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Defenders of Wildlife Comments on Draft 2017 IEPR

Additional submitted attachment is included below.

To: California Energy Commission
Dockets Office, MS-4
Docket No. 17-IEPR-01 General/Scope
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From: Kim Delfino, Defenders of Wildlife

Date: November 13, 2017

Subject: Comments of Defenders of Wildlife on the October 2017 Draft Integrated Energy Policy Report CEC-100-2017-001-CMD

Docket Number: 17-IEPR-01

Defenders of Wildlife (Defenders) respectfully submits these comments on the October 2017 Draft Integrated Energy Policy Report (draft 2017 IEPR) to the California Energy Commission (CEC).

Defenders, on behalf of our 140,000 members and supporters in California, works towards protection of wildlife, ecosystems, and landscapes while supporting the timely development of renewable energy resources in California. Achieving a low carbon energy future is critical for California – for our economy, our communities, and the environment. Achieving this future—and *how* we achieve it—is critical for protecting California's internationally treasured wildlife, landscapes, productive farmlands, and diverse habitats.

I. Comments

We offer the following comments on the draft 2017 IEPR.

Landscape-Scale Planning is Essential

We are deeply supportive of the focus in Chapter 5 on landscape-scale planning. It is possible to reduce greenhouse gas emissions, achieve high levels of renewable buildout, and protect sensitive species and landscapes without increasing electricity costs. It requires good planning, especially as we move toward ever more aggressive renewable energy targets. Geospatial analysis and landscape

–scale planning will result in conservation of ecosystems, species, and important landscapes by identifying the right and wrong places for future development. Geospatial analysis and landscape-scale planning are the starting point to identifying (1) areas of expected high sensitivity that should be protected and (2) areas expected to be "least conflict" that are potentially suitable for development. Landscape-scale planning and geospatial tools do not supersede project and site-specific level analysis, CEQA, NEPA, or local government approvals. On the contrary, geospatial planning tools make additional data available and accessible to support, complement, and enhance these processes. Once a specific project location and proposal is identified then all of the necessary site-specific analyses such as biological and cultural resource surveys and studies must still be completed prior to a development project being considered for permits by the land use authority and responsible agencies.

Science-based geospatial analysis and landscape-scale planning tools provide essential supporting and enabling functionality to make smart-from-the-start planning possible. These tools help to protect our remaining natural resources while meeting our energy, housing, and economic needs for a sustainable future in California. With this comes the responsibility not to shift unacceptable and avoidable environmental impacts of energy generation and transmission out-of-state. There is an acute need to increase the availability of environmental data and analysis outside of California to ensure equitable assessment of environmental implications of energy development and transmission.

Defenders strongly supports leveraging analytical tools for landscape-scale analysis and facilitating local government efforts for renewable energy planning. We appreciate that the Commission has put so much time, effort, and funding into developing tools to this end. We are excited to see the progress on the California Energy Gateway (Gateway) and strongly believe it will benefit and support smart from the start planning for energy projects. Even more importantly, the Gateway is poised to deeply benefit landscape level planning and preliminary development project planning across California. The Gateway will allow governmental agencies, project proponents, tribes, stakeholders, conservation organizations, and communities to readily access fundamental environmental information that can be used to guide initial land use considerations.

RETI 2.0 Transmission

Page 160 of the draft 2017 IEPR notes *"While TTIG and RETI 2.0 found that there is relative abundance of transmission capacity in the aggregate, there are likely to be limits in specific areas that may require studying particular scenarios that include new transmission investments. One such scenario, the Desert Area Constraint scenario, is a RETI 2.0 recommendation to determine the implications of different transmission infrastructure upgrades in the desert area that may be required to meet long-term renewable energy targets."* RETI 2.0 identified available transmission capacity in the desert, in particular the West Mojave / Tehachapi region (2,628MW). Before studying if <u>new</u> transmission investments are needed in the desert, we think it is a better investment of state agency and CAISO capacity to determine the availability of renewable resources under an Energy-Only arrangement, which would allow for more energy delivery across existing

wires, as compared to Full Capacity Deliverability Status. For example, in RETI 2.0, the CAISO estimated 412 MW available under an Energy-Only arrangement in the Kramer & Inyokern region.[1] Developing renewable resources under an Energy-Only arrangement may allow for better utilization of the existing transmission system and create an opportunity to develop new renewable resources in areas of least conflict or low impact that have been zoned specifically for renewable energy development. A good example is the San Joaquin Valley. The California Public Utility Commissions' (CPUC) Integrated Resource Plan (IRP) inputs and assumptions show that transmission costs in San Joaquin Valley ($11/kw-yr.) are lower than cost of new transmission in the desert ($54-60/kw-yr.).[2] There are also operational benefits to a maintaining geographic diversity in the solar resource mix.[3] Greater consideration should given to solar development on least conflict lands in the San Joaquin Valley before further transmission investment in desert.

RETI 2.0 Is Not Landscape-Scale Planning

RETI 2.0 did not result in landscape-scale planning and merely identified types and sources of environmental data which might be used for landscape-scale planning. The strengths and weakness of RETI 2.0 are discussed in the Conservation Group's comments (attached). We incorporate those comments by reference.[4] The draft 2017 IEPR must be revised to reflect clearly that RETI 2.0 was a data gathering exercise and did not produce a landscape-scale planning product.

Regional Conservation Framework Pilot Program

The IEPR should include Regional Conservation Investment Strategy (RCIS) planning as a new and useful tool for landscape-scale conservation assessment and planning. An RCIS assesses current conditions and can identify opportunities and vulnerabilities for conservation. An RCIS can also be used to identify prioritized, species-specific mitigation actions that build on existing conservation investments and inform both the design and implementation of mitigation, including advanced mitigation strategies. RCIS planning also benefits project developers by providing a level of certainty that compensatory mitigation requirements can be efficiently satisfied by proactively identifying high conservation value habitats for acquisition or enhancement. It is important to note that regional strategies flowing from RCIS planning are anticipated to include tailored objectives (i.e., objectives which are specific, measurable, achievable, relevant and time-bound; or SMART).

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[1] http://docketpublic.energy.ca.gov/PublicDocuments/15-RETI-02/TN211341_20160503T092907_Revised_Presentation_by_Neil_Millar_5216.pdf

[2] See transmission cost estimates provided by CAISO Inputs and Assumptions document, table 23 http://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/UtilitiesIndustries/Energy/EnergyPrograms/ElectPowerProcurementGeneration/LTPP/2017/RESOLVE_CPUC_IRP_Inputs_Assumptions_2017-05-15.pdf

[3] http://www.sciencedirect.com/science/article/pii/S0038092X16304820

[4] http://docketpublic.energy.ca.gov/PublicDocuments/15-RETI-02/TN215205_20170110T075820_Erica_Brand_Comments_Conservation_Organizations'_comments_on_RE.pdf

Successful RCIS development requires close collaboration with involved stakeholders, along with building upon and linking existing conservation investments. It also entails recognizing the important roles that non-governmental organizations, mitigation land banks, state and federal agencies play in long term conservation implementation. The need to encourage business investment through predictability and clarity, as addressed through RCIS planning, is also clearly understood. To better highlight both the features and benefits of RCIS planning, we have attached a white paper recently prepared by Defenders.

RCIS and Desert Conservation

We understand that several areas, including the Santa Clara Valley, East Bay area, Antelope Valley, and San Bernardino County are undergoing RCIS planning efforts. We strongly support these planning efforts and encourage the CEC's support. The extensive planning efforts previously completed for public lands in the region can facilitate the development of the RCIS planning efforts in the desert. The California Desert Biological Conservation Framework, State Wildlife Action Plan, and DRECP also provide foundational background information which can be incorporated into desert RCIS planning effort. These documents provide a wealth of relevant planning data.

The California Desert Biological Conservation Framework, in particular, is intended to inform and provide context for regional biological conservation planning on federal, state, and private lands, as well as guide future public conservation investments throughout the Mojave Desert. Together with local planning efforts, this considerable background information can be used to craft a succinct, but comprehensive RCIS planning effort.

At a desert-wide scale, these foundational documents also synthesize information to establish broad, meaningful biological resource goals and tiered realistic objectives, maps areas within a finite boundary considered important for conservation, and describe conservation action approaches. From this baseline, the totality of previous conservation investments can be identified, and specific biological conservation strategies, as well as on-the-ground conservation actions, can be developed.

Chapter 5 Recommendations

The first recommendation looks to interconnect in- and out-of-state transmission and further import/export of renewable resources. California has spent considerable time and resources to plan for renewable energy and to seek ways to reduce its' environmental impacts in California. It makes little sense to then shift development outside of the state where landscape-scale planning is less established without also including a similar level of landscape-scape planning for out of state projects.

The second recommendation looks to alleviate desert area transmission constraints. We recommend this be reconsidered and investment instead be made in the San Joaquin Valley (e.g. Gates to Gregg)

which would increase geographic diversity of solar energy generation and help reduce development pressure on desert ecosystems.

Additional Comments:

Integration of Energy Planning

Disconnects between transmission planning, energy planning, and environmental planning continue to need to be remedied. Geospatial information from the CEC's Environmental Information for Energy Planning (Docket 17-IEPR-13) needs to be formatted for incorporation into the CPUC IRP and the resulting geospatial data should flow into the CAISO Transmission Planning Process portfolios as well.

The RETI 2.0 environmental data has not been incorporated into the environmental screens characterizing the renewable supply curve in the CPUC's IRP RESOLVE model.[56] Additional work is needed to incorporate environmental data identified in RETI 2.0 into a format that is compatible with the CPUC's IRP RESOLVE model.

Compliance with SB 1386

SB 1386 was signed into law on September 23, 2016. The protection of natural and working lands is an important strategy in meeting the state's greenhouse gas emissions reduction goals and is now state policy.

> *SEC. 2. Section 9001.5 is added to the Public Resources Code, to read: 9001.5. (a) It is the policy of the state that the protection and management of natural and working lands is an important strategy in meeting the state's greenhouse gas emissions reduction goals. The protection and management of those lands can result in the removal of carbon from the atmosphere and the sequestration of carbon in, above, and below the ground. (b) The protection and management of natural and working lands provides multiple public benefits, including, but not limited to, assisting with adaptation to the impacts of climate change, improving water quality and quantity, flood protection, ensuring healthy fish and wildlife populations, and providing recreational and economic benefits. (c) All state agencies, including, but not limited to, the Natural Resources Agency, the Department of Food and Agriculture, and the California Environmental Protection Agency, and their respective departments, boards, and commissions, shall consider the policy set forth in this section when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands. State agencies shall implement this requirement in conjunction with the state's other strategies to meet its greenhouse gas emissions reduction goals and with the intent to, among other things, promote the cooperation of owners of natural and working lands.*

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[5] [5] https://reti.databasin.org/galleries/b436fc659b584aa4b4f2e52f570452a2

[6] See IRP Inputs and Assumptions document, section 4.2.1, accessible online here: http://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/UtilitiesIndustries/Energy/EnergyPrograms/ElectPowerProcurementGeneration/LTPP/2017/RESOLVE_CPUC_IRP_Inputs_Assumptions_2017-05-15.pdf

The discussion on page 144 of the draft 2017 IEPR should note that the CEC's transmission corridor designation responsibilities also are subject to SB 1386.

II. Conclusion

Defenders of Wildlife appreciates the opportunity to comment on the October 2017 draft IEPR and we strongly support continued development and use of data platforms and analytical tools to support landscape-scale planning. We appreciate and commend the Commission for continuing to provide leadership in the important area of landscape-scale planning. We encourage the Commission to continue this important work as it will facilitate improved siting and development of energy projects as well as providing additional benefits for other land use planning and siting efforts. We look forward to continued participation in the proceeding.

Sincerely,

Kim Delfino
California Program Director
Defenders of Wildlife
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Attachments

January 10, 2017

Dockets Unit
California Energy Commission
Docket No. 15-RETI-02
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.ca.gov

RE: Comments to Renewable Energy Transmission Initiative (RETI) 2.0 Plenary Report – Public Review Draft

Docket Number: 15-RETI-02

Dear RETI 2.0 Leadership Team:

Our organizations strongly support the objective of the Renewable Energy Transmission Initiative (RETI) 2.0 to explore new transmission to meet the needs of an increasingly carbon free California economy. We appreciate the progress that RETI 2.0 made in aggregating existing environmental, transmission, and renewable resource data from across multiple studies, regulatory planning processes, and regulatory proceedings. This initiative has provided valuable insights that have been captured in the RETI 2.0 Plenary Report public review draft (Plenary Report). As requested at the January 3, 2017 workshop, we are writing to provide our feedback on the environmental recommendations. While this letter is intentionally limited in scope, we continue to have unaddressed concerns with other aspects of the RETI 2.0 process, as highlighted in our letter submitted on November 14, 2016 (Attachment C).

1. **Revise the description of the work and accomplishments of the environmental track of the Environmental and Land Use Technical Group (ELUTG) in the Plenary Report to avoid confusion about what the ELUTG accomplished.**

The Plenary Report's description of the work and accomplishments of the environmental track of the ELUTG must be amended in the final report.

The primary work of the environmental track of the ELUTG consisted of identifying the spatial data relevant to the RETI 2.0 planning exercise, evaluating data completeness, identifying data gaps, and determining next steps to fill data gaps and build on existing data[1]. These primary objectives are an important pillar of the RETI 2.0 process and have value in supporting statewide greenhouse gas reduction and renewable energy goals.

Our concern is that the description of the environmental track of the ELUTG in the Plenary Report, as currently written, could be interpreted to include work and accomplishments that extend far beyond the scope of what was completed during the RETI 2.0 process.

Specifically, the work and accomplishments of the ELUTG are **at risk** of being construed as an *assessment* of the environmental impacts of developing and delivering renewable energy from different areas[2]. The potential impacts and "implications" of generation development and transmission mitigation options[3] were not analyzed by the ELUTG.

The use of the word "assessment" implies that there was an analysis of an action or proposal (e.g., a hypothetical study range of renewable resources, a hypothetical transmission mitigation option) against the environmental data that was assembled. The subsequent use of the word "implications" implies that a conclusion was drawn about the

[1] Flint, Scott, Eli Harland, Misa Milliron, Gabriel Roark. 2016. *Environmental and Land Use Information to Support the Renewable Energy Transmission Initiative 2.0 Process.* California Energy Commission. Publication Number: CEC-700-2016-007. Page 2.
[2] Page 2 of the RETI 2.0 Plenary Report states that RETI 2.0 is: "An assessment of…e**nvironmental implications** and options for developing and delivering renewable energy from different areas." (emphasis added)
[3] "Mitigation options include new transmission, advanced technologies and non-wire alternatives, and operational efficiencies." California Natural Resources Agency. (2016). Page 39.

environmental consequences of the action or proposal (e.g., a hypothetical study range of renewable resources, a hypothetical transmission mitigation option). This was not the case.

What the environmental track of the ELUTG *did do* is recommend environmental and land use spatial data, both statewide and regional data relevant to the Transmission Assessment Focus Areas (TAFAs), that is suitable for consideration during high-level generation and transmission planning. These data helped provide context about the environmental setting within the TAFAs, but as noted in the Plenary Report, these data do not provide a comprehensive accounting[4] of environmental and land use considerations, resources, or issues. Additionally, while these data have value for planning purposes they are not intended to substitute for more detailed California Environmental Quality Act or National Environmental Policy Act review.

In fact, the descriptions of the ELUTG objectives in the Plenary Report differ from the description in the final ELUTG Report. Furthermore, the description of the ELUTG objectives varies within the Plenary Report, with multiple different characterizations of the work that was completed[5]. To resolve, we recommend the RETI 2.0 team adopt the redline edits in Attachment A to this letter, which aim to make the description of the ELUTG consistent across reports.

These edits are essential. The language used in the Plenary Report as currently drafted risks that the findings may be interpreted to mean that the geographic areas (e.g., TAFAs) and transmission mitigation options identified have completed an "environmental assessment" that has resulted in identification of environmental and land use "implications." There is also a risk that these TAFAs and transmission mitigation options may be viewed as sanctioned or pre-approved for generation and transmission siting. This is not the case and should be clearly stated.

[4] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* Appendix A, TAFAs, page A-1.
[5] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* See pages 1, 2, 3, 10, 29, and 54.

We appreciate that the RETI 2.0 leadership team has actively sought to bring clarity to what RETI 2.0 *is* and *is not*, as clearly outlined in the Plenary Report[6] and webinar. It is important that this clarity extend to the role, work, and accomplishments of the ELUTG. Therefore, we recommend that RETI 2.0 leadership adopt the redline edits in Attachment A to mitigate the aforementioned risks.

2. **We appreciate the Plenary Report's acknowledgement of local, state, and federal planning processes, and the clear recognition of the importance of environmental data in energy planning.**

We were pleased to see that the TAFA narratives in the Plenary Report, Appendix A incorporated the results of local, state, and federal planning processes[7]. The inclusion of these processes is important considering the RETI 2.0 process did not conduct new land use or environmental analysis. We found figures A-1, A-2, and A-3 to be helpful in visualizing the relationships between these planning processes and renewable resource data considered by the Plenary Group.

Furthermore, we appreciate that the Plenary Report has highlighted the important co-benefits of geothermal development in the Salton Sea[8]. Not only does geothermal at the Salton Sea serve climate and environmental benefits, this area has been identified for renewable energy development in federal, state and local planning processes. Moreover, geothermal energy resources help provide the needed resource portfolio balance the state is seeking.

Lastly, we support the environmental data recommendations that were identified in the Plenary Report[9]. We agree that access to environmental data, models, and the

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[6] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* See Purpose Section, pg. 1.
[7] These processes include the Least Conflict Lands for solar energy identified in the Solar in the San Joaquin Valley process; the Development Focus Areas designated by the Bureau of Land Management's DRECP Phase I Land Use Plan Amendment; and the renewable energy zones and overlays established in local government planning processes
[8] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* Page 24.
[9] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* Page 55.

Environmental Report Writer[10] should be kept available online for use by agencies, stakeholders, and the public. Likewise, we agree that the data sets should be kept up to date. Lastly, we are encouraged by the overview and description of the Environmental Report Writer[11]. Since our organizations' experience and understanding of the Environmental Report Writer is limited only to a description in this report, we must reserve any opinion about its use and utility to a time after which there has been further explanation and demonstration of this tool. However, at a minimum, we do agree with the recommendation that agencies and stakeholders should work together on further development of that tool.

3. Specific improvements needed for environmental and land-use data.

As directed by the review questions for commenters, as follows we present our feedback on the completeness and accuracy of the environmental and land-use data.

The Plenary Report's descriptions of the North of Kramer area within the Victorville/Barstow TAFA must document the current land use and regulatory uncertainty associated with the Bureau of Land Management's Desert Renewable Energy Conservation Plan (DRECP) Development Focus Area (DFA) north of Kramer ("North of Kramer DFA"). This area is under a 5-year moratorium on any renewable energy development, or until San Bernardino and Kern County update their general plans for conservation and renewable energy, and the California Department of Fish and Wildlife issues a final Mohave ground squirrel conservation strategy. The description of hypothetical development potential within this area is misleading without recognizing the high uncertainty about whether or not the North of Kramer DFA will exist in five years. Additional information on this important condition can be found in Attachment B to this letter. To make this distinction clear, we recommend a change of the color of the North of Kramer DFA in Figure A-2 of the Plenary Report, Appendix A.

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[10] Flint, Scott, Eli Harland, Misa Milliron, Gabriel Roark. 2016. *Environmental and Land Use Information to Support the Renewable Energy Transmission Initiative 2.0 Process.* California Energy Commission. Publication Number: CEC-700-2016-007. Page 14.

[11] Flint, Scott, Eli Harland, Misa Milliron, Gabriel Roark. 2016. *Environmental and Land Use Information to Support the Renewable Energy Transmission Initiative 2.0 Process.* California Energy Commission. Publication Number: CEC-700-2016-007. Page 14.

The Plenary Report notes that: "Many of the highest-quality wind resources in California have already been developed or are constrained by environmental and permitting barriers"[12]. It is important to note that there are significant constraints for wind development in the California deserts specifically due to the distribution of military installations. The Department of Defense has invested considerable resources in working with renewable energy developers and stakeholders to address siting concerns with wind and solar projects wherever possible. However significant constraints remain in the deserts with regard to wind technology in particular.

