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Re**: Scoping Comments on the Notice of Intent/Notice of Preparation (NOI/NOP) of the Desert Renewable Energy Conservation Plan (DRECP) and Environmental Impact Statement and Environmental Impact Report (EIS/R) 76 Fed. Reg. 45606**

To whom it concerns:

On behalf of the Center for Biological Diversity (Center) and our over 320,000 members and on-line activists, we are writing to provide scoping comments on the state and federal agencies intent to prepare an Environmental Impact Statement and Environmental Impact Report (EIS/R) for the proposed Desert Renewable Energy Conservation Plan (DRECP) that will involve public and private lands in Kern, Los Angeles, San Bernardino, Inyo, Riverside, Imperial, and San Diego Counties, in California, and a possible amendment to the California Desert Conservation Area Plan (CDCA Plan) which is intended to be both a Natural Communities Conservation Plan (NCCP) and a Habitat Conservation Plan (HCP). In addition, the Center provides these scoping comments to address the parallel process undertaken by the Bureau of Land Management (BLM) for the DRECP (see 74 Fed. Reg. 60291 (November 20, 2009)) which the BLM now states will be joined to the EIS/R process for the NCCP and HCP1.

The Center is a stakeholder in the DRECP public process and has provided and will continue to provide comments and feedback to the ongoing planning process. Many of the

1 The earlier BLM scoping notice was issued at a time when many of the conservation groups including the Center were literally overwhelmed responding to site specific proposals for renewable projects on public lands and as a result were unable to provide comments at that time. We appreciate that BLM has now decided to join the EIS with the EIS/R for the DRECP as a whole.

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Center's members and on-line activists reside in southern California, including the counties that will be affected by the proposed DRECP. The Center's members and staff regularly visit the desert lands in California for purposes of research, photography, hiking, enjoyment of desert areas and other recreational, scientific, and educational activities.

The development of renewable energy is a critical component of efforts to reduce greenhouse gas emissions, avoid the worst consequences of global warming, and to assist California in meeting emission reductions goals. The Center strongly supports the development of renewable energy production. However, like any projects, proposed solar, wind and geothermal power projects should be thoughtfully planned to minimize impacts to the environment. In particular, renewable energy projects should avoid impacts to sensitive species and habitats, and should be sited in proximity to the areas of electricity end-use in order to reduce the need for extensive new transmission corridors and the efficiency loss associated with extended energy transmission. Only by maintaining the highest environmental standards with regard to local impacts, and effects on species and habitat, can renewable energy production be truly sustainable. In that context, the DRECP has the opportunity to secure robust conservation through a landscape level NCCP and HCP for the California deserts while also allowing for appropriate development of renewable energy in the California deserts.

At this time, we do not know to what degree serious consideration is being given to solar, wind and geothermal energy development on degraded or disturbed lands by the DRECP. We are certain, however, that an unprecedented effort by industry and government agencies in California, is focused on the development, evaluation, and making decisions on numerous utility-scale solar and wind project proposals on public lands. To date, we find it unfortunate that many of the current renewable energy projects are proposed to be constructed on undisturbed public lands containing highly significant biological resources and values.

While some utility-scale renewable energy projects can be accommodated on public lands in the California Desert Conservation Area, they must be carefully designed and located in areas that avoid degrading and destroying what remains of our relatively intact desert landscape and its associated biological resources and values. The urgency for crafting and implementing a sound and effective DRECP could not be greater: the BLM is currently processing approximately 66 right of way applications for various forms of wind and solar energy projects involving over 540,000 acres of public lands in the California Desert Conservation Area2 in addition to the seven permitted projects on public lands that already cover more than 25,000 acres. A number of projects are proposed on private lands within the proposed planning area including at least two solar projects that were relatively well sited on previously disturbed lands. To date, some of the most resource impactful projects on public lands have been permitted, although few of those have actually been constructed yet.

The following issues need to be clearly addressed in the DRECP and the NEPA/CEQA analysis in the EIS/R:

2 http://www.blm.gov/ca/st/en/fo/cdd/alternative_energy/SolarEnergy.html ; http://www.blm.gov/ca/st/en/fo/cdd/alternative_energy/WindEnergy.html

I. The EIS/R Must Analyze the Impacts of the DRECP in the Context of FLPMA On Public Lands.

As part of Federal Lands Policy Management Act (FLPMA), Congress designated 25 million acres of southern California as the California Desert Conservation Area ("CDCA"). 43 U.S.C. § 1781(c). Congress declared in FLPMA that the CDCA is a rich and unique environment teeming with "historical, scenic, archaeological, environmental, biological, cultural, scientific, educational, recreational, and economic resources." 43 U.S.C. § 1781(a)(2). Congress found that this desert and its resources are "extremely fragile, easily scarred, and slowly healed." *Id.* For the CDCA and other public lands, Congress mandated that the BLM "shall, by regulation or otherwise, take any action necessary to prevent unnecessary or undue degradation of the lands." 43 U.S.C § 1732(b).

The DRECP and associated EIS/R must take into account any proposed amendments to the CDCA plan from the BLM as well. Given the potential impact of the proposed action on other multiple uses of public lands as well as other aspects of the bioregional planning, it is clear that DRECP will need to evaluate the impacts of potential amendments to *other parts* of the CDCA plan beyond the renewable energy element, as well and look at additional and/or different amendments as part of the alternatives analysis.

While the Center supports additional protections for species and habitats on public and private land that could accrue, we have several concerns with any proposed land use amendments in the respect that they must accurately address the limits of those protections on the ground under the current regulatory and statutory framework that applies to public and private lands. For example, some public lands that might be excluded from solar development areas under the DRECP are MUC class M and L lands that would under the CDCA plan remain open to multiple other uses that threaten species and habitats including mining, livestock grazing and off road vehicle use. Without further changes to the public land management plans and possibly new federal legislation, for the DRECP to rely on conservation on public lands under the current MUC class designations may in fact result in diminished conservation values over all. The DRECP must clearly address the direct, indirect and cumulative impacts of land management designations (both existing and potentially proposed) based on how they will affect any proposed conservation/development strategy.

