

**Defenders of Wildlife ~ Center for Biological Diversity ~ California Native Plant Society ~
Sierra Club ~ Natural Resources Defense Council ~ The Wilderness Society ~
The Nature Conservancy**

July 2, 2013

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California Energy Commission
Dockets Office, MS-4
Docket No. 09-RENEW EO-01
1516 Ninth Street
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Re: Comments on draft Biological Goals and Objectives (BGOs) representing the second subset of “driver species” for the Desert Renewable Energy Conservation Plan (DRECP)

Dear Mr. Harlow:

Thank you for sharing with us the Preliminary Biological Goals and Objectives for the second subset of the DRECP “driver species” (Desert tortoise, Flat-tailed horned lizard, Sand dunes natural community). We appreciate receiving this information and the opportunity to provide our comments, which we hope will contribute to development and implementation of effective, timely and lasting conservation through the DRECP.

Our comments, both general and specific, are as follows:

1. General. We recommend that all goals and objectives for covered species and natural communities include conservation management actions and maps showing the location and extent of conservation areas where actions would occur. Achieving the goals and objectives for each “driver species” and natural community will require effective, timely and lasting conservation management actions. Objectives related to protection of habitat and maintaining viable populations throughout various conservation areas across the species ranges should be as precise as possible so that conservation management actions are focused, clearly understood and not subject to subsequent debate or interpretation. Having conservation management actions and maps of conservation areas would enable our organizations to more clearly understand and provide

meaningful comments and recommendations on the extent and effectiveness of the conservation strategy for covered species and natural communities throughout the planning area.

Objectives for habitat protection should be clearly stated so that future conflicts with potentially incompatible land uses are eliminated or minimized to the maximum extent practicable and in a timely manner. This is especially important relative to certain multiple land use activities on public lands, and non-federal lands acquired for conservation purposes. The multiple-use mandate on public lands stemming from the Federal Land Policy and Management Act (FLPMA) also requires that public land resources be managed under the principle of “sustained yield” and in California Desert Conservation Area (CDCA), public lands are to be managed such that overall environmental quality is maintained. We believe the most important and effective conservation strategy for all species and natural communities covered under the DRECP will be habitat protection and enhancement, achieved through both acquisition and actions that eliminate land uses and activities within Conservation Areas that contribute to habitat loss, fragmentation and deteriorating ecological conditions. Examples of the latter include excessive noise, dust, non-native invasive species, human-caused fires, soil erosion and compaction, and suppression of growth and renewal of native plant communities, generally the result of excessive and unsustainable levels of mineral development, roads, livestock grazing and off-road vehicle use.

While the flat-tailed horned lizard (FTHL) is not nearly as extensively studied as the desert tortoise, it is very likely that a similar conservation strategy of rigorous management to minimize and eliminate threats as is implemented at the Desert Tortoise Research Natural Area (DTRNA) would benefit the FTHL (see Objective DETO 1.1 (Tortoise Conservation Areas), below).

Over time, we have observed that conservation goals and objectives in various land use plans, including the CDCA Plan, although well intended, have not been particularly effective because the objectives were too vague, the corresponding management actions were not effective or have not been implemented. Two such examples stem from the West Mojave amendments to the CDCA Plan adopted in 2006. The first requires that desert tortoise movement corridors between Desert Wildlife Management Areas in the Western Mojave Recovery Unit; and between the Western Mojave Recovery Unit and the Eastern Mojave Recovery Unit, the Eastern Colorado Recovery Unit, and the Northern Colorado Recovery Unit are delineated and maintained (West Mojave Plan, Desert tortoise, Objective 3.1). The second authorizes the withdrawal of 32,590 acres within the Rand Mountains – Fremont Valley management area from mineral location and entry (West Mojave Plan, Amendment # 5). Neither of these objectives and or management actions have been completed to date. We recommend the DRECP include mechanisms to ensure that the required management actions are implemented in a timely manner and fully funded according to an implementation plan and agreements among the participants in the plan.