Please see Attachment B of this letter for a full account of the recommended edits to improve the completeness and accuracy of the environmental and land-use data employed in the Plenary Report, Appendix A – TAFAs.

Lastly, we incorporate by reference our comments submitted on November 14, 2016 (Attachment C). The attached letter reflects comments made through the RETI 2.0 process, which continue to be unaddressed in key part.

4. Conclusion

Local, state, and federal agencies have made tremendous progress in planning to balance the siting of renewable energy generation with conservation. The important challenge ahead is aligning transmission planning with land-use planning processes to meet California's ambitious renewable energy goals in a timely and environmentally responsible manner. We appreciate the progress that RETI 2.0 has made in moving this dialogue forward and the opportunity to provide our feedback.

[12] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* Page 24.

Respectfully submitted,

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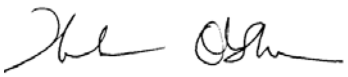

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Attachment A

Redline Edits to ELUTG description in Plenary Report

We strongly urge the RETI 2.0 leadership to make the following redline edits to the description of the Environmental and Land Use Technical Group (ELUTG) in the Plenary Report.

ELUTG description, edit #1 -

Current text, page 1, bullet 2:

- "RETI 2.0 is: An assessment of transmission and environmental implications and options for developing and delivering renewable energy from different areas." [13]

Recommended revision, page 1, bullet 2:

- RETI 2.0 is: "An assessment of transmission ~~and environmental~~ implications and options for developing and delivering renewable energy from different areas."
- Add another bullet: RETI 2.0 is: "An assemblage of spatial environmental and land-use data relevant to renewable energy and transmission planning."

ELUTG description, edit #2 -

Current text, Page 2:

- "Second stage: The three RETI 2.0 input groups reviewed TAFAs and identified transmission, environmental, land-use, and policy implications of developing and transmitting a hypothetical amount of additional renewable energy from each TAFA."[14]

Recommended revision, Page 2:

- "Second stage: The three RETI 2.0 input groups reviewed TAFAs and identified transmission, ~~environmental, land-use,~~ and policy implications of developing and transmitting a hypothetical amount of additional renewable energy from each TAFA. The ELUTG recommended spatial data relevant to renewable energy and transmission planning, evaluated data completeness, and identified data gaps."

[13] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* Page 1.
[14] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* Page 2.

ELUTG description, edit #3 -

Current text, Page 3:

- "The Environmental and Land Use Technical Group (ELUTG)…was an open stakeholder forum charged with collecting and assessing existing environmental and land-use planning information, including consultation with Native American tribes, to evaluate the implications of renewable energy and transmission development in the different TAFAs."[15]

Recommended revision, Page 3:

- "The Environmental and Land Use Technical Group (ELUTG)…was an open stakeholder forum charged with collecting and assessing existing environmental and land-use planning information relevant to renewable energy and transmission planning, including consultation with Native American tribes~~, to evaluate the implications of renewable energy and transmission development in the different TAFAs~~."

ELUTG description, edit #4 -

Current text, page 29:

- "The ELUTG was charged with providing a broad assessment of the feasibility of developing the hypothetical renewable resource range in each area, and a high-level overview of the environmental and land-use issues that may need to be addressed by such development and the conceptual transmission mitigation[16] identified by the TTG."[17]

Recommended revision, Page 29:

- "The ELUTG was charged with ~~providing a broad assessment of the feasibility of developing the hypothetical renewable resource range in each area, and a high-level overview of the environmental and land-use issues that may need to be addressed by such development and the conceptual transmission mitigation identified by the TTG~~ recommending spatial environmental and land-use data relevant to renewable energy and transmission planning, evaluating data completeness, and identifying data gaps."

[15] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* Page 3.
[16] Mitigation options include new transmission, advanced technologies and non-wire alternatives, and operational efficiencies. California Natural Resources Agency. (2016). Page 39.
[17] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* Page 29

ELUTG description, edit #5 -

Current text, page 54:

- "The main goal for the ELUTG was to identify and **recommend how** the data collected in the RETI 2.0 process **should best be used** to examine the environmental implications for areas of potential high-value renewable energy resources and potential new transmission corridors."[18] (**emphasis added**)

Recommended revision, page 54:

- "The main goal for the ELUTG was to identify and recommend how the data collected in the RETI 2.0 process should best be used to ~~examine~~ describe the environmental ~~implications~~ context for the Transmission Assessment Focus Areas ~~areas of potential high-value renewable energy resources and potential new transmission corridors~~."

[18] California Natural Resources Agency. 2016. *Renewable Energy Transmission Initiative 2.0 Plenary Report Public Review Draft.* Page 54.

Attachment B

Feedback on the accuracy and completeness of environmental and land-use data in the RETI 2.0 Plenary Report, Appendix A – Transmission Assessment Focus Areas

RETI 2.0 Plenary Report, Appendix A includes environmental and land use information for each of the Transmission Assessment Focus Areas (TAFAs) in California. Attachment B of this letter focuses on the TAFAs within the Desert Renewable Energy Conservation Plan (DRECP) area which has been the subject of detailed resource inventory and planning for both renewable energy development, including transmission, and conservation since 2009. The Bureau of Land Management finalized its amendments to the California Desert Conservation Area Plan for the DRECP by designating Development Focus Areas (DFAs) and new conservation lands in September 2016. In addition, the counties of Inyo, Los Angeles and Imperial have adopted renewable energy elements to their general plans, and two additional counties, San Bernardino and Riverside, are expected to finalize their renewable energy elements in the near future.

Our comments below identify key issues regarding land use and constraints in the Tehachapi, Victorville-Barstow, Tehachapi, Riverside East and Imperial Valley TAFAs that will need to be resolved before the RETI 2.0 draft report can be finalized. The key issues are as follows, according to TAFA.

1. Northern California TAFAs: Considering the absence of advanced planning for renewable energy and conservation in the Northern California TAFAs (Lassen-Round Mountain, Sacramento River Valley and Solano), we believe it is premature for RETI 2.0 to address hypothetical renewable energy generation and transmission needs for these areas.

2. TAFAs in the DRECP area in general: In December 2016 the DRECP agencies, including the CEC, released the Biological Conservation Framework which identifies lands, both federal and private, considered essential to meet biological resources goals and objectives of the DRECP. The framework is also considered a key source of information to be used by local agencies as they develop and adopt their conservation elements associated with Phase 2 of the DRECP covering private lands. The framework is considered by the California Department of Fish and Wildlife (CDFW) and U.S. Fish and Wildlife Service (USFWS) to be a conservation framework necessary for local agencies to develop

conservation plans that meet the standards for California Natural Communities Conservation Plans, and federal Habitat Conservation Plans. Such plans are necessary for applicants to obtain incidental take permits for listed species under both state and federal law. This framework is a key document to be used by local agencies in preparing their renewable energy and conservation elements to their general plans.

The RETI 2.0 Plenary Report and Appendix A should account for potential additional constraints on renewable energy and transmission project development due to the Biological Conservation Framework, especially in TAFAs that include lands located within the Owens Valley, Indian Wells Valley, eastern slope of the Sierra Nevada and Tehachapi Mountains, and Antelope Valley. A map of the Biological Conservation Framework Lands is attached. The Plenary Report must be updated to include the Biological Conservation Framework.

3. Tehachapi TAFA: BLM designated an 18,000-acre Wildlife Allocation area within the Tehachapi TAFA in 2016 and adopted various Conservation Management Actions (CMAs) that are intended to provide an appropriate level of protection for biological resources, both plants and animals. As per CMA WILD-LANDS-1, renewable energy activities and related ancillary facilities are not allowed. In addition, it retained the existing Desert Tortoise Research Natural Area as an Area of Critical Environmental Concern (ACEC) which was formally designated in 1980. Renewable energy development is prohibited within this ACEC. A similar ACEC designated for conservation of the desert tortoise and its habitat includes public lands in the Fremont Valley and Rand Mountains. Renewable energy development is prohibited here as well. Public lands within the Indian Wells Valley to the north include extensive conservation lands comprised of both ACEC and California Desert National Conservation Lands (CDNCL). Both designations prohibit renewable energy development, and new transmission facilities are allowed in CDNCL but only within designated utility corridors.

ACEC and CDNCL lands also have a maximum allowable ground disturbance limit ranging from 0.1 to 1.0 percent of the acreage within the conservation unit. Such limitations will apply to any new transmission facilities, including facility upgrades. However, in calculating ground disturbance, BLM will also include all existing disturbance in determining the remaining allowable disturbance. Although BLM considers that most

conservation units have not reached the disturbance limits, there are some that are near or have been exceeded.

There are extensive Biological Conservation Framework lands in the TAFA including the Owens Valley, Indian Wells Valley, Antelope Valley, eastern slope of the Tehachapi Mountains, northern slope of the San Gabriel Mountains and extensive areas east of California City.

4. Victorville-Barstow: The RETI 2.0 Plenary Report identifies a hypothetical scenario of 4500 MW of solar and 500 MW of wind energy development in this TAFA, but also states that reaching such levels would be "challenging" due to the extent of sensitive resources and the local agency preference for community scale solar projects only. San Bernardino County tentatively supports a limited number of DFAs on public land near Trona, north of Kramer Junction, Hinkley and El Mirage, and on Variance Process Lands near Amboy.

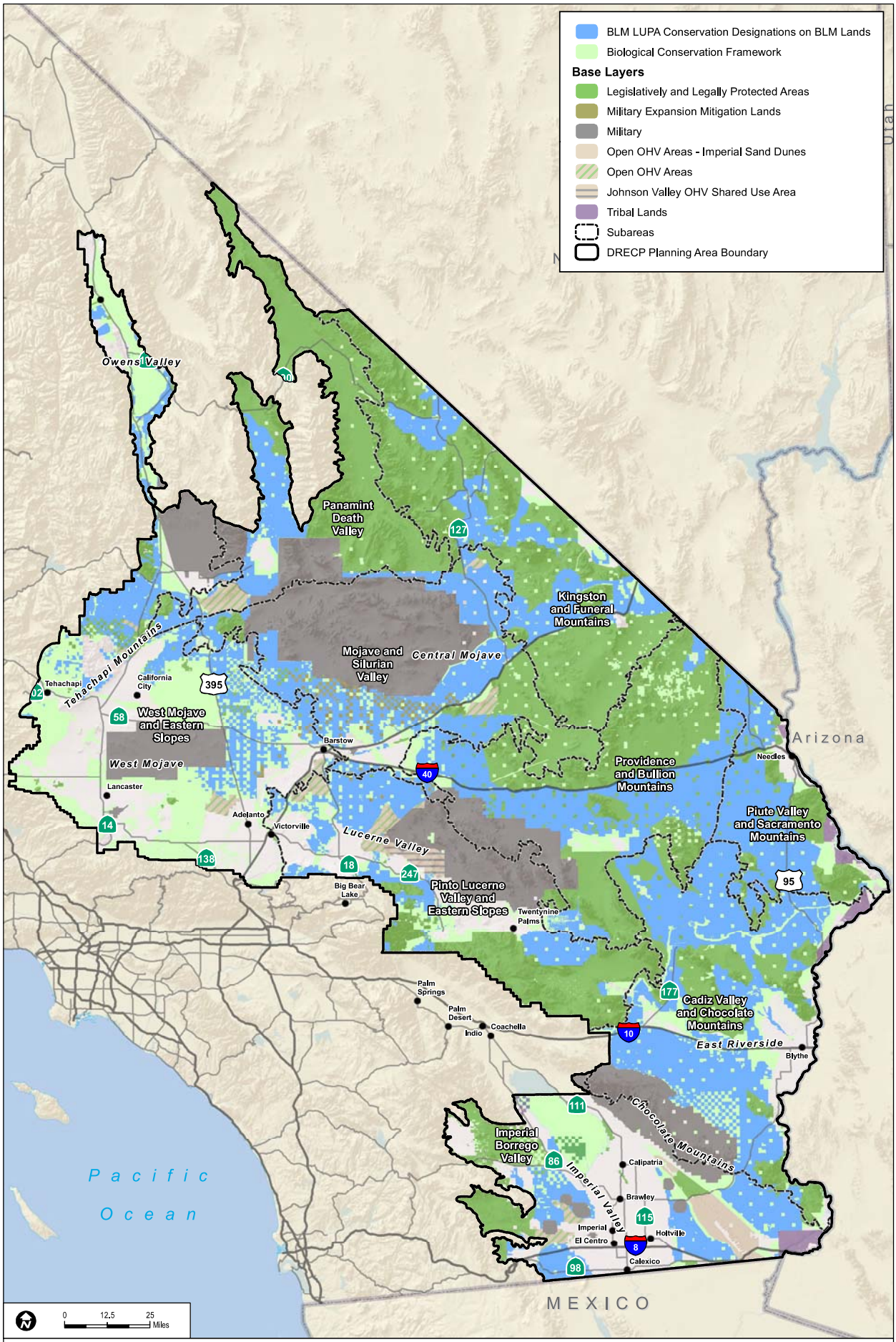
The main issue with this TAFA is the 5-year moratorium on any renewable energy development within the DFA north of Kramer Junction, or alternatively until such a time as Kern County and San Bernardino County finalizes their updates to their general plans that will specify how interspersed private lands will be zoned for Mohave ground squirrel conservation and what private lands will be available for renewable energy development, and the California Department of Fish and Wildlife (CDFW) finalizes its Mohave ground squirrel conservation strategy which will consider all lands within the range of the species including this DFA. In December 2016 the DRECP agencies released the Biological Conservation Framework which identifies lands, both federal and private, considered essential to meet biological resources goals and objectives. This framework is considered a key document to be used by local agencies in preparing their renewable energy and conservation elements to their general plans. All lands within the DFA north of Kramer are included in the Biological Conservation Framework lands, and were included specifically for the conservation of the Mohave ground squirrel.

Appendix A identifies two wind resource areas in the vicinity of Barstow, with a hypothetical generation of 500 MW. We believe this is unrealistic due to military conflicts, and impacts to golden eagles, prairie falcons and migratory birds in general in the wind resource area east of Barstow adjacent to the western portion of the Cady Mountains and the eastern portion of the Newberry Mountains.

Biological Conservation Framework lands overlap large areas of the Victorville-Barstow TAFA, potentially imposing future constraints on renewable energy development.

5. Riverside East TAFA: The RETI 2.0 Plenary Report identifies that 500 to 1000 MW generated from wind energy projects could conceptually be developed in the TAFA, but that such development would be prohibited on the known areas of interest because they overlap with BLM's designated ACECs in the area where renewable energy generation projects are prohibited. In addition, although BLM identified potential wind energy generation in the Riverside East DFA up to 1000 MW, the impact to migratory birds associated with the Colorado River flyway would preclude such development. We recommend that wind energy in this TAFA be dismissed in total due to land use constraints and impacts to migratory birds.

6. Imperial Valley TAFA: Since there are no public land DFAs or Imperial County private lands located within areas identified as having economic wind energy resources, we recommend that the RETI 2.0 Plenary Report dismiss the feasibility of wind energy generation in this TAFA. The wind resource areas identified for the Imperial Valley TAFA is located in an area adjacent to designated wilderness and within an ACEC, as well as located near the Colorado River, a major flyway for migratory birds. Given these designations and potential impact issues, we recommend that wind energy development be removed from the hypothetical development scenario.



Sources: ESRI (2015); CEC (2013); BLM (2015); CDFW (2013); USFWS (2013)

FIGURE 2

Biological Conservation Framework Map with BLM DRECP LUPA Conservation Designations

Attachment C

(see next page)

November 14, 2016

Electronic Mail (with hard copy to follow)

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Dear RETI 2.0 Leadership Team:

Our organizations strongly support the objective of the RETI 2.0 initiative to explore new transmission to meet the needs of an increasingly carbon free California economy. We commend you on the significant progress that RETI 2.0 has made in aggregating important information from existing studies and multiple regulatory planning processes. For the first time, data from across studies and proceedings has been brought together in one forum for exploration. This exercise has provided valuable insights and has also raised important questions that should be resolved in the forthcoming RETI 2.0 report.

Accordingly, our organizations provide the following recommendations for that report.

1. **Need projections should align with California climate policy.**

The need projections identified in RETI 2.0 must be consistent with California climate policy, including SB350. Although the California Air Resources Board (CARB) is still determining the energy sector reductions necessary to meet the SB 350 GHG goals, the amount of hypothetical resource under consideration by RETI 2.0 (40,000 MW) is likely many times larger than what is needed, and indeed, is many times larger than the most recent outputs from the Public Utilities Commission (CPUC)'s Renewables Portfolio Standard (RPS) Calculator. Rather than using the most recent state data, RETI 2.0 uses a range of projections from older third-party reports. Notably, these numbers assume the energy efficiency goals in SB 350 do not occur. We recommend RETI 2.0 use the most recent information on renewables need developed by the CPUC.

2. **Geographic areas identified should align with ongoing planning efforts for renewable energy and conservation.**

The RETI 2.0 planning process has defined new Transmission Assessment Focal Areas (TAFAs) and during the July 21st Environmental and Land Use Technical Group (ELUTG) meeting introduced Project Concentration Areas (PCAs)[1] as spatial areas for potential siting of renewable generating facilities to guide the study of transmission and environmental implications by the Transmission Technical Input Group (TTIG) and the ELUTG.

There are inconsistencies between these areas and geographic areas identified in final local, state, or federal planning processes as areas available or not available for renewable energy development. This misalignment is concerning. For example, the TAFA in Los Angeles County encompasses Significant Ecological Areas which are not available for renewable energy generation[2] and PCAs in the San Joaquin Valley are not consistent with the areas identified as "least conflict" in the "Solar and the San Joaquin Valley Identification

[1] July 2016. https://reti.databasin.org/maps/e3616f36144849a9bdc724dc655bc0f9/active. Although the PCAs do not appear to be included in either the TTIG[1] or ELUTG[1] reports, we are concerned about their potential role in RETI.
[2] Ibid, pages 34-35

of Least-Conflict Lands Project" report[3]. In the California desert, a substantial amount of the Desert Renewable Energy Conservation Plan (DRECP) Phase I Development Focus Areas (DFAs) are inexplicably not included in these areas. This is very concerning particularly given the statements by the state and federal agencies that transmission will be aligned to ensure that the DFAs will be usable for future development.

Equally troubling, these areas either envelop or are contiguous to areas that are not available for development.[4] If RETI 2.0 is to inform transmission decision-making, these areas should be consistent with federal and state renewable energy and land use plans. It is essential to align transmission planning with these local, state and federal siting efforts to meet California's ambitious renewable energy goals in a timely and environmentally responsible manner.

We recommend that areas inconsistent with the land use decisions of planning processes or initiatives either be eliminated from the RETI 2.0 report or those inconsistencies be identified and reflected to ensure that there is an accurate accounting of what may or may not be available for development within these areas.

3. RETI 2.0 did not achieve the objective of analyzing land use and environmental implications.

The original objective of the RETI 2.0 ELUTG was to identify land use and environmental opportunities, constraints, and implications to accessing (high-value renewable) resources that need transmission[5]. This analysis was never conducted. Therefore, it is imperative that the forthcoming RETI 2.0 report does not imply that land use and/or environmental analysis was completed.

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[3] May 2016. *A Path Forward: Identifying Least-Conflict Solar PV Development in California's San Joaquin Valley*. Conservation Biology Institute and Center for Law, Energy & the Environment (CLEE), University of California, UC Berkeley School of Law, CA

[4] For example, some PCAs are located on top of existing incorporated cities (e.g., City of Woodland) and some PCAs overlap with conservation areas on public land in which renewable energy development is prohibited (e.g., conservation designations within the DRECP Phase I Land Use Plan Amendment).

[5] Turner, B. (2016) *Plenary Group Meeting on Long-Term Renewable Scenarios and Transmission Assessment Focus Areas, s*lides 3-4. [PowerPoint Presentation].

As follows are four recommendations on themes and findings that the RETI 2.0 report should explore.