A. The DEIS/R Must Adequately Address the Plan Amendment in the Context of the CDCA Plan.

While we recognize that the DRECP will undoubtedly involve a new CDCA Plan amendment, the EIS/R must adequately consider the impacts of the proposed plan in the context of FLPMA and the existing CDCA Plan as amended. FLPMA requires that in developing and revising land use plans, the BLM must consider many factors and "use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences . . . consider the relative scarcity of the values involved and the availability of alternative means (including recycling) and sites for realization of those values." 43 U.S.C. § 1712(c). As stated clearly in the CDCA Plan:

> The goal of the Plan is to provide for the use of the public lands, and resources of the California Desert Conservation Area, including economic, educational, scientific, and recreational uses, in a manner which enhances wherever possible—and which does not diminish, on balance—the environmental, cultural, and aesthetic values of the Desert and its productivity.

CDCA Plan at 5-6. The CDCA Plan also provides several overarching management principles:

> MANAGEMENT PRINCIPLES
>
> The management principles contained in the law (FLPMA)—*multiple use, sustained yield, and the maintenance of environmental quality*—are not simple guides. Resolution of conflicts in the California Desert Plan requires innovative management approaches for everything from wilderness and wildlife to grazing and mineral development. These approaches include:
>
> —Seeking simplicity for management direction and public understanding, avoiding complication and confusing in detail which would make the Plan in comprehensive and unworkable.
>
> —Development of decision-making processes using appropriate guidelines and criteria which provide for public review and understanding. These processes are designed to help in allowing for the use of desert lands and resources while preventing their undue degradation or impairment.
>
> *—Responding to national priority needs for resource use and development, both today and in the future, including such paramount priorities as energy development and transmission, without compromising the basic desert resources of soil, air, water, and vegetation, or public values such as wildlife, cultural resources, or magnificent desert scenery. This means, in the face of unknowns, erring on the side of conservation in order not to risk today what we cannot replace tomorrow*.
>
> *—Recognizing that the natural patterns of the California Desert, its geological and biological systems, are the basis for planning*, and that human use patterns, from freeways to fence lines, define its boundaries. Only in this way can the public resources can be understood and protected by the Plan that can be publicly comprehended, accepted, and followed.

CDCA Plan 1980 at 6 (first emphasis in original, second emphasis added).

The CDCA Plan anticipated that there would be multiple plan amendments over the life of the plan and provides specific requirements for analysis of Plan amendments. Those requirements include determining "if alternative locations within the CDCA are available which would meet the applicant's needs without requiring a change in the Plan's classification, or an amendment to any Plan element" and evaluating "the effect of the proposed amendment on BLM management's desert-wide obligation to achieve and maintain a balance between resource use

and resource protection." CDCA Plan at 121. EIR/EIS needs to take this portion of the CDCA into account in order to comply with the required CEQA and NEPA analyses and alternatives analysis. Looking at the CDCA Plan requirements in context with the CEQA and NEPA review it is clear that the EIR/S will need to analyze not only whether alternative locations are available that would not require a plan amendment, but also how the proposed amendment would affect desert-wide resource protection and whether alternative locations and alternative plan amendments would avoid or lessen those impacts.

The CDCA Plan includes the Energy Production and Utility Corridors Element which is focused primarily on utility corridors with brief discussion of powerplant siting. Even in 1980 the CDCA Plan contemplated that alternative energy projects would likely be developed in the future but did not expressly provide planning direction for the large scale energy production now contemplated. Nonetheless, the overarching principles expressed in the Decision Criteria are also applicable to the DRECP here including minimizing the number of separate rights-of-way, providing alternatives for consideration in the EIS/R, and "avoid[ing] sensitive resources wherever possible." CDCA Plan at 93. The DEIS/R needs to show that all of the agencies have considered the landscape level issues and management objectives or alternatives to the proposed plan amendment *in the DEIS/R*.

In addition, the DEIS/R should consider the impacts to public lands across several scales including, for example: each of the bio-regions identified by BLM in the CDCA planning documents, in the CDCA as a whole, and in adjacent desert areas (including for example, Anza Borrego Desert State Park, the Owens Valley as a whole, the southern Sierra Nevada mountains, and the transverse ranges).

II. The DEIS Must Comply with NEPA.

NEPA is the "basic charter for protection of the environment." 40 C.F.R. § 1500.1(a). In NEPA, Congress declared a national policy of "creat[ing] and maintain[ing] conditions under which man and nature can exist in productive harmony." *Or. Natural Desert Ass'n v. Bureau of Land Mgmt.*, 531 F.3d 1114, 1120 (9th Cir. 2008) (quoting 42 U.S.C. § 4331(a)). NEPA is intended to "ensure that [federal agencies] … will have detailed information concerning significant environmental impacts" and "guarantee[] that the relevant information will be made available to the larger [public] audience." *Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir. 1998).

Under NEPA, before a federal agency takes a "'major [f]ederal action[] significantly affecting the quality' of the environment," the agency must prepare an environmental impact statement (EIS). *Kern v. U.S. Bureau of Land Mgmt.*, 284 F.3d 1062, 1067 (9th Cir. 2002) (quoting 43 U.S.C. § 4332(2)(C)). "An EIS is a thorough analysis of the potential environmental impact that 'provide[s] full and fair discussion of significant environmental impacts and … inform[s] decisionmakers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment.'" *Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt.*, 387 F.3d 989, 993 (9th Cir. 2004) (citing 40 C.F.R. § 1502.1). An EIS is NEPA's "chief tool" and is "designed as an 'action-forcing device

to [e]nsure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the Federal Government.'" *Or. Natural Desert Ass'n,* 531 F.3d at 1121 (quoting 40 C.F.R. § 1502.1).

An EIS must identify and analyze the direct, indirect, and cumulative effects of the proposed action. This requires more than "general statements about possible effects and some risk" or simply conclusory statements regarding the impacts of a project. *Klamath Siskiyou Wildlands Center v. BLM,* 387 F.3d 989, 995 (9th Cir. 2004) (citation omitted); *Oregon Natural Resources Council v. BLM,* 470 F.3d 818, 822-23 (9th Cir. 2006). Conclusory statements alone "do not equip a decisionmaker to make an informed decision about alternative courses of action or a court to review the Secretary's reasoning." *NRDC v. Hodel,* 865 F.2d 288, 298 (D.C. Cir. 1988).