A clear commitment for a species-specific funded adaptive management program is needed. Many current monitoring schemes and adaptive management programs (including both desert tortoise and

flat-tailed horned lizard) are unable to launch long-term, reliable monitoring programs because they are subject to available funding and staff. A funded research contract for an adaptive management program is needed. Therefore, as part of the DRECP, a restricted endowment fund for the adaptive management program for species needs to be clearly identified. An effective, timely and funded adaptive management component of the DRECP is essential given the anticipated effects as well as uncertainties associated with climate change, and unknown indirect impacts of large-scale renewable energy projects on various species, their habitats and ecological processes.

2. Specific – Desert tortoise.

Goal DETO 1 (Tortoise Conservation Areas). We fully support this goal and are pleased that it applies to all desert tortoise conservation areas. We recommend that the goal be slightly reworded to read, “Within and throughout each desert tortoise recovery unit...” Furthermore, we recommend inclusion of a definition or framework for the term “reserve system” that addresses ecosystem function and habitat characteristics necessary to conserve and sustain desert tortoise populations. Each objective under this goal should include measurable outcomes related to ecosystem function habitat suitability for this species.

Objective DETO 1.1 (Tortoise Conservation Areas). We fully support this objective and recommend that it be modified to include restoration of suitable but currently degraded or fragmented habitat, for example, habitats affected by livestock grazing or excessive amounts of motorized vehicle routes. Regarding acquisition of available non-federal lands within and adjacent to Tortoise Conservation Areas, we recommend establishing priorities based on parcel size, habitat intactness and desert tortoise density. The habitats affected under this objective should be quantified and mapped.

The role and effectiveness of reserve-level management in conservation of the desert tortoise was recently reported by Berry, et al. at the 2013 Annual Symposium of the Desert Tortoise Council.¹ The authors systematically surveyed three contiguous land areas in the western Mojave Desert, each having different management policy. The Desert Tortoise Research Natural Area (DTRNA), where off-road vehicles and sheep grazing were eliminated nearly 37 years ago, had significantly higher densities (10.2 per square-kilometer) of sub-adult and adult desert tortoises than two adjacent areas (2.4 and 3.7 per square-kilometer), one of which is part of the Rand Mountains/Fremont Valley Management Area established by the BLM for desert tortoise conservation that is subject to impacts from off-road vehicle use and other human activities. The DTRNA was the only area where juvenile and immature desert tortoises were observed. The three study areas were sampled equally through field study in 2011 involving 80 one-hectare plots in each area. Based on this recent study, as well as the recommendations in the original 1994 Recovery Plan, we strongly recommend that all Tortoise Conservation Areas, including habitat linkages, receive the strongest practicable reserve-level

¹ Berry, K.H., L. Lyren and T. Bailey. 2013. A Comparison of Desert Tortoise Populations and Habitat on Three Types of Managed Lands in the Western Mojave Desert. Abstract, 38th Annual Meeting and Symposium, Desert Tortoise Council.

management objectives and management actions. Without such, it is doubtful the desert tortoise will ever be recovered.

Objective DETO 1.2 (Tortoise Conservation Areas). We recommend there be no loss in the quantity of habitat within Tortoise Conservation Areas rather than “no net loss.” The “no net loss” requirement would allow for actual habitat loss because it could be tied to compensatory habitat mitigation, but still resulting in habitat loss. Also see Objective 1.5 for recommendations for increasing the quantity of habitat in Tortoise Conservation Areas.

Objective DETO 1.3 (Tortoise Conservation Areas). We support this objective provided such increases in population change rates are the result of habitat protection and elimination of deleterious land use activities. We recommend that population augmentation through translocation or headstarting should not be used to achieve this objective until experiments using this technique are shown to be successful, based on rigorous research. Due to the statistical limitations associated with line-distance sampling, we recommend establishing a network of permanent study plots within each Tortoise Conservation Area and all habitat linkages that will provide information on population demographics including age class and abundance, recruitment, mortality and habitat condition.

Objective DETO 1.4 (Tortoise Conservation Areas). We support this goal provided increased distribution within each Tortoise Conservation Area is associated with habitat protection and elimination of deleterious land use activities. We recommend that population augmentation through translocation or headstarting should not be used to achieve this objective at this time.