First, we appreciate the discussion in the ELUTG report[6] of the development and possible uses of analytical products and tools to improve integration of land use and environmental considerations into electricity planning (e.g. Data Basin and the environmental report writer). We recommend that the forthcoming RETI 2.0 report describe these tools and their uses and the report narrative must clearly state that these tools were not applied in the RETI 2.0 process and therefore did not shape results or outcomes.

Second, we recommend that any TAFA specific narrative in the RETI 2.0 report rely upon the results of local, state, and federal planning processes, as the RETI 2.0 process did not conduct new land use or environmental analysis. Specifically, the San Joaquin TAFA narrative should describe the Least Conflict Lands for solar energy identified in the Solar in the San Joaquin Valley process[7]. The California Desert TAFAs narrative should describe the Development Focus Areas designated by the Bureau of Land Management's DRECP Phase I Land Use Plan Amendment (LUPA)[8], and the renewable energy zones and overlays established in local government planning processes. We recommend that the RETI 2.0 report identify the backbone (bulk system) upgrade implications of interconnecting renewable generation facilities within Development Focus Areas[9], local government

[6] Flint, Scott, Eli Harland, Misa Milliron, Gabriel Roark. 2016. *Environmental and Land Use Information to Support the Renewable Energy Transmission Initiative 2.0 Process.* California Energy Commission. Publication Number: CEC-700-2016-007

[7] May 2016. *A Path Forward: Identifying Least-Conflict Solar PV Development in California's San Joaquin Valley*. Conservation Biology Institute and Center for Law, Energy & the Environment (CLEE), University of California, UC Berkeley School of Law, CA

[8] 2016. Desert Renewable Energy Conservation Plan. *Record of Decision for the Land Use Plan Amendment to the California Desert Conservation Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan*. U.S. Bureau of Land Management.

[9] 2016. Desert Renewable Energy Conservation Plan. *Record of Decision for the Land Use Plan Amendment to the California Desert Conservation Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan*. U.S. Bureau of Land Management.

identified renewable energy development areas[10], and Least-Conflict Lands[11] within the California Deserts TAFAs and San Joaquin Valley TAFA, respectively. (We recognize that upgrades to local level systems will largely depend on the specific locations of future projects.)

Third, we recommend that the next cycle of the California Independent System Operator's (CAISO) Transmission Planning Process (TPP) incorporate the results of final local, state, or federal planning processes into their study, including Development Focus Areas[12], local government identified renewable energy development areas[13], and Least-Conflict Lands[14]. This can be documented as a recommendation or next step in the RETI 2.0 report. We appreciate that the CPUC has moved to incorporate this data into their portfolio generation via the RPS Calculator as these portfolios are an important input into the TPP.

Fourth, the ELUWG report has underscored the importance of including spatial land use data in generation and transmission modeling and planning; we recommend that the RETI 2.0 report explicitly document this finding. We recommend that Data Basin continue to be used as a central platform for aggregating spatial data associated with RETI 2.0.

[10] Inyo County: http://www.inyoplanning.org/projects/documents/Exhibit1CEQAFindings.pdf (See Table 1). LA County: http://file.lacounty.gov/bos/supdocs/95462.pdf. Imperial County: ftp://ftp.co.imperial.ca.us/icpds/eir/cec/final/22Revisions.pdf

[11] May 2016. *A Path Forward: Identifying Least-Conflict Solar PV Development in California's San Joaquin Valley*. Conservation Biology Institute and Center for Law, Energy & the Environment (CLEE), University of California, UC Berkeley School of Law, CA

[12] 2016. Desert Renewable Energy Conservation Plan. *Record of Decision for the Land Use Plan Amendment to the California Desert Conservation Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan*. U.S. Bureau of Land Management.

[13] Inyo County: http://www.inyoplanning.org/projects/documents/Exhibit1CEQAFindings.pdf (See Table 1). LA County: http://file.lacounty.gov/bos/supdocs/95462.pdf. Imperial County: ftp://ftp.co.imperial.ca.us/icpds/eir/cec/final/22Revisions.pdf

[14] May 2016. *A Path Forward: Identifying Least-Conflict Solar PV Development in California's San Joaquin Valley*. Conservation Biology Institute and Center for Law, Energy & the Environment (CLEE), University of California, UC Berkeley School of Law, CA

Conclusion

We appreciate the opportunity to participate in the RETI 2.0 planning process and to provide comments on the forthcoming RETI 2.0 report.

Respectfully submitted,

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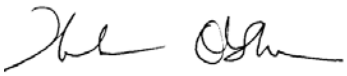

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California's Regional Conservation Investment Strategy Program: Components and Benefits

Prepared by:
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Jeff Aardahl, California Representative
Kim Delfino, California Program Director

Defenders of Wildlife

October 2017

Table of Contents

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List of Abbreviations

AB: Assembly Bill

ACEC: Area of Critical Environmental Concern

BGOs: Biological Goals and Objectives

BLM: Bureau of Land Management

CDFW: California Department of Fish and Wildlife

CEQA: California Environmental Quality Act

CESA: California Endangered Species Act

CFGC: California Fish and Game Code

DOD: Department of Defense

DOI: Department of Interior

DRECP: Desert Renewable Energy Conservation Plan

ESA: Endangered Species Act

FLPMA: Federal Land Policy and Management Act

HCP: Habitat Conservation Plan

MCA: Mitigation Credit Agreement

MOU: Memorandum of Understanding

NCCP: Natural Community Conservation Plan

NGO: Non-government Organization

NLCS: National Landscape Conservation System

RCA: Regional Conservation Assessment

RCIS: Regional Conservation Investment Strategy

SB: Senate Bill

SBCTA: San Bernardino County Transportation Authority

SCAG: San Bernardino County Association of Governments

SWAP: State (California) Wildlife Action Plan

USDA: United States Department of Agriculture

USFWS: United States Fish and Wildlife Service

USGS: United States Geological Survey

Executive Summary

California's Regional Conservation Investment Strategy (RCIS) Program is a non-regulatory, voluntary approach to assess the conditions of conservation lands in a given region and direct mitigation to further long-term conservation goals and objectives. The RCIS Program does this by identifying regional conservation needs for a robust set of focal species and using this "toolbox" information to inform both regular and advance mitigation actions. The State's environmental permitting processes generate a need to fulfill certain mitigation, and these requirements can be focused through regional conservation strategies to enhance conservation investments. The RCIS Program includes three distinct, but related components: (1) development of a specific RCIS; (2) preparation of an optional regional conservation assessment (RCA), which can greatly inform associated planning; and (3) completion of a mitigation credit agreement (MCA). These components are intended to achieve higher-quality mitigation outcomes by guiding conservation investments supporting regional priorities.

Each public agency-sponsored RCIS is approved by the California Department of Fish and Wildlife and specifies a purpose, as well as a geographic area. An RCIS must include a description of all stressors to selected focal species and their habitat, and meaningful goals and specific, measurable, achievable, relevant and time bound (i.e., "SMART") conservation objectives to address focal species in light of historic, current and projected stressors. The strategy also must identify information gaps, address how its provisions comply with local authorities, and discuss development into the foreseeable future and the identification of regional mitigation banks within the planning area.

Successful RCIS planning includes: (1) delineation of a multi-jurisdictional approach (i.e., how RCIS options relate to permitting); (2) inclusion of appropriate background direction, as well as existing bioregional planning requirements and land trust program concerns; (3) identification of the highest resource value lands (private & public) relative to advancing conservation; (4) use of existing biotic information and identification of mitigation opportunities; (5) selection of appropriate planning boundaries and a robust set of focal species; (6) use of a data analysis portal providing opportunity for stakeholder collaboration; (7) promotion of maximal stakeholder engagement; and (8) development of conservation land management standards to maximize investment returns over the long term.

With RCIS planning, priority actions are identified to guide investments in regional conservation. The RCIS Program provides a platform for advance mitigation relative to infrastructure development and grant expenditure-related projects along with complementing existing regional conservation planning. The program is notable for its use of existing background direction/data, a relatively short preparation time, and a non-regulatory planning approach with extensive stakeholder collaboration. The RCIS program promotes landscape-scale conservation by identifying shortcomings in regional conservation, builds on existing conservation investments, and addresses planning challenges presented by inadequate habitat linkage connectivity, renewable energy development, invasive species, climate change and community growth.

California's
Regional Conservation Investment Strategy Program:
Components and Benefits

Defenders of Wildlife

1.0 Introduction

Assembly Bill 2087, which was signed into law in September 2016,[1] created the California Regional Conservation Investment Strategy (RCIS)[2] Program. This Program encourages a voluntary, collaborative, non-regulatory conservation assessment process intended to result in high-quality conservation outcomes. It also delivers an **advance mitigation**[3,4] tool (Figure 1).

Associated planning documents must be sponsored by a public agency and can provide numerous local planning benefits. RCIS planning assures better long-term natural resource conservation, more informed open space allocation, facilitation of "least conflict project siting" and expedited project permitting. Project developers benefit from RCIS efforts because the program identifies regular and advance mitigation opportunities and provides for greater planning certainty.

The RCIS Program uses a science-based approach to identify, tailor and direct mitigation actions in a specific planning area to facilitate the conservation of California's declining and vulnerable species. The State's existing environmental permitting processes generate a need to fulfill mitigation, and, through an RCIS, agencies can direct mitigation to augment previous conservation investments by protecting, restoring, and/or reconnecting habitats. The Program's goal is to achieve higher-quality conservation outcomes by guiding mitigation that supports regional conservation priorities.

The RCIS Program uses the best available science to develop prioritized conservation actions for the benefit of "focal" species and at-risk habitats. An RCIS planning process uses the information found in a variety of existing state, regional and local plans, including but not limited to, the California State Wildlife Action Plan (SWAP), the Desert Renewable Energy Conservation Plan (DRECP),[5] and approved Natural Community Conservation Plans (NCCPs) that overlap an RCIS area.

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[1] California Legislative Information. 2016. Assembly Bill 2087. Regional Conservation Investment Strategies. Legislative Counsel's Digest. Sacramento, California.

[2] California Department of Fish and Wildlife. 2017a. Regional Conservation Investment Strategies Program. Headquarters. Sacramento, California.

[3] Section 13 (Glossary) provides more detail on certain terms, including those highlighted in bold font.

[4] Kirkham, S. 2015. Advance mitigation. Improving Environmental Outcomes, Mitigation Success and Project Delivery Through Collaborative Advance Transportation and Conservation Planning. Presentation prepared for California Department of Transportation (CalTrans). CalTrans Headquarters. Sacramento, California.

[5] Bureau of Land Management. 2016a-b. Land Use Plan Amendment and Record of Decision. Desert Renewable Energy Conservation Plan DRECP. Land Use Plan Amendment to the California Desert Conservation Plan, Bishop Resource Management Plan and Bakersfield Resource Management Plan. California State Office. Sacramento, California.

Figure 1. Regional Conservation Investment Strategy Program Overview (SBC et al. 2017).

A hallmark of this Program is a relatively short preparation time (approximately six to 15 months); which necessitates the use of previously prepared background material. The RCIS Program relies on extensive California Department of Fish and Wildlife (CDFW) information, federal data sources and peer-reviewed literature to compile the best available scientific information. Three separate, but connected components define the Program: an RCIS; a regional conservation assessment (RCA), which is an optional tool providing valuable regional context (Figure 2); and a mitigation credit agreement (MCA), for entities using the RCIS for regular and advanced mitigation application.

RCAs describe the broad ecoregional context for planning (i.e., documentation of species, ecosystems, protected areas, core/linkage habitat within an ecoregion) and can help shape the scope of RCIS planning. Both RCAs and RCIS efforts identify regions with the greatest probability for long-term **ecosystem conservation** success. Co-benefits of this kind of integrated planning include **ecosystem services** of enhanced carbon sequestration, improved water quality, and agricultural land protection.

The RCIS Program is intended to provide an informed, streamlined mechanism that allows any person or entity to develop mitigation credits through MCAs, under an RCIS Plan (CDFW 2017a). An RCA informs this effort by providing information and analyses that document species, ecosystems, ecosystem processes, protected and conserved areas, and wildlife corridors and linkages within an associated **ecoregion**. A formalized RCIS must be in place before an MCA can be approved. CDFW is responsible for approving RCAs, RCISs and MCAs after appropriate consultation and review.

2.0 The Regional Conservation Investment Strategy Program

2.1 The Basics

An RCIS identifies high-value regional conservation opportunities intended to aid in species recovery, facilitate adaptation to climate change, and improve resiliency in the face of wildlife population **stressors and pressures** (Figure 3). Required RCIS elements[6] include an explanation of the **purpose** and need for the strategy being developed, the **geographic area** selected for such planning, and accompanying rationale. This described purpose must be included in the required RCIS state agency's one-page sponsor letter, from both a conservation and infrastructure planning perspective.

A necessary component of an RCIS is a summary of historic, current and projected stressors and pressures on focal species, habitat and natural resources. An RCIS must describe how assembled goals and objectives provide opportunities to address **climate change adaptation** and how the best available science has been applied. An RCIS also must include a brief description of information gaps and the inclusion of provisions to ensure the strategy will comply with **local authorities** and overlapping NCCP/Habitat Conservation Plan (HCP) efforts.

[6] Environmental & Energy Consulting and California Department of Fish and Wildlife. 2017. Regional Conservation Investment Strategies. California's New Conservation Planning and Advance Mitigation Tool. CDFW Headquarters. Sacramento, California.

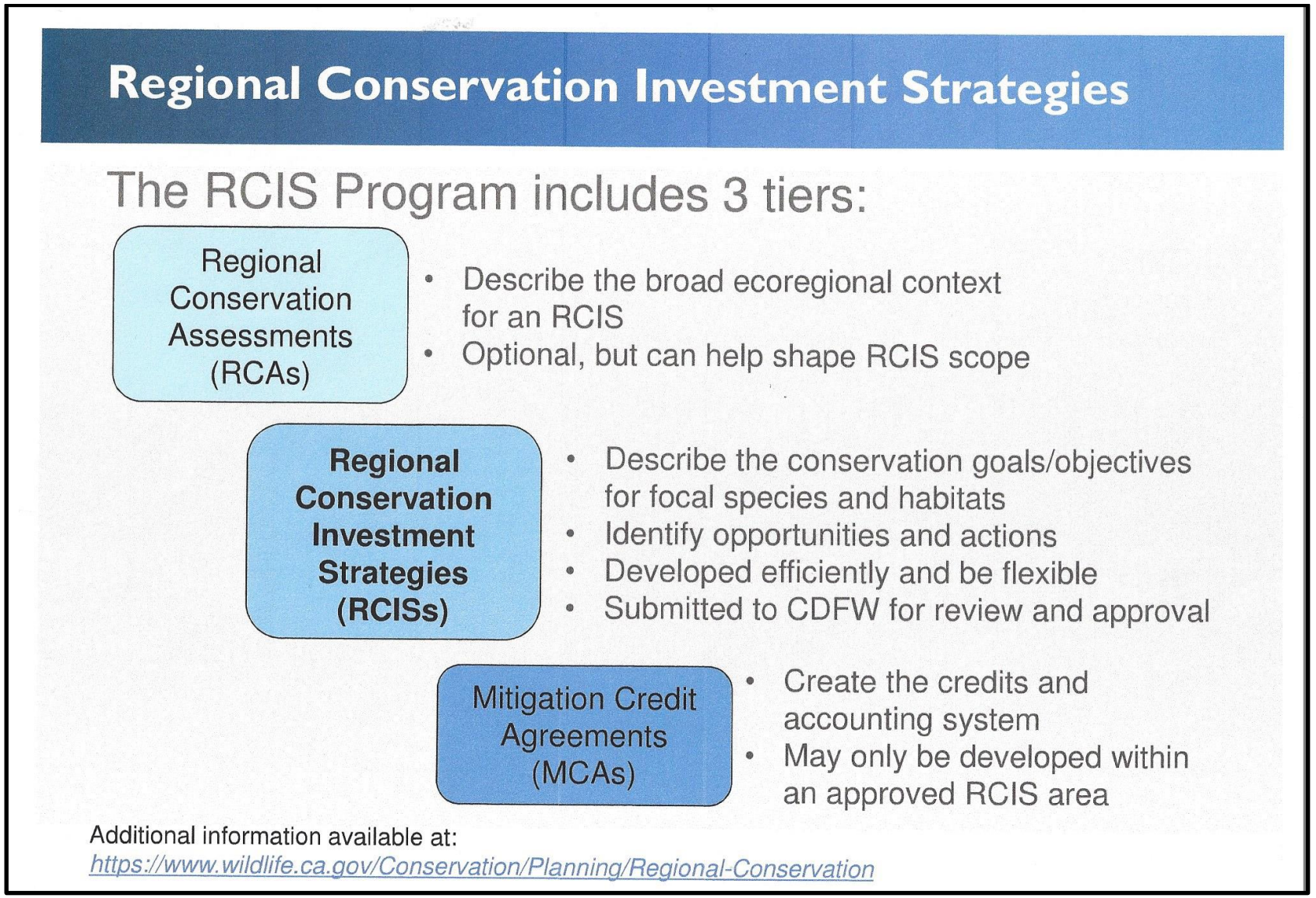

Figure 2. The Three Tiers of RCIS Planning: Regional Conservation Assessments, Regional Conservation Investment Strategies and Mitigation Credit Agreements (SBC et al. 2017).

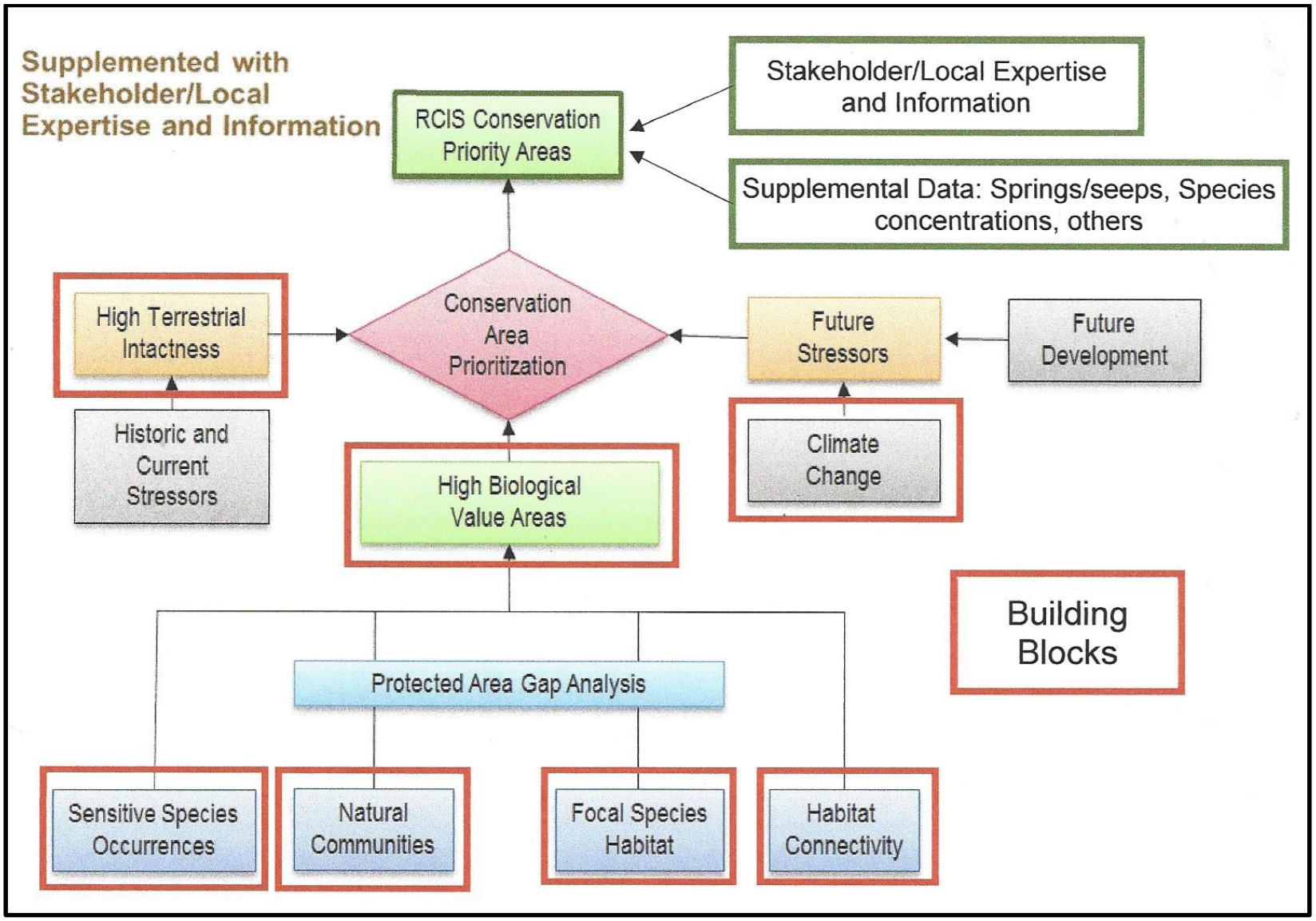

Figure 3. Components of a Successful Regional Conservation Plan (ICF and CBI 2017).