NEPA also requires the action agency (here both FWS and BLM) to ensure the scientific integrity and accuracy of the information used in its decision-making. 40 CFR § 1502.24. The regulations specify that the agency "must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential." 40 C.F.R. § 1500.1(b). Where there is incomplete information that is relevant to the reasonably foreseeable impacts of a project and essential for a reasoned choice among alternatives, the FWS and BLM must obtain that information unless the costs of doing so would be exorbitant or the means of obtaining the information are unknown. 40 C.F.R. § 1502.22. In the context of the DRECP, some necessary additional information has already been identified and funding for collecting data and other information has been allocated. Additional funds may be needed to ensure the agencies have a robust set of data as a basis for the planning and the EIS. Moreover, the DRECP must include and evaluate all available information including for example, information on Unusual Plant Assemblages, riparian areas, species, information collected from permitted projects, and gray literature. Even in those instances where complete data is unavailable, the EIS also must contain an analysis of the worst-case scenario resulting from the proposed project. *Friends of Endangered Species v. Jantzen,* 760 F.3d 976, 988 (9th Cir. 1985) (NEPA requires a worst case analysis when information relevant to impacts is essential and not known and the costs of obtaining the information are exorbitant or the means of obtaining it are not known) *citing Save our Ecosystems v. Clark,* 747 F.2d 1240, 1243 (9th Cir. 1984); 40 C.F.R. § 1502.22.

A. Purpose And Need and Project Description Need to be Broadly Construed

The purpose and need statement cannot be narrowed to fit only the proposed DRECP plan and then shape the findings to approve that plan without a "hard look" at the environmental consequences. To do so would allow an agency to circumvent environmental laws by simply "going-through-the-motions." It is well established that NEPA review cannot be "used to rationalize or justify decisions already made." 40 C.F.R. § 1502.5; *Metcalf v. Daley,* 214 F.3d 1135, 1141-42 (9th Cir. 2000) ("the comprehensive 'hard look' mandated by Congress and required by the statute must be timely, and it must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision

already made.") As Ninth Circuit noted an "agency cannot define its objectives in unreasonably narrow terms." *City of Carmel-by-the-Sea v. U.S. Dept. of Transportation*, 123 F.3d 1142, 1155 (9th Cir. 1997); *Muckleshot Indian Tribe v. U.S. Forest Service*, 177 F. 3d 900, 812 (9th Cir. 1999). The statement of purpose and alternatives are closely linked since "the stated goal of a project necessarily dictates the range of 'reasonable' alternatives." *City of Carmel*, 123 F.3d at 1155. The Ninth Circuit recently reaffirmed this point in *National Parks Conservation Assn v. BLM*, 586 F.3d 735, 746-48 (9th Cir. 2009) (holding that "[a]s a result of [an] unreasonably narrow purpose and need statement, the BLM necessarily considered an unreasonably narrow range of alternatives" in violation of NEPA).

The requirement that the purpose and need statement not be unreasonably narrow, and NEPA in general serves, in large part, to "guarantee[ ] that the relevant information will be made available to the larger audience that may also play a role in both the decision-making process and the implementation of that decision." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989). The agencies cannot camouflage their analysis or avoid robust public input, because "the very purpose of a draft and the ensuing comment period is to elicit suggestions and criticisms to enhance the proposed project." *City of Carmel-by-the-Sea*, 123 F.3d at 1156. The lead agencies cannot circumvent relevant public input by narrowing the purpose and need so that no alternatives can be meaningfully explored or by failing to review a reasonable range of alternatives.

In the discussion on the need for renewable energy production, the EIS/R must address risks associated with global climate change in context of including both the need for climate change mitigation strategies (e.g., reducing greenhouse gas emissions) and the need for climate change adaptation strategies (e.g., conserving intact wild lands and the corridors that connect them). All climate change adaptation strategies underline the importance of protecting intact wild lands and associated wildlife corridors as a priority adaptation strategy measure.

The habitat fragmentation, loss of connectivity for terrestrial wildlife, and introduction of predators and invasive weed species associated with the renewable energy development that would be facilitated by the proposed plan may run contrary to an effective climate change adaptation strategy. As a result, careful consideration of siting renewal development zones to minimize impacting ecologically functioning ecosystems, occupied habitat and important habitat linkage areas, major washes and other fragile desert resources is needed to avoid undermining a meaningful climate change adaptation strategy with a poorly executed climate change mitigation strategy. Moreover, the renewable energy projects will emit greenhouse gases during construction and manufacturing in particular and the EIS/R should contain a discussion of ways to avoid, minimize or off-set these emissions. The way to maintain healthy, vibrant ecosystems is not to fragment them and reduce their biodiversity.

B. The DEIS/R Needs to Adequately Describe Environmental Baseline

Both CEQA and NEPA require the agencies to describe the environmental baseline and the environmental setting. While these requirements are somewhat different under state and federal law, the baseline description and environmental setting description should be fully

coordinated in the EIR/S. In *Half Moon Bay Fisherman's Marketing Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir. 1988), the Ninth Circuit states that "without establishing . . . baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA." Similarly, without a clear understanding of the current status of resources at issue in the DRECP on both public and private lands the agencies cannot make a rational decision regarding proposed NCCP/HCP. *See Center for Biological Diversity v. U.S. Bureau of Land Management, et al*., 422 F. Supp. 2d 1115, 1166-68 (N.D. Cal. 2006) (holding that it was arbitrary and capricious for BLM to approve a project based on outdated and inaccurate information regarding biological resources found on public lands).

The DEIS/R needs to provide adequate baseline information and description of the environmental setting in many areas including in particular the status of rare plants, animals and communities including desert tortoise, golden eagles, rare plants, riparian resources, and sand transport corridors.

C. The DRECP Must Be Coordinated With BLM's Renewable Energy PEISs

Because the BLM has already completed a Programmatic Environmental Impact Statements (PEISs) for wind and geothermal energy and is in the midst of developing the PEIS for Solar Energy, we strongly urge that these federal efforts be included in the development of the DRECP and accompanying EIS/R documents. The DRECP should identify how these efforts integrate into the DRECP and provide a more detailed and long-term conservation strategy that allows for the development of properly sited renewable energy projects in the California Desert Conservation Area and adjacent areas.