Objective DETO 1.5 (Tortoise Conservation Areas). Clarification needs to be made that this objective is increasing the size of Tortoise Conservation Areas and providing protection of minimum populations of desert tortoises deemed necessary to ensure long-term viability. The Recovery Plan recommends that each Tortoise Conservation Area be at least 2,590 square-kilometers in size in order to support the minimum viable population of 10,000 adult individuals. The habitats affected under this objective should be quantified and mapped.

Only four out of the 12 designated critical habitat units currently meet the minimum area recommendations in the 1994 Recovery Plan. Please identify which Tortoise Conservation Areas are below the minimum recommended area and develop new objectives to increase the size of each to at least 2,590 square-kilometers.

Goal DETO 2 (Desert Tortoise Linkages). We are pleased with this objective and believe habitat linkage protection is an essential component of desert tortoise recovery. We recommend that linkages should be those areas of high value habitat (Least Cost Pathways and the high value contiguous habitat identified through rigorous modeling²) and that have been verified or confirmed through field surveys. These areas should receive the same high-level of protection afforded habitat

² <http://pubs.usgs.gov/of/2009/1102/>

falling within Tortoise Conservation Areas. We recommend that this goal and each of the associated objectives be consistent with the conservation and management recommendations in a newly published paper entitled “Conserving Population Linkages for the Mojave Desert Tortoise (*Gopherus agassizii*).”³

Lastly, based on the importance of linkages to desert tortoise recovery/conservation, we recommend linkages be identified as components of Tortoise Conservation Areas. We recommend that the goals under each objective be consistent, i.e., they should each include “protect, maintain and acquire.”

Objective DETO 2.1a (Desert Tortoise Linkages). We support this objective and recommend that management actions to achieve this objective provide the strongest level of effective, timely and lasting protection. These areas should be identified as exclusion areas for future rights-of-way, mineral material sales, livestock grazing and off-road vehicle use.

Objective DETO 2.1b (Desert Tortoise Linkages). Although three linkages are described as severely compromised (Ivanpah Valley, Chemehuevi to Chuckwalla and Pinto Wash), we fully support this objective to protect, maintain and acquire all remaining desert tortoise habitat within these areas. Achieving this objective will require additional protective measures including excluding all remaining habitat within these areas from adverse impact from any land use activity. This would require modifying the footprints of renewable energy project applications that are currently under review to avoid these key linkages. For example, in comments provided by a number of environmental groups (i.e., Defenders of Wildlife, etc.) on the Draft Environmental Impact Statement for the proposed Stateline Solar Farm Project in Ivanpah Valley, the joint recommendation was that an additional alternative (“desert tortoise avoidance alternative”) be included and analyzed because it would substantially avoid loss of habitat occupied by desert tortoises, provide a wider movement corridor around the project and still allow the project to be permitted and constructed.

Objective DETO 2.1c (Desert Tortoise Linkages). We fully support protection of the Ord-Rodman to Joshua Tree linkage and believe it is achievable. Although we see the biological value of protecting the modeled Fremont-Kramer to Ord-Rodman linkage, we have doubts it is achievable given the amount of private land, habitat fragmentation and level of existing development. A viability analysis should be performed for the suggested Fremont-Kramer to Ord-Rodman linkage. We recommend an additional linkage between the Fremont-Kramer and Ord-Rodman Conservation Areas located immediately west of the Cady Mountains, and specifically a continuous, four-mile wide swath of contiguous, high quality habitat immediately west of the Cady Mountains Wilderness Study Area boundary. Near this swath of habitat, five-square miles of habitat located in Hidden Valley are

³ Averill-Murray, R.C., C.R. Darst, N. Strout and M Wong. 2013. Conserving population linkages for the Mojave desert tortoise (*Gopherus agassizii*). Herpetological Conservation and Biology 8(1):1 – 15.
http://www.fws.gov/nevada/desert_tortoise/documents/publications/2013-Conserving-popln-linkages-mdt.pdf

being acquired through the efforts of the California Department of Fish and Wildlife utilizing the Renewable Energy Trust Fund. Other areas identified for desert tortoise connectivity should also be included as high priority for conservation and acquisition if on private lands. Objectives and conservation management actions should include establishing, maintaining or enhancing wildlife movement passages under both I-15 and I-40.