Further, an RCIS should identify a robust set of **focal species** and key ecological resources (collectively referred to as **conservation elements)**; meaningful goals; **specific**, **measurable**, **achievable**, **relevant**, and **time-bound** (i.e., SMART) **objectives** relating to these elements, **conservation actions** to preserve or restore ecological resources; and **enhancement actions** to address stressors and pressures. An RCIS planning effort must include a consideration of local development in the planning area into the foreseeable future and a summary of encompassed **mitigation banks**.

The optional RCA planning component (Figure 4), which is generally beneficial to the "big picture" of regional conservation planning, includes information and analyses of important species, ecosystems, protected areas, habitat linkages, regional pressures and stressors at the United States Department of Agriculture (USDA) ecoregion scale. MCAs, as they relate to RCIS planning, identify the entities that will own any involved mitigation lands and be responsible for the long-term management of these conservation investments. CDFW is currently preparing formal guidelines for MCA development.

Criteria for selecting or defining RCA or RCIS boundaries must reflect ecological considerations, as set forth in the requirements of California Fish and Game Code (CFGC) Sections 1851(k) and (l), 1852, and 1853. These boundaries are to conform to prescribed USDA ecoregion subdivisions or United States Geological Survey (USGS) hydrologic unit codes. RCIS efforts may be further confined by administrative or jurisdictional boundaries. Importantly, an RCIS area must be selected, analyzed and approved before an MCA can be prepared.

MCAs are used as a vehicle to address **compensatory mitigation** fulfillment within an RCIS area relative to California Environmental Quality Act (CEQA) documents, California Endangered Species Act (CESA) incidental take permitting, Lake & Streambed Alteration agreements; and potentially, Endangered Species Act (ESA) permits. Only entities that are a party to a MCA are required to adhere to supporting RCIS goals, objectives and conservation actions. Any person or entity may enter into a MCA with CDFW to create credits; and entities may create/use, sell, or otherwise transfer mitigation credits if all Program requirements have been met. These credits may be used to provide advance mitigation, in a species-specific manner; through habitat acquisition or other conservation actions. However, credits cannot be created on a site that has already been permanently protected or has been used to fulfill compensatory mitigation requirements. Permitting agencies also retain the authority to determine if a MCA meets individual project mitigation requirements.

Unlike NCCPs and HCPs, RCISs are non-regulatory. Approval of an RCIS does not result in a permit or include incidental take authorization under the CESA/ESA. Nor does the RCIS Program alter in any way a project proponent's obligation to obtain incidental take coverage through an appropriate permitting mechanism. The development of an RCIS plan does not create, modify, or impose regulatory requirements/standards, regulate land use, establish land use designations, or affect public agency authorities. RCIS efforts do provide regional planning that identifies important ecological resources and conservation actions that will advance the conservation of focal species and their habitats while informing project developers of potential high conflict areas to avoid for development.

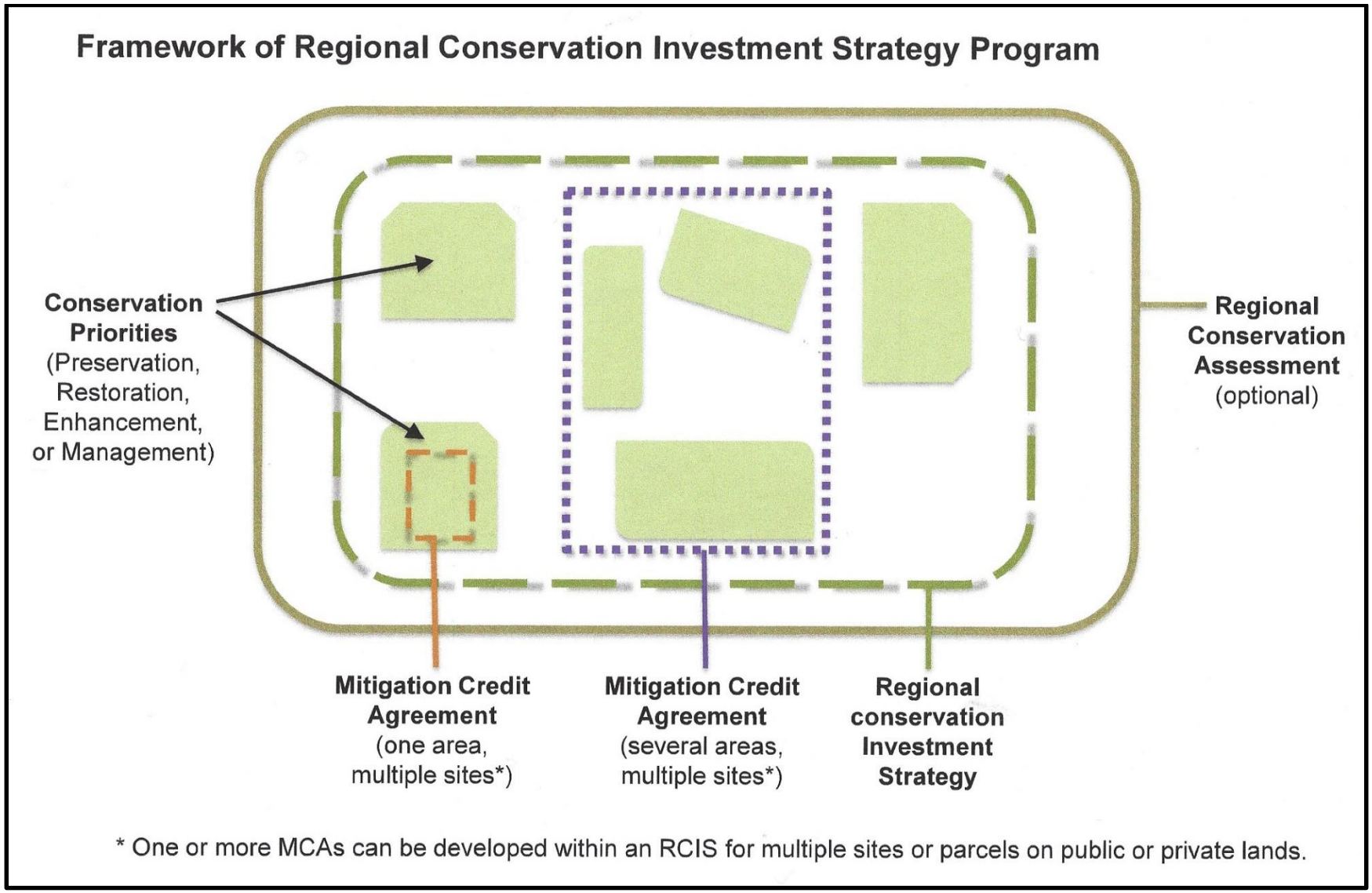

Figure 4. Framework of Regional Conservation Investment Strategy Program (ICF and CBI 2017).

In contrast to the county-based boundary of a NCCP or HCP, an RCIS boundary is ecologically based and may overlap county boundaries. However, an RCIS must include provisions ensuring that it is consistent with, and complementary to, any NCCP/HCP, state or federal recovery plan, or other overlapping conservation strategy. An RCIS planning document may be valid for up to 10 years following CDFW approval. It can be extended for an additional 10 years provided all new scientific information has been incorporated and the RCIS continues to meet the Program's requirements as outlined in the California Fish and Game Code (Chapter 9, Section 1850, et seq.).

The RCIS Program does not provide funding to develop or update an RCA, RCIS, or MCA. Such funding is provided by the entity developing the RCIS. However, funding sources are likely to be available through the California Department of Transportation's Advance Mitigation Fund [footnote to California Senate Bill (SB) 103] and bond proposals. Development of a MCA and all actions associated with its proper implementation, including environmental document review and conservation/enhancement actions, are similarly funded by the entity that seeks to create mitigation credits. The information and focused recommendations provided by an RCIS necessarily informs subsequent MCA development, which in turn can be used to create advance mitigation opportunities.

RCIS Program fees[7] are to be collected by CDFW from: (a) a public agency that proposes an RCIS or RCA, and (b) a person or entity that proposes to enter into a MCA. Fees pay for CDFW's Program costs, including review and approvals of all supporting documentation. If an RCIS document is not initially accepted by CDFW as complete, it can be resubmitted and CDFW may impose additional fees. Public agencies developing RCIS planning documents must follow all relevant requirements found in California Fish and Game Code Section 1854, including notification to the Governor's Office of Planning and Research; conducting public meetings, and publishing notices/draft RCIS documents.

Table 1. Fees required by the California Department of Fish and Wildlife for RCIS planning.

RCIS Component	**CDFW Review/Approval Fee**
RCIS	$28,500
RCIS Resubmittal (if not accepted as complete)	Up to $28,500
RCA	$22,000
RCA Resubmittal (if not accepted as complete)	Up to $22,000
MCA	To be determined

Public agencies must also notify entities within the RCIS boundaries of public meetings and public comment periods. This includes county boards of supervisors, regional councils, and land trust/mitigation banking program organizations. The entity developing an RCIS must incorporate all public comments, as well as a response to how each comment was addressed, into draft RCISs prior to finalization.

[7] California Department of Fish and Wildlife. 2017b. Regional Conservation Investment Strategies Program Fees. Headquarters, Sacramento, California.

Stakeholder participation in the development of an RCIS is an essential component to a successful strategy, as it will facilitate a well-informed strategy supported by on-the-ground knowledge and a broad-based buy-in from affected communities. Entities developing an RCIS should encourage early stakeholder engagement in determining appropriate focal species, planning boundaries, goals and objectives. The RCIS planning entity should also encourage stakeholders to provide written comments and data submissions on the draft RCIS to address that information.

The CDFW has 30 days to deem draft RCIS planning documents complete upon their submittal, or return them to the submitting public agency with comments describing what is needed to complete draft documents. The public agency submitting an RCIS must include any comments it has received on its draft in the subsequent submittal to CDFW, along with a response on how these comments have been addressed.

Once draft RCISs are complete, CDFW posts them on its website for an additional 30-day public comment period. All public agencies, organizations, or individuals that have filed a written request with CDFW to receive notices regarding draft RCISs are notified. A state agency must request CDFW approval of a prepared RCIS by letter, stating the RCIS will aid in meeting the State's goals of conservation. All approved RCIS documents are also to be posted on a CDFW website, with additional internet web portal development anticipated.

While the current RCIS program is considered a "pilot" program, with CDFW only able to approve eight RCIS planning efforts, recently enacted legislation lifts the strict cap of eight plans if a state water or transportation infrastructure agency writes to CDFW to approve the RCIS because it will facilitate mitigation for an infrastructure project.[8] Four pilot projects are currently underway, including the Antelope Valley, East Bay, Santa Clara and Yolo RCIS planning efforts (ICF and CBI 2017). Several additional county entities within California have expressed interest in RCIS planning opportunities.

2.2 Important Attributes to Robust and Collaborative Regional Conservation Investment Strategy Planning

A successful RCIS program must include a meaningful collaborative process for stakeholders. It is essential that an RCIS program include the following criteria to facilitate a high degree of collaboration:

- Sufficient public/stakeholder participation and opportunity to comment are foremost considerations throughout the planning process, to avoid the pitfalls of planning in the dark;

[8] See California Streets and Highway Code Section 800.6(j) ("Any state water or transportation infrastructure agency that requests approval of a regional conservation investment strategy pursuant to subdivision (a) of Section 1852 of the California Fish and Game Code that may be used to facilitate mitigation for an infrastructure project shall not be subject to the limitation on the number of regional conservation investment strategies set in Section 1861 of the Fish and Game Code.")

- Non-governmental organization (NGO) input is fully considered, with responses in final documents outlining on how public comment has been addressed;
- The degree of planning team and stakeholder interaction is high, with strong consideration of regular input from a knowledgeable steering committee and/or advisory panel;
- Use of a collaborative data analysis portal providing for stakeholder collaboration; and
- An emphasis should be placed on roles, strategy and process with a schedule for completion.

To meet the RCIS planning criteria, the program must produce an RCIS/RCA with the following attributes:

- Appropriate conservation planning boundaries and a robust set of focal species;
- Development of meaningful planning goals and "SMART" conservation action objectives;
- Inclusion of background direction such as the California Desert Biological Conservation Framework and assembled DRECP data/recommendations (Attachment 1);
- Identification of the highest resource value lands relative to advancing conservation;
- Use of existing biotic information and identification of mitigation opportunities;
- Real conservation actions are to be undertaken in mitigating development impacts, rather than merely changing land ownership title of habitats supporting at-risk species;
- An expedited effort will not be completed at the expense of data analysis quality;
- Existing conservation investments are adequately considered and integrated;
- Integration between public and private land conservation planning is relatively seamless;
- Private land activity and conservation goals/objectives are sufficiently incorporated;
- Mitigation land bank/land trust objectives/needs are fully considered;
- HCP or NCCP programs within the RCIS area are not adversely affected;
- A re-balancing of land uses on conservation lands is fully considered to address current and future stressors (i.e., climate change, invasive species, wildfire and community growth);
- Long-term conservation investments are assured through the establishment of mitigation and conservation land management standards, as well as regular monitoring of these investments; and
- Delineation of a multi-jurisdictional approach (i.e., how RCIS options relate to permitting).

3.0 The Benefits of a RCIS Program

The RCIS Program provides a multitude of benefits. It identifies priority conservation actions to guide voluntary public and private investments to conserve rare species and sensitive habitat (McGraw 2016). It provides a platform for advance mitigation relative to infrastructure development (O'Donoghue 2016) and grant expenditure-related projects, and complements existing regional HCPs and NCCPs. The planning is also based largely on existing data and preparation times are relatively quick compared to the more comprehensive planning associated with regional HCPs and NCCPs. As detailed below, multiple values, interests and entities will benefit from the RCIS Program.

3.1 Why Is Conservation Planning and Investment Important?

Conservation planning, as with infrastructure and community health planning, contributes significantly to community development and quality of life. Moreover, such planning results in improved investments in the management of our natural resources, which benefit us all. Effective conservation planning should provide for the most robust and durable ecosystems over the long term.

Both RCAs and RCIS efforts can identify high priority conservation and open space lands that can serve to maximize regional conservation investments. This knowledge can help inform county general plan updates, minimize military encroachment pressures,[9] reduce the impacts of utility-scale renewable energy projects, benefit the least-conflict siting of infrastructure projects, and assure a sound investment of conservation dollars (e.g., bond & grant funding, and greenhouse gas emission funding).

Conservation contributions provided by working agricultural lands can also be facilitated with RCIS planning. Actions benefitting focal species on these lands can be used in specific mitigation applications. Other important MCA actions, along with directed conservation investments from regional entities, can result in improved species conservation by increasing the resilience of focal species to regional stressors. This is accomplished by protecting high quality habitat, improving connections between conservation land investments, and focusing habitat enhancement actions.

3.2 The Conservation Benefits from the RCIS Program

RCIS planning identifies high-value conservation and habitat enhancement opportunities within a region that can aid in species recovery, adaptation to climate change, and resiliency in the face of stressors and pressures. Once high-value habitat cores and linkages are identified, the prepared conservation strategy provides a prioritized blueprint for protecting, restoring and reconnecting habitats supporting selected focal species. Associated analyses are intended to complement conservation planning previously conducted for proximal federal land and county zoning efforts; summarily identifying the highest value conservation lands regardless of land ownership.

The conservation purpose of an RCIS planning effort must align with the goals and objectives of the California SWAP.[10] The latter blueprint for action includes a wealth of sound recommendations for conservation that responds to current and future challenges. These SWAP recommendations are based on "SMART" objectives and can be used to: (1) identify current conditions; (2) support a framework for directing mitigation; (3) build upon previous conservation investments; and (4) promote the development of management standards applicable to all conservation lands.

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[9] Dowdy, I. 2017. Evaluating Encroachment Pressures on the Military Mission in the California Desert Region. The Military Mission and Environmental Health are Intertwined. Final Report. Document prepared for the Sonoran Institute. Tucson, Arizona.

[10] California Department of Fish and Wildlife. 2015b. California State Wildlife Action Plan. 2015 Update. Headquarters. Sacramento, California.

Required elements of a MCA provide additional conservation benefits. These requirements, most of which directly mirror state requirements for mitigation banking, include the provision of a full description of proposed actions to be undertaken per the MCA and how they specifically meet RCIS goals and objectives. Other MCA requirements include the identification of existing mitigation banks and how mitigation credits will be purchased and used, incorporation of natural resource evaluation data (biotic and abiotic baseline conditions), and metrics for measuring the success of a conservation action or habitat enhancement. A template conservation easement for perpetual protection of involved conservation lands must also be included, as well as a template for long-term adaptive management.

3.3 RCIS Planning Can Benefit Mitigation in Project Permitting

RCIS planning efforts can benefit project developers and permitting agencies by informing actions beneficial to fulfilling compensatory mitigation requirements commonly considered in state and federal permitting. While the final compensatory mitigation policy under the federal Endangered Species Act (ESA) is currently under review (USFWS 2016),[11] a cogent set of mitigation principles has been identified therein:

- Compensatory mitigation projects should be sited within priority conservation areas identified in landscape-scale conservation plans;
- Compensatory mitigation projects should be implemented in advance of impacts; and
- Mitigation mechanisms should consolidate compensatory mitigation on the landscape.

The USFWS (2017)[12] has also described interim guidance for implementing its final ESA Mitigation Policy, including relevant standards for the use of compensatory mitigation:

- Siting of compensatory mitigation should occur in locations that have been identified in landscape-scale conservation plans, or in mitigation strategies that identify areas that will meet conservation objectives, and provide the greatest long-term benefit to the species;
- Compensatory mitigation should be provided in-kind for the specific species affected by a proposed action;
- Metrics should be provided to measure the ecological functions at compensatory mitigation sites that are science-based, and related to the conservation goals identified for the species;
- Benefits beyond those that would have otherwise occurred through routine or required mitigation practices or actions should be provided;
- Conservation objectives should be achieved within a reasonable timeframe or at least for the duration of a project's impacts;

[11] United States Fish and Wildlife Service. 2016. Final Endangered Species Act Compensatory Mitigation Policy. Headquarters. Washington D.C. (81 Federal Register 95316-95349).

[12] United States Fish and Wildlife Service. 2017. Interim Guidance on Implementing the Final Endangered Species Act Mitigation Policy. Headquarters. Washington D.C.

- Compensatory mitigation should be secured by durable means including adequate legal, real estate, and financial protections that ensure long-term success;
- Direct accountability should be addressed in case required compensatory mitigation fails to meet identified conservation objectives; and
- Effective engagement of local communities and stakeholders should be sought.

The tools and mechanisms provided with RCIS planning complement and enhance existing mitigation options and permitting procedures. This, in turn, increases options for project proponents and can expedite permitting timelines.

Further, a mechanism has been provided in the Program to create an advance mitigation framework by identifying conservation and enhancement actions that may be implemented to create mitigation credits through a MCA. These credits in turn may be used within an encompassing RCIS boundary as compensatory mitigation for impacts under the CEQA, the CESA, the Lake and Streambed Alteration Program (i.e., California Fish and Game Code Section 1600 Program). These mitigation credits could potentially be used to address mitigation required on public lands per the ESA, Clean Water Act and other relevant statutes.

