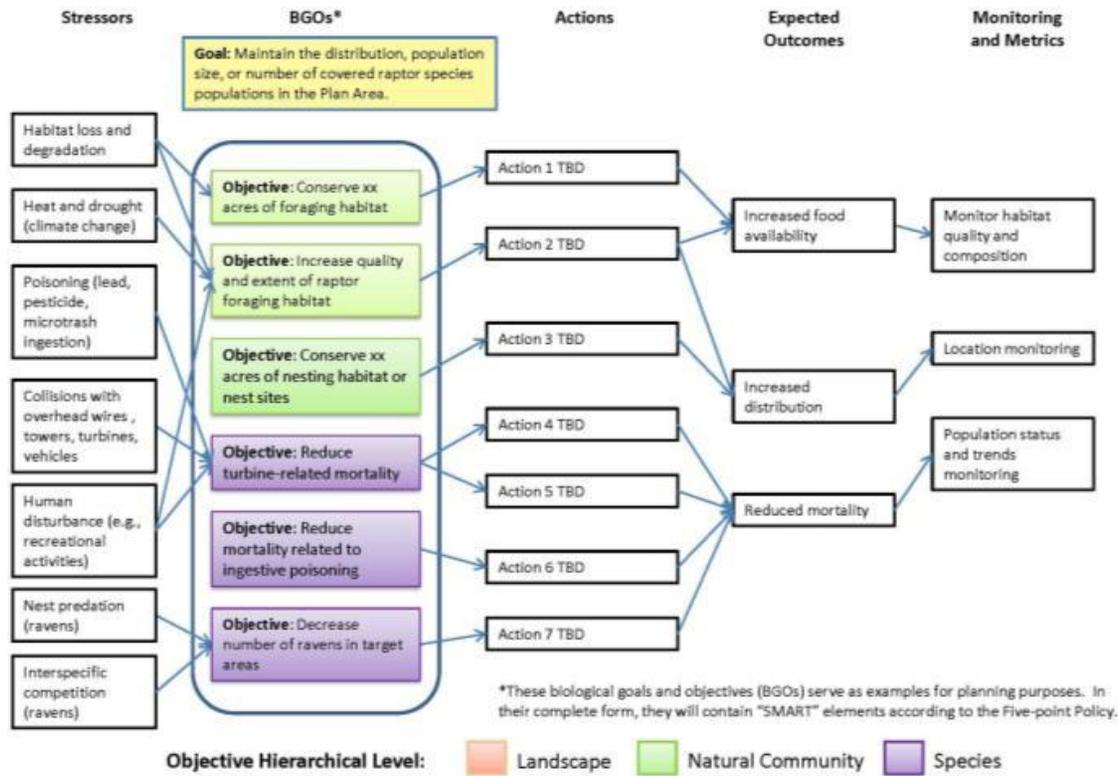


Figure C-12. Conservation Planning Diagram for Raptors (for Illustrative Purposes)

