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Via Email and USPS

4/5/2012

California Energy Commission
Dockets Office, MS-4
Docket No. 09-RENEW EO-01
1516 Ninth Street
Sacramento, CA 95814-5512
docket@energy.ca.gov

Re**: Comments on the Draft Biological Goals and Objectives for the Desert Renewable Energy Conservation Plan (DRECP) dated March 21, 2012.**

To whom it concerns:

On behalf of the Center for Biological Diversity (Center) and our over 350,000 members and supporters, we are writing to provide comments on draft Biological Goals and Objectives for the proposed Desert Renewable Energy Conservation Plan (DRECP) dated March 21, 2012. The goals and objectives provide crucial guidance to achieve key conservation objectives, and therefore a critical component of the DRECP. As a stakeholder in the DRECP public process the Center attended the March 28, 2012 biological goals and objectives workshop where we raised a number of issues. In addition to those comments provided at the workshop we submit the following additional comments and recommendations on the draft biological goals and objectives in the attached document as line edits or comment boxes on the Word version of the .

Absent in the document is the ISA's recommendation that "The plan should embrace a primary goal of avoiding and minimizing any additional habitat loss or fragmentation." (ISA at 7). Additionally, the document does not consistently reflect another ISA recommendation that "The delineation of clear objectives with measurable outcomes is central to the success of conservation planning" (ISA at 9). Indeed, to comply with the NCCP Act, the biological goals and objectives must "conserve, protect, restore, and enhance natural communities", yet the restoration and/or enhancement components are often absent from the goals and objectives. The ISA also recommended that the plan's overarching goal should be to "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" (ISA at 9) so, this very fundamental and important goal needs to be included in the biological goals and objectives.

As one of our overarching concerns for all of the Goals and Objectives, one primary unequivocal goal for the plan that needs to be included is consistent monitoring of the status of the resources at landscape, community and species specific levels. Initial baseline monitoring

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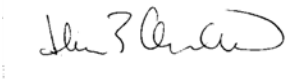
should be established for each by which trends can then be detected through subsequent monitoring efforts.

We appreciate the opportunity to provide these comments in the DRECP Draft Biological Goals and Objectives. We will continue to remain actively involved throughout all phases of the planning effort. Our goal in this regard is to assist the DRECP in developing the best possible plan in a timely manner that provides effective, long-term protective policies for preserving our biological resources in the California deserts while streamlining the permitting process for renewable energy projects that are proposed in environmentally suitable areas. If you have questions or concerns about our comments please do not hesitate to contact me.

Sincerely,



Ileene Anderson
Biologist/Desert Program Director
Center for Biological Diversity

DRAFT

March 21, 2012

Draft Memorandum

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.

DRAFT

March 21, 2012

Draft Memorandum

Subject: DRAFT Revised DRECP Biological Goals and Objectives

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Tables and Figures

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

Draft Memorandum

Revised Biological Goals and Objectives

Introduction

This memorandum outlines draft Plan-wide Biological Goals and Objectives (BGOs{tc "Biological Goals and Objectives (BGOs" \f A \l 1}) for the Desert Renewable Energy Conservation Plan (DRECP{tc "Desert Renewable Energy Conservation Plan (DRECP" \f A \l 1}). 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{tc "Preliminary Conservation Strategy (PCS" \f A \l 1}) (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.

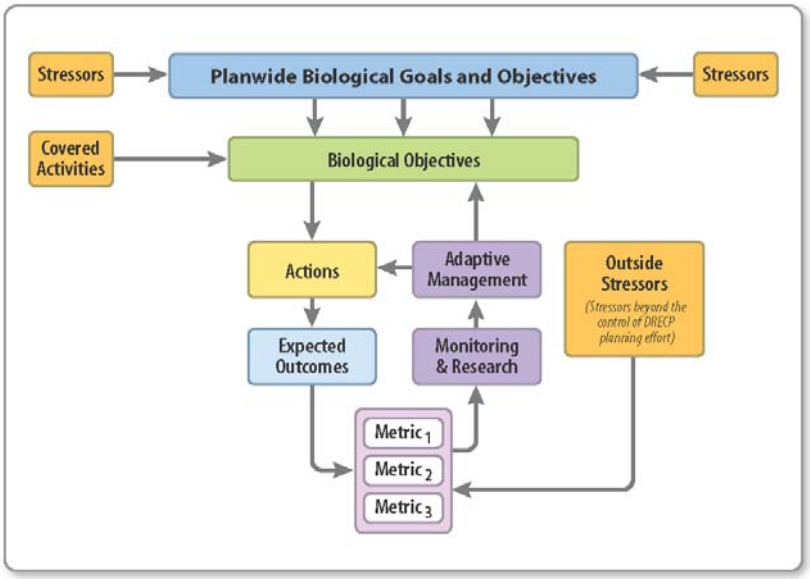


Figure 1. DRECP Conservation Strategy Conceptual Model{tc "Figure 1. DRECP Conservation Strategy Conceptual Model" \f F \l 1}

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 since received initial input from stakeholders and Renewable Energy Action Team (REAT**{**tc "Renewable Energy Action Team (REAT" \f A \l 1**}**) 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.

Goals and Objectives Development Process

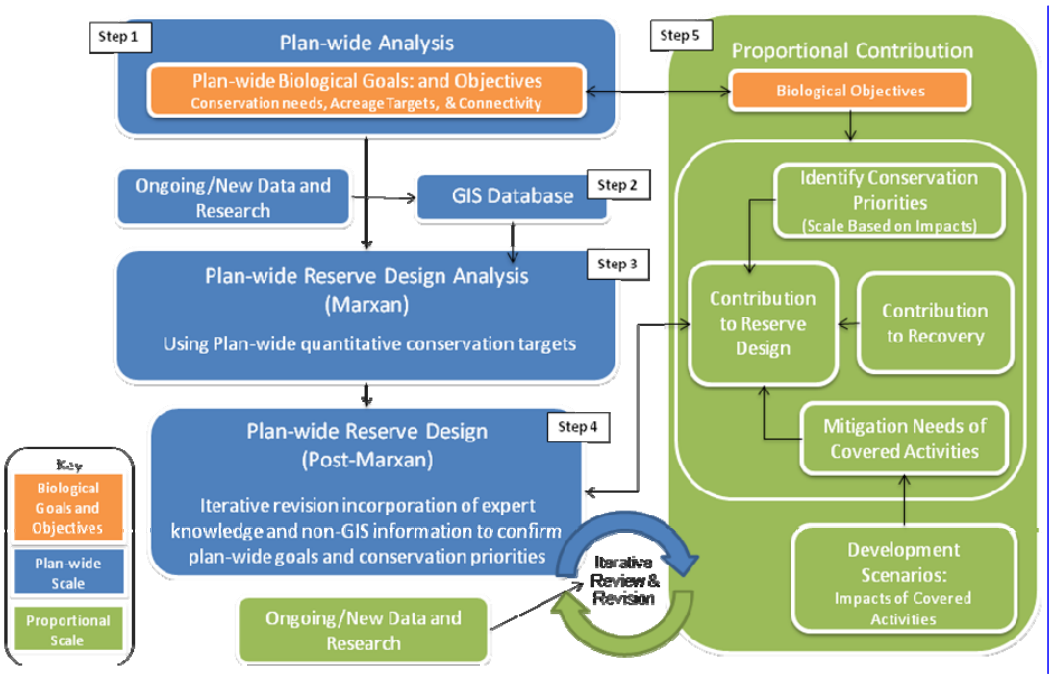
The Plan-wide BGOs were developed hierarchically at the landscape, natural community, and species levels based on information from the following resources, work products and deliverables (Figure 1).