An RCIS may be chosen by a project developer for identifying suitable mitigation opportunities and to voluntarily implement specific conservation or enhancement actions to create mitigation credits through MCAs. Conservation and enhancement actions may include actions on public land, installation of wildlife crossings, removal of fish barriers, and habitat management enhancement actions that consider conservation benefits of preserving working agricultural lands.

Credits, developed in advance of impacts to natural resources and held by the credit developer, may also be applied to offset future impacts. Any person or entity can develop mitigation credits through MCAs, under an approved RCIS. Persons or organizations may create and use, sell, or otherwise transfer mitigation credits upon CDFW's finding that credits have been created in accordance with Program parameters. Credits created through MCAs are held by the credit developer. Guidelines are being developed on how these credits can be transferred, sold, utilized and tracked over time.

3.4 The RCIS Program Improves Conservation and Mitigation Banking

The creation of mitigation banks (i.e., private lands managed for natural resource values) is a conservation approach that takes advantage of economies of scale.[13] The judicious use of mitigation banks can avoid the small, fragmented habitat reserves resulting from project-by-project mitigation.[14]

[13] California Legislative Information. 2017. California Fish and Game Code. Division 2, Department of Fish and Wildlife [700-1940]. Chapter 7.9 Conservation Bank and Mitigation Bank Applications and Fees [1797-1799.1]. Sacramento California.

[14] California Department of Fish and Wildlife. 2014. Conservation and Mitigation Banking Guidelines. Headquarters. Sacramento, California.

Mitigation banking, which can address both land acquisition and habitat enhancement actions, involves project developers purchasing credits to offset adverse development impacts at selected localities.[15] RCIS planning informs mitigation bank operations and can potentially provide banking opportunities; with Program applicants required to summarize approved mitigation banks within a subject planning area. The pooling of mitigation resources from multiple development projects facilitates the acquisition and protection of habitat reserves with the highest ecological value. Ideally this achieves a higher, more focused level of conservation than can be achieved with project-by-project mitigation.[16]

When designated in the context of a regional plan or strategy, mitigation banks can contribute to achieving important conservation goals. This is done by identifying a network of core habitat reserves and linkages, based on basic conservation principles. These include: (1) conserve large blocks of habitat; (2) maintain habitat connectivity; and (3) conserve habitats with high biodiversity. Regional conservation planning involves an evaluation of conservation investments, and from this, a prioritization of regional conservation needs. The resources protected by a mitigation bank must be conserved in perpetuity, typically through a conservation easement to an eligible entity (CDFW 2014) or fee title property acquisition. Conservation easements in California preserve resources in perpetuity, while allowing property owners to retain many private property rights.

Such easements prohibit activities on mitigation bank property which might interfere with the purposes of an established land bank. These programs generally need some degree of flexibility to mitigate development impacts on lower priority habitats in a region by protecting higher priority areas. However, the establishment of stand-alone conservation banks involving only land acquisition is not an appropriate approach to protecting species that cannot afford to lose much of their remaining habitat, or which need an increased level of land management. Conservation banking may also fail to conserve sensitive species if net habitat losses continue, of if land management improvements on the ground do not occur, as part of an overall conservation banking program (Bunn et al. 2013). To address these issues, appropriate impact-compensation ratios need to be applied in RCIS MCA development. Acquisition and non-acquisition mitigation actions benefitting individual species also need to be prioritized in overall RCIS planning, with MCAs drawing on this information.

3.5 County and Local Jurisdictions Benefit from Regional Conservation Investment Strategy Planning

The RCIS Program is a stakeholder-driven planning vehicle that identifies the regional context for conservation assessments and mitigation applications. The Program is a voluntary, non-regulatory, non-binding process that can also be used in tandem with NCCP and HCP mitigation programs.

[15] Kreitler, J. et al. 2015. Conservation Planning for Offsetting the Impacts of Development: A Case Study of Biodiversity and Renewable Energy in the Mojave Desert. PLoS One. San Francisco, California.

[16] Bunn, D.A., P.B. Moyle, and C.K. Johnson. 2013. Maximizing the Ecological Contribution of Conservation Banks. Wildlife Society Bulletin.

Indeed, an RCIS can also be used to jump start future NCCPs by providing an existing collaborative process with stakeholders, a wealth of data, and established biological goals and objectives. An RCIS is also an efficient means of advancing county/city open space planning and investment that can form the basis for smart-from-the-start, community-oriented planning, including planning for renewable energy development. RCIS planning offers a clear, concise crosswalk linking concept, strategy, process and implementation which ultimately can serve as a guide for future action.

Any RCA prepared under RCIS planning must consider existing major water, transportation, and transmission infrastructure and account for reasonably foreseeable development within the ecoregion. This forms a valuable resource for land use jurisdictional planning. RCAs must also include provisions to ensure the developed strategy will comply with state and local requirements and does not preempt the land-use authority of local agencies.

The forward-looking platform provided by RCIS planning can facilitate both "smart from the start"[17] and least conflict project siting[18] relative to renewable energy projects. It can also assist mitigation bank/land trust entities in identifying/prioritizing conservation lands, build support for such programs, and identifying crucial linkages between conservation land investments. Lastly, the program maximizes infrastructure planning and mitigation dollars relative to regional conservation investments.

RCIS products must meet important standards to provide maximum benefit to jurisdictions. RCIS, RCA and MCA planning documents need to be clear and concise, detailed in conceptual framework, and rich in the description of purpose/principles. The RCIS must be clear as to what it means for county/local jurisdictions, what it will accomplish, and how end products are achieved. The public agency engaged in the RCIS planning must provide explicit direction to enable jurisdictional planners to incorporate RCIS goals, objectives and tiered actions. To the extent practicable, RCIS planning should also build on existing investments, lend itself to use in local jurisdictional zoning application, and address regional resource issues such as groundwater depletion. Relevant details of any renewable energy development plans (i.e., DRECP) should similarly be integrated into this planning.

4.0 Application of Private Land Mitigation on Public Lands in a RCIS

The deployment of mitigation funds on public lands has previously been discouraged by CDFW in permitting decisions. The main concern has been the lack of durability of the conservation gained through the mitigation action. However, with the adoption of a Memorandum of Understanding (MOU) between CDFW and BLM, discussed more fully below, there may be an opportunity to use certain mitigation funds on select public lands through the RCIS Program.

[17] K. Kelly, and K. Delfino. 2012. Smart from the Start. Responsible Renewable Energy Development in the Southern San Joaquin Valley. Document prepared for Defenders of Wildlife. Washington D.C.

[18] Pierce, D. J. Strittholt, T. Watt, and E.N. Elkind. 2016. A Path Forward. Identifying Least-Conflict Solar PV Development in California's San Joaquin Valley. Document prepared for Conservation Biology Institute, Terry Watt Planning Consultants and the Univ. of California, Berkeley School of Law.

It is the policy of the United States Departments of Agriculture (USDA), Defense (DOD) and Interior (DOI) to avoid and then minimize harmful effects to land, water, wildlife, and other resources caused by disturbance activities, and to ensure that any residual impacts are effectively addressed.[19] This approach recognizes that some resources are of such irreplaceable character that minimization and compensation measures, while potentially practicable, may not be adequate, and therefore agencies should design policies to promote avoidance of impacts to these resources. Agencies are also encouraged to promote investment by the private sector relative to natural resource management.

Federal agencies are also required to adopt a clear and consistent approach for avoiding and mitigating the impacts of their activities, as well as impacts of the projects they approve, upon natural resources. This includes requiring compensatory mitigation for any residual impacts remaining following impact avoidance and minimization. A MOU on management durability was signed between the BLM and CDFW ("Parties") in 2015. Accordingly, each party agrees to work together to conserve biological and natural resources on public lands administered by the BLM in California.[20]

This BLM-CDFW "Durability Agreement" recognizes the importance of many BLM Conservation Lands (i.e., Wilderness Areas, National Landscape Conservation System (NLCS) lands, Areas of Critical Environmental Concern (ACECs)) in providing habitat for federally-listed species, California Endangered Species Act (CESA)-listed species, fully protected species and other Species of Special Concern. These conservation lands include areas essential for ecological connectivity.

CDFW and various federal agencies routinely require compensatory mitigation for incidental take (i.e., the allowance for specific harassment, harm or collection of species incidental to a proposed action) of certain fish, wildlife and plants in administering the CESA, the NCCP Act, Section 1600 of the California Fish and Game Code and the California Environmental Quality Act (CEQA). Permanent habitat protection and its appropriate management is also regularly required by CDFW for certain species in some permitting actions. Project proponents in these endeavors are often provided an option of purchasing (1) applicable habitat credits at a mitigation bank; (2) a conservation easement on private land supporting applicable habitat; or (3) through the purchase of private land with applicable habitat and facilitating subsequent protection with a conservation easement.

Compensatory mitigation fulfillment for non-federal permitting actions in California have commonly been completed on private land. However, CDFW is committed to ensuring that such requirements protect the highest quality habitat available, on public or private land.[21]

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[19] Obama, B. 2015. Presidential Memorandum: Mitigating Impacts on Natural Resources from Development and Encouraging Related Private Investment. Washington D.C.

[20] Bureau of Land Management (BLM) and California Department of Fish and Wildlife. 2015. Agreement by and Between the United States Bureau of Land Management and the California Department of Fish and Wildlife. BLM California State Office. Sacramento, California.

[21] California Department of Fish and Wildlife. 2015. Application of the 2015 Durability Agreement between the Department of Fish and Wildlife and the Bureau of Land Management. Sacramento, California.

A complicating background factor is that many public land designations for environmental protection are administrative and can be modified or eliminated through the Federal Land Policy and Management Act (FLPMA)[22] land use amendment process.[23] Further, since these public lands are usually subject to a "**multiple use**" mandate, they may not be suited generally to providing optimal long-term or permanent protection for a given species.

While some land use planning designations and/or current management may be sufficient for providing assurances over time for general conservation purposes, these designations alone often fall short of providing the perpetual benefits required relative to CESA permitting (CDFW 2015a). These limitations constrain the compensatory mitigation use of many important public lands as perpetual sensitive species habitat.

In their 2015 MOU, the BLM and CDFW agreed that BLM Conservation Lands could contribute toward the satisfaction of compensatory mitigation requirements for projects permitted by CDFW. However, such compensatory mitigation must benefit CDFW by facilitating its permitting process and BLM by providing funding and staffing for restoration and enhancement work on BLM Conservation Lands. Use of compensatory mitigation on public lands benefits these agencies by helping fulfill their mutual goal of protecting and conserving fish, wildlife, plants and their habitat within California.

Accordingly, the Durability Agreement MOU provides the basis for coordination between the Parties with respect to the use of state-recognized compensatory mitigation on BLM Conservation Lands. This agreement provides working sideboards for the consideration of management actions on public lands to contribute to CDFW mitigation requirement fulfillment.

The decision to authorize use of a Durability Agreement tool on public lands is within the BLM's authority, while the decision to credit use of such a tool for state compensatory mitigation purposes is within CDFW's authority (CDFW 2015a). Any decision to use such a tool for compensatory mitigation or other uses must involve the collaboration and agreement of the BLM and the CDFW. Counties and cities, when they act as CEQA lead agencies, must also be engaged by CDFW to ensure that a CEQA document's discussion of Durability Agreement use, if any, accurately reflects the BLM and CDFW decisions as to whether involved tools are appropriate.

For conservation planning applications, the Durability Agreement and associated tools may be best suited for conservation support of large projects or planning efforts (CDFW 2015a). Provided that is, that use of these tools is compatible with the planning scale, support recovery of declining/vulnerable species, and are consistent with existing conservation plans.

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[22] Bureau of Land Management and Office of the Solicitor. 1976. The Federal Land Policy and Management Act of 1976 as amended. BLM Washington Office. Washington D.C.

[23] Conservation Lands Foundation and The Wilderness Society. 2013. National Conservation Lands 2013 Policy Handbook. The Wilderness Society. Washington D.C.

Some level of durability beyond existing public land designations is considered warranted in many instances. Use of any Durability Agreement tool must also be consistent with existing laws and relevant BLM/CDFW guidance.

For compensatory mitigation applications, use of the Durability Agreement to meet state requirements is at the sole discretion of the CDFW. Such use does not change existing CESA requirements, or any implementing regulations for authorizing incidental take to meet the full mitigation standard (CDFW 2015a). Application of the Durability Agreement should be applied only after all minimization and avoidance measures are employed. Public lands targeted for use of Durability Agreement tool application also need to present the best, most durable conservation outcome for the identified species or resource value.

When using Durability Agreement tools, a third party should be sought whenever possible to be a party to the rights of this Agreement, hold compensatory mitigation funds, and, at CDFW discretion, oversee implementation and monitoring. It is also appropriate to consider the use of more traditional mitigation actions together with use of Durability Agreement tools, in a multi-faceted mitigation package, where public lands may offer the best conservation option.

5.0 Conclusion

RCIS planning identifies key conservation investment opportunities which can aid in species recovery, adaptation to climate change and the promotion of resiliency in the face of development pressure. First, it is a landscape-scale conservation planning tool. Second, it can be used to direct regular and advanced mitigation in a manner designed to further regional conservation objectives.

Such planning assesses current conditions, identifies prioritized, species-specific actions and facilitates advance mitigation application. It can also highlight regional conservation shortcomings, as well as opportunities. The RCIS Program uses the best available science to develop prioritized conservation actions for the benefit of "focal" species and at-risk habitats.

Approval of an RCIS does not result in a permit or include incidental take authorization. Nor does the RCIS Program alter in any way a project proponent's obligation to obtain permits or authorizations through appropriate permitting mechanisms. The development of an RCIS plan does not create, modify, or impose regulatory requirements, regulate land use, establish land use designations, or affect public agency authorities.

The RCIS program is intended to build on existing conservation investments and addresses challenges presented by inadequate habitat connectivity, renewable energy development, invasive species, climate change and community growth. When deployed across California, the RCIS Program will help California develop sustainable communities, preserve open space and working agricultural lands, as well as improve conservation outcomes for vulnerable species and at-risk habitats.

6.0 Glossary

Adaptive Management: The process of assimilating new information, including monitoring and current research data, and modifying existing conservation actions and management, as needed, to achieve desired outcomes.

Advance Mitigation: A science-based approach in identifying mitigation opportunities to support regional conservation priorities. By considering mitigation development early in the planning process, prior to design and permitting phases, proponents can identify higher-quality mitigation opportunities. This approach promotes mitigation planning efforts that consider the species and habitat needs on a regional and landscape scale; can result in mitigation sites with higher ecological function (including increased connectivity for wildlife movement); and can reduce development project permitting time frames. If RCIS planning is used to accommodate advance mitigation, an adaptive management and monitoring strategy for conserved habitat must be included; and a public or private entity must be identified as responsible for periodic planning updates.

Biological Conservation Framework: A framework recently developed California Energy Commission, California Department of Fish and Wildlife, United States Bureau of Land Management, and United States Fish and Wildlife Service .This effort includes mapping that identifies important areas for implementing biological conservation actions in the California Deserts, in addition to areas with existing protection, for focal species, natural communities, and associated landscape and ecological process as guided by the framework biological goals and objectives.

Biological Goals and Objectives: Planning terms which are (1) broad, typically qualitative principles for guiding a biological conservation strategy (Goals); and (2) achievable biological conservation targets or desired conditions (Objectives). These terms collectively articulate a desired outcome in terms of geographic locations and actions important for conservation.

California Assembly Bill 2087: Bill entitled **Regional Conservation Investment Strategies**, introduced by Assembly Member Marc Levine through the Assembly Committee on Water, Parks and Wildlife and signed into law in 2016; becoming effective 1 January 2017. This bill establishes a Program to identify and prioritize regional conservation through a science-based public process while also encouraging investments in conservation through advance mitigation. No more than eight regional strategies could be approved prior to January 1, 2020, and the program sunsets on that same date.

California Endangered Species Act: California legislation adopted in 1970 with a resulting program overseen by the California Department of Fish and Wildlife, designed to conserve and protect endangered species and their environments, declaring "all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved."

Climate Change: A change in the statistical distribution of weather patterns lasting for an extended period of time (i.e., decades to millions of years), which can involve a change in average weather conditions, or in the time variation of weather around longer-term average conditions (i.e., more or fewer extreme weather events). The related **climate refugia** refers to features on the landscape where changing climate conditions are expected to be less severe or where the impacts would be ameliorated.

Climate Change Adaptation: In the context of RCIS planning, a description of how goals and objectives provide opportunities for adaptation to climate change by focal species and their habitat.

Compensatory Mitigation: Actions taken to fulfill, in whole or in part, residual impacts following the application of impact avoidance and minimization mitigation measures, under state/federal law or a court mandate.

Conservation: A careful preservation and protection of something; *especially*: planned management of a natural resource to prevent exploitation, destruction, or neglect (Merriam-Webster 2015). As used in the context of the Regional Conservation Investment Strategy planning and the Biological Conservation Framework, conservation is the implementation of actions which contribute to achieving biological objectives.

This includes land acquisition (e.g., fee title purchase from willing private land sellers), other forms of long-term land protection (e.g., recording a conservation easement on lands with willing land owners), restoration and enhancement activities, land management actions on protected and conserved lands (including public lands), resource condition monitoring and adaptive management.

Conservation Action: An action to preserve or to restore ecological resources, including habitat, natural communities, ecological processes, and wildlife corridors, to protect those resources permanently, and to provide for their perpetual management, so as to help to achieve one or more biological goals and objectives for one or more focal species. Conservation actions may include actions on private and public lands to offset impacts to focal species, including land acquisition and protection, habitat restoration; installation of wildlife crossings and removal of fish passage barriers.

Conservation Easement: A power invested in a qualified private land conservation organization or government to constrain, as to a specified land area, the exercise of rights otherwise held by a landowner so as to achieve certain conservation purposes. It is an interest in real property established by agreement between a landowner and land trust or unit of government. Conservation easements are applicable to both present and future landowners. Associated grants are recorded in the local land records, becoming a part of the chain of title for the property. Easements established according to California Civil Code Section 815, et seq., preserves land/resources in perpetuity while allowing private landowners to retain many private property rights.

Conservation Elements: An element with ecological functions within an RCIS, including focal species and their habitats, wildlife corridors and linkages, and other natural resources.

Conservation Lands: Lands where conservation of one or multiple resources have been identified as a primary management concern or priority. Such lands vary by level of protection depending on enabling laws.

Core Habitat: Areas of highest habitat quality and that meet certain criteria relative to habitat proximity and persistence.

Desert Renewable Energy Conservation Plan: A comprehensive planning process addressing conservation of sensitive species and ecosystems in California's Mojave and Colorado/Sonoran Deserts and renewable energy/transmission development. This effort has been led by the Renewable Energy Action Team agencies (California Energy Commission, California Department of Fish and Wildlife, United States Bureau of Land Management, and United States Fish and Wildlife Service).

Following release of the Draft DRECP and Environmental Impact Report/Environmental Impact Statement, the planning process was phased into a Phase I effort addressing activities on public lands administered by the United States Bureau of Land Management through the DRECP Land Use Plan Amendment and associated Record of Decision; and a Phase II effort consisting of biological conservation planning and statewide energy planning for non-federal lands in the California Deserts.

Durability Agreement: A Memorandum of Understanding between the United States Bureau of Land Management (BLM) and California Department of Fish and Wildlife (CDFW) with statewide applicability republished on 2 October 2015, which identifies a series of tools that currently exist in federal law and regulation that could be utilized to extend the benefits of surface habitat values beyond that typically achievable through administrative and land use planning designations.

The decision to authorize use of a Durability Agreement tool on public lands administered by the BLM is within this agency's authority; while the decision to credit use of this tool for state compensatory mitigation purposes is within CDFW's authority. Any decision to use a Durability Agreement tool must involve collaboration and agreement between agencies, and counties/cities need to be engaged when they are acting as California Environmental Quality Act lead agencies.

Ecoregion: An area where encompassed ecosystems (and the type, quality, and quantity of environmental resources) are generally similar (EPA 2017).

Ecosystem: A community of living organisms and non-living components (i.e., air, water and mineral soil) interacting as a system, linked together through nutrient cycles and energy flows, and defined by the network of interactions among organisms.