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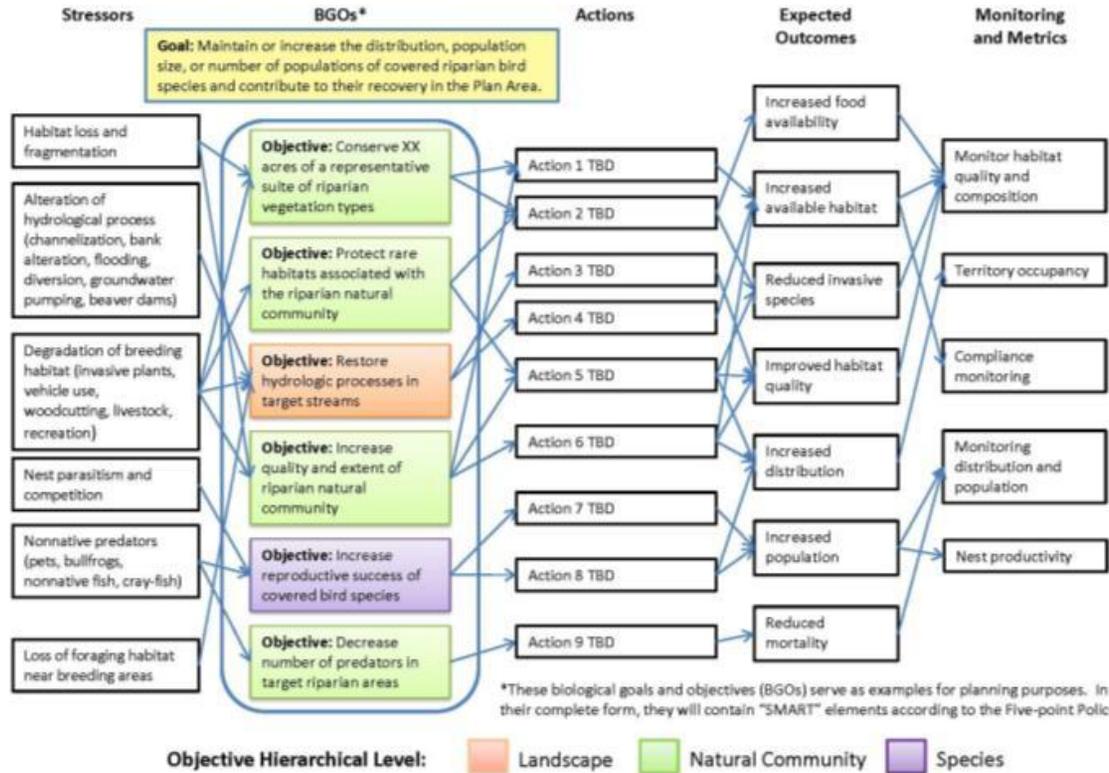


Figure C-13. Conservation Planning Diagram for Riparian Species (for Illustrative Purposes)

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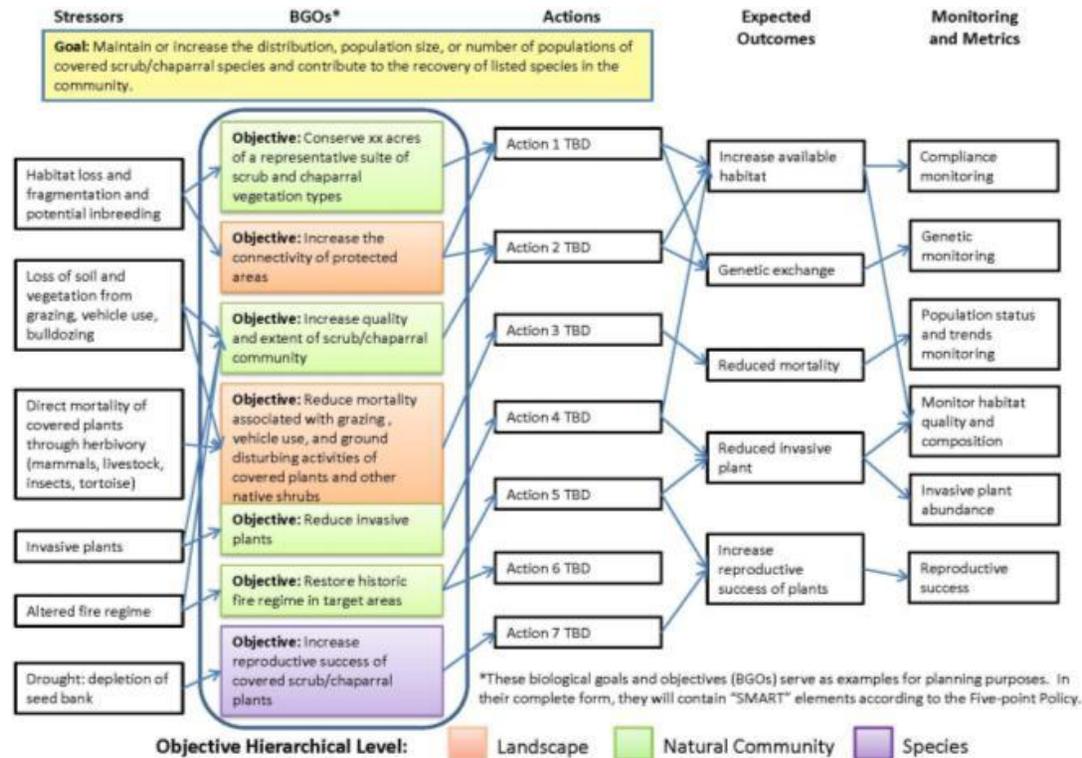


Figure C-14. Conservation Planning Diagram for Scrub and Chaparral Species (for Illustrative Purposes)

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Appendix D

Example Species Goals Summaries

[Note to reader: When the Plan-wide Biological Goals and Objectives are finalized the Species Goal Summaries will cross-reference to the specific numbers of Landscape, Natural Community, and Species Goals and Objectives.]