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

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 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 [i1]: As discussed at the workshop, we have strong concerns over the "proportional contribution" of the plan in its ability to provide assurances for conservation. This issue is a key component to the success or failure of the plan and needs additional discussion.

Figure 2. Integration of DRECP Biological Goals with the Plan-wide Reserve Design Process{tc "Figure 2. Integration of DRECP Biological Goals with the Plan-wide Reserve Design Process" \f F \l 1}

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.

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

Table 1. Landscape, Natural Community, Species Group, and Species Codes{tc "Table 1. Landscape, Natural Community, Species Group, and Species Codes" \f T \l 1}

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

Table 2. Summary of Conservation Targets for NVCS Constituents{tc "Table 2. Summary of Conservation Targets for Natural Communities and Vegetation Types" \f T \l 1}

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	—

Natural Communities and NVCS Constituents	Conservation Target Acreage (TBD)
Inter-Mountain West mesic tall sagebrush shrubland and steppe	—
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 subalpline forest and woodland	—

NVS = National Vegetation Classification System

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 adaptive to changing conditions (including activities that are not covered by the plan) and includes temperature and precipitation gradients, elevation gradients, and a diversity of geological facets accommodate range contractions and expansions in response to climate change;.

- **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.
- **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.
- **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.
    - Chuckwalla-Little Chuckwalla-Palen connections
    - Bristol-Marble-Ship-Old Woman connections
    - North Rosamond-Tehachapi connection
    - Panamint-Argus connection
    - Palo Verde-Mule-Little Chuckwalla connections
    - Mule-McCoy connection

Comment [i3]: While we generally support the landscape level goals and objectives, they need to address connectivity corridors and linkages by including goals for re-establishing currently severed connections. For example, reconnecting the habitat for species that see the Interstates 15 and 40 as barriers to movement. Properly sized underpasses and land bridges should be included.

Comment [i4]: The width of wildlife connectivity corridors are species specific and should be based on specific species needs for connectivity. Robust corridors should be included, that are likely occupied habitat for other less mobile covered species.

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- Old Woman-Turtle-Whipple connections
- Bullion-Sheephole-Coxcomb connections
- Clark-Mesquite-Kingston connections
- Big Maria-Little Maria-McCoy connections
- Soda-Avawatz-Ord-Funeral connections
- Chuckwalla-Eagle-Coxcomb connections
- Eagle-Granite-Palen-Little Maria connections
- Granite-Iron-Old Woman connections
- McCoy-Little Maria-Big Maria connections
- Big Maria-Little Maria-Turtle connections
- 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.

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Comment [i5]: Unclear how all of these connectivity corridors are derived. Or where they are located (and my comment is directed to all of the listed under L1.3) May be additional ones. Map would be helpful.

- **Objective L1.4:** Protect unique landscape features, important landforms, and rare or unique vegetation types identified within the Plan Area.
  - *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.*
    - Desert wash resource elements including areas mapped by the United States Geological Survey (USGS{tc "U.S. Geological Survey (USGS" \f A \l 1}), National Wetlands Inventory (NWI{tc "National Wetlands Inventory (NWI" \f A \l 1}), National Hydrography Dataset (NHD{tc "National Hydrography Dataset (NHD" \f A \l 1}), USGS, including the Central Mojave Vegetation Map Project, and the Bureau of Land Management (BLM{tc "Bureau of Land Management (BLM" \f A \l 1}).
    - 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.

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

- **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 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:
  - Owens River
  - New River
  - Carrizo Creek
  - San Felipe Creek
  - Big Rock Creek
  - Amargosa River
  - Lower Colorado River
  - Alamo River
  - Vallecito Creek
  - Little Rock Creek
  - Mojave River (especially Mojave River Fork Regional Park, Mojave Narrows Regional Park, George Air Force Base to Hinkley Road, and Barstow to Afton Canyon).
  - Southern Sierras, the Tehachapis, the San Gabriels, the San Bernardinos and the Peninsular ranges

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- **Objective L2.4:** Conserve undeveloped and natural areas within the watersheds of important riverine and drainage systems identified in the DRECP reserve system, including:
  - Owens watershed (Owens River)
  - Amargosa watershed (Amargosa River)
  - Mojave watershed (Mojave River)
  - Colorado watershed (Lower Colorado River)
  - Imperial watershed (New and Alamo rivers)
  - Anza Borrego watershed (Vallecito, Carrizo, and San Felipe creeks)
  - Antelope watershed (Little Rock and Big Rock creeks)
  - Other smaller drainage systems in the Southern Sierras, the Tehachapis, the San Gabriels, the San Bernardinos and the Peninsular ranges
- While the landscape-level goals and objectives include actual river watersheds (L2.3 and L2.4), the same should be developed for the closed-basin watersheds (or they should also be included in L2.3 and L2.4) which make up a majority of the plan area's essential hydrology.
- **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.
- **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.