Ecosystem Conservation: The careful preservation and protection of a community's living organisms and non-living components; *especially*: planned management of natural resources to prevent exploitation, destruction, or neglect.

Ecosystem Services: Those services provided by ecosystems, including *provisioning*, such as the production of food and water; *regulating*, such as the control of climate and disease; *supporting*, such as nutrient cycles and crop pollination; and *cultural*, such as spiritual and recreational benefits.

Endangered Species Act: Federal legislation adopted in 1973 which provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend.

Endowment: Funds conveyed solely for the long-term stewardship of a mitigation property. Endowment funds are held as charitable trusts that are permanently restricted to paying the costs of long-term management and stewardship of the mitigation property for which the funds were set aside.

Enhancement Actions: Actions to improve the quality of wildlife habitat, or to address risks or stresses to wildlife. In the context of RCIS planning, these actions are to have long term durability but do not involve land acquisition or the permanent protection of wildlife.

Environment: The surroundings or conditions in which a person, animal, or plant lives or operates.

Focal Species: Selected plant and animal species addressed in a Regional Conservation Investment Strategy area. Commonly consisting of sensitive or special status species, these plants and animals can also represent a suite of vulnerable species or an at-risk habitat type. A robust set of focal species must be analyzed in a conservation strategy, along with how these species/habitats would benefit from conservation and habitat enhancement actions set forth in a respective strategy.

Incidental Take: Harm, harassment, and/or habitat loss of threatened or endangered wildlife incidental to project activities.

Incidental Take Permit: A permit issued by the United States Fish and Wildlife Service (Endangered Species Act) or by the California Department of Fish and Wildlife (California Endangered Species Act) when a proposed project's environmental impacts are anticipated to result in the "take" (i.e., harm, harassment, and/or habitat loss) of threatened or endangered wildlife incidental to project activities.

Infrastructure: The basic equipment and structures needed for a system to properly function (Merriam-Webster 2015).

Jurisdictional Control: The ability of a government to exercise regulatory authority. Land within which a government may exercise this authority is under said government's jurisdictional control.

Habitat: An ecological or environmental area that is inhabited by a particular species of animal, plant, or other type of organism. Refers to the zone in which the organism lives and where it can find food, shelter, protection and mates for reproduction.

Habitat Conservation Plan: A plan, authorized by the United States Fish and Wildlife Service, to minimize impacts to a species listed as threatened or endangered per the Endangered Species Act. A habitat conservation plan is required for activities that may result in the incidental take of a species federally listed as threatened or endangered (USFWS 2005).

Habitat Enhancement: An action to improve the quality of wildlife habitat, or to address risks or stressors to wildlife, that has long-term durability but does not involve land acquisition or the permanent protection of habitat, such as improving in-stream flows to benefit fish species, enhancing habitat connectivity, or invasive species control or eradication.

Impact: The action of one object coming forcibly into contact with another, which has a strong effect on someone or something:

Incidental Take Permit: State permit issued under auspices of the California Endangered Species Act or federal permit issued under auspices of the Endangered Species Act to private, non-federal entities undertaking otherwise lawful projects that might result in the "take" (i.e., to harass, harm, pursue, hunt, shoot, wound kill, trap, capture or collect an endangered or threatened species, or to attempt to engage in any such conduct)**.**

Investment: To allocate money or other resource, such as time, land, labor or infrastructure in the expectation of some benefit in the future. In conservation, the expected future benefit from investment is a return that may consist of aid in species recovery, improved water quality, enhanced carbon sequestration, adaptation to climate change, working agricultural land protection, or improved resiliency in the face of wildlife population stressors and pressures.

Land Use Planning: Planning for how land can or should be used in the future.

Least Conflict Project Siting: Utilizing advanced planning, clearly-defined site selection criteria and development standards to direct the siting of projects to lands that have been developed, disturbed or chemically impaired; have low agricultural production capability; have low value for wildlife and natural landscapes; and could be developed with low impacts on cultural resources.

Linkage Habitat: The physical surface area connecting habitat blocks, which allows for an exchange of individuals between populations.

Listed Species: A species protected under the provisions of the Endangered Species Act or the California Endangered Species Act.

Local Authorities: In the context of RCIS planning, provisions must be included on associated documents to ensure a developed strategy is in compliance with state and local requirements and does not preempt local land use authority.

Mitigation: The action of reducing the severity or seriousness of a problem; in environmental analysis situations commonly refers to reducing the severity or seriousness of an environmental impact.

Mitigation Agreement: Written agreement between a project proponent and an entity qualified to hold a mitigation property, or with any entity qualified to hold the endowment, which is submitted to the state or local agency for the purpose of obtaining any permit, clearance or mitigation approval. Such agreements govern the long-term stewardship of the property and endowment (CDFW undated).

Mitigation Bank: Private land managed for the permanent protection of supported natural resource values, according to a written agreement with a regulatory agency. Mitigation bank sponsors can issue credits that may be sold to project proponents who need to satisfy legal requirements for mitigating the environmental impacts of projects.

Mitigation Credit Agreement: An agreement developed under an approved California Regional Conservation Strategy, in collaboration with the California Department of Fish and Wildlife to create mitigation credits by implementing identified conservation or habitat enhancement actions.

Monitoring: The process of observing and documenting conditions or status over time. As it relates to adaptive management, monitoring would typically be considered effectiveness monitoring, involving data collection to assess the contribution or effectiveness of biological conservation actions toward achieving desired outcomes.

Multiple Use: A principle of land management, and a guiding factor in managing the public lands of the United States, that means managing public lands and their various resource values so they are utilized in a combination that will best meet the present and future needs of the American people; making the most judicious use of the land under the concept of sustained yield (i.e., the achievement and maintenance in perpetuity of a high-level annual output of resources consistent with the principle of multiple use).

Natural Community Conservation Plan: A broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. Such planning provides for the regional protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity.

Permanently Protect: Action of (1) recording a conservation easement, or establishing perpetual protection, of selected land in a manner consistent with established law that prevents development, prohibits inconsistent uses, and ensures that habitat for focal species is maintained; and (2) providing secure, perpetual funding for management of the land, monitoring, and legal enforcement.

Protected Areas: Lands which receive on-the-ground protection because of their recognized natural, ecological and/or cultural values. Such lands vary by level of protection depending on enabling laws. These lands include mitigation banks approved by a wildlife agency, acreage managed by land trusts, California State Parks, California Ecological Reserves and Wildlife Areas), National Scenic and Historic Trails, Monuments, Parks and Preserves, Wilderness Areas, as well as Wild and Scenic Rivers.

Purpose: The reason for which something is done or created, or for which something exists. Per CDFW guidelines, an explanation of the purpose for an RCIS is required in supporting documents.

Regional Conservation Assessment: Information documenting species, ecosystems, ecological processes, protected areas, and linkages within an ecoregion. These assessments include information on areas with greatest probability for long-term ecosystem conservation success, incorporating co-benefits of ecosystem services. Such assessments may be used to provide context at an ecoregional scale to assist with the development of a regional conservation investment strategy.

Regional Conservation Investment Strategy: Information and analyses prepared to advance the conservation of focal species and their habitat in a specific region, as well as to provide nonbinding, voluntary guidance for investments in ecological resource conservation. Such strategies do not create, modify, or impose regulatory requirements which regulate the use of land, establish a land use designation, or affect the land use authority of any public agency.

Renewable Energy: Energy from sources that naturally replenish themselves within a reasonable period of time. Commonly refers to energy generation from geothermal, solar and wind sources.

SMART Objectives: Those objectives which are defined as **specific**, **measurable**, **achievable**, **relevant**, and **time-bound**.

Special Status Species: Species listed per the Endangered Species Act or California Endangered Species Act, and all other species considered rare, sensitive, or of special consideration.

Strategy: A plan of action or policy designed to achieve a major or overall aim.

Stressors and Pressures: Terms that collectively refer to environmental trends or physical, chemical, or biological factors (or conditions) that affect biological resources, including focal species or their suitable habitat, natural communities, and/or important ecosystem processes.

Terrestrial Intactness: Measure of human impact on the landscape; with terrestrial intactness considered high in areas where disturbance and fragmentation are low and native vegetation condition is high.

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Attachment 1.
Compensatory Mitigation Requirements Contributing to Biological Goals and Objectives

The Renewable Energy Action Team's
Draft (2014) Desert Renewable Energy Conservation Plan Compensatory Mitigation Requirements Contributing to Biological Goals and Objectives

The Draft Desert Renewable Energy Conservation Plan (DRECP)[1] approach to offsetting unavoidable adverse impacts to covered species/habitats through the use of compensatory mitigation can readily be used as a starting-point in conservation planning specific to California Desert Counties (i.e., Kern, Los Angeles and San Bernardino). This existing California Desert background information can greatly facilitate bioregional efforts such as Regional Conservation Investment Strategy (RCIS) planning relative to developing biological goals and objectives.

Types of Compensatory Mitigation

Land acquisition is anticipated to be a priority compensatory mitigation measure for many of the covered species addressed in conservation planning for the California Desert.

Per analyses prepared for the Draft DRECP, such land acquisition using specific no net loss ratios would contribute to meeting identified biological goals and objectives (BGOs). Other types of compensatory mitigation have also been identified on a species-by-species basis, according to known stressors and threats. These non-land acquisition compensatory mitigation measures (i.e., habitat fencing, non-native plant control, securing water, habitat restoration, wildlife crossings, management presence) may be a superior alternative to land acquisition in offsetting the impacts of specific projects to particular species; with such determinations completed during environmental review.

Ideally, compensatory mitigation "packages" addressing proposed action impacts will include a species-specific combination of land acquisition and habitat management/protection measures (Table 1). Land acquisition compensatory mitigation would involve the use of pre-determined ratios (i.e., 3 acres compensatory mitigation required for every 1 acre of impact), along with necessary short/long-term land management endowment fees. Eligible habitat management/protection measures will be selected from a list of potential species-specific actions identified through Draft DRECP or subsequent conservation need analyses.

Estimates have been configured during Draft DRECP development to address per-acre costs in meeting compensatory acquisitions for each county within the California Desert. For the Western Mojave region, the per-acre cost for acquisition and long-term management endowments has been estimated at $5,100 per acre for Kern County; $13,000 per acre for Los Angeles County; and $5,400 per acre for San Bernardino County.

[1] California Energy Commission (CEC), California Department of Fish and Wildlife, United States Bureau of Land Management and United States Fish and Wildlife Service. 2014. Draft Desert Renewable Energy Conservation Plan. CEC Headquarters. Sacramento, California.

Table 1. Covered Species[2] Acquisition & Non-acquisition Compensatory Mitigation Application[3] for Kern, Los Angeles and San Bernardino Counties, California

Covered Species	County			Compensatory Mitigation (%)	
	Kern	Los Angeles	San Bernardino	Acquisition	Non-acquisition
Agassiz's desert tortoise (*Gopherus agassizii*)	X	X	X	60	40
Mojave fringe-toed lizard (*Uma scoparia*)			X	90	10
Tehachapi slender salamander (*Batrachoseps stebbinsi*)	X			90	10
Bendire's thrasher (*Toxostoma bendirei*)	X		X	90	10
Burrowing owl (*Athene cunicularia*)	X	X	X	90	10
California condor (*Gymnogyps californianus*)	X	X		90	10
Golden eagle (*Aquila chrysaetos*)	X	X	X	30	70
Least Bell's vireo (*Vireo bellii pusillus*)	X	X	X	80	20
Mountain plover (*Charadrius montanus*)	X	X	X	90	10
Swainson's hawk (*Buteo swainsoni*)	X	X	X	90	10
Tricolored blackbird (*Agelaius tricolor*)	X	X	X	50	50
Western yellow-billed cuckoo (*Coccyzus americanus*)	X		X	70	30
Willow flycatcher (*Empidonax traillii* species)	X	X	X	80	20
California leaf-nosed bat (*Macrotis californicus*)			X	70	30

[2] Certain special status species were either not identified as "covered species" or not fully addressed by compensatory mitigation application planning in the Draft Desert Renewable Energy Conservation Plan, including a number of species identified in this table, as well as Cushenbury buckwheat (*Eriogonum ovalifolium* var.. *vineum*), Cushenbury milkvetch (*Astragalus albens*), Le Conte's thrasher (*Toxostoma lecontei*), Coast horned lizard (*Phrynosoma blainvillii*), and short joint beavertail (*Opuntia basilaris* var. *brachyclada*).

[3] From California Energy Commission (CEC), California Department of Fish and Wildlife, United States Bureau of Land Management, United States Fish and Wildlife Service. 2014. Draft Desert Renewable Energy Conservation Plan. CEC Headquarters. Sacramento, California.

Table 1. Continued. Covered Species Acquisition & Non-acquisition Compensatory Mitigation Application for Kern, Los Angeles and San Bernardino Counties, California

Covered Species	County			Compensatory Mitigation (%)	
	Kern	Los Angeles	San Bernardino	Acquisition	Non-acquisition
Desert bighorn sheep (*Ovis canadensis nelsoni*)		X	X	20	80
Mohave ground squirrel (*Xerospermophilus mohavensis*)	X	X	X	90	10
Pallid bat (*Antrozous pallidus*)	X	X	X	70	30
Townsend's big-eared bat (*Corynorhinus townsendii*)	X	X	X	70	30
Alkali mariposa lily (*Calochortus striatus*)	X	X	X	Not specified	Not specified
Bakersfield cactus (*Opuntia treleasei*)	X	X		Not specified	Not specified
Barstow woolly sunflower (*Eriophyllum mohavense*)	X		X	Not specified	Not specified
Desert cymopterus (*Cymopterus deserticola*)	X	X	X	Not specified	Not specified
Little San Bernardino Mountains linanthus (*Linanthus maculatus*)			X	Not specified	Not specified
Mojave monkeyflower (*Diplacus mohavensis*)			X	Not specified	Not specified
Parish's daisy (*Erigeron parishii*)			X	Not specified	Not specified
Mojave tarplant (*Deinandra mohavensis*)	X		X	Not specified	Not specified

Compensation Mitigation Ratios

Compensatory mitigation is typically expressed in ratios of compensation lands required to offset unavoidable adverse impact acreage within a planning area. Ratios generally vary depending on the conservation status of affected species/habitats and the magnitude of anticipated adverse impact. A "no net loss" of impacted habitat, using these ratios and bioregional data, is commonly applied.

Compensation can be in the form of habitat acquisition involving willing sellers of private property, funding provided for acquisition and conservation management of habitat within the biological reserve established conservation land banks, or habitat enhancing actions implemented on existing conserved lands (e.g., California Desert National Conservation Lands and Areas of Critical Environmental Concern administered by the Bureau of Land Management [BLM]).

Compensatory mitigation requirements would be developed on a project-specific basis and be based on the results of biological surveys performed on land that would affected by proposed projects (often referred to as the sphere of influence). Compensation ratios are acquisition-based because they represent the ratio of acres that would need to be conserved for each acre of impact. Acquisition-based ratios would also be used in converting acquisition compensation into non-acquisition compensation (typically habitat enhancement) or a corresponding compensation fee.

Compensatory mitigation in the Draft DRECP utilizes a Standard Ratio and an Exception Ratio. The Standard Compensation ratio would apply to impacts to planning species and their habitats unless Exception Ratio applies. Compensatory mitigation for impacts would most likely involve payment of fees corresponding to acres of habitat and Ratios which the implementing agency would use for acquisition of land for inclusion in the biological reserve or conservation land bank area, and for non-acquisition actions (habitat enhancement).

The Standard Ratio for compensatory mitigation in the Draft DRECP Preferred Alternative is 1:1. Compensation Exception Ratios would apply to unavoidable adverse impacts to specific resources or in specific geographic areas within the planning area or within the same ecoregion. Exception Ratios apply to land use activities that occur within specific geographic areas. Those occurring outside the specific geographic area would be subject to the Standard Ratio.

Biological resources that are well conserved within a planning area through designated impact avoidance or conservation reserves would require less compensation to meet the biological goals and objectives than less well-conserved biological resources. Within a given planning area, geographic areas considered conserved, and therefore contributing to meeting the biological goals and objectives, are lands permanently protected within a dedicated conservation land bank, lands with a recorded permanent conservation easement, federal lands dedicated to permanent conservation (e.g., wilderness areas, wild and scenic rivers, Areas of Critical Environmental Concern and California Desert National Conservation Lands.

Lands acquired by the United States Army in San Bernardino County outside the National Training Center (approximately 104,000 acres) to mitigate adverse impacts of the Fort Irwin Expansion are also considered permanently protected. These conservation lands are associated with an incidental take authorization contained in the biological opinion issued by the U.S. Fish and Wildlife Service for Fort Irwin expansion impacts to the state/federally listed threatened Agassiz's desert tortoise.

Agassiz's desert tortoise (*Gopherus agassizii*). Under the Draft DRECP Preferred Alternative, a 5:1 compensatory mitigation ratio would apply to impacts occurring within desert tortoise critical habitat; while a 2:1 compensatory mitigation ratio would apply to impacts occurring in intact desert tortoise linkage habitats, as identified in desert tortoise BGOs. Further, a 5:1 compensatory mitigation ratio would apply to impacts of transmission infrastructure installation designated desert tortoise critical habitat.

Mohave ground squirrel (*Xerospermophilus mohavensis*). Under the Draft DRECP Preferred Alternative, a 2:1 compensatory mitigation ratio would apply to impacts within Mohave ground squirrel Key Population Centers, as identified in BGOs developed for the species. Under Draft DRECP Alternative 2, a 5:1 compensation ratio would apply to the impacts occurring in Mohave ground squirrel key population centers and Mohave ground squirrel expansion areas (Figure 1), as identified in the Mohave ground squirrel BGOs.

It is important to note that involved conservation organizations, as well as members of the Mohave Ground Squirrel Technical Advisory Group (MGS TAG), have recommended impacts within Mohave ground squirrel Key Population Centers be compensated at a 5:1 ratio; and at 3:1 rate in all other modeled suitable habitat for this species; in keeping with previous California Department of Fish and Wildlife (CDFW) recommendations.

Wetlands. Unavoidable impacts to Arid West Freshwater Emergent Marsh or Californian Warm Temperate Marsh/Seep Wetlands would require a 1:1 compensation ratio of wetland preservation **and** a minimum of a 1:1 compensation ratio of wetland restoration and/or enhancement to meet the no net loss standard commonly identified for anticipated wetland impacts in California.

Agricultural and disturbed lands. A 1:1 compensation ratio would be applicable to agricultural or disturbed lands with low terrestrial intactness impacts in the West Mojave and Eastern Slopes Ecoregion Subarea, per Draft DRECP Alternative 2. However, this compensatory mitigation ratio was not identified in the Draft DRECP preferred alternative. Compensatory mitigation rates may need to be revisited for actions impacting agricultural or disturbed lands with low terrestrial intactness impacts considered on private lands within Kern County, to address specific land use and changing water availability concerns.

Compensatory mitigation application details for covered species in Kern, Los Angeles and San Bernardino Counties, California and Defenders of Wildlife recommendations are presented in Tables 2(a-c) and 3.

