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Western Watersheds Project

Working to protect and restore Western Watersheds

January 21, 2010

By Email

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BLM California Desert District
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Re: Additional Comments from Western Watersheds Project Re: Notice of Intent to Prepare an Environmental Impact Statement for the Proposed Solar Millennium Ridgecrest Solar Power Project, Kern County, CA and Possible Land Use Plan Amendment and Staff Assessment.

Dear Ms. Eubanks and Mr. Solario:

On behalf of Western Watersheds Project and myself, please accept the following comments as a supplement to our December 23, 2009 scoping letter as you embark on the preparation of an Environmental Impact Statement ("EIS") for the proposed Solar Millennium Ridgecrest Solar Power Project, Kern County, California – CEC Docket Number: 09-AFC-9. These additional comments relate to alternatives and to potential mitigation strategies.

(1) Range of Alternatives.

We had requested in our initial scoping letter that the agencies consider the following reasonable alternatives in addition to any proposed action:

(a) "No Action Alternative" as is required by NEPA.
(b) Alternative sites on public lands with fewer resource conflicts outside the Mohave ground squirrel conservation area.
(c) A scaled back alternative that excludes parts of the proposed energy plant within the Mohave ground squirrel conservation area.
(d) A private lands alternative under which the project is built on private lands only.

(e) A distributed energy alternative using "roof top" solar to avoid the need for construction of a power plant.

The proposed Solar Millennium Ridgecrest Solar Power Project is a large-scale project that will have direct, indirect and cumulative impacts on some of the desert's most sensitive resources including desert tortoise, Mohave ground squirrel and burrowing owl. There are also concerns over other sensitive resources not least of which is a potential impact to the Indian Wells Valley water table. The public lands proposed for the project location are close to the City of Ridgecrest and contribute to the quality of life of that city's residents. The proposed project site overlaps the Mohave Ground Squirrel Conservation Area established in the BLM's 2006 West Mojave Plan. The project site is also desert tortoise habitat that is occupied by an unusually high number of desert tortoises. All of these factors emphasize the need for careful consideration of alternatives that would reduce or avoid impacts to these resources.

Of the suggested alternatives we listed above, alternatives (a) (d) and (e) would be the most likely to minimize or avoid impacts to the two threatened species and protect the other resources of these important public lands. Alternative (a) "no action" would end consideration of the proposed project. Alternative (e) a distributed energy alternative would have the least resource conflicts but would still allow for the power generation from renewable energy sources. With respect to (d) the private lands alternative there are several tracts of private land within the general project area that would appear to be potentially suitable for this project. We suggest the following general areas for consideration:

(1) In the Inyokern area north and east of highway 14/395 and west of China Lake Naval Air Weapons Station.
(2) Disused and poor quality agricultural lands east of highway 14 in the Fremont Valley.
(3) Within the city of California City between downtown and Highway 58.

Full analysis of these alternatives will help clarify the need for the proposed project, provide a baseline for identifying and fully minimizing resource conflicts, facilitate compliance with the BLM's FLPMA requirement to prevent the unnecessary and undue degradation of public lands and its resources, promote the BLM's multiple use mandate, and will help provide a clear basis for making an informed decision.

(2) Potential Mitigation Measures.

If this solar project proceeds as proposed it will eliminate a large tract of contiguous habitat that important for Mohave ground squirrel, desert tortoise, burrowing owl and a number of other special status species. Mitigating the direct, indirect and cumulative effects of this large scale project is likely to be difficult and will require multiple approaches. We recommend that the following measures be considered.

(A) <u>Acquisition of Replacement Habitat</u>.

Habitat loss is the major threat to all desert species and to the ecosystems on which they depend particularly in the Western Mojave Desert region. The primary emphasis for any

mitigation strategy must be to address this habitat loss and be firmly based on the acquisition and enhancement of replacement habitat that can be conserved in perpetuity. The West Mojave Plan requires a mitigation ratio of 5:1 for habitat disturbance in the Mojave Ground Squirrel Conservation Area. However, the conservation strategy for the West Mojave Plan was not developed with large scale projects such as this in mind. A higher mitigation ratio may be needed to offset the potential impacts of the project on the Plan's conservation strategy.

A primary concern in maximizing the value of replacement habitat is ensuring that large blocks of contiguous habitat are made available to the species of concern. Focusing acquisition targets on private land in-holdings in areas that consist largely of public land within designated conservation areas is one method to achieve this goal since it can be used to establish contiguous habitat and reduce threats posed by any ongoing incompatible activities and from future development on those private lands. An alternative approach is to acquire replacement habitat on the periphery of the conservation areas since this habitat is often most at risk from encroachment and from the indirect effects of nearby development, and is also important in maintaining connectivity. Maintaining connectivity is of particular concern for the Mohave ground squirrel where long-distance movement by juveniles may be critical for connecting local populations and re-colonizing sites after local, drought related extirpation (Harris and Leitner 2006).