Because the Solar PEIS is still a draft document, the DRECP must clearly explain how the proposed plan would interface with the Solar PEIS process. The EIS/R must also take a coordinated look at all of the covered activities and explain how environmental review will occur for any related projects that are not "covered" but which may be needed to get the produced energy onto the grid. The Center believes that the DRECP can and must solve the current piecemeal approach to project review in support of a "bioregional" approach in support of conservation and the fundamental planning principles of FLPMA.

The EIR/S should also clearly address how the BLM DRECP process will be coordinated with the NCCP/HCP process. Because much of the conservation is likely to take place on public lands managed by the BLM, this coordinated approach is essential to ensure that the eventual conservation strategy set forth in the DRECP (and upon which an NCCP and HCP take permit will be based), will be carried out. Given that the vast majority of land within the DRECP planning area is owned and managed by the BLM, the DRECP cannot go forward in a piecemeal fashion but must ensure that if conservation on public lands is a component of the plan, the necessary land use plan changes and management efforts will be undertaken by the BLM. Therefore, we strongly urge that the BLM coordinate its DRECP EIS process with DRECP the California Environmental Quality Act (CEQA) and NEAP process undertake for the NCCP/HCP.

The DEIS/R Must Identify a Reasonable Range of Alternatives to Analyze as Part of the NEPA/CEQA Process.

A Notice of Intent under NEPA must include a description of the alternatives that the agency is considering as part of the preparation of the EIS. The NOI for the DRECP does not include any information about what the agencies are considering to be the range of alternatives to the DRECP. We strongly urge that the agencies present information on what its possible alternatives may include, and suggest that they look at alternatives that include phasing of renewable energy development at different scales, different levels of development set by different levels of energy need, a low impact alternative, and other appropriate alternatives.

THE DRECP Process Needs to Provide a More Detailed Description of the Public Process and Decision-Making.

Currently, the DRECP is being conducted as a joint effort between the state of California Energy Commission, California Department of Fish and Game, U.S. Fish and Wildlife Service and the BLM. Under the state NCCP Act, there are strong requirements for an open public process. With the federal agencies coordinating its NEPA and any Land Use Plan amendment public process with the state CEQA process, we provide the following recommendations for this public process that we urge the DRECP to adopt and support:

- The DRECP should create a balanced Steering Committee comprised of the plan participants (as discussed above) in addition to the Renewable Energy Action Team (REAT) as well as other interested parties such as conservation non-profit organizations, tribes, and representatives of the renewable energy industry. This Steering Committee should follow the format used by Steering Committees in other NCCP planning efforts such as the Contra Costa County NCCP.

- The DRECP should set forth a comprehensive process for public participation, including public workshops, availability of information, and making Steering Committee meetings and other technical meetings largely open to the public. We believe an open, transparent process will lead to greater success and less opposition to a final product.

We are concerned that under the current structure for the DRECP, the development of the plan has occurred within the state and federal agencies where the agencies are issuing products for review and comment by stakeholders with very little time to respond and that many of those comments do not appear to be taken into account as the planning moves forward. This kind of unbalanced approach affords only limited opportunity for the development of a collaborative plan as stakeholders parties are asked only to react to products, but not allowed to develop them along the way.

We strongly urge that the DRECP planning process work more collaboratively with the stakeholder groups to ensure a robust process, and a well balanced plan.

Comments on the Planning Goals for the DRECP:

Our comments on the Planning Goals for the DRECP, as stated in the Federal Register Notice (76FR45608), are as follows:

a. <u>Provide for the long-term conservation and management of identified species in the planning area:</u>

The "identified species in the planning area" needs to be clearly defined and refined. At a minimum, we recommend the species addressed in the plan should be most all those listed or proposed to be listed under the Endangered Species Act and the California Endangered Species Act, candidates for proposed listing should also be included, as well as all BLM designated Sensitive Species and California Native Plant Society List 1B plants in the planning area. The Independent Science Advisors made strong recommendations for additional species that needed to be included in the DRECP. The DRECP should address these species as well.

Equally important to identification of species to be addressed is development of an effective means of providing long-term conservation for the target species and their remaining habitats. Reserve-level conservation management should be the foundation for the plan rather than uncertain or unspecified conservation goals based on subjective determinations and future studies, research and determinations. The existing species and habitat protection commitments in the CDCA Plan (ex. DWMAs, ACECs, Mohave Ground Squirrel Conservation Area) must not be compromised through BLM participation in the DRECP effort. Rather, species and habitat protection commitments in the CDCA Plan and other in-place conservation investments (State and Federal parks etc.) should be used as a starting point for the DRECP and then strengthened as a result of the DRECP.

Finally, we have found during the course of evaluating individual energy projects on public and private lands that there is a need to conduct additional survey work to inventory the resources on desert lands. There is insufficient survey information in the desert to understand completely the level of resources in specific areas. We urge the participating agencies to conduct additional on-the-ground surveys for those areas identified to be developed and for those areas identified for conservation purposes. Without these detailed data, areas thought not to contain important resources may mistakenly be offered up as development areas, exacerbating conflict and undermining the conservation goals of the plan.

b. <u>Preserve, restore, and enhance natural communities and ecosystems that support identified species in the planning area:</u>

These goals for natural communities and ecosystems need to be defined in a manner that provides reserve-level conservation management over broad regions of the proposed DRECP plan area. Maintaining healthy, viable populations of the target species of plants and animals throughout their natural ranges is essential. As noted above, as part of the coordinated DRECP, the BLM may need to amend the CDCA Plan in order to eliminate certain multiple use activities where natural communities and ecosystems will require preservation, restoration and

enhancement on public lands. We urge the agencies participating in the DRECP effort, to identify potentially incompatible land uses in areas as early in the planning process as possible.

The first priority must be to effectively preserve all remaining natural communities that are relatively free of deleterious multiple use impacts or can be restored. Restoration and enhancement may be necessary in some areas where the extent of remaining natural communities in healthy condition is limited. Restoration and enhancement could include removing certain traditional multiple use activities that are know to contribute to loss of species and their habitats over significant portions of their range on the public lands. Two such uses are livestock grazing and off-road vehicle use, especially in areas established for long-term conservation such as the DWMAs and other Areas of Critical Environmental Concern including the Mohave Ground Squirrel Conservation Areas.