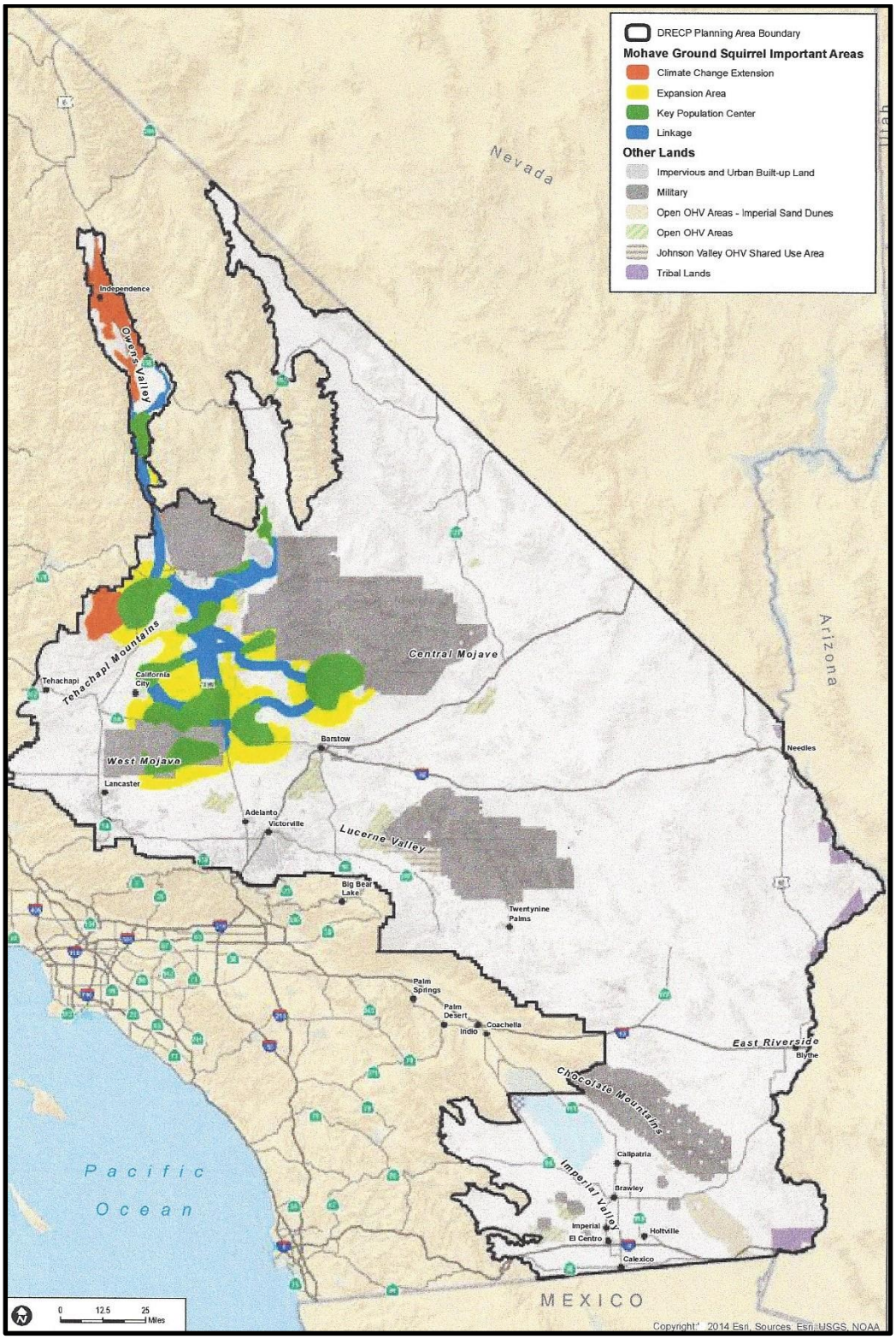

Figure 1. Important Mohave ground squirrel (*Xerospermophilus mohavensis*) areas, per the Draft Desert Renewable Energy Conservation Plan (CEC et al. 2014).

Table 2a. Compensatory Mitigation Application[4] Details for Covered Species[5] in Kern, Los Angeles and San Bernardino Counties, California and Defenders of Wildlife Recommendations.

Kern County			
Species	**Location & Notes**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Agassiz's desert tortoise (*Gopherus agassizii*) *State/federally listed Threatened	Desert Tortoise Natural Area (DTNA)	**60%** Acquire strategically located in-holdings & other private lands adjacent to DTNA.	**40%** Close & rehabilitate vehicle routes Predator reduction Eliminate private & public grazing through lease purchase & conservation easement. Fence where applicable.
	Fremont-Kramer Critical Habitat Unit and ACEC	**60%** Acquire strategically located private land in-holdings and other private lands adjacent to critical habitat units or Areas of Critical Environmental Concern.	**40%** Install tortoise-exclusion fencing Close & rehabilitate vehicle routes Predator reduction Eliminate private & public grazing through lease purchase & conservation easement. Fence where applicable.
Tehachapi slender salamander (*Batrachoseps stebbinsi*) *State listed Threatened	Modeled suitable habitat in the West Mojave and Eastern Slopes Ecoregion Subarea	**90%** Acquire known occupied habitat through fee title purchase, conservation easement and/or agricultural easement.	**10%** Eliminate private & public grazing through lease purchase & conservation easement. Fence where applicable. Develop & implement education program for landowners to prevent direct habitat impacts.
Bendire's thrasher (*Toxostoma bendirei*)	Southern Sierra slopes, Kelso Valley, S. Fork Kern River	**90%** Acquire conservation easements of prioritized private lands.	**10%** Close & rehabilitate vehicle routes. Fence where applicable.

[4] Data from California Energy Commission (CEC), California Department of Fish and Wildlife, United States Bureau of Land Management, United States Fish and Wildlife Service. 2014. Draft Desert Renewable Energy Conservation Plan. CEC Headquarters. Sacramento, California.

[5] Certain special status species were either not identified as "covered species" or not fully addressed by compensatory mitigation application planning in the Draft Desert Renewable Energy Conservation Plan, including a number of species identified in this table, as well as Le Conte's thrasher (*Toxostoma lecontei*).

Table 2a. Continued. Compensatory Mitigation Application Details for Covered Species in Kern County, California and Defenders of Wildlife Recommendations.

Kern County			
Species	**Location & Notes**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Burrowing owl (*Athene cunicularia*)	Abandoned & active agricultural operations; open desert habitats	**90%** □ Acquire known occupied habitat through fee title purchase, conservation easement and/or agricultural easement.	**10%** □ Implement Best Management Practices: o Eliminate squirrel/small mammal poisoning. o Secure water rights for continued use of agricultural fields. o Control tall agricultural vegetation through mowing, grazing, etc. o Install artificial burrows where beneficial.
California condor (*Gymnogyps californianus*) *State/federally listed Endangered	Historic range & current patterns of re-established habitat use	**90%** □ Acquire habitat through purchase or conservation easement.	**10%** □ Fund condor recovery programs.
Golden eagle (*Aquila chrysaetos*) *State/federally listed Protected	Historic/current nesting in Tehachapi and Southern Sierra Nevada Mountains; as well as other scattered nesting locales. Winter foraging in specific areas of county.	**30%** □ Acquire habitat through purchase or conservation easement of prioritized nesting, and foraging habitat.	**70%** □ Retrofit power poles to ensure eagle safety. □ Nesting/foraging habitat restoration. □ Roadside carcass removal. □ Reduce/eliminate wind facility mortality. □ Reduce nest site disturbance, particularly vehicle use, within 0.5 mile of nesting sites.
Least Bell's vireo (*Vireo bellii pusillus*) *State/federally listed Endangered	Riparian habitat in Tehachapi Mountains and Southern Sierra Nevada Mountains	**80%** □ Land acquisition through purchase of prioritized, modeled suitable habitat.	**20%** □ Fund invasive plant species removal in conjunction with riparian restoration efforts. □ Fund brown-headed cowbird control programs. □ Enhance habitat by eliminating private & public grazing through lease purchase or conservation easement. □ Remove vehicle routes in & adjacent to habitat.

Table 2a. Continued. Compensatory Mitigation Application Details for Covered Species in Kern County, California and Defenders of Wildlife Recommendations.

Kern County			
Species	**Location & Notes**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Mountain plover (*Charadrius montanus*)	Modeled suitable habitat occurs in Antelope and Fremont Valleys. Primarily irrigated pasture.	**90%** Acquire habitat through purchase or conservation easement of prioritized, winter foraging areas.	**10%** Manage irrigated agriculture to maintain suitable low, or mowed grass, cover crop habitat.
Swainson's hawk (*Buteo swainsoni*) *State listed Threatened	Modeled suitable habitat in Antelope and Fremont Valleys, as well as southern Indian Wells Valley north of Red Rock Canyon State Park.	**90%** Acquire habitat through fee title purchase (or conservation/agricultural easements) of prioritized, known nesting (primary) and immediately adjacent foraging (secondary) areas.	**10%** Secure cooperative agreements with active agricultural operations to maintain Swainson's hawk habitat with Best Management Practices. Secure water rights for agricultural reserve areas to grow crops compatible with Swainson's hawk. Protect, restore and enhance native riparian and Joshua tree habitat.
Tricolored blackbird (*Agelaius tricolor*)	Modeled suitable habitat in Antelope and Fremont Valley and South Fork, Kern River that includes the following land cover classes: Agriculture, Grassland, Wetland, Riparian.	**50%** Acquire habitat through purchase of prioritized, modeled suitable habitat.	**50%** Enhance and restore nesting habitat near productive and protected foraging habitat, including promoting the growth of nesting substrate (armored plants) on protected lands. Secure cooperative agreements with landowners to maintain/enhance suitable habitat.
Western yellow-billed cuckoo (*Coccyzus americanus*) *State listed Endangered Federally listed Threatened	Modeled suitable habitat occurs in the South Fork Kern River and adjacent riparian habitats.	**70%** Acquire modeled suitable habitat through purchase or conservation easement.	**30%** Habitat restoration and enhancement, including: restoring natural seasonal water flows. o Fund non-native plant species removal in conjunction with active riparian revegetation & restoration efforts.

Table 2a. Continued. Compensatory Mitigation Application Details for Covered Species in Kern County, California and Defenders of Wildlife Recommendations.

Kern County			
Species	**Location & Notes**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Willow flycatcher species (*Empidonax traillii* spp.) *State/federally listed Endangered	Modeled suitable habitat occurs in suitable riparian habitat in the Tehachapi Mountains, Southern Sierra Nevada Mountains & South Fork Kern River.	**80%** Acquire modeled suitable habitat through purchase or conservation easement. Protect breeding territories and occupied habitat.	**20%** Fund non-native plant species removal in conjunction with riparian restoration. Fund brown-headed cowbird control programs. Enhance/restore habitat by eliminating private and public grazing through lease purchase or conservation easement. Fence where applicable. Remove vehicle routes in and adjacent to suitable riparian habitat.
California leaf-nosed bat (*Macrotis californicus*)	Atypical range and limited modeled habitat in Kern County. Removal as covered species in Kern County recommended.	**N/A**	**N/A**
Mohave ground squirrel (*Xerospermophilus mohavensis*) *State listed Threatened	Extensive modeled suitable habitat occurs throughout the desert portion of Kern County.	**90%** Acquire suitable habitat in Key Population Centers, habitat linkages and climate change expansion areas.	**10%** Maintain/enhance habitat condition with public education & outreach. Invasive species control. (Elimination of above recommended– efficacy of both ineffective or unproven to date. Eliminate livestock grazing and off-road vehicle use. Fence habitat where applicable. Acquire/retire sheep grazing leases in the Cantil Common, Monolith-Cantil, Boron and Spangler Hills Allotments. Close/rehabilitate vehicle routes in Key Population Centers

Table 2a. Continued. Compensatory Mitigation Application Details for Covered Species in Kern County, California and Defenders of Wildlife Recommendations.

Kern County			
Species	**Location & Notes**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Pallid bat (*Antrozous pallidus*)	Extensive distribution in modelled habitat of desert portion Kern County and Southern Sierra Nevada Mountains.	**70%** This allocation is recommended to be revisited	**30%** Protect significant roosts (i.e., abandoned mines) by restricting human access. Fund mine area gating & fencing and/or physically remove direct vehicular access at a distance of 0.5 mile from mine openings.
Townsend's big-eared bat (*Corynorhinus townsendii*)	Extensive disturbance in modeled modelled habitat of desert portion Kern County, Southern Sierra Nevada Mountains & Tehachapi Mountains	**70%** This allocation is recommended to be revisited	**30%** Protect significant roosts (i.e., abandoned mines) by restricting human access. Fund mine gating & fencing and/or physically remove direct vehicular access at a distance of 0.5 mile from mine openings.
Alkali Mariposa lily (*Calachortus striatus*)	Located along southwest boundary of Edwards AFB and extending west-southwest approximately 10 miles.	**Percentage not specified** A 3:1 compensatory mitigation ratio recommended Acquire prioritized habitat with conservation easements.	**Percentage not specified** Acquire conservation agreements to prevent lowering of water table. Eliminate livestock grazing and off-road vehicle use. Fence habitat where applicable.
Bakersfield cactus (*Opuntia treleasei*)	East-facing slopes of Tehachapi Mountains	**Percentage not specified** A 3:1 compensatory mitigation ratio recommended Acquire prioritized habitat with conservation easements.	**Percentage not specified** Eliminate livestock grazing & off-road vehicle use. Fence habitat where applicable.
Barstow woolly sunflower (*Eriophyllum mohavense*)	Modeled suitable habitat occurs along Kern-San Bernardino County line northwest of Kramer Junction into California City, extending to Hyundai Test Track vicinity.	**Percentage not specified** 80% recommended. A 3:1 compensatory mitigation ratio also recommended. Acquire conservation easements to protect suitable habitat.	**Percentage not specified** 20% recommended. Eliminate livestock grazing & off-road vehicle use. Fence habitat where applicable.

Table 2a. Continued. Compensatory Mitigation Application Details for Covered Species in Kern County, California and Defenders of Wildlife Recommendations.

Kern County			
Species	**Location & Notes**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Desert cymopterus (*Cymopterus deserticola*)	Modeled suitable habitat occurs in SE Kern County near Kramer Jct., Boron and north of Hwy. 58 extending north into Peerless Valley. Species is associated with silty wind-blown soils downwind of dry lake playas.	**Percentage not specified** □ 80% recommended □ A 1:1 compensatory mitigation ratio recommended	**Percentage not specified** □ 20% recommended □ Eliminate livestock grazing & off-road vehicle use. Fence habitat where applicable. □ Acquire conservation agreements to protect acreage with known populations.
Mojave tarplant (*Deinandra mohavensis*)	Modeled suitable habitat occurs primarily on eastern slopes of the Tehachapi Mountains and Southern Sierra Nevada including the vicinity of Inyokern and Red Rock Canyon State Park.	**Percentage not specified** □ A habitat acquisition prioritization is recommended □ A 1:1 compensatory mitigation ratio recommended	**Percentage not specified** □ Eliminate livestock grazing & off-road vehicle use. Fence habitat where applicable. □ Acquire conservation agreements to protect acreage with known populations.

Table 2b. Compensatory Mitigation Application[6] Details for Covered Species[7] in Los Angeles County, California and Defenders of Wildlife Recommendations.

Los Angeles County			
Species	**Location**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Agassiz's desert tortoise (*Gopherus agassizii*) *State/federally listed Threatened	Mojave Desert habitats in northeastern-most portion of county, south of Edwards Air Force Base and west of Los Angeles-San Bernardino County line extending south.	**Percentage not specified** □ 20% recommended.	**Percentage not specified** □ 80% recommended. □ Close & rehabilitate vehicle routes □ Predator reduction □ Eliminate private land grazing through conservation easement. Fence where applicable.
Burrowing owl (*Athene cunicularia*)	Abandoned & active agricultural operations; open desert habitats	**90%** □ Acquire known occupied habitat through fee title purchase, conservation easement and/or agricultural easement.	**10%** □ Implement Best Management Practices: o Eliminate squirrel/small mammal poisoning. o Secure water rights for agricultural fields. o Control tall agricultural vegetation through mowing, etc. o Install artificial burrows where beneficial.
California condor (*Gymnogyps californianus*) *State/federally listed Endangered	Historic range, including San Gabriel & Castaic Mountain Ranges.	**90%** □ Acquire habitat through purchase or conservation easement.	**10%** □ Fund condor recovery programs.
Golden eagle (*Aquila chrysaetos*) *State/federally listed Protected	Historic/current nesting in southern Tehachapi, Castaic and San Gabriel Mountains; as well as other scattered nesting locales. Winter foraging in Antelope Valley.	**30%** □ Acquire habitat through purchase or conservation easement of prioritized nesting, and foraging habitat.	**70%** □ Retrofit power poles to ensure eagle safety. □ Roadside carcass removal. □ Reduce/eliminate wind facility mortality. □ Reduce vehicle use, within 0.5 mile of nesting sites.

[6] Data from California Energy Commission (CEC), California Department of Fish and Wildlife, United States Bureau of Land Management, United States Fish and Wildlife Service. 2014. Draft Desert Renewable Energy Conservation Plan. CEC Headquarters. Sacramento, California.

[7] Certain special status species were either not identified as "covered species" or not fully addressed by compensatory mitigation application planning in the Draft Desert Renewable Energy Conservation Plan, including a number of species identified in this table, as well as Le Conte's thrasher (*Toxostoma lecontei*), Coast horned lizard (*Phrynosoma blainvillii*), and short joint beavertail (*Opuntia basilaris* var. *brachyclada*).

Table 2b. Continued. Compensatory Mitigation Application Details for Covered Species in Los Angeles County, California and Defenders of Wildlife Recommendations.

Los Angeles County			
Species	**Location**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Least Bell's vireo (*Vireo bellii pusillus*) *State/federally listed Endangered	Riparian habitat in Tehachapi Mountains and Southern Sierra Nevada Mountains	**80%** Land acquisition through purchase of prioritized, modeled suitable habitat.	**20%** Fund invasive plant species removal in conjunction with riparian restoration efforts. Fund brown-headed cowbird control. Eliminate private & public grazing through lease purchase or conservation easement. Remove vehicle routes in & adjacent to habitat.
Mountain plover (*Charadrius montanus*)	Modeled suitable habitat occurs in Antelope Valley. Primarily irrigated pasture.	**90%** Acquire habitat through purchase or conservation easement of prioritized, winter foraging areas.	**10%** Manage irrigated agriculture to maintain suitable low, or mowed grass, cover crop habitat.
Swainson's hawk (*Buteo swainsoni*)	Extensive modeled and occupied habitat used for foraging & two known nests in Antelope Valley.	**90%** Acquire habitat through purchase (or conservation & agricultural easements) of prioritized, known nesting (primary) and immediately adjacent foraging (secondary) areas.	**10%** Secure cooperative agreements with active agricultural operations to maintain Swainson's hawk habitat with Best Management Practices. Secure water rights for agricultural reserve areas to grow crops compatible with Swainson's hawk. Protect, restore and enhance native riparian and Joshua tree habitat.
Tricolored blackbird (*Agelaius tricolor*)	Extensive modeled & occupied habitat in Antelope Valley east & west of State Route 138. Various habitat cover classified as Agriculture, Grassland, Wetland & Riparian.	**50%** Acquire habitat through purchase of prioritized, modeled suitable habitat.	**50%** Enhance/restore nesting habitat (armored plants) near productive, protected foraging habitat. Enter into cooperative agreements with landowners to maintain & enhance habitat.

Table 2b. Continued. Compensatory Mitigation Application Details for Covered Species in Los Angeles County, California and Defenders of Wildlife Recommendations.

Los Angeles County			
Species	**Location**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Willow flycatcher species (*Empidonax traillii* spp.) *State/federally listed Endangered	Modeled suitable habitat occurs in suitable riparian habitat in the Tehachapi Mountains; possible migration habitat in Castaic & San Gabriel Mountain Ranges; particularly along Little Rock Creek.	**80%** Acquire modeled suitable habitat through purchase or conservation easement. Protect breeding territories and occupied habitat.	**20%** Fund non-native plant species removal in conjunction with riparian restoration. Fund brown-headed cowbird control programs. Enhance/restore habitat by eliminating private and public grazing through lease purchase or conservation easement. Fence where applicable. Remove vehicle routes in and adjacent to suitable riparian habitat.
Mohave ground squirrel (*Xerospermophilus mohavensis*) *State listed Threatened	Occupied habitat occurs in NE corner of Los Angeles County adjacent to Edwards AFB; extending north and may extend south 10 miles.	**90%** Acquire suitable habitat in Key Population Centers, habitat linkages and climate change expansion areas.	**10%** Eliminate livestock grazing and off-road vehicle use. Fence habitat where applicable.
Pallid bat (*Antrozous pallidus*)	Very limited occurrence, with pre-1970 observations near Acton and Juniper Hills.	**70%** This allocation is recommended to be revisited	**30%** Protect significant roosts (i.e., abandoned mines) by restricting human access. Fund mine gating & fencing and/or remove direct vehicular access at a distance of 0.5 mile from mine openings.
Townsend's big-eared bat (*Corynorhinus townsendii*)	Modeled suitable habitat is limited and located primarily near Palmdale Agricultural Area, Big Rock Creek Wildlife Sanctuary and Saddleback Butte State Park.	**70%** This allocation is recommended to be revisited	**30%** Protect significant roosts (i.e., abandoned mines) by restricting human access. Fund mine gating & fencing and/or remove direct vehicular access at a distance of 0.5 mile from mine openings.