We suggest that the agency project managers consult with the BLM's real estate specialists in the Ridgecrest Field Office and with conservation organizations such as the Desert Tortoise Preserve Committee which have expertise in acquiring and preserving habitat for Mohave ground squirrel, desert tortoise and other special status species in the area.

(B) Enhancement Measures.

Acquisition of existing habitat for conservation in of itself will not compensate for the large net habitat loss that would occur as a consequence of the project. Additional enhancement measures are required to make up for this habitat loss. These enhancement measures need to be of a permanent nature to ensure that the habitat loss is mitigated for in perpetuity. We suggest strong consideration of the following enhancement measures.

(i) Barrier Fencing

Busy roads are "sinks" for wildlife of all types. There is an extensive literature showing that desert tortoise populations are depleted in habitat adjacent to roads and highways (Boarman 2002; Boarman and Sazaki 2006; von Seckendorff Hoff and Marlow 2002). Erecting tortoise barrier fencing along roads through their habitat is a valuable tool that both reduces take of tortoises that cross the roads and that expands the available habitat that they can safely occupy. Tortoise barrier fencing has also been shown to significantly reduce road kill of many small mammals and reptiles. Reductions in road kill may be beneficial to both the desert tortoise and the Mohave ground squirrel by reducing foraging opportunities for predatory ravens and coyotes which scavenge along the highways. Although busy highways already fragment habitat, construction of culverts and underpasses may useful in offsetting any potential increase in habitat fragmentation caused by barrier fencing.

The 1994 Desert Tortoise Recovery Plan suggests constructing desert tortoise barrier fencing and underpasses along the following roads close to the proposed project site: Highway 395, the Randsburg-Mojave Road, the Red Rock-Randsburg Road and the Red Rock-Garlock Road.

Although constructing barrier fencing along roads is an important tool in mitigating impacts to desert tortoise its benefits in mitigating impacts to Mohave ground squirrel are less established. Coyotes prey on Mohave ground squirrels (Best 1995) and there is some evidence that ravens predate on Mohave ground squirrels (see Harris and Leitner 2005) so the squirrels may benefit from reduced foraging opportunities for these predators due to decreased on road kill consequent to barrier fencing. However, Mohave ground squirrels may benefit more from fencing designed to keep out livestock and vehicles rather than fencing designed to contain tortoises. Shrub diversity is higher inside large fenced areas such as the Desert Tortoise Natural Area compared to the outside (Brooks 1999, Brooks 2000). Loss of shrub cover and soil compaction may affect the thermal structure of Mohave ground squirrel habitat (see Gustafson 1993). The leaves of three shrubs (winterfat, *Krascheninnikovia lanata*; spiny hopsage, *Grayia spinosa*; and saltbush, *Atriplex* sp.) form a significant component of the Mohave ground squirrel's diet (Leitner and Leitner, 1998). Fencing designed to keep out livestock and vehicles may thus benefit Mohave ground squirrel by promoting foraging opportunities and thermal ecology. Fencing the Mohave Ground Squirrel Conservation Area boundary is thus a potential mitigation tool.

Unfortunately, fencing areas of the desert is not a simple task. Allowance has to be made for access which may require installation of special gates and cattle-guards. Some areas are unsuitable for fencing installation, fencing requires regular inspection, frequent maintenance, and the fences may need to be rebuilt periodically.

(ii) Buyout and Relinquishment of Livestock Grazing Allotments

Both the Mohave ground squirrel and the desert tortoise would benefit from eliminating livestock from their habitat, and buyout and retirement of public land grazing permits provides an opportunity to enhance large areas of habitat for both these species. The BLM's 2006 West Mojave Plan provides for the buyout and voluntary relinquishment of livestock grazing permits for specific allotments to benefit Mohave ground squirrel, desert tortoise and other special status species conservation without the need for a new plan amendment. These allotments (from West Mojave Plan Table 2-20 and Table 3-45[1]) include:

ALLOTMENT	ACREAGE	SPECIAL-STATUS SPECIES
CATTLE		
Ord Mountain	136,188	Desert tortoise, Mojave monkeyflower
SHEEP		
Bissell	5,596	Desert tortoise, Mohave ground squirrel, alkali mariposa lily

[1] A number of other grazing allotments are excluded from the list since these have already been voluntarily relinquished or are no longer available for livestock grazing. The acreage includes the public land acreage only.