- **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)
    - Afton Canyon—Soda Lake—Devil's Playground—Kelso dunes
    - Ward– Rice – McCoy
    - Clark's Pass/Pinto Valley—Dale Lake dunes—Ford-Palen dunes
    - Panamint Valley
    - Shadow—Ivanpah—Kelso
    - Superior—Grass
    - Stewart—Pahrump—Mesquite
    - Greenwater—McLain Park
    - Bristol Trough—Cadiz dunes—Danby—Rice dunes
    - Pinto Wash—Palen Valley – Palen Pass—Ford Dry Lake—Palo Verde Mesa (collectively the Chuckwalla Valley dune system)
    - Death Valley—Amargosa River- Ibex dunes—Dumont dunes
    - Fenner—Clipper
    - Death Valley—Amargosa—Silurian
    - Silurain—Valjean
    - Pahrump—California

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As mentioned at the workshop, the DRECP should include additional Landscape Biological Goals and Objectives that incorporate:
• A road density goal for reserve areas (including connectivity areas if they are not included in the reserves);
• Recognition that reserve will be assembled from expanding and linking existing conservation investments;
• Reserve areas will be assembled to have the greatest area/edge ratios possible;
• Opportunities for grazing buyouts and permanent relinquishment of grazing allotments.

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.

- **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:
  - Olancha dunes
  - Death Valley (Mesquite) dunes
  - Dumont dunes
  - Cadiz dunes
  - Algodones dunes/East Mesa
  - Danby dunes
  - Means dunes
  - Rice Valley dunes
  - Panamint dunes
  - Ibex–Saratoga dunes
  - Kelso dunes
  - Palen sand dunes
  - Chuckwalla Valley dunes
  - Little Dumont dunes
  - Salton Sea dunes
  - Ballarat dunes
  - Olancha Dunes
- **Objective DUNC1.2:** Conserve dry lake beds that function as sand sources for transport corridors and dune systems and other sand sources:
  - Rosamond Dry Lake
  - China Lake
  - Twentynine Palms
  - Searles Lake
  - Melville Lake
  - Cronese Lakes
  - Bicycle Lake
  - Lavic Lake
  - Mesquite Lake
  - Leach Lake
  - Ford Dry Lake
  - Cadiz Lake
  - Harper Dry Lake
  - Kelso Wash/Dry Lake
  - Dale Lake
  - Bristol Lake
  - Cuddeback Lake
  - Silurian Lake
  - Coyote Lake
  - Bagdad Lake
  - Silver Dry Lake
  - Palen Lake
  - Danby Lake
  - Owens Lake
  - Include other non-dry lake sand sources

Goal DUNC2: Promote a biologically diverse dune community characterized by endemic or other native plant and wildlife species unique to psammophytic communities, including transitional areas

Comment [i6]: needs to recognize that acreage alone is inadequate to assure persistence of the sand transport corridors that form the dunes, sand sheets and depositional areas. Each area of the sand transport corridor should be recognized, most importantly, including the sand sources, which are not necessarily just dry lake beds. Clear goals and objectives for conserving each part of the sand transport corridor needs to be developed, to assure that development in one portion of the sand transport corridor will not eliminate functionality of the "downstream" system.

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encompassing the full array of sand-related habitats, including sand sheets, creosote and mesquite hummocks, etc.

- **Objective DUNC2.1:** Enhance __ acres of the dune community by promoting a diverse mosaic of open sand types and native dune vegetation structure.
- **Objective DUNC2.2:** Maintain soil conditions (increasing productivity or maintaining soil sterility as applicable) conducive to native dune plant communities.
- **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).
- **Objective DUNC2.4:** Decrease populations of common ravens[1] in dune systems where such impacts are a known or suspected cause of decline in wildlife species (e.g., Mojave fringe-toed lizard).

Additional objective should preserve of all the Unusual Plant Assemblages (UPAs) as identified in the CDCA Plan (or those that will be subsequently identified by the on-going vegetation mapping efforts now underway), examples of which include but are not limited to the Greasewood UPA adjacent to Owens Lake and East Mesa adjacent to the Algodones dunes.

Forest Community please include a clear definition of "forest"

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 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.

- **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.
- Conserve unique 2-leaved pinyon pine forests in the northeastern Mojave (near Clark Mountain and adjacent)

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

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

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.

- **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:
    - 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 Gorgonio Mountains in San Bernardino County.
    - California Annual and Perennial Grassland along the western Plan Area boundary near Borrego Springs and farther south at Anza-Borrego Desert State Park.
    - there are additional currently mapped grasslands within the boundary of the plan area that need to be included in Objective GRAC1.1. For example, but not limited to, BLM lands in the "keyhole" of the Mojave National Preserve have excellent examples of native desert grasslands.
- **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 species[2].
    - Manage livestock grazing in target areas to promote rangeland health and improve habitat for covered grassland species.
    - Manage wild horse and burro populations in target areas to reduce vegetation trampling and soil compaction to improve habitat for covered grassland species.
    - Enhance California Annual and Perennial Grassland through the removal of invasive plants.
- **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.

[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.

Comment [i7]: Clarify objectives between native grasslands and non-native grasslands.

Comment [i8]: For vast majority of the desert landscapes, domestic stock and feral animal grazing is documented to harm ecological resources, including desert grasslands. Therefore, elimination or substantial reduction in grazing should be implemented as part of the plan to facilitate conservation. Permanent retirement of grazing allotments should be utilized as mitigation for development impacts. If grazing is allowed, it should only be permitted for habitat enhancement (i.e. weed reduction during the growing season). We recommend that a separate section on grazing be developed and grazing be deleted from this section.

Comment [i9]: The plan area has very few Herd Management Areas (HMAs) that accommodate wild horse and burro populations. The goals should include the elimination of all wild horse and burros outside of established HMAs, and the populations within the HMAs should be controlled to comply with the population levels/carrying capacity identified in CDCA plan. We recommend that a separate section on WHB be developed and it be deleted from this section.

- Decrease populations of common ravens in grasslands where such impacts are a known or suspected cause of decline in covered grassland species.

- **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).
  - Ground squirrels in burrowing owl habitat in grassland communities.
  - Grassland areas in the Tehachapi Mountains.
  - Desert tortoise habitat 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.

- **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:
  - Lower Colorado River, including Havasu National Wildlife Refuge (NWR{tc "National Wildlife Refuge (NWR" \f A \l 1}), Palo Verde Ecological Reserve, Cibola NWR, Imperial NWR, Laguna Dam, and Mittry Lake State Wildlife Area (SWA{tc "State Wildlife Area (SWA" \f A \l 1}).
  - Mojave River
  - Whitewater Canyon
  - Saratoga Springs
  - Amargosa Canyon
  - Kane Spring
  - Old Woman Springs
  - Salt Creek
  - Horse Thief Canyon
  - Dove Spring

Comment [i10]: Because the riparian communities are already so rare on the desert landscape and have already been in substantial decline, Objective RIPC1.1 should protect 100% of the remaining riparian communities.