We also urge the DRECP to plan for conservation across land ownerships and include private lands as well as military lands. The DRECP should include all public and private lands in the planning area in order to provide for the ecosystem conservation required under the state NCCP Act.

c. <u>Build on the Competitive Renewable Energy Zones identified by the State's Renewable Energy Transmission Initiative that depict areas where renewable energy generation project permitting may be expedited:</u>

We do not support this proposed planning goal, as stated, because based on our analysis, the Competitive Renewable Energy Zones (CREZs) were identified based on hypothetical applications for generation and transmission of renewable energy with inadequate consideration given of impacts to at-risk species and their habitats, habitat connectivity and species movements, and impacts to relatively intact natural communities.

We recommend that the DRECP abandon the existing CREZs. Indeed, we believe the DRECP needs to conduct its own analysis of the planning area to determine the best areas to facilitate development with a focus on already disturbed areas that will avoid important resource areas. The DRECP should only identify areas that would serve to facilitate renewable energy development in identified disturbed areas, most of which are on private land that were formerly used for agriculture. These lands occur extensively in the Antelope Valley, southeastern Fremont Valley, Daggett "triangle", Blythe area, and portions of the Imperial and Coachella Valleys.

d. <u>Identify the most appropriate locations in the planning area for the development of utility-scale renewable energy projects, taking into account potential impacts to threatened and endangered species, sensitive natural communities, and cultural resources</u>:

Appropriate locations for utility-scale renewable energy projects can only be identified after the biological resources conservation goals, objectives and reserves are identified. It becomes essentially a step-down or filtering process, with identification of the biological

conservation strategy taking priority over identification of where utility-scale energy projects may be located.

As discussed above, we strongly urge development to occur in currently or historically environmentally degraded and disturbed areas. The conservation community has developed criteria to assist in the identification of appropriate areas for renewable energy development. These criteria are attached as Attachment 1.

e. <u>Coordinate and standardize mitigation and compensation requirements for renewable energy activities in the planning area</u>:

Since the DRECP will be a developed as a state NCCP and federal HCP, the standard for compensation and mitigation must mesh with the requirement that the overall plan provides for the conservation (i.e., recovery) of covered species and natural communities. All impacts associated with development must be "fully mitigated" due to the statutory significance of the CDCA and surrounding lands and the long-term cumulative adverse impacts that affect the region and its biological resources, and must result in long-term conservation of desert resources. The priority in developing the DRECP should be identification of potential project areas where avoidance of impacts to sensitive biological resources can be largely assured, thus minimizing the need for requiring mitigation and compensation

In contrast, identifying areas for development where substantial mitigation and compensation requirements will be needed should be avoided or considered solely for later phases of development. Project development in such areas would only contribute to the long term cumulative loss of natural communities and sensitive species that inhabit them. These areas should be avoided to the maximum extent possible.

f. <u>Develop an efficient process for authorizing renewable energy projects in the planning area that results in greater conservation values than the process provided by project-by-project or species-by-species reviews</u>:

This goal can only be achieved if projects are largely located in previously disturbed and degraded lands and avoid intact natural biological communities. We support the concept of accelerated issuance of permits for projects that are located in such disturbed and degraded habitats, provided those projects are based on the best available technology, avoid use of groundwater for cooling and panel washing, and are sustainable.

We do not support a streamlined permitting process for any projects that would result in the destruction of intact biological communities or significant populations of at-risk species. The DRECP should result in a renewable energy project plan that avoids destruction of intact biological communities and at-risk species.

g. Additional issues to be addressed:

The DRECP should also address issues including: a) Continued loss and fragmentation of natural biological communities throughout the California deserts from all types of projects and multiple uses; b) Protection of all naturally occurring seeps, springs, and groundwater, both fresh and brackish; c) Species viability and population connectivity issues; d) Development and implementation of effective, long term strategies for conservation of remaining natural communities throughout the California deserts; e) Opportunities for energy conservation, small-scale generation facilities near cities and towns within the CDCA and distributed generation at the site of energy consumption.

COMMENTS ON THE PRELMINARY ISSUES IDENTIFIED BY THE NOI/NOP:

We also provide the following additional comments and recommendations:

1. Planning Area: The DRECP planning area should include the California Desert Conservation Area (CDCA), and build upon the significant conservation designations and policies for public and private lands across the entire CDCA. For BLM managed lands, the CDCA Plan, as amended (amendments include those for the Northern and Eastern Colorado Desert, Western Colorado Desert, Northeastern Mojave Desert, Western Mojave Desert, and Coachella Valley) should be used as a foundation to build a strong DRECP for multiple species on an ecosystem or landscape level that includes conservation strategies to assure the long term survival and viability of biological diversity on both federal and private lands with significant biological resources and values. All lands acquired by the federal and state government, as well as non-governmental organizations, for conservation purposes must also be part of the DRECP, with particular emphasis given to such lands acquired by the Department of Fish and Game and BLM. The latter two agencies have acquired considerable land through acquisition from the Catellus Development Corporation and by donation from The Wildlands Conservancy. Finally, as discussed above, the DRECP should encompass private lands as well as public in order to meet the state NCCP standards for the DRECP.

The boundaries need to be extended to include the very important western end of the Antelope Valley in Los Angeles and Kern Counties. These lands currently have some proposals for renewable energy projects, but would provide opportunities for conservation of unique resources including rare species, locally rare species, rare plant communities including state-recognized rare wildflower fields[3], and essential connectivity at the convergence of four ecoregions[4] (Mojave Desert, Sierra Nevada, Great Central Valley and South Coast ecoregions).

2. Scope: The DRECP should cover all aspects of renewable energy development including siting, best management practices, site development, power generation, transmission, facility decommissioning, and site rehabilitation. In order to consider the entire California Desert through a unified process, the DRECP must meet the requirements for a federal Habitat Conservation Plan (HCP) and a state Natural Communities Conservation Plan (NCCP).

3 CDFG 2003
4 CBI 2003

Combined, these plans must ensure conservation of delicate desert ecosystems while facilitating streamlined incidental take permits for state and federal listed species for projects occurring on private and public lands, and allowing renewable energy projects to be fully permitted in a minimum amount of time.