Goal DETO 4 (Other Intact Desert Tortoise Habitats). The goal of protecting the desert tortoise in areas of intact desert tortoise habitat in the plan area but outside of the areas described in the previous goals and objectives should be based on habitat protection and not limited to “Minimize injury and mortality” as stated in the following objective:

Objective 4.1. This objective should include protecting, connecting and maintaining occupied habitat in addition to minimizing injury and mortality.

Although generally of lower conservation priority than Conservation Areas, there are many other intact habitats supporting desert tortoise populations that may play an important role in recovery of the species. Among the areas that should be considered are the following: 1) Northern Searles Valley including habitat east of Searles Dry Lake, 2) Lands surrounding the El Paso Mountains in the Indian Wells Valley, 3) Lands surrounding the north, east and south slopes of Red Mountain, 4) Lands surrounding the west and south slopes of the Cady Mountains, 5) Lands extending from the Pisgah Crater ACEC into the Bristol Dry Lake Basin including the Broadwell Dry Lake valley and south to the Bullion Mountains, 6) Dissected Fans landform in Eastern Riverside County (as depicted in the Northern and Eastern Colorado Desert Plan Amendments from 2002), 7) Ivanpah Valley, 8) Lands located north of Hwy. 58, west of Hwy. 395 and east of the California City boundary, 9) Lands located generally east of the Chuckwalla Critical Habitat Unit, 10) Lands in California Valley and Mesquite Valley, Inyo County.

Goal DETO 5 (Climate Change). We fully support this goal, but recommend that each objective be modified to address the need to protect, maintain and acquire habitats necessary to support desert tortoise populations as vegetation communities shift over time as a result of climate change. Objectives should not be limited to conducting studies, habitat change models and opportunities for future planning actions.

Additional Goals and Objectives need to be established for desert tortoise conservation as follows:

Under **Goal DETO 2**, we recommend including the following objective: **Objective DETO 2.1d (Desert Tortoise Linkages).** Ensure all underpasses on paved roads and interstate highways, including bridges and culverts, within all desert tortoise linkages are accessible to and facilitate movement of desert tortoises.

Goal DETO 6. The scientific literature is clear that certain existing multiple use activities conflict with or are inconsistent with desert tortoise conservation. See the 1994 Recovery Plan for specific

examples. Therefore, as part of the Conservation Strategy for desert tortoise, these types of activities should be either eliminated or minimized in order to support the conservation goals and recovery for this iconic species.

Objective DETO 6.1. All grazing of domestic livestock within desert tortoise habitat, especially including Conservation Areas and habitat linkages will be eliminated through voluntary grazing permit relinquishment and cancellation of the associated grazing allotment. Using the tools in BLM's land management plans and the provisions within the Consolidated Appropriations Act, 2012 (Public Law 112-74), existing permits will be acquired and allotments permanently retired in support of desert tortoise and other species conservation. In addition, wild horse and burros should be confined to the currently identified Herd Management Areas (HMAs). All wild horses and burros outside of HMAs should be removed from desert tortoise habitat.

Objective DETO 6.2. Designated routes on public land in Conservation Areas, all habitat linkages and other intact desert tortoise habitats should not fragment otherwise intact, contiguous habitat and should not exceed one route-mile/square mile of habitat in order to minimize habitat fragmentation, noise, dust and the mortality threat to desert tortoises from motorized vehicles. Habitats within Conservation Areas that support higher densities of desert tortoises should be closed to motorized vehicle use and all existing routes closed and restored to natural habitat condition. Motorized vehicle use within Conservation Areas and habitat linkages should be limited to street-legal (licensed) vehicles. If mortality is still occurring, the adaptive management strategy should include fencing both sides of the routes and providing funding to maintain the fencing in perpetuity. Additionally, culverts need to be installed to provide connectivity between the populations if fencing is required.