Comment [i11]: Is this in the plan area?

- Cottonwood Spring
- Bonanza Spring
- Mopah Spring
- Iron Mt. Pumping Station
- All other locations of riparian communities, including but not limited such areas in the Tehachapis, southern Sierras, San Gabriels, Liebres, San Bernardinos, Peninsular Ranges and all desert "sky island" ranges.

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

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

  There are additional "riparian areas" that should be addressed – areas that support mesquite bosques, etc.

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- **Objective RIPC1.3:** Reduce the threat of invasive plant species in riparian areas that negatively affect covered and native species.
  - Tamarisk in suitable habitat for least Bell's vireo and other native nesting birds at target sites in the Borrego Population Unit.
  - 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).
  - Tamarisk in the Amargosa River to improve habitat quality for the Amargosa River vole and Ash Meadows gumplant.

- Tamarisk in Red Rock Canyon and Last Chance Canyon to improve habitat quality for Red Rock tarplant and possibly Mojave tarplant.

- **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.
  - 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.
  - Manage the Mojave River to benefit species such as arroyo toad in the upper Mojave River and native riparian birds throughout system.
  - 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.
  - 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 RIPC2: Protect rare habitats associated with the riparian natural community.

- **Objective RIPC2.1:** Conserve seeps, springs, and areas of surface water (oases) associated with desert riparian and dry wash woodland communities to provide water, shade, and food resources for native birds and other covered species including the following named areas and general regions of high value.
  - Riparian vegetation associated with the Salton Sea border (Imperial County)
  - New River (Imperial County)
  - Alamo River (Imperial County)
  - Agua Caliente Springs (San Diego County)
  - Borrego Springs (San Diego County)
  - Bow Willow Springs (San Diego County)
  - Dos Cabezas Spring (San Diego County)
  - Carrizo Marsh (San Diego County)
  - Sarasota Spring (San Bernardino County)
  - Mojave River (especially in Victorville, Camp Cady, and Afton Canyon areas) (San Bernardino County)
  - Twentynine Palms (San Bernardino County)
  - Box S Spring (San Bernardino County)
  - Old Woman Spring (San Bernardino County)
  - Amargosa River (especially in Shoshone, Tecopa and Amargosa Valley areas) (Inyo County)
  - Shoshone thermal springs and alkali seeps (Inyo County)
  - Tecopa thermal springs and alkali seeps (Inyo County)
  - Furnace Creek Ranch (Inyo County)
  - Scotty's Castle (Inyo County)

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Bernardino County)

- Morongo Valley (San Bernardino County)
- Lower Colorado River (e.g., 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) (San Bernardino, Riverside, Imperial counties)
- Owens River (Inyo County)
- Indian Joe Spring Ecological Reserve
- Other saline and alkaline springs in Death Valley
- Other various unnamed seep/springs in the Owens Valley; Inyo, Coso and Argus ranges; 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.
- Southern Sierras

- **Objective RIPC2.2:** Conserve migration stopover, breeding and wintering sites for migrant birds and sub-regional dispersers in the following riverine systems.
  - Lower Colorado River
  - Mojave River
  - Amargosa River
  - Alamo River
  - Salton Sea
  - Owens River and Lake
  - New River

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An objective needs to be included to acquire water rights in riparian areas, to assure that riparian values can be maintained. Without the water rights, no assurances can be made that riparian areas will continue to be sustained. In light of climate change, it is even more imperative that water rights be used as a tool in the toolbox to try to assure protection of these regionally rare resources.

An objective needs to be included to prevent groundwater pumping for export out of desert groundwater basins in support of riparian resources.

An objective needs to be included to adjudicate all unadjudicated groundwater basins in the desert in support of riparian resources

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.

- **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.
  - California cliff, scree and other rock vegetation
  - desert playa
  - North American warm desert bedrock cliff and outcrop
  - Sierra Nevada cliff and canyon
- **Objective RBUC1.2:** Conserve migration stopover sites, breeding areas for migrant birds and sub-regional dispersers in the following playas:
  - 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
  - Harper Dry Lake near Barstow
  - Owens lake
  - Others?

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

An objective needs to be included to protect most all areas of desert pavements, because of their uniqueness on the landscape and their capacity to hold soils in place and control dust. Because they are some of the longest persisting landforms on earth[3], their conservation is required because they can not be restored during the proposed plan timeline.

[3] http://gsabulletin.gsapubs.org/content/121/5-6/688.abstract

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.

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

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Comment [i12]: Each of these should have its own range of conservation targets, based on how the scrub habitat is assembled.

- **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.
  - Reduce anthropogenic uses that cause ground surface and vegetation disturbances, including uses 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.

- **Objective SCCC2.1:** Conserve and protect representative examples of rare vegetation association and alliances identified within the scrub/chaparral community to maintain the integrity of the following (additional community types and specific areas to be identified through the Reserve Design Analysis).
  - Joshua Tree Woodland
  - Warm Interior Chaparral
  - All Scrub-type UPAs

Comment [i13]: Isn't this a woodland type?

- Blackbrush scrub
- Colorado Desert scrub, wash, and microphyllous woodland habitats including ironwood, mesquite, palo verde, smoke tree, condalia, and other associated species.

Comment [i14]: Woodland communities?

*[**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.

- **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.
  - 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.
  - 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.
  - Wetland habitats along the Mojave River that provide habitat for Mojave tui chub, including the Camp Cady Wildlife Area and isolated ponds at the terminus of the Mojave River at Soda Springs.
  - 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 Big Pine, and elsewhere along the Owens River), and/or Owens Valley checkerbloom (moist alkaline meadows and seeps).
  - 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).

Comment [i15]: As with riparian areas, all wetlands in the plan area should be protected due to their rareness on the landscape, historical losses of these important resources and likely decrease in these resources due to climate change.

- 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.
- Need to include isolated springs/seeps/tinaja areas.

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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.