Comment [SD167]: Defenders: In general, these goal summaries use very vague language. Goals should be clear, explicit and defensible.

Comment [SD168]: Defenders: There should be cross-referencing between the Species goal summaries, the stressor diagrams and the Table presented in Appendix B.

Burrowing Owl

The DRECP will benefit the burrowing owl by protecting and enhancing its habitat throughout the Plan Area, promoting key ecological factors, including burrow availability, and removing stressors to the extent feasible. Burrowing owls occur across most of the Mojave and Sonoran deserts of Inyo, eastern Kern, northern Los Angeles, San Bernardino, eastern Riverside, eastern San Diego, and Imperial counties (Miller 2007, references therein). The species reaches peak abundance in agricultural areas in the Imperial Valley where the banks of irrigation ditches and roadsides provide suitable nesting sites and adjacent fields provide abundant invertebrate prey. Generally, habitat characteristics for burrowing owls include open, well-drained terrain; short, sparse vegetation generally lacking trees; and underground burrows or burrow-like structures (e.g., pipe openings) (Gervais et al. 2008; Klute et al. 2003). In California, western burrowing owls most commonly live in burrows created by ground squirrels (*Spermophilis* spp.) and other fossorial species (Gervais et al. 2008).

Comment [SD169]: Defenders: Where is this reference cited (and the others in this document)?

The most immediate threats to western burrowing owl are the conversion of grassland and agricultural lands to development (Gervais et al. 2008; Wilkerson and Siegel 2010). The spread of non-native plants and alteration of flood patterns through flood control, erosion, and other surface disturbance also reduce the amount of available habitat (Bureau of Land Management 2005). The decline of fossorial species across much of the owl's historical range (Gervais et al. 2008) has decreased the amount of suitable burrows, limiting the extent of year-round habitat throughout the burrowing owls' range (Haug et al. 1993). Vehicular collisions also pose a prominent threat of direct mortality to the species (Haug et al. 1993). The DRECP will protect the grassland community as part of a reserve system and preserve critical linkages that promote genetic exchange. A representative suite of grassland community vegetation types will be protected, as well as agricultural habitat used by burrowing owl. The DRECP will increase the quality and extent of the grassland natural community (GC1.2) and increase the number of underground burrows in target grassland areas, thereby enhancing habitat for the burrowing owl. Impacts from predation will be reduced in target areas.

In addition raptor and species-specific goals and objectives were developed to conserve additional burrowing owl habitat, increase burrowing owl viability by reducing mortality from vehicle traffic in

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occupied areas or suitable habitat, minimize, wind turbine-related mortality, and eliminate rodenticides in target grassland areas.

Desert Tortoise

The DRECP will benefit the desert tortoise by acquisition and protection of its habitat and habitat connections, striving to control the spread of disease and opportunistic predators (e.g., common raven), and enhancing its habitat through a reduction in anthropogenic impacts, invasive species, and public education. The desert tortoise occurs throughout the Plan Area on alluvial fans, washes, canyons, and saltbush plains, with lower densities in areas with highest temperatures and lowest precipitation. Desert tortoises are usually associated with creosote bush (*Larrea tridentata*) scrub (U.S. Fish and Wildlife Service 2008a), but they can also be found in saltbush scrub (*Atriplex spp.*) (Stewart 1991). Tortoises generally prefer *Larrea* habitat with high diversity of perennial species and high production of herbaceous ephemeral plants, which comprise their primary diet (Esque 1994; Jennings 1997; Avery 1998). Threats to the desert tortoise include habitat loss, fragmentation and degradation from human activities; predation, disease, off-highway vehicle use; and invasive species (Boarman 2002).

The DRECP will protect the scrub community as part of a reserve system and will promote natural community ecological processes that are important for the persistence of the desert tortoise, including non-native plant invasions resulting from air pollution and altered fire regimes. The DRECP will also protect and enhance the scrub/chaparral community, which provides habitat for desert tortoise.