Objective DETO 6.3. One of the challenges of desert tortoise conservation is enforcing the existing and any new regulations on-the-ground. Increased law enforcement focused on resource conservation will be established at a level of two law enforcement rangers and four conservation patrol technicians per Conservation Area, with increased on-the-ground presence scheduled for all popular weekends and holidays

Objective DETO 6.4. Free roaming dogs will be eliminated and domestic dogs must be on-leash at all times in desert tortoise habitat.

Objective DETO 6.5.: Shooting shall be prohibited in desert tortoise habitat except for big game and upland bird hunting, as allowed by CDFW regulations between September and February.

Objective DETO 6.6.: Because dumping and littering are already prohibited in desert tortoise habitat, all existing landfills and transfer stations must be operated so they are not accessible to common ravens, coyotes and free-roaming dogs, which are known predators of desert tortoise. Funding will need to be provided to support ongoing clean-up of illegal dumping along with a monitoring and maintenance program for landfills and transfer stations.

Objective DETO 6.7. Withdraw all public lands in Conservation Areas and habitat linkages from entry under the General Mining Law to promote recovery of the desert tortoise.

Objective DETO 6.8. Establish strategically located preserves within each Conservation Area that encompass all known higher density desert tortoise populations; close all motorized vehicle routes on public lands within each preserve; restore all closed routes by establishing natural vegetation; and effectively block motorized vehicle use through the installation of fences or barriers.

Objective DETO 6.9. Reduce Common raven predation on desert tortoises by eliminating Common raven nests on all man-made structures (towers, buildings, etc.) within Conservation Areas and habitat linkages on an annual basis outside the active nesting season.

3. Specific – Flat-tailed horned lizard

Goal FTHL 1. We generally support Goal FTHL 1, but “conserve” needs to be clearly defined to include, but not be limited to, designation of Management Areas and strengthening and implementing conservation strategies within those areas. We believe to benefit the FTHL while allowing for “take” from renewable energy projects, more rigorous conservation strategies must occur within the existing Management Areas (MAs) and Research Area than are currently apart of the RMS.

Objective FTHL1.1. Again, please define “conserve” and prescribe more rigorous and clearly identified conservation strategies. Additionally, at least part of the Ocotillo Wells Research Area needs to be redefined as a Management Area and managed exclusively for the FTHL because it is the only connectivity between the West Mesa MA and the Borrego Badlands MA. The Ocotillo Wells RA is currently wholly included in the Ocotillo Wells State Recreation Vehicle Area, which is an “open” area for off-road vehicles, where vehicles are allowed to drive everywhere. Because FTHL inhabits generally low relief topography and its predation-evasion strategy is to freeze in place and blend in with the substrate, this strategy makes it particularly vulnerable to being run over by vehicles. By conserving FTHL habitat (i.e., creating a Management Area) in Ocotillo Wells that links the West Mesa and Borrego Badlands and that is not accessible to vehicles, the FTHL will have a refugia and connectivity corridor which allows for their persistence in their current range and a corridor for resiliency to the effects of environmental change, including, range shifts, contractions, expansions, local extirpation and recolonization.

Objective FTHL 1.2. While this objective proposes to expand the MA network or add new MAs which we support, it ultimately only expands existing MAs. Figure 1, while is of such a small scale to be not very useful, still identifies a gaping disconnect between the Yuha Basin Expansion (or BCL) and West Mesa. A new MA should be established between the Yuha Basin and the West Mesa (see connectivity enhancement below) in addition to the Ocotillo Wells MA described above in order to make the final connection between the FTHL habitat on the west side of Imperial county.

Goal FTHL 2. While we generally support the goal, it needs to define and include how “net effect” is measured. As with the desert tortoise, the goal should be no loss in habitat for the FTHL. In addition, the goal should be greater than preventing loss of habitat on BLM & CDPR lands (both inside and outside of the MAs). It should prevent declines in the species populations as well.

Objective FTHL 2.1. This objective should also acknowledge and include the RMS' cumulative 1% development cap in the MAs.