3. Project Specific Survey Protocols As part of the DRECP, a requirement for thorough, seasonal surveys be performed for sensitive plant species and vegetation communities, and animal species under the direction and supervision of the resource agencies such as the US Fish and Wildlife Service and the California Department of Fish and Game is still required for all projects proposed on undisturbed habitat. Full disclosure of survey methods and results to the public and other agencies without limitations imposed by the applicant must be implemented to assure full NEPA/ESA compliance. This request is based on the fact that the California deserts are incompletely surveyed and acquisition of important information is essential to developing an adaptive management that achieves the conservation goals ultimately laid out in the DRECP.

Confidentiality agreements should not be allowed for the surveys in support of the proposed project. Surveys for the plants and plant communities should follow California Native Plant Society (CNPS) and California Department of Fish and Game (CDFG) floristic survey guidelines[5] and should be documented as recommended by CNPS[6] and California Botanical Society policy guidelines. A full floral inventory of all species encountered needs to be documented and included in the EIS. Surveys for animals should include an evaluation of the California Wildlife Habitat Relationship System's (CWHR) Habitat Classification Scheme. All rare species (plants or animals) need to be documented with a California Natural Diversity Data Base form and submitted to the California Department of Fish and Game using the CNDDB Form[7] as per the State's instructions[8].

Vegetation maps should be produced at a large enough scale to be useful for evaluating the impacts. Vegetation/wash habitat mapping should be at such a scale to provide an accurate accounting of wash areas and adjacent habitat types that will be directly or indirectly affected by the proposed activities. A half-acre minimum mapping unit size is recommended, such as has been used for other development projects. Habitat classification should follow CNPS' Manual of California Vegetation (Sawyer et. al. 2009).

Adequate surveys must be implemented, not just a single season of surveys, in order to evaluate the existing on-site conditions. Due to unpredictable precipitation, desert organisms have evolved to survive in these harsh conditions and if surveys are performed at inappropriate times or year or in particularly dry years many plants that are in fact on-site may not be apparent during surveys (ex. annual and herbaceous perennial plants).

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5 http://www.cnps.org/cnps/rareplants/inventory/guidelines.php and
http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf
6 http://www.cnps.org/cnps/archive/collecting.php
7 http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf
8 http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp

4. <u>Global Climate Change Adaptation</u>: Average temperatures in the Southwestern U.S. are projected to rise from four to as much as 10 F° over the baseline years (1960 – 1979) by the year 2090.[9] An increase of between seven and 10 F° associated with the higher greenhouse gas emission scenario is more likely than the lower range of temperature increase associated with the lower emissions.

The DRECP must address the projected effects of global climate change on plants, animals, their habitats and connectivity throughout the planning area as part of the environmental baseline. Opportunities for species to adapt to environmental changes will be essential components of the plan. Such changes include, for example, movement of certain species to higher elevations as temperatures increase, plant communities undergo species composition shifts, and precipitation patterns change. The baseline condition should account for the existing impacts to species adaptation opportunities such as habitat lost and fragmented by highways, canals, fences and general urban development.

Maintaining opportunities to allow for species adaptation in response to climate change essentially means maintaining sufficient natural communities to allow for species movements and colonization of habitats within their range of tolerance as those ranges move in continuing response to climate change.[10]

4. <u>Biological Resources Conservation Strategy</u>: Maintaining the abundance, diversity and viability of naturally occurring biological resources in the California deserts should be the basic goal of the planning process. This goal necessitates that conservation strategies be developed and applied on a landscape basis rather than on a single species approach. The California deserts have a rich assemblage of animals and plants that has undergone significant degradation over the past 150 years, beginning with excessive livestock grazing, then progressing to privatization and development, followed by expansion of transportation and utilities systems that supported growth of urban and industrial areas. Some plant and animal populations have suffered under the pressure of human development and their viability and long-term existence is questionable in the absence of strong conservation intervention. The number of plant and animal species listed as threatened or endangered, being considered for such listing, or otherwise considered species of concern, is a strong indicator that considerable portions of the California deserts ecosystems are failing. We urge the DRECP to use this planning process to significantly stabilize and improve the overall ecosystem and health of plant and animal populations while allowing for environmentally compatible renewable energy development.

The DRECP should be based on landscapes or ecosystems within the California deserts that are sufficient in size, number and configuration to accommodate all species, allow for continuation of ecosystem processes, and include a conservation strategy sufficiently robust to withstand the effects of climate change. Non-listed, native species need to be treated as essential components of the California deserts' landscape along with those that are at-risk.

9 U.S. Global Climate Change Research Program. 2009.
10 Kelly and Goulden 2008

We urge the DRECP to pay particular attention to the adequacy of conservation for the following species and habitat types:

a. Desert Tortoise: Desert Tortoise populations have declined alarmingly over the past 30 years throughout most of the California deserts, especially in the Mojave region. Unfortunately, despite current conservation measures that have been put in place, the populations continue to decline. Long term persistence of this species in the various recovery units and its ability to respond to climate change are two critical issues that need to be addressed. We strongly recommend the DRECP address habitat connectivity between Desert Tortoise Critical Habitat Units, DWMAs and other areas of known importance to desert tortoise including those areas identified for inclusion in the DWMA in the 1994 Recovery Plan that were left out of the BLM's initial DWMA designations. Major highways, fences and canals have effectively blocked desert tortoise movements and gene flow between core population areas, and the plan should address mitigation of these known, existing impediments to movements and gene flow.

The Center strongly encourages the DRECP to evaluate the ecological importance of suitable habitat for the desert tortoise as a basis for identifying potential habitat connectivity corridors in the California deserts. Based on recent desert tortoise surveys performed in Ivanpah Valley and the area immediately south of the Cady Mountains near Pisgah Crater that have documented relatively high density, successfully reproducing tortoise populations, we believe that important populations likely occur over much larger areas than previously known, and that these populations are as ecologically important as populations within designated critical habitat – indeed they are crucial for the species genetic connectivity and survival.