Boron	10,868	Desert tortoise, Mohave ground squirrel, desert cymopterus
Buckhorn Canyon	12,364	Desert tortoise, Mohave ground squirrel
Cantil Common	318,949	Desert tortoise, Mohave ground squirrel, Red Rock poppy, Red Rock tarplant
Lava Mountain	20,902	Desert tortoise, Mohave ground squirrel
Monolith-Cantil	37,771	Desert tortoise, Mohave ground squirrel, Barstow woolly sunflower
Shadow Mountain	52,258	Desert tortoise, Mohave ground squirrel
Spangler Hills	57,695	Desert tortoise, Mohave ground squirrel
Stoddard Mountain, West	16,800	Desert tortoise, Mohave ground squirrel, Barstow woolly sunflower
CATTLE & SHEEP		
Rudnick Common	150,154	Desert tortoise, Mohave ground squirrel, Red Rock poppy, Red Rock tarplant, Kelso Creek monkeyflower, yellow-eared pocket mouse

The proposed project site lies within the Cantil Common Allotment boundary. Because this is a common allotment with multiple permittees, buyout may not be possible for the entire allotment. However, each of the sheep grazers uses specific parts of the allotment so it may be possible to buy-out some of the individual permittees to benefit identified portions of the habitat. Other sheep allotments in the immediate area that if relinquished would benefit both Mohave ground squirrel and desert tortoise include the Lava Mountain (which is entirely within the Golden Valley Wilderness) and the Monolith-Cantil Allotments.

There is an extensive literature on the ecological and enhancement benefits that grazing permit buy-outs would provide for the desert tortoise and the Mohave ground squirrel which we summarize below. The 1994 Desert Tortoise Recovery Plan provides a useful summary with supporting literature relating the effects (direct and indirect) of grazing of domestic cattle and sheep on habitat (and on the desert tortoise) on page 5 and pages D18-D20. These include: changes in habitat soil, vegetation, competition for food, trampling, consequences of altered habitat, and population declines of the tortoise and other native herbivores.

Competition for Food: Boarman 2002 includes a brief summary of some of the literature relating to livestock impacts and desert tortoise survival and recovery. In his section on competition, he reviewed Dr. Avery's thesis and peer-reviewed studies that established that domestic livestock compete with tortoises for specific forbs. More recent work has provided relevant additional data on desert tortoise diets and nutrition including Oftedal 2002. Based on extensive studies, Dr. Oftedal has developed the "high PEP hypothesis" that explains the physiological significance of annual plants and forbs to the survival of individual desert tortoises. High PEP plants are those that provide a high "potassium excretory potential" ("PEP") such as the desert dandelion and other annual plants and forbs that livestock and desert tortoises compete for. The BLM has adopted measures in the West Mojave Plan aimed at reducing competition by setting guidelines for livestock turnout based on available biomass. In his review, Dr. Oftedal concludes:

> "Habitat management decisions should take both the quantity and quality of nutritional resources into account. Particular attention should be paid to factors affecting the distribution and abundance of high-PEP plants, especially in western areas of limited

> summer rains. Avery (1998) observed that cattle grazing in the eastern Mohave Desert led to reduced densities of the winter annual desert dandelion, and thus reduced tortoise foraging on an important food plant. Because of their high PEP value (23 g/kg; Oftedal et al, in press), desert dandelion leaves may have a disproportionate influence on the nutritional quality of tortoise diets. Although counter-intuitive, it may be particularly important to protect tortoise food resources from livestock grazing in years of high winter rainfall, because high-PEP plants may only be abundant under such conditions. This is contrary to recommendations based on plant biomass production, in which the assumption is made that there is excess biomass in years of high rainfall." [p. 235 in Oftedal 2002]

Grazing permit buyout would thus address this concern.

Leitner and Leitner (1998) have documented dietary overlap for relatively uncommon forage plants between livestock and the Mohave ground squirrel. Winterfat is an important dietary component for Mohave ground squirrels. Winterfat foliage made up 24% of the cattle diet. In a wet year, sheep ate mainly forbs and grasses, while in a dry year winterfat was 50% of the sheep diet, even though this forage species was rare.

Spread of Invasive Plants: Invasive plants and weeds pose a significant risk in desert habitats by both competing with important native plants, and by altering major ecological conditions such as altered fire regimes (see Brooks and Matchett 2006). These authors note, "non-native annual grasses are often not abundant except in disturbed areas at … higher elevations" (page 161). In that same issue of the Journal of Arid Environments are two other publications relating to effects of livestock water sites on alien and native plants (Brooks *et al* 2006) and environmental correlates of alien annual plants in the Mojave Desert (Brooks and Berry 2006). Brooks *et al* 2006 provides data on "piosphere" effects related to livestock watering sites (see Brooks *et al* 2006). Livestock can act as vectors for invasive weed seed spread and facilitate the establishment of invasive species especially in higher use areas. Impacts to biological soil crusts facilitate growth of less nutritious invasive plants such as *Schismus* species. Maintaining and promoting intact biological soil crusts is one of the few options available to minimize invasive species spread.