- **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.
  - Lower Colorado River, Salton Sea, Alamo River, and New River for California black rail, greater sandhill crane, and Yuma clapper rail.
- **Objective WETC2.2:** Maintain alkaline soils and salt grass-dominated meadow that provide habitat for wetland species, including Amargosa River vole (adjacent to marsh), Amargosa niterwort, and Ash Meadows gumplant.
  - Lower Colorado River, New River, All American Canal, Coachella Canal, Alamo River, and Holtville main drainage.
  - Mojave River in the Camp Cady and Soda Springs area.
  - Amargosa River area.
  - Targeted areas on Salton Sea shoreline.
  - Other alkali meadow areas

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- **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.[4]
  - Wild horses along the Amargosa River.

Comment [i16]: See above

  - Largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieui*), brown trout (*Salmo trutta*), bluegill (*Lepomis macrochirus*), mosquitofish (*Gambusia*

[4] 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.

affinis), crayfish (*Pastifasticus leniusculus*), and bullfrogs (*Lithobates catesbeianus*) in Owens River and associated ditches and drainages.

- Bass, catfish (Ictaluridae), mosquitofish, and bullfrog in the Mojave River.
- Tilapia (*Tilapia* spp.), sailfin molly (*Poecilia latipinna*), longjaw mudsucker (*Gillichthys mirabilis*), mosquitofish, pothole livebearers (*Poeciliposis gruci*), and several members of the families Centrarchidae (sunfishes), Ictaluridae (catfish), and Cyprinidae (minnows), as well as freshwater snails (*Melanoides tuberculata* and *M. granifera*), crayfish, Rio Grande leopard frog (*Lithobates berlandieri*), and bullfrogs in desert pupfish habitats.
- Burros (see above discussion)

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- **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:
  - 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).
  - Cattails in Owens pupfish habitat.
  - Tamarisk everywhere, including but not limited to the Amargosa River to improve habitat suitability for wetland species, including Amargosa River vole and Ash Meadows gumplant.
  - Nonnative plant species in Rabbit Spring to benefit endemic plant species including Parish's alkali grass.
  - Perennial pepperweed

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

- **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.
  - Open water and marsh habitat associated with the Salton Sea border (Imperial County)
  - Open water and marsh habitat associated with Lower Colorado River (San Bernardino, Riverside, Imperial counties)
  - Marsh habitat associated with New River
  - Amargosa River (especially in Shoshone, Tecopa and Amargosa Valley areas) (Inyo County)
  - Shoshone thermal springs and alkali seeps (Inyo County)
  - Tecopa thermal springs and alkali seeps (Inyo County)

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(Imperial County)

- Marsh habitat associated with Alamo River (Imperial County)
- San Felipe Springs/San Sebastian Marsh (desert pupfish, San Diego County)
- Anza Borrego State (desert pupfish, San Diego County)
- Hot Mineral Spa Wash (desert pupfish, Imperial County)
- Rabbit Springs (Parish's alkali grass, San Bernardino County)
- Mojave River (Camp Cady and Soda Springs area) (Mojave tui chub, San Bernardino County)
- Morningstar Mine at Mojave National Preserve (Mojave tui chub, San Bernardino County)
- Saratoga Springs (San Bernardino County)
- Salt Creek (Death Valley)
- Cottonball Marsh (Death Valley)
- Big Sand Spring (Sodaville milk-vetch, Death Valley)
- Saline-alkaline wetlands along the Owens River (Inyo County)
- Seasonal wetlands at Searles Dry Lake east of Trona (San Bernardino County)
- Seasonal wetlands at Koehn Dry Lake (Kern County)
- Harper Dry Lake northwest of Barstow (San Bernardino County)
- Other seeps, spring and tinaja areas in all counties

- **Objective WETC3.2:** Conserve migration stopover, breeding areas and wintering sites for migrant birds and sub-regional dispersers in the following wetland areas:
  - Lower Colorado River
  - Salton Sea
  - Mojave River
  - Owens River & Lake
  - Amargosa River
  - New River
  - Alamo River
  - Searles Dry Lake
  - Koehn Dry Lake
  - Harper Dry Lake

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As with the riparian areas, secure water rights to help assure conservation of spring/seep resources.

An objective needs to be included to conserve the 2 playas that support Parish's phacelia (*Phacelia parishii*).

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.

- **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.
  - California forest and woodland along the eastern flanks of the Tehachapi and southern Sierra Nevada Mountain ranges.
  - California forest and woodland along the northern flanks of the San Bernardino and San Gabriel Mountain ranges.
  - 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.
  - Californian-Vancouverian montane and foothill forest along the eastern flanks of the Tehachapi and southern Sierra Nevada Mountain ranges.
  - 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.
  - Intermountain basins pinyon-juniper woodland along the northern and eastern flanks of the San Bernardino Mountain and northern flank of San Gabriel Mountain ranges.
  - Intermountain basins pinyon-juniper woodland along the eastern flanks of the Tehachapi and southern Sierra Nevada Mountain ranges.
  - Rocky Mountains subalpine and high montane coniferous forest along the eastern flanks of the Tehachapi and Southern Sierra Nevada Mountain ranges.
  - California montane coniferous forest within the Plan Area, including important habitat elements such as cavity and snag nesting habitat.
- **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.
  - Reduce rates of cowbird parasitism in riparian nesting birds.
  - Maintain or re-establish native perennial grasses in the woodlands understory.

Comment [i17]: 2 things:
1) many of these identify forested communities too. Maybe merge the forests/woodlands? Or separate them out.
2) each one of these communtities should have a target acreage, so that the distribution across the range can be achieved.

Comment [i18]: More appropriate in riparian?

- Reduce anthropogenic impacts in the following areas:
  - 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.
  - Broadleaf woodland systems in the Tehachapi and southern Sierra Mountain ranges that provide habitat for Tehachapi slender salamander.
  - Pinyon-juniper woodland in the Tehachapi Mountains that provides habitat for Tehachapi pocket mouse.

- **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:
  - Diseases, destructive insects, and parasites of broad-leaf woodlands and forests and coniferous forests.
  - Competition by European starlings with native cavity nesters in broad-leaf and coniferous forests and woodlands.
  - Access by pet and feral cats.
  - Access by feral pigs, including broad-leaf woodland areas in the Tehachapi and southern Sierra Mountain ranges occupied by Tehachapi slender salamander.
  - 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.
  - Mistletoe infestations of pinyon-juniper woodlands.
  - Invasion by Argentine ants.

Comment [i19]: More associated w/riparian...

- **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:
  - Non-native grasses such as cheatgrass (*Bromus tectorum*) in intermountain basins pinyon-juniper woodland that compete with seedlings and saplings for water and nutrients.
  - 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 (*Centarea melitensis*) in California forest and woodland and Californian-Vancouverian montane and foothill forest.