The DRECP should revisit the habitat compensation ratios in the RMS due to the documentation of far reaching indirect impacts to FTHL habitat from adjacent development⁴. Currently under the RMS, habitat compensation outside MAs is 1:1, and ranges from 3 to 6:1 inside MA's and includes a 1% habitat loss cap.

We propose Objective FTHL 2.2. "Replacement" habitat acquisitions will be targeted in key connectivity and management areas.

Goal FTHL 3. We generally support this goal and have the following comments on the objectives associated with this goal:

Objective FTHL 3.1. All monitoring efforts should be consistent and standardized, and implemented in all areas (not just the MAs and RA). Some of the stressors have been identified previously and should be addressed in the objectives.

- Saharan mustard (*Brassica tournefortii*) is a major problem in areas that do not have significant annual sand replenishment. In those areas of FTHL habitat where Saharan mustard occurs, a research program aimed at reducing or eliminating the impact of the mustard should be implemented.
- Because the FTHL is an ant specialist, monitoring of ant diversity and density (food base) for FTHL should be incorporated as part of the adaptive management strategy in the context of declining populations. Barrows and Allen (2009) found evidence that food-limiting hypothesis best fit observed population dynamics more than annual rainfall, annual cover of plants and soil compaction levels.
- The FTHL strategy needs to require limiting new water sources and development in lizard habitat to prevent encroachment of invasive unpalatable ant species (ex. Argentinian ants) and to monitor naturally occurring water sources in FTHL habitat for invasive unpalatable ant species encroachment.
- Because the round-tailed ground squirrel (*Spermophilus tereticaudus*) is a "major FTHL predator"⁵, monitoring of the density of this species should also be required and an adaptive management strategy identified if this species causes a population decline in the FTHL.

Objective FTHL 3.2. The RMS is now a decade old and while it has yielded the bulk of the data on the status of FTHL population dynamics and has tracked acquired additional habitat while allowing additional development in FTHL habitat, new research has occurred since its finalization that should

⁴<http://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/FTHL/Indirect%20effects%20of%20development.pdf>

⁵ IBID

be included in the DRECP in order to update the RMS. These new data sets including the ones above should be captured in additional objectives.

- An objective is needed that limits roads and transmission lines, fencing, other structures or ornamental plantings that provide perching/nesting opportunities for predatory birds in FTHL MAs based on the fact that these anthropogenic structures increase mortality⁶
- An objective is needed that minimizes sand compaction in FTHL habitat⁷ and requires alleviation of soil compaction for temporary impacts or as an enhancement technique.
- If roads are necessary in FTHL habitat, road mortality may be avoided by road fencing. While this management strategy has been implemented in Arizona⁸, we are unaware of the outcome of this experiment, but it merits further investigation. We recognize that if fencing is successful in preventing road mortality via construction of a barrier to FTHL, it also effectively isolates parts of the population which adds complexity to this avoidance strategy that ultimately may not benefit the FTHL. In addition, all fencing will require regular maintenance to prevent debris accumulation, sand ramping, erosion etc. In addition the mesh on the fence should be fine enough to prevent hatchling FTHL from getting caught in it.
- An objective that re-establishes connectivity between currently isolated parts of the population also needs to be included. For example, on the west side of the Imperial Valley, Interstate 8 forms a substantial barrier to historically contiguous FTHL habitat. Improving this connectivity through future modifications (i.e. underpasses), as has been done with other rare reptiles like the desert tortoise, will benefit the FTHL.

In order for the Objectives to be effective, actual metrics need to be included for each of them: for example XX number of acres acquired in YY FTHL habitat; monitoring occurs every ZZ years. Clear triggers for adaptive management should also be identified: for example if the population of FTHL declines by 5% for 3 years, then Management Strategy Y kicks in; if minimum density/cover of Saharan mustard at XX/ha is reached then Management Strategy Z must be implemented. Clear direct thresholds that trigger clear adaptive management will provide assurances for conservation and relieve the sometimes problematic issue of interpretation of thresholds and triggers for action.