We recommend that all self-sustaining desert tortoise populations or subpopulations and connectivity habitats be excluded from all utility-scale renewable energy development.

b. Mohave Ground Squirrel: The Mohave ground squirrel (MGS) was listed in 1971 by the California Fish and Game Commission due to concerns about habitat and population loss in the Antelope Valley region. This species occurs only in suitable habitat within a portion of the Western Mojave Desert – a very limited range for this endemic mammal.

The 2006 West Mojave amendments to the California Desert Conservation Area (CDCA) Plan established the MGS Wildlife Habitat Management Area, known during the multi-jurisdictional planning process as the MGS Conservation Area. The conservation provisions for this species for public land administered by BLM are substantial; a 5:1 ratio for habitat loss compensation and a one-percent development cumulative habitat impact limit for projects proposed within the designated management area. The one-percent cumulative impact limit has been used by the BLM to deny several large scale solar and wind energy project proposals within the designated MGS management area in compliance with BLM's land use plan.

We urge the DRECP to keep these essential conservation requirements in place and furthermore, the preferred locations of where the 1% development could occur. The DRECP should identify and designate habitat areas within the MGS management area that need to be off-limits to any renewable energy project and associated infrastructure and transmission systems.

At a minimum, these areas would include but not be limited to: Rose Valley, southern Indian Wells Valley, Jawbone-Butterbredt ACEC, Dixie Wash, lands surrounding the El Paso Mountains; Rademacher Hills to Searles Valley; and all habitats within the Fremont-Kramer and Superior-Cronese Desert Tortoise DWMAs/ACECs.

c. Desert Bighorn Sheep: The CDFG in conjunction with other research biologists have recently reviewed the status of various populations of desert bighorn sheep (DBS) throughout the California Desert. Through their Resource Assessment Program, CDFG and others have characterized bighorn herds occupying the numerous mountain ranges as metapopulations, or physically distinct subpopulations that are essential components of the larger population. Subpopulations or herds occupying mountain ranges are biologically linked to varying degrees depending on availability of movement corridors. These corridors are described by CDFG as "… vast open areas of alluvial fans and vast, dry expanses of relatively flat terrain."[11] The metapopulation model for DBS recognizes that metapopulations may persist for varying periods of time involving generations of individuals, or may become extirpated for various reasons, but over time they are recolonized by animals moving from other subpopulations across landscape corridors. Great public expense has been incurred for re-introduction of bighorn herds into former habitat where they have been extirpated.

We strongly urge the DRECP to address the conservation of DBS through protection of metapopulations and their subpopulations in various mountain ranges, their movement corridors between mountain ranges and their lower-elevation winter foraging areas at a landscape level. The model being developed by CDFG biologists should be used in the planning effort, and we urge the DRECP to establish a goal of strict protection of movement corridors and lower elevation foraging areas to preserve viable metapopulations and subpopulations throughout the range of this species in the California deserts[12]. The need to provide for movement corridors across strategic portions of Interstate Highways 10, 40 and 15 should also be addressed and planned.

The endangered Peninsular bighorn sheep population must also be conserved. The Center is concerned that proposals now being considered, such as the Ocotillo Express wind project, are inconsistent with the long-term conservation of this species which must be ensured under the DRECP.

d. Raptors: Numerous species of raptors occur in the California deserts either permanently or seasonally. Raptor nesting and foraging areas are particularly important to conserve because many of these species return to the same nesting and foraging sites over multiple years. Viable nesting and foraging areas in the California deserts have been impacted by highways, mining, off-road vehicle use, urban development, etc.

Most, if not all, raptors in the California deserts are designated Sensitive Species and warrant special protective management under a variety of laws and policies (ex. Bald and Golden Eagle Act, BLM's Special Status Species Management Policy (Manual 6840)). The BLM

11 CDFG 2005
12 Epps et al. 2005

conducted desert-wide raptor nesting surveys in the early stages of the California Desert Planning process beginning in about 1977 and the California Desert Conservation Area Plan of 1980 identifies raptor nesting and foraging areas (CDCA Plan, Map No. 4). Subsequently, project specific surveys for golden eagles have documented not only eagle nests but other raptors' nests within a ten-mile radius of proposed projects. The DRECP should address permanent protection needs for nesting and key foraging areas for all raptors including but not limited to the golden eagles, Swainson's hawks prairie falcon and red-tailed hawks etc.

The Center is concerned that proposals now being considered for wind projects throughout the DRECP planning area and in adjacent areas are inconsistent with the long-term conservation of golden eagles and migratory birds and could quickly undermine conservation of these species in the region. The DRECP must address these critical issues as well.

e. Sand Transport Corridors, Stabilized and Active Dunes

While generally poorly documented for their biological resources in the past, sand transport corridors, stabilized and active dunes have the potential to host a suite of rare endemic species including but not limited to fringe-toed lizards and endemic plants. Blockage of any part of a sand transport corridor will have down-wind effects far beyond the project footprint impact. Based on the uniqueness of this habitat type and the complex processes required to maintain a functioning sand transport corridor, sand transport corridors and the stabilized and active dunes that they support should not be considered for any type of development.

5. Address Other Factors With Potential to Compromise Conservation

a. Greenhouse Gas Emissions and Biomass

The Center opposes any inclusion of biomass as a so-called "renewable" energy resource that could be a covered activity under the DRECP. The Center has participated in the covered activities stakeholder sub-group which has discussed these issues in depth. Simply put, 1)there is no truly renewable source of "biomass" in the DRECP region that would justify including any biomass projects, 2) there is already sufficient capacity in existing power plants to burn any agricultural biomass in the region (and those plants also now burn scrap wood and other biomass trash from the Los Angeles region as well as petroleum coke—thereby creating a very large source of greenhouse gas emissions in the planning area) and 3) the DRECP region includes air several basins with extremely impaired air quality that should not be subject to additional air quality impacts from burning biomass.