Deleted: *Centurea*

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

- **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**{**tc "diameter at breast height (DBH" \f A \l 1**}**); 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.
- **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 conserving sufficient habitat and resources to adapt to environmental fluctuations and habitat connectivity to facilitate population movement and 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 specific-specific goals and objectives were not developed:

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

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:

- Swainson's hawk
- gilded flicker
- willow flycatcher (southwestern willow flycatcher)
- California condor
- Gila woodpecker
- Cushenbury buckwheat
- Algodones Dunes sunflower
- Bakersfield cactus
- Owens Valley checkerbloom
- arroyo toad

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Comment [i20]: Each of these must have species specific goals and objectives, because conserving them through landscape/community level processes as currently proposed will not be adequate to prevent ongoing declines.

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Comment [i21]: It is unclear if the above and below species include all of the "covered" species.

Comment [i22]: Not all of the species listed here actually have write-ups.

- elf owl
- Yuma clapper rail
- Bell's vireo (Arizona and Least)
- desert pupfish
- Owens pupfish
- Mohave tui chub
- Amargosa River vole
- bighorn sheep (peninsular and desert)
- Mohave ground squirrel
- Cushenbury oxytheca
- Cushenbury milk-vetch
- Peirson's milk-vetch
- triple-ribbed milk-vetch
- Mojave tarplant
- Parish's daisy
- barefoot gecko
- desert tortoise
- golden eagle
- burrowing owl
- white-tailed kite
- Tehachapi pocket mouse
- alkali mariposa-lily
- desert cymopterus
- Barstow woolly sunflower
- Little San Bernardino Mtns. linanthus
- Mojave monkeyflower
- White-margined beardtongue
- Parish's phacelia
- Parish's alkali grass
- 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.

Plants

For each plant species the goal should include 100% conservation for all known occurrences and a determination of the amount of modeled habitat to be conserved. The modeled habitat needs to be reviewed and revised by an expert botanist, to preclude the modeling error discussed at the workshop regarding the Mojave tarplant's type specimen located in San Bernardino County not being included in the model. In addition, specified acreage for recovery habitat should also be included.

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 __%.

- **Objective CAPL1.1:** Protect and enhance carbonate substrates in the northeastern San Bernardino Mountains foothills that provide suitable habitat for the covered carbonate plants including all federally designated critical habitat.
- **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.
- **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 __%.

- **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.
- **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.

The plan should implement the Carbonate Habitat Management Strategy.

The plan should decrease the number of roads in habitat.

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.

- **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 by conserving required habitat for pollinators..

- **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.

Comment [i23]: Please identify "baseline conditions".

Protect all federally designated critical habitat.

Decrease impacts from off-road vehicles activities in rare plant habitat on the Algodones dunes

Endemic Plants

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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 endemic plants.

Comment [i24]: All of the endemic plants in the plan area appear to be "narrow".

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 all the others) and contribute to their recovery in the Plan Area.

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- **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.

- **Objective PAGR1.1:** Conserve Rabbit Spring, the single occurrence of Parish's alkali grass.
- **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.

Acquire water rights in the basin to help assure adequate water at Rabbit Springs

Owen's Valley Checkerbloom

The following objectives for Owen's Valley checkerbloom will contribute to NEPL/SPEC1.

- **Objective OVCH1.1:** Conserve ___ occurrences of Owens Valley checkerbloom.
- **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.

Acquire water rights in the basin to help ensure adequate water at the Owens Valley locations.

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, 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.

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

Bakersfield Cactus

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

- **Objective BACA1.1**: Within the plan area, conserve Bakersfield cactus habitat in the vicinity of the Eastern Slopes and Tehachapi-Piute Mountains ecoregion subsections.

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- **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.

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

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 (SPEC1): 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.

- **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.
  - Conserve Occupied sites at Well 368 and Mule Spring, and re-introduce species into potential recovery sites by introduction of native fish species at Cartago Springs Wildlife Area and Blackrock Waterfowl Management Area.
  - Conserve and enhance Mule Spring, Black Rock, and Southern Owens (Cabin Bar Ranch population was found on the southwest shore of Owens Dry Lake).

Add additional areas where the OV pupfish & tui chub could be introduced.

Comment [i25]: This is actually confusing as to what areas are currently occupied…

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

- **Objective FISH2.1:** establish _ new native populations of desert pupfish, Mojave tui chub, Owens pupfish, and Owens tui chub.

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- **Objective FISH2.2:** Maintain or enhance genetic connectivity of covered fish species.
- **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.

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

As with riparian and wetlands, objective to acquire water rights is necessary to conserve these species.

Reptiles and Amphibians

For Amphibians, the species the goal should include 100% conservation for all known occurrences and a determination of the amount of modeled habitat to be conserved. The modeled habitat needs to be reviewed and revised by an expert herpetologist.

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.

- **Objective ARTO1.1**: Conserve Arroyo toad habitat within the Desert Slope Recovery Unit, including the following areas:
  - Subregion 9—Little Rock Creek, Little Horsethief Creek, Rancho Los Flores area, Mojave River (West Fork, Mojave Forks Dam area).
  - Subregion 10—San Felipe and Vallecito creeks.
- **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.

Maintain natural hydrological processes that support arroyo toad habitat, including for altered systems, mimicking of natural hydrologic processes that allow for periodic flooding that reworks stream channels, channel sediments and alters pool locations and form. Stabilize adjacent upland habitats that are essential for this species survival.

Eliminate livestock grazing, sand and gravel mining, suction dredge mining, road placement across and within stream terraces. off-highway vehicle use of roads and stream channels and uplands, and the use of stream channels and terraces for recreational activities.

Implement recovery plan actions.

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.

- **Objective BAGE1.1:** Conserve __% of suitable habitat for barefoot gecko.
- **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.
- **Objective BAGE1.3:** Decrease human-caused mortality, relative to baseline conditions, by preventing access to occupied habitat and patrolling target areas for enforcement.

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, and number of populations of coast horned lizard and contribute to its recovery in the Plan Area.

- **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 [i26]: Because this species is not widely distributed through the planning area, habitat areas need to be identified and conserve d.

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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 and increase the distribution, population size, and number of desert tortoise and contribute to its recovery in the Plan Area.