4. Specific – Sand Dunes Natural Community

Goal SAND1. In general, the proposed Sand Dunes BGOs could potentially provide benefit to the conservation of dune plant and animal species and ecological processes. We agree that by addressing the restoration and maintenance of dune geomorphic processes, the biological requirements of and ecological threats to sand dune flora and fauna, including rare taxa and rare plant alliances, the

⁶ <http://escholarship.org/uc/item/06c0q5pw.pdf>

⁷ Barrows and Allen 2009

⁸ <http://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/FTHL/Indirect%20effects%20of%20development.pdf>

BGOs provide an initial framework for how the Plan can provide for the conservation of Dune Communities. However without knowing the location of Reserve System boundaries or without the ability to review and consider the Conservation Management Actions (CMAs) associated with each BGO, it is not possible to assess whether these Goals and Objectives can meet the conservation needs of the Dune Community as a whole, or of specific plant or animal Dune Community components.

Objective SAND1.1 (enhancing the fluvial/alluvial sedimentary processes). Are there examples of actions to *enhance* fluvial/alluvial sedimentary processes and eolian transport corridors, and is there evidence to support their usefulness as a conservation action?

Objective SAND1.1 (Dune features mapped in Figure XX). The 2013 DRECP Vegetation Map uses a minimum mapping unit (MMU) of 10 acres for land features and plant alliances addressed in the Dune Community BGOs. The 10 acre MMU was based on logistical factors, and not on biological or ecological factors. Dunes, and particularly dune hummocks, that occur over areas less than 10 acres provide the same ecosystem values to dune flora and fauna as those mapped in areas of 10 acres or more, and these goals and objectives should apply to them as well.

Objective SAND1.1. Why are the Algodones Dunes not called out in this list of dune complexes that appear under Objective SAND1.1? If they are still within the DRECP area and are still to be considered under the Plan then they should appear on this list. Additionally, the rare Algodones Dunes plant taxa, which include BLM Sensitive, and both State and Federally listed plants (Algodones Dunes sunflower, Peirson's milk-vetch, Wiggins croton, Sand food, and Giant Spanish-needle), should be included on the Covered Species list. If the REAT has decided to remove the Algodones Dunes from the DRECP area, then the reasons and rationale behind this decision should be made clear to stakeholders and public. Based on the rarity of dunes and stabilized sand flats as plant communities/habitat, carving out the largest sand dune complex in the California desert (and in North America) from the DRECP area makes no ecological sense.

Objectives SAND1.1 and SAND1.3 (Reserve System). These objectives refer to conservation of ecological processes, communities, and species "in the Reserve System." Without knowing the location of the Reserve System boundaries, it is not possible to assess the efficacy of the objectives. For example, in SAND1.1, how much and what parts of the existing dune complexes listed are to be represented within the Reserve System? Without knowing this, it is not possible to determine the ecological value of the stated objective other than in abstract terms.

Objective SAND1.2. We support the consideration of all components of sand-related communities (dunes, hummock, ramps, flats, sheets) along transitional areas and biota associated with these components. Included in these considerations should be the conservation of locally important occurrences of widely-distributed dune plant communities. This can be addressed by ensuring the Plan conserves occurrences of dune vegetation alliances within each DRECP subregion where they currently occur, and avoids creating a Reserve System that eliminates a portion of an alliance's range from an entire subregion.

As noted previously, it will be necessary to review the CMAs associated with this objective in order to determine the potential efficacy of what is being proposed.

Objective SAND1.3. As noted above, without knowing the boundary locations of the Reserve System we cannot calculate what percent of existing dune communities is represented by "the entirety" of locations within the Reserve System, nor can we determine whether this will be sufficient to provide for the long-term conservation of Dune Communities. We note that the "entirety of rare alliances in Reserve System" should include all mapped and as yet unmapped (smaller than 10 acre MMU) dune complexes as noted above.

Objective SAND1.3 (the eight rare alliances in the Reserve System). Revise the language for clarity to, "eight rare Dune Community alliances" as there are more than eight rare alliances that will eventually be addressed in the Plan's Reserve System.