In addition species-specific goals and objectives were developed to conserve additional desert tortoise habitat, reduce disease, reduce predation, decrease human-caused mortality, increase burrow availability, and contribute to public education on tortoise conservation issues.

Mohave Ground Squirrel

The DRECP will benefit the Mohave ground squirrel by protecting and enhancing its habitat throughout its range within the Plan Area, promoting key ecological factors, and removing stressors to the extent feasible. The Mohave ground squirrel is exclusively found in the northwestern Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo counties. It primarily occurs in creosote bush scrub, but also desert saltbush scrub, desert sink scrub, desert greasewood scrub, shadscale scrub, and Joshua tree woodland. Threats and environmental stressors include habitat loss, fragmentation, and degradation from urban, rural, agricultural, transportation, and energy development; military activities; and off-highway vehicle use. It is also vulnerable to predation from cats, dogs, and ravens and poisoning from rodenticides and other pesticides.

Comment [JA170]: Defenders: Should this be its occupied range? It is unrealistic to include restoring habitat in areas within its historic range due to land ownership and land uses which include agriculture, urban, industrial and transportation developments.

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The DRECP will protect the scrub and chaparral community as part of a reserve system and will reduce non-native plant invasions resulting from air pollution and altered fire regimes. The DRECP will increase the quality and extent of the scrub and chaparral natural community and will maintain landscape habitat connectivity overall and between core areas and their linkages.

In addition species-specific goals and objectives were developed to conserve additional Mohave ground squirrel habitat in undisturbed areas within its historic range and around population centers, decrease rodenticides relative to baseline conditions, and increase the quality and extent of habitat in core linkage areas.

Bighorn Sheep

The DRECP will benefit bighorn sheep by protecting and enhancing its habitat throughout the Plan Area, promoting key ecological factors, and removing stressors to the extent feasible. The Nelson's bighorn sheep subspecies occurs in the desert mountain ranges from the White Mountains in Mono and Inyo counties, south to the San Bernardino Mountains, then southeast to Mexico. An isolated population of Nelson's bighorn sheep occurs in the San Gabriel Mountains. The Peninsular bighorn sheep distinct population segment (DPS) generally occurs in the Peninsular Ranges from the San Jacinto and Santa Rosa ranges south into Mexico. Bighorn sheep prefer areas on or near mountainous terrain that are visually open, as well as steep and rocky. Steep, rugged terrain is used for escape and lambing. Alluvial fans and washes in flatter terrain are also used for forage and water and as connectivity habitat (i.e., intermountain habitat) between more rugged areas. Bighorn sheep area associated with several vegetation communities in the Plan Area, including scrub and chaparral, pinyon-juniper woodland, palm oasis, and desert and montane riparian. Bighorn sheep are threatened by loss and fragmentation of important habitats (e.g., lambing and feeding areas, escape terrain, water, travel, and dispersal routes), disease (mostly livestock derived), predation, drought, potential resource competition, and negative interactions with humans and pets.

The DRECP will conserve the mountain and intermountain habitats and a mosaic of scrub and chaparral, riparian, and wetland communities that essential to the persistence of bighorn sheep in the Plan Area. Vegetation communities supporting different life history needs will also be enhanced, including riparian and wetland communities that support lambing and drinking sources and scrub and chaparral communities that provide forage and cover. Also, the DRECP will maintain landscape habitat connectivity overall.

In addition species-specific goals and objectives were developed to conserve additional bighorn sheep habitat, including intermountain areas to create a landscape-scale reserve system for the bighorn sheep metapopulation (including Nelson's and Peninsular DPS), protect critical corridors and crossing points to maintain habitat connectivity, maintain or enhance access to water sources, and increase the number of subpopulations by restoring bighorn sheep to suitable habitat.

Comment [JA171]: Defenders: We have repeatedly commented that the "core area" concept is a hypothesis that has not been completed or tested through adequate field surveys. We strongly recommend that the MGS occurrence records from BLM and other studies from 1974 through present should be used to delineate the occupied habitat and identify linkages based on topographic features and soils. The USGS habitat model needs to be used to identify habitat suitability throughout the known occupied range and especially throughout the BLM's MGS Habitat Management Plan area.