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- **Objective DETO1.1:** Acquire and maintain _acres of suitable habitat for desert tortoise (e.g., Maxtent habitat model score >0.5; USGS 2010). Avoid development in tortoise habitat.
- **Objective DETO1.2:** Reduce the spread of disease, especially upper respiratory disease syndrome (URDS) in desert tortoises, relative to baseline conditions, in target areas.
- **Objective DETO1.3:** Reduce the level of predation, particularly to young and juvenile desert tortoises, caused by increases in human-subsidized opportunistic predators (e.g., common raven, coyote).
- **Objective DETO1.4:** Decrease human-caused mortality, including vehicular collision, relative to baseline conditions, by patrolling target areas; maintain roads to prevent tortoises from being trapped on them.
- **Objective DETO1.5:** Increase burrow availability in areas where burrows are limiting by establishing artificial burrows.
- **Objective DETO1.6:** Establish a desert tortoise education program for the general public.
- Implement the desert tortoise recovery plan.
- Eliminate livestock grazing and reduce route density in desert tortoise habitat
- Incorporate connectivity and additional conservation areas as identified by USFWS to achieve the optimal reserve size for each reserve area recommended to preserve viable desert tortoise populations - 2,590 square kilometers (1,000 square miles; USFWS 1994).

Comment [i27]: More specifics on how to achieve this needs to be included.

- Maintain population levels in reserves of between 10,000-20,000 adult tortoises to maximize estimated time to extinction (i.e., 390 years or so, depending on rates of population change; USFWS 1994).
- Conservation areas also should include buffer zones or transition areas to ensure that adjacent land-use activities do not compromise conservation-area goals

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, and number of populations of covered raptor species (burrowing owl, California condor, Golden eagle, Swainson's hawk, white-tailed kite and others) and contribute their recovery in the Plan Area.

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- **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. Avoid areas with high raptor densities.
- **Objective RAPT1.4:** Conserve __ acres of foraging habitat to protect Swainson's hawk and white-tailed kite.

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  - 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 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:
  - Piute Range including Piute Creek area
  - Newberry Mountains and Granite Mountains
  - Red Mountain/El Paso Mountains
  - Calico Mountains
  - Clark Mountains
- Protect all known nesting sites for raptors.

Burrowing Owl

The following objectives for burrowing owl will contribute to RAPT1/SPEC1.

- **Objective BUOW1.1:** Acquire and 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.
  - Southern Owens River Valley
  - West Mojave including areas west of Victorville
  - Eastern Mojave desert within large areas of suitable habitat near documented occurrence records
  - Imperial Valley east of Brawley and south of the Salton Sea
  - Lower Colorado River Valley
- **Objective BUOW1.2:** Increase burrowing owl viability by reducing mortality from vehicle traffic in occupied areas or suitable habitat.
  - provide roadway signage and, where feasible
  - implement and patrol speed limits
  - restrict nighttime traffic.

Comment [i28]: This seems incomplete

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Enhance populations by providing more burrows including artificial burrows.

Monitor "passively relocated" burrowing owls for relocation success

Preclude the use of pesticides in burrowing owl habitat.

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.

Goal RIBI1 (SPEC1): Maintain or increase the distribution, population size, and 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.

- **Objective RIBI1.1:** Increase the reproductive success of covered riparian birds by __%.
- **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 and all nesting areas for these species in the plan area.
- **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.

- **Objective BEVI1.1:** Increase the quality and extent of early to mid-successional riparian vegetation with a well-developed understory of dense shrubs.
  - Vallecito, San Felipe, Carrizo (including Carrizo Marsh), Agua Caliente, Bow Willow, and Coyote creeks in the Borrego Population Unit.
  - Lower Colorado River
  - Mojave River
  - Amargosa River
  - Owens River
- Implement the draft recovery plan actions for least Bell's vireo in support of recovery for this species.
- Protect federally designated critical habitat for the least Bell's vireo

Comment [i29]: It is unclear which species fall into this category…some listed species certainly do, and therefore more specific goals and objectives need to be included.

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Comment [i30]: From what baseline?

Willow Flycatcher

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

- **Objective WIFL1.1:** Increase the quality and extent of a dense mid-story and understory riparian vegetation location near surface water or saturated soils:
    - 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.
    - 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.
- Implement the Recovery Plan actions for least southwestern willow flycatcher in support of recovery for this species.
- Protect federally designated critical habitat for the southwestern willow flycatcher.

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, and number of populations of covered wetland bird species (California black rail, Yuma clapper rail) and contribute to their recovery in the Plan Area.

- **Objective WEBI1.1:** Eradicate, if feasible, and 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.

- **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.

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Comment [i31]: Clarify which species are included here…

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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 and number of populations of Amargosa river vole and contribute to its recovery in the Plan Area.

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- **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.

Increase habitat availability for the vole by sustaining the hydrology of the Amargosa River Valley.

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{tc "distinct population segment [DPS" \f A \l 1}]) 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.

- **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):
    - Marble Mountains
    - Clipper Mountains
    - Kelso Peak and Old Dad Peak
    - Clark, Kingston, and Mesquite Mountains
    - Sheephole Mountains
    - South Bristol Mountains
    - Cady Mountains
    - San Gorgonio Wilderness Area (eastern portion within Plan Area)

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- **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:
    - Amargosa Range/Funeral Mountains
    - Southern Panamint Range
    - Southern Argus Range
    - Newberry Mountains
    - Rodman Mountains
    - Ord Mountains

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- Slate Range
- Greenwater Range
- Black Mountains
- Owlshead Mountains
- Avawatz Mountains
- Granite Mountains (in northeast Mojave)
- Black Hills/Pilot Knob/Robbers Mountain area
- Resting Spring Range
- Nopah Range
- Sperry Hills
- Mescal Range
- Ivanpah Mountains
- Silurian Hills
- Soda Mountains
- Providence Mountains
- New York Mountains
- Piute Range
- Piute Mountains
- Old Dad Mountains
- Mule Mountains
- Little Chuckwalla Mountains
- Granite Mountains (in southern Mojave)
- Bullion Mountains
- Old Woman Mountains
- Dead Mountains
- Sacramento Mountains
- Chemehuevi Mountains
- Whipple Mountains
- Turtle Mountains
- Iron Mountains
- Pinto Mountains
- Hexie Mountains
- Eagle Mountains
- Coxcomb Mountains
- Palen-McCoy Mountains
- Little Maria Mountains
- Big Maria Mountains
- Riverside Mountains
- Chuckwalla Mountains
- Chocolate Mountains
- Palo Verde Mountains
- Little Mule Mountains