The construction of all of the proposed facilities will also increase greenhouse gas emissions and those emissions should be quantified and off-set. This would include the manufacture and shipping of components of the project and the car and truck trips associated with construction. In addition, some of the projects (such as solar thermal and biomass if it were included) may have significant operational greenhouse gas emissions that should be analyzed, minimized, and off set. Construction will also impact air quality and traffic in the area and these impacts should be disclosed, minimized and mitigated as well. . For some projects as discussed

above, operations may also adversely impact air quality and traffic (depending on the number of employees needed for operations) and those impacts must be fully evaluated. For mobile sources, since consistency with the AQMP will not necessarily achieve the maximum feasible reduction in mobile source greenhouse emissions, the EIS/R should evaluate specific mitigation measures to reduce greenhouse emissions from mobile sources

b. Fire Impacts

Because of the catastrophic threat that wildfire has to desert ecosystems[13], the DRECP needs to include a review and analysis of the potential impact from renewable energy projects and transmission. It must include a strategy for decreasing the potential for human-caused fire to occur on site, fire prevention including best management practices must be addressed and clearly identified in the EIS/R - not only on-site protection of resources, but also preventing fire from moving into the adjacent lands.

c. Non-Native Plants

The DRECP must identify and evaluate impacts to species and ecosystems from invasive exotics species. Many of these species invade disturbed areas, and then spread into wildlands. Fragmentation of intact, ecologically functioning communities further aides the spread and degradation of plant communities[14]. These factors for wildland weeds are present in the DRECP planning area and their affect must be evaluated in the EIS/R. Additionally, landscaping with exotic species is often the vector for introducing invasive exotics into adjacent habitats. Invasive landscape species displace native vegetation, degrade functioning ecosystems, provide little or no habitat for native animals, and increase fire danger and carrying capacity[15] and should be prohibited for projects covered under the plan.

6. <u>Areas Potentially Suitable for Energy Development</u>: We have discussed this topic with other conservationists, agency planners and biologists and have developed what we believe are appropriate criteria for use in identifying areas potentially suitable for renewable energy project development. (See attached list). These criteria include the following:

- Maximize the use of available, degraded private lands located near the periphery of the California deserts, or near population centers. Degraded lands are generally those that have been mechanically altered, such as abandoned or idle agricultural areas, abandoned industrial sites, etc. Such areas basically include sites that no longer support naturally occurring vegetation.

- Strongly consider isolated or scattered lands public lands (generally the Unclassified lands in CDCA Plan) and public lands immediately adjacent to or near degraded private lands located near the periphery of the California deserts or near population centers.

13 Brooks and Draper 2006
14 Bossard et al 2000
15 Brooks 2000

- Strongly consider Intensive Use Class public lands in the CDCA Plan as amended.

- Strongly consider lands directly adjacent to federally designated utility corridors in the CDCA Plan as amended and adjacent to major transportation routes, but outside of designated conservation areas.

6. <u>Areas Essential for Long-term Conservation to Maintain Biological Diversity</u>: California desert lands possessing or supporting the following characteristics, or designations should identified in the DRECP as necessary for long-term conservation and be off-limits to renewable energy development:

- Designated and proposed critical habitat for federal endangered and threatened species.

- State and federal park and preserve lands and habitat adjacent to and near these critical areas already designated for preservation.

- Habitat for State threatened, endangered and proposed species determined essential for long term persistence and viability throughout their ranges.

- Habitat for federal threatened, endangered, proposed and candidate species considered essential for long term persistence and viability throughout their ranges.

- Habitat for BLM designated sensitive species determined essential for long term persistence and viability throughout their ranges.

- BLM identified Wildlife Habitat Management Plan Areas identified in the CDCA Plan as amended.

- BLM Areas of Critical Environmental Concern identified in the CDCA Plan as amended.

- All BLM identified Unusual Plant Assemblages designated in the CDCA Plan as amended.

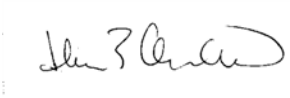
- Upland habitat adjacent to seeps, springs or wetlands that supports high wildlife species diversity or values. We consider upland habitat with native vegetation based on watershed consideration of seeps, springs or wetlands to be in this category.

- Wildlife and plant movement and linkage corridors required to maintain viable populations of various wide-ranging species throughout their ranges especially in light of ongoing climate change. See discussion of conservation and protection movement corridors for species occurring in metapopulations, above.

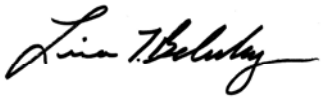
Conclusion

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

Sincerely,



Ileene Anderson
Biologist/Desert Program Director
Center for Biological Diversity



Lisa Belenky
Senior Attorney
Center for Biological Diversity

References: (provided on CD except for the book)

Bossard, C.C., J.M. Randall and M.C. Hoshovsky. 2000. Invasive Plants of California's Wildlands. University of California Press. Berkeley, CA. Pgs. 360.

Brooks, M. L. 2000. Competition between alien annual grasses and native annual plants in the Mojave desert. Am. Midl. Nat. 144:92–108.

Brooks, M.L. and J.V. Draper 2006. Fire effects on seed banks and vegetation in the eastern Mojave desert: Implications for post-fire management. extended abstract, U.S. Geological Survey, Western Ecological Research Center, Henderson, Nevada, pg. 3. Available at http://www.nps.gov/moja/naturescience/upload/Fire%20congress%202006_brooks%20and%20draper_extended%20abstract.pdf

California Department of Fish and Game

2003. List of California Terrestrial Natural Communities Recognized by The California Natural Diversity Database. Wildlife and Habitat Data Analysis Branch. September 2003 Edition. Pgs. 77

2005. Resource Assessment Project Status Summary - Linking California's desert mountain ranges: metapopulations of bighorn sheep. Resource Assessment Program http://www.dfg.ca.gov/rap/summary_desert.html

Conservation Biology Institute (CBI) 2003. Conservation Significance of Tejon Ranch, A biogeographic crossroads. Prepared for Environment Now. August 2003. Pgs. 51.

Epps, C. W. P. J. Palsbøll, J.D. Wehausen, G.K.Roderick, R.R.Ramey II, and D.R.McCullough 2005. Highways block gene flow and cause a rapid decline in genetic diversity of desert bighorn sheep. Ecology Letters 8: 1029–1038.

Kelly and Goulden 2008. Rapid shifts in plant distribution with recent climate change. Publications of the National Academy of Sciences 105 (33): 11823–11826.

U.S. Global Climate Change Research Program 2009. Global Climate Change Impacts in the U.S.; Southwest Region. http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/full-report/regional-climate-change-impacts/southwest