Comment [JA172]: How much of its mountain and intermountain habitat is protected in designated wilderness.

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Mojave Fringe-Toed Lizard

The DRECP will benefit the Mojave fringe-toed lizard by protecting and enhancing its habitat throughout the Plan Area, promoting key ecological factors, and removing stressors to the extent feasible. The Mojave fringe-toed lizard is endemic to the Mojave and Sonoran deserts of Southern California and western Arizona and is restricted to deposits of loose sand. This species is currently associated with named and unnamed sand dune systems within the three major river drainages in the Plan Area: the Amargosa, Mojave, and Colorado rivers. Threats and environmental stressors include loss or degradation of habitat (including invasive plant species), disruption of aeolian sand stabilization and/or transport processes, off-road vehicle use, and predation.

The DRECP will protect the dune community as part of a reserve system and promote ecological processes essential to the persistence of Mojave fringe-toed lizard habitat in the Plan Area. Specifically, active and stabilized dunes, including transitional areas, deposition zones, and source features will be protected within the 16 major sand dune systems and other potential sand source, transport, and deposition features, including dry lakes, that are associated with smaller fringing dunes and accumulated sand habitat formation. The DRECP will enhance vegetation within these major dune systems as applicable, and protect processes that create loose, wind-blown sands thereby enhancing habitat for the Mojave fringe-toed lizard. Impacts from predation will be reduced in target areas. Collectively, these actions will maintain or increase the distribution, population size, or number of populations of Mojave fringe-toed lizard in the Plan Area.

Attachment 2

BLM Land Use Plans Containing Biological Goals and Objectives for Public Lands in the California Desert Conservation Area

1. California Desert Conservation Area Plan, as amended.

The CDCA Plan contains a multi-tiered management framework consisting of 1) Multiple Use Classes, 2) Resource Elements, and 3) Designated areas for resource-specific management actions. Refer to specific components of the plan for goals and objectives for biological resources, as follows:

- A. Multiple Use Classes and Management Guidelines. CDCA Plan, Table 1, pp. 15-20.
- B. Wildlife Element. CDCA Plan, pp. 30-32, plus maps and tables. Note that the two primary tools in achieving the goals and objectives in the Wildlife Element are 1) Areas of Critical Environmental Concern, and 2) Habitat Management Plans. Secondary tools include 1) Special Areas, 2) Research Natural Areas and 3) Sikes Act Agreements – cooperative management with the California Department of Fish and Game for specific plans.
- C. Vegetation Element. CDCA Plan, pp. 41-48, plus maps and tables. This element contains biological goals and objectives for special status species of plants, Unusual Plant Assemblages and Wetland/Riparian areas. Also see CDCA Plan, Appendix X – Vegetation including Unusual Plant Assemblages.

2. West Mojave Plan – Final Environmental Impact Report and Statement: A Habitat Conservation Plan and California Desert Conservation Area Plan Amendment. 2005.

Alternative B of the West Mojave Plan was adopted as an amendment to the CDCA Plan by the BLM in 2006. For biological goals and objectives under Alternative B (Public Lands), plus conservation measures, see Chapter 2, pages 203-205. Please note that Alternative B also includes all the elements of Alternative A that are applicable on public lands. See Chapter 2, pages 9-197, for biological goals and objectives and conservation measures of Alternative A. See the Record of Decision for the approved alternative.

3. Northern and Eastern Colorado Coordinated Management Plan (NECO). 2002.

The NECO Plan was approved by BLM in 2002 and amended the CDCA Plan. See Chapters 2.1, 2.2, and 2.3 for goals and objectives pertaining to biological resources and the Record of Decision for the approved alternative.

4. Northern and Eastern Mojave Management Plan (NEMO). 2002.

The NEMO Plan was approved by BLM in 2002 and amended the CDCA Plan. See Chapter 2 for biological goals and objectives and the Record of Decision for the approved alternative.

5. Flat-tailed Horned Lizard Rangeland Management Strategy. 2003.

A multi-agency team, led by BLM, prepared the Flat-tailed Horned Lizard Management Strategy in 2003, which BLM adopted as an amendment to the CDCA Plan in 2003. This comprehensive plan contains one goal five objectives.