Table 2b. Continued. Compensatory Mitigation Application Details for Covered Species in Los Angeles County, California and Defenders of Wildlife Recommendations.

Los Angeles County			
Species	**Location**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Desert bighorn sheep (*Ovis canadensis nelsoni*)	San Gabriel Mountains. Habitat occurs primarily on lands managed by the U.S. Forest Service and were not discussed in recent bioregional plans involving the Mojave Desert.	**Percentage not specified**	**Percentage not specified**
Alkali Mariposa lily (*Calachortus striatus*)	Located along southwest boundary of Edwards AFB and extending west-southwest approximately 10 miles.	**Percentage not specified** A 3:1 compensatory mitigation ratio recommended Acquire prioritized habitat with conservation easements.	**Percentage not specified** Acquire conservation agreements to prevent lowering of proximal water table. Eliminate livestock grazing and off-road vehicle use. Fence habitat where applicable.
Bakersfield cactus (*Opuntia treleasei*)	East-facing slopes of Tehachapi Mountains	**Percentage not specified** A 3:1 compensatory mitigation ratio recommended Acquire prioritized habitat with conservation easements.	**Percentage not specified** Eliminate livestock grazing & off-road vehicle use. Fence habitat where applicable.

Table 2c. Compensatory Mitigation Application[8] Details for Covered Species[9] in San Bernardino County, California and Defenders of Wildlife Recommendations.

San Bernardino County			
Species	**Location**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Agassiz's desert tortoise (*Gopherus agassizii*) *State/federally listed Threatened	Critical Habitat Units with public land designated as Areas of Critical Environmental Concerns in Fremont-Kramer, Superior-Cronese, Ord-Rodman and Pinto Mountains vicinities.	**50%** □ Priority 1 land acquisition in the Ord-Rodman ACEC[10]; followed by the Daggett Ridge/Brisbane Valley Mojave Monkeyflower ACECs, and Bendire's Thrasher ACEC (north Apple Valley). □ Following implementation of all Priority 2b conservation actions, compensatory mitigation should focus on acquisition of inholdings in the Old Woman Springs and Brisbane Valley Monkeyflower ACECs. □ Acquisition could also occur in the Conservation Planning Area immediately west of the Old Woman Springs ACEC (Lucerne Valley).	**50%** □ Tortoise-exclusion fencing on U.S. Highway 395, State Routes 58 & 247, and Interstate Highway 40. □ Close & rehabilitate vehicle routes □ Predator reduction. □ Enhance habitat by eliminating private & public grazing through lease purchase & conservation easement. Fence where applicable. □ Area-Specific Priorities include (Priority 2a): Increase (1) Park Ranger presence and (2) Law Enforcement Ranger presence in the Ord-Rodman, Brisbane Valley Mojave Monkeyflower, Daggett Ridge Monkeyflower, and Old Woman Springs ACECs.

[8] Data from California Energy Commission (CEC), California Department of Fish and Wildlife, United States Bureau of Land Management, United States Fish and Wildlife Service. 2014. Draft Desert Renewable Energy Conservation Plan. CEC Headquarters. Sacramento, California.

[9] Certain special status species were either not identified as "covered species" or not fully addressed by compensatory mitigation application planning in the Draft Desert Renewable Energy Conservation Plan, including a number of species identified in this table, as well as Cushenbury buckwheat (*Eriogonum ovalifolium* var.. *vineum*), Cushenbury milkvetch (*Astragalus albens*), Le Conte's thrasher (*Toxostoma lecontei*), Coast horned lizard (*Phrynosoma blainvillii*), and short joint beavertail (*Opuntia basilaris* var. *brachyclada*).

[10] Area of Critical Environmental Concern

Table 2c. Continued. Compensatory Mitigation Application Details for Covered Species in San Bernardino County, California and Defenders of Wildlife Recommendations.

San Bernardino County			
Species	**Location**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Mojave fringe-toed lizard (*Uma scoparia*)	Scattered occurrences in intact sand-based habitat generally associated with current & historic Mojave River geography. Believed extirpated from El Mirage, north-draining San Gabriel watersheds and points west.	**90%** □ Acquire fee title or conservation easement for lands containing sand transport systems that support this habitat. 1. Intact sand systems along the Mojave River Helendale north to Barstow; Barstow east to Newberry Springs; Coyote, Cronese & Dale Dry Lakes.	**10%** □ Rectify obstructions to sand transport in Aeolian corridors & primary sand source areas. □ Close & rehabilitate vehicle routes. Fence where applicable.
Bendire's thrasher (*Toxostoma bendirei*)	Modelled higher intactness habitat is largely under federal management, but scattered habitat loss due to development & agricultural development is the biggest threat to this species, habitat, some of which occurs on private lands.	**90%** □ Acquire land or conservation easement supporting occupied habitat: 1. North Apple Valley 2. Granite Mountains 3. Southern Stoddard Valley 4. Yucca Valley 5. Joshua Tree 6. Twentynine Palms	**10%** □ Close & rehabilitate vehicle routes. Fence where applicable.
Burrowing owl (*Athene cunicularia*)	Modeled suitable & occupied habitat throughout most of the county, with areas of higher intactness offering opportunities for compensatory mitigation. Emphasis areas include □ Adelanto □ Apple Valley □ Barstow □ Helendale □ Joshua Tree □ Kramer Junction □□ Victorville □ Yucca Valley.	**90%** □ Acquire known occupied habitat through fee title purchase, conservation easement and/or agricultural easement. Prioritization areas: 1. Apple Valley north to Ord Mountains. 2. Kramer Junction to Red Mountain. 3. Shadow Mountains north to Kramer Junction. 4. Adelanto west to Los Angeles-San Bernardino County line.	**10%** □ Implement Best Management Practices: o Eliminate squirrel/small mammal poisoning. o Secure water rights for agricultural fields. o Control tall agricultural vegetation through mowing, etc. o Install artificial burrows where beneficial.

Table 2c. Continued. Compensatory Mitigation Application Details for Covered Species in San Bernardino County, California and Defenders of Wildlife Recommendations.

San Bernardino County			
Species	**Location**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Golden eagle (*Aquila chrysaetos*) *State/federally listed Protected	Modeled habitat with higher intactness from Kramer Junction north to Red Mountain; Barstow north to Black Mountain & northeast to Alvord Mountain; and south of Barstow to Ord, Sidewinder, Rodman, Fairview & Granite Mountains/San Bernardino Mountains.	**30%** Acquire known nesting habitat through fee title purchase or conservation easement. Key areas include areas identified in previous column plus any additional inholdings within public lands identified as Key Raptor Areas (Ohlendorf et al. 1989[11]).	**70%** Retrofit power poles to ensure eagle safety. Roadside carcass removal. Reduce/eliminate wind facility mortality. Reduce vehicle use, within 0.5 mile of nesting sites. Fence where appropriate.
Least Bell's vireo (*Vireo bellii pusillus*) *State/federally listed Endangered	Known nesting in Lower and Upper Narrows of the Mojave River (Apple Valley north to Ore Grande). Suspected nesting and migration habitat Ore Grande north to Helendale; and at various springs in the Ord Mountains.	**80%** Acquire prioritized, modeled suitable habitat: (1) Along Mojave River from Apple Valley north to Helendale, Daggett and Kane Wash in the Ord Mountains.	**20%** Fund invasive plant species removal in conjunction with riparian restoration efforts. Fund brown-headed cowbird control programs. Eliminating public grazing through lease purchase or conservation easement. Remove vehicle routes in & adjacent to habitat.
Mountain plover (*Charadrius montanus*)	Limited modeled habitat from Hodge to Lenwood, Mojave River.	**90%** Removal as covered species in San Bernardino County recommended.	**10%** Manage agriculture to maintain suitable habitat in winter.
Swainson's hawk (*Buteo swainsoni*)	Modeled habitat with higher intactness along Mojave River, San Gabriel & San Bernardino Mountains, & Kramer Junction nort. Habitats typically support riparian habitat or Joshua tree woodland next to agricultural areas.	**90%** Acquire habitat through purchase or conservation easement. Focus areas include Mojave River adjacent to agricultural areas from Apple Valley north to Helendale, and Harper Dry Lake vicinity.	**10%** Secure cooperative agreements with agricultural operations to maintain Swainson's hawk habitat with Best Management Practices. Protect, restore and enhance native riparian and Joshua tree habitat.

[11] Olendorff, R.R., D.D. Bibles, T. Dean, J.R. Haugh, and M.N. Kochert. 1989. Raptor Habitat Management Under the U.S. Bureau of Land Management Multiple-use Mandate. Raptor Research Reports. Provo, Utah.

Table 2c. Continued. Compensatory Mitigation Application Details for Covered Species in San Bernardino County, California and Defenders of Wildlife Recommendations.

San Bernardino County			
Species	**Location**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Tricolored blackbird (*Agelaius tricolor*)	Modeled suitable habitat with higher levels of intactness occur along the Mojave River from Iron Mountain to near Lenwood, Summit Valley, Bighorn Mountains, and Pipes Canyon, Yucca Valley.	**50%** Acquire habitat through purchase of prioritized, modeled suitable habitat.	**50%** Enhance/restore nesting habitat near productive, protected foraging habitat, including promotion of nesting substrate (armored plants). Enter into cooperative agreements with landowners to maintain & enhance habitat.
Western yellow-billed cuckoo (*Coccyzus americanus*) *State listed Endangered Federally listed Threatened	Larger acreage of modeled suitable habitat with higher levels of intactness along the Mojave River from Ore Grande to Helendale, and Cushenbury Spring.	**70%** Acquire modeled suitable habitat through purchase or conservation easement.	**30%** Habitat restoration and enhancement, including: restoring natural seasonal water flows. o Fund non-native plant species removal in conjunction with active riparian revegetation & restoration efforts.
Willow flycatcher species (*Empidonax traillii* spp.) *State/federally listed Endangered	Larger acreage of modeled suitable migration and nesting habitat with higher levels of intactness along the Mojave River from Ore Grande to Helendale,. Summit Valley and Arrastre Canyon in southern Apple Valley. Critical habitat designated along Mojave River south of Ore Grande.	**80%** Acquire modeled suitable habitat through purchase or conservation easement. Protect breeding territories and occupied habitat.	**20%** Fund non-native plant species removal in conjunction with riparian restoration. Fund brown-headed cowbird control programs. Enhance/restore habitat by eliminating private and public grazing through lease purchase or conservation easement. Fence where applicable. Remove vehicle routes in and adjacent to suitable riparian habitat.

Table 2c. Continued. Compensatory Mitigation Application Details for Covered Species in San Bernardino County, California and Defenders of Wildlife Recommendations.

San Bernardino County			
Species	**Location**	**Compensatory Mitigation**	
		Acquisition	**Non-Acquisition**
Desert bighorn sheep (*Ovis canadensis nelsoni*)	Modeled suitable habitat with known occupancy that have higher levels of intactness are: 1. Newberry, Ord & Rodman Mountains. 2. Sidewinder & Granite Mountains. 3. San Bernardino Mountains from Terrace Springs west to Cushenbury Canyon. 4. Bighorn Mountains east to Pipes Canyon. 5. Buillion & Sheephole Mountain Ranges. 6. Cady & southern Soda Mountain Ranges. 7. Northern Soda, Avawatz, Owlshead, Quail/Granite (Ft. Irwin) & Eagle Crags Mountain Ranges 8. Argus & Slate Mountain Ranges. 8. Most mountain ranges in the East Mojave vicinity. Functional linkage corridors between northern and southern Soda Mountain, as well as between North & South Bristol and North & South Marble Mountains habitat areas are known to be extremely minimal.	**20%** Acquire prioritized, occupied habitat on private lands, and those private lands which have been identified as important to the movement of bighorn sheep between mountain range populations.	**80%** Enhance habitat (significantly) by eliminating livestock grazing through lease purchase/retirement or conservation easement. Fence where appropriate. Fund, establish, and maintain watering sites. Develop and implement cooperative agreements with private landowners to seasonally close bighorn sheep watering areas from human use. Control invasive exotic trees/shrubs within habitat. Fund & construct wildlife crossings over highways.

Table 3. Compensatory Mitigation Application Details for Covered Species[12] in Desert Habitat Linkages, California and Defenders of Wildlife Recommendations.

Desert Habitat Linkages			
Sierra Nevada-Edwards Air Force Base Focal species: Mohave ground squirrel (*Xerospermophilus mohavensis*) American badger (*Taxidea taxus*) Desert kit fox (*Vulpes macrotis*)	The most permeable linkage varies in width from about 1-6 miles and extends from Landers Meadow in the southern Sierras through Kelso Valley across Toms Hill to Jawbone Canyon. The corridor follows lower Pine Tree Canyon, crossing State Route 14 just south of Pine Tree Canyon Road, down into the Fremont Valley. It then heads almost due south to cross Cache Creek, veering southeast towards Edwards Air Force Base. The Hyundai Test Track and Cinco Solar Project eliminated approximately 50% of the previous linkage width, reducing current width to 2 miles.	**70%** Compensation ratio for unavoidable impacts is 2:1. Maintain minimum linkage width of 1.25 miles. Acquire fee title or conservation easement to maintain minimum corridor width.	**30%** Fund projects to remove obstacles that impede mammal species movement.
China Lake South Range-Edwards Air Force Base Focal species: Agassiz's desert tortoise (*Gopherus agassizii*) Mohave ground squirrel (*Xerospermophilus mohavensis*) American badger (*Taxidea taxus*) Desert kit fox (*Vulpes macrotis*)	The most permeable linkage varies in width from 1-3.5 miles and extends from Grass Valley through Gravel Hills and The Buttes to Kramer Junction, crossing State Route 58 and U.S Highway 395 just east of their juncture. The towns of Kramer Junction and Boron, the Kramer Solar Project and Rio Tinto Borax Mine constrain the southern portion of this linkage Another narrower, 1 to 3.7 mile width linkage occurs just north of the most permeable linkage.	**80%** • A 2:1 compensatory mitigation ratio currently recommended • Acquire prioritized habitat with conservation easements. • Maintain minimum linkage width of 3 miles for Desert tortoise. Acquire fee title or conservation easement to maintain minimum corridor width in vicinity of Boron, Kramer Junction., and a segment within California City north of Kramer Junction.	**20%** • Enhance habitat by eliminating public grazing through lease purchase or conservation easement. • Remove vehicle routes in habitat reserves.

[12] Certain special status species were either not identified as "covered species" or not fully addressed by compensatory mitigation application planning in the Draft Desert Renewable Energy Conservation Plan, including a number of species identified in this table, as well as Cushenbury buckwheat (*Eriogonum ovalifolium* var.. *vineum*), Cushenbury milkvetch (*Astragalus albens*), Le Conte's thrasher (*Toxostoma lecontei*), Coast horned lizard (*Phrynosoma blainvillii*), and short joint beavertail (*Opuntia basilaris* var. *brachyclada*).

Table 3. Continued. Compensatory Mitigation Application Details for Covered Species in Desert Habitat Linkages, California and Defenders of Wildlife Recommendations.

Desert Habitat Linkages			
China Lake North Range-China Lake South Range Focal species: Mohave ground squirrel (*Xerospermophilus mohavensis*) American badger (*Taxidea taxus*) Desert kit fox (*Vulpes macrotis*) Desert bighorn sheep (*Ovis canadensis nelsoni*)	The least-cost corridor ranges in width from approximately 0.7 to 4 km and extends from Sweetwater Wash out of the Argus Range, crosses the 178 near Pioneer Point down into Borax Flat in the northern part of the Searles Valley and then heads east toward Copper Queen Canyon in the Slate Range.	**N/A** The corridor is located almost entirely on public land.	**100%** ☐ Enhance habitat by eliminating public grazing through lease purchase or conservation easement. ☐ Remove vehicle routes in habitat reserves.
Sierra Nevada-China Lake North Range Focal species: Mohave ground squirrel (*Xerospermophilus mohavensis*) American badger (*Taxidea taxus*) Desert kit fox (*Vulpes macrotis*)	The least-cost linkage extends from the Piute Mountains in Sequoia National Forest, incorporating parts of Kelso Creek. It splits with the northern branch capturing habitats in Pinyon Creek, Bird Spring Pass and Horse Canyon; & the southern branch encompassing Frog Creek, Wiley's Knob and Bird Spring Canyon. The branches then converge to incorporate Lower Horse Canyon, Sage Canyon, and Cow Heaven Canyon, crossing State Route 14 at Freeman Gulch. To the east of State Route 14, the most permeable route follows Little Dixie Wash to an unnamed wash across U.S. Highway 395 and northeast to cross State Route 178 in the open section west of Jacks Ranch Road to Armitage Field on the China Lake North target area. The linkage ranges in width from approx. 0.5-6 miles.	**80%** The corridor is most constricted and threatened between Ridgecrest and Inyokern due to Hwy. 178 and scattered residences. Key acquisition area is the eastern segment closer to Ridgecrest that ranges in width from 1 to 2 miles. Acquire title or conservation easements on eastern segment to maintain continuity with public lands to the south in Indian Wells Valley.	**20%** ☐ Enhance habitat by eliminating public grazing through lease purchase or conservation easement. ☐ Remove vehicle routes in habitat reserves.

Table 3. Continued. Compensatory Mitigation Application Details for Covered Species in Desert Habitat Linkages, California and Defenders of Wildlife Recommendations.

Desert Habitat Linkages			
Sierra Nevada-China Lake South Range Focal species: Mohave ground squirrel (*Xerospermophilus mohavensis*) American badger (*Taxidea taxus*) Desert kit fox (*Vulpes macrotis*)	The least-cost linkage follows the same route described above but diverges to cross U.S. Highway 395 near Teagle Wash, into the lower Searles Valley. It ranges in width from 1.2-8 miles.	**N/A** This linkage is largely in Federal ownership with few threats posed by private land development	**100%** □ Enhance habitat by eliminating public grazing through lease purchase or conservation easement. □ Remove vehicle routes in habitat reserves.
Edwards Air Force Base-San Gabriel Mountains Focal species: American badger (*Taxidea taxus*) Desert kit fox (*Vulpes macrotis*)	The least-cost linkage extends from south of the Haystack Butte Area on Edwards Air Force Base through El Mirage Valley to Table Mountains in the San Gabriel Mountains. This linkage ranges in width from 1.7-5 miles, but is severely compromised by the California Aqueduct, Grey Butte Airfield vicinity development, as well as State Routes 18 & 138.	**70%** □ Acquire fee title or conservation easement on remaining functional habitat, especially proximal to Gray Butte Airport.	**30%** □ Wildlife crossings over the California Aqueduct should be considered to facilitate terrestrial animal movement. □ Remove vehicle routes in habitat reserves.
Edwards Air Force Base-Castaic Ranges & San Gabriel Mountains Focal species: American badger (*Taxidea taxus*) Desert kit fox (*Vulpes macrotis*)	Amargosa Creek, Little Rock Creek/Wash, Big Rock Wash & Mescal Creek are somewhat porous linkages of narrow width, which are compromised by rural residential, agricultural development, mining and recreational use.	**70%** □ Acquire fee title or conservation easement on remaining functional habitat, especially within Amargosa Creek, Little Rock Creek/Wash, Big Rock Wash, Mescal Creek and lands proximal to Gray Butte Airport.	**30%** □ Wildlife crossings over the California Aqueduct should be considered to facilitate terrestrial animal movement. □ Remove vehicle routes in habitat reserves.
Tehachapi Connection	Linkage between the Transverse Ranges (Castaic & San Gabriel Mountain Ranges) with the Southern Sierra Nevada Mountains. Current width of 4 miles has been affected by wind farms & mining; particularly proximal to Mojave, California.	**80%** Acquire fee title or conservation easements on private land habitat within the linkage adjacent to the desert slope of the Tehachapi Mountains.	**20%** Develop conservation agreements with landowners to remove or modify fences to allow for wildlife movement, including mule deer.