Goal SAND2 (offsetting the impacts of Covered Activities resulting in equal or greater habitat value...). When developing the cumulative effects analysis of the proposed conservation strategies, the cumulative effects of all stressors must be considered and addressed; otherwise impacts from activities in the Plan area other than Covered Activities would likely result in a Plan that fails.

Re: "...with particular emphasis in areas that are most likely to be adaptive and resilient in response to the effect of environmental change..." While we agree that ecological adaptability and resilience are important factors to consider when planning conservation strategies and management actions, more information is needed regarding how suitable areas will be identified before the value of this Goal can be fully assessed.

SAND2.1, 2.2, and 2.3. While in principle, all three of these Objectives identify activities meant to acquire resources and information that could contribute to the persistence of dune flora, fauna, and ecological processes, biologically-relevant results from each Objective would most likely be available only after several years of work, if ever. The adjudication of groundwater (Sand2.1), population viability analyses for dune floral and faunal components (SAND2.2), and niche modeling to identify which dune communities are "most likely to persist" under climate change (SAND 2.3) will take several years, if ever, to accomplish. Are these three Objectives attainable? And if so, are they attainable within a timeframe that is relevant to the Plan?

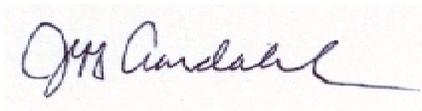
Appendix (reference to microphyll woodland alliances). The text refers to all four microphyll alliances in the table yet only one (*Prosopis glandulosa*) of the four alliances is listed. Are the other 3 meant to be included? For example, Palo verde / Ironwood microphyll alliance occurs along the eastern apron of the Algodones Dunes. We recommend all four of these alliances be included.

Appendix (rarity Ranks). It would be helpful to cite where the rarity Ranks for Dune vegetation alliances are from. They do not match the Rank many of these alliances are given in the Manual of California Vegetation, 2nd Edition (Sawyer et al., 2009). Perhaps the new vegetation mapping data has refined Rank designations for some alliances and, if so, clarifying this would be helpful.

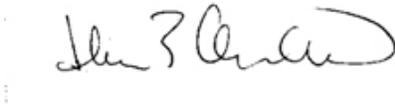
Appendix (*Swallenia alexandrae* special stands). These are known only from the Eureka Dunes which are on legislatively protected lands in Death Valley National Park, and outside of the DRECP boundary. The Eureka Dunes are not included in the dune areas listed under Objective SAND 1.1. We believe this rare, special stand can be removed from consideration in the DRECP.

In closing we stress the importance of an opportunity to review and consider the CMAs associated with these and other BGOs before the release of the DRECP's public CEQA/NEPA draft documents. Thank you for considering these comments and recommendations to this set of draft BGOs. We hope that they are useful to the agencies in crafting a strong conservation strategy for the DRECP.

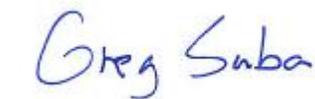
Sincerely,



Jeff Aardahl
California Representative
Defenders of Wildlife



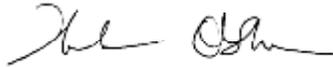
Ilene Anderson
Biologist/Public Lands Desert Director
Center for Biological Diversity



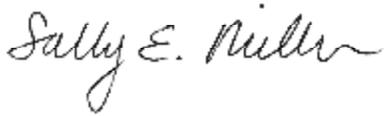
Greg Suba
Conservation Director
California Native Plant Society



Barbara Boyle
Senior Representative
Beyond Coal Campaign
Sierra Club



Helen O'Shea
Director, Western Renewable Energy Project
Natural Resources Defense Council



Sally Miller
Senior Regional Conservation Representative
The Wilderness Society



Laura Crane
Director, California Renewable Energy Initiative
The Nature Conservancy

References:

Barrows, C. and M. Allen 2009. Conserving Species in Fragmented Habitats: Population Dynamics of the Flat-tailed Horned Lizard (*Phrynosoma mcallii*). *The Southwestern Naturalist* 54(3): 307-316.