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- **Objective BISH1.3:** Conserve __ acres of intermountain habitat for Nelson's bighorn sheep throughout its range in the Plan Area in the following areas:
  - Death Valley between the Panamint Range and the Amargosa Range/Funeral Mountains, Greenwater Range, Black Mountains, and Avawatz Mountains
  - Panamint Valley between Argus Range
  - Habitat between Shadow Mountain and Turquoise Mountain area and Old Dad Mountain
  - Mojave River Wash and Devil's Playground between the Cady Mountains

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and Panamint Range

- Searles Valley between the Argus Range, Slate Range, Granite Mountains (northeast Mojave), and Black Hills/Pilot Knob/Robbers Mountain area
- Pilot Knob Valley between the Slate Range, the Granite Mountains (northeast Mojave), Owlshead Mountains, and the Avawatz Mountains
- Greenwater Valley between the Black Mountains and Greenwater Range
- Amargosa Valley between the Greenwater Range and Resting Spring Range
- Chicago Valley between the Resting Spring Range and Nopah Range
- California Valley between the Nopah Range and the Kingston Range
- Silurean Valley between the Avawatz Mountains and the Silurian Hills
- Valley habitat between Avawatz and Granite Mountains (northeast Mojave) and Soda and Cronese Mountains
- Habitat between Soda and Cronese Mountains and Cady Mountains

and Bristol Mountains and the Kelso Mountains and Old Dad Mountain

- Ivanpah Valley between Ivanpah Mountains and New York Mountains
- Clipper Valley between the Bristol Mountains, Granite Mountains (east-central Mojave), and Providence Mountains and the Clipper Mountains
- Fenner Valley between Clipper Mountains and Old Woman Mountains
- Piute Valley between Piute Range and Dead Mountains
- Habitat in Amboy area between Bristol Mountains and Bullion Mountains
- Johnson Valley between the Rodman Mountains and Lava Bed Mountains and the San Bernardino Mountains
- Pinto Basin between the Pinto Mountains and Eagle Mountains
- Valley habitats between the Palen-McCoy Mountains, Little Maria and Big Maria Mountains, and the Riverside Mountains
- Chuckwalla Valley between the Eagle Mountains and the Chuckwalla Mountains
- Valley habitats between the Little Chuckwalla Mountains, Palo Verde Mountains, Mule Mountains, Little Mule Mountains, and the Chocolate Mountains

- **Objective BISH1.4:** Conserve critical corridors/crossing points to maintain connectivity between mountain habitats at the following locations:

  - Crossing of Interstate 15 (I-15) at Soda/Cronese Mountains-Cady Mountains habitat connection
  - Crossings of I-15 at Clark Mountains-Mescal Range habitat connection and/or
  - Crossing of I-40 in the eastern portion of the Bristol Mountains and Old Dad Mountains area
  - Crossing of I-40 at the Granite Mountains-Marble Mountains habitat connection

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Clark Mountains-Ivanpah Mountains habitat connection

- Crossing of I-40 at the Cady Mountains-Bullion Mountains habitat connection east of Ludlow
- Crossing of I-40 in the western portion of the Bristol Mountains
- Crossing of I-40 at the Dead Mountain-Sacramento Mountains habitat connection
- Crossing of I-10 at the Eagle Mountains-Orocopia Mountains habitat connection via Chuckwalla Valley (this connection is just on the western edge of Plan Area boundary but is a critical connection across I-10 that would serve populations in the Eagle Mountains and Chuckwalla Mountains in the Plan Area)

- **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.

Conserve all federally designated PBS critical habitat and other areas where PBS have been documented to forage.

- **Objective BISH1.6:** Maintain or enhance sheep 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 tinajas (potholes in rocks), 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 between bighorn sheep, and feral burros. Reduce anthropogenic uses

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Comment [i32]: There are many more areas than just these that are listed…

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that inhibit access to water sources, forage areas and lambing areas, especially during the lambing season.

- **Objective BISH2.2:** Control transmission of livestock diseases to bighorn sheep by eliminating domestic stock grazing in the plan area.
- **Objective BISH2.3:** Decrease relative to baseline conditions mountain lion predation where predation levels are artificially high.
- **Objective BISH2.4:** Prevent accidental drowning and pathogen transmission at artificial water catchments (guzzlers).

Deleted: direct contact between bighorn sheep and cattle, domestic sheep, and domestic and feral goats in target areas

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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.

- **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.
  - Fort Irwin area
  - Lucerne Valley area
- **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.
- **Objective MGS1.3**: Conserve Mojave ground squirrel habitat and parts of its historic range that allow for conservation and recovery of the species as identified in the West Mojave Plan.
- **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:
  - 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{tc "Penrod et al. 2012" \f C \l 1}).
  - 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{tc "Penrod et al. 2012" \f C \l 1}).

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<#>Little Dixie Wash¶
<#>Coolgardie Mesa—Superior Valley¶
<#>Edwards Air Force Base¶

- 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{tc "Penrod et al. 2012" \f C \l 1}).
- 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{tc "Penrod et al. 2012" \f C \l 1}).
- Indian Wells Valley-Little Dixie Wash to Ross Valley (Cosa/Olancha core area) via linkage paralleling Highway 395 (part of the Sierra Nevada–China Lake North linkage identified by Penrod et al. 2012{tc "Penrod et al. 2012" \f C \l 1}).
- Coolgardie Mesa to Pilot Knob via Superior Valley (contained within the China Lake South Range Landscape Block identified by Penrod et al. 2012{tc "Penrod et al. 2012" \f C \l 1}).
- Pilot Knob to Searles Valley via Christmas Canyon (mostly contained within the China Lake South Range Landscape Block identified by Penrod et al. 2012{tc "Penrod et al. 2012" \f C \l 1}).
- 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{tc "Penrod et al. 2012" \f C \l 1}).

- Reduce road density in MGS conservation area
- Minimize vectors that allow round-tail groundsquirrels to colonize and displace MGS, including roads and transmission line routes.
- Reduce non-native plant cover

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, and number of populations of Tehachapi pocket mouse and contribute to its recovery in the Plan Area.

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- **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.

  Eliminate rodenticide use in TPM habitat

Reduce road densities in TPM habitat

Reduce non-native plant cover

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/.

Appendix A

Explanation of DRECP Conservation Strategy Conceptual Model

Comment [i33]: We had inadequate time to comment on the Appendices and will provide additional comments later.

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.

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.

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.