Landscape Level Impact: Livestock impacts are most obvious around watering sites and other developments where shrubs may be completely denuded, but livestock may make use of the entire allotment. Indeed, forage allocations and AUM determinations for livestock authorizations are frequented calculated by the BLM on a per acre basis. Consequently, the action area for livestock impacts tends to very large with a footprint indicated by the size of the allotment itself. Thus, removing livestock removes direct and indirect impacts and enhances habitat quality at a landscape level.

Multi-species Benefit: Mohave ground squirrels and desert tortoises share their habitat with many other once common native species that are becoming less so. Removing livestock benefits many of these species. Studies in south of the project area at the Desert Tortoise Natural Area (DTNA) indicate multiple beneficial qualitative and quantitative differences in plant and animal biodiversity inside compared to outside the DTNA due to the perimeter fence that keeps out livestock and other risk factors (Brooks 1999, 2000). Although the DTNA perimeter fence

excludes OHV activity as well as livestock, the evidence is suggestive that removing livestock will likely be direct benefit to many species that occur in the project vicinity.

Permanence: Removing livestock grazing from habitat by permit buyout removes an entire threat class with essentially a one-time cost. Buying out grazing permits is a management task that is easier to do than other proposed mitigation measures and enjoys wide public support when conducted on a voluntary basis. Unlike measures such as barrier fencing along highways and route restoration there are no maintenance costs, natural restoration is facilitated at the landscape level by the absence of livestock, and restoration projects such as the reestablishment of shrubs (Brooks *et al* 2003) become possible. Grazing is one of the few threats faced by desert tortoises and Mohave ground squirrels that can be completely eliminated.

Synergy with Other Threats: Livestock grazing interacts, facilitates and may act in synergy with other threats (Tracy *et al* 2006) and mitigation actions. For example, barrier fencing along roads may open large areas of habitat for potential use by tortoises. However, reducing impacts within this habitat and allowing recovery through natural restoration is paramount to maximize this benefit. Likewise, restoration of closed routes and disturbed areas are less likely to be successful where livestock grazing continues.

Grazing livestock under desert conditions requires an extensive infrastructure to support it including developed waters (springs, wells, water tanks, troughs, and waterhaul sites), fencing, and corrals/holding pens/chutes etc. Maintaining these facilities often requires use of motorized vehicles in sensitive habitat and generates vehicle tracks even in designated Wilderness Areas. The presence of these vehicle tracks facilitates both intentional and unintentional unauthorized motorized vehicle use. Some grazing facilities such as water tanks are highly visible and provide an "attractive nuisance" effect. Livestock fences through even remote habitat areas often have parallel "routes" running alongside, and frequently routes appear on both sides of the fence. Dirt roads are often associated with elevated levels of livestock grazing and other human-related activities (see Brooks and Berry 2006 at 117 citing FWS 1994), and minimizing the density of dirt roads may minimize dominance of alien annuals alien species richness and alien biomass (*Ibid*. at 119). Removing grazing and associated infrastructure thus facilitates management of threats posed by unauthorized vehicle use.

Synergy of Livestock Grazing and Predators: Coyotes prey on Mohave ground squirrels (Best 1995) and there is some evidence that ravens predate on Mohave ground squirrels (see Harris and Leitner 2005). Raven predation on hatchling and young desert tortoises is considered to be a major threat to recruitment and recovery of the species. There is evidence that ravens show a preference for stock tanks rather than natural springs as a water source (Knight et al 1998). Ravens are visual foragers and use fence posts as perch sites to increase their visual fields. Livestock presence may be beneficial to ravens in other ways too, providing carcasses and disturbances that facilitate raven presence and foraging. Coyote populations also benefit from water developments. Removal of livestock and grazing infrastructure may thus benefit both the desert tortoise and the Mohave ground squirrel by reducing opportunities for "subsidized" predators.

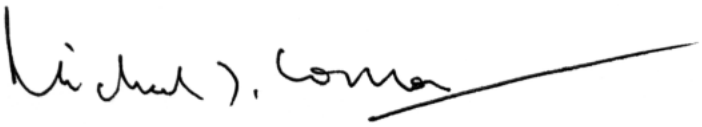
Cost Savings for Public Land Management: The costs of administering livestock grazing on public lands are not recovered by the program (See for example GAO 2005). The Mojave Desert is an area of relatively low primary productivity; in consequence, grazing allotments in the region tend to be extensive in size and require extensive monitoring. Reducing the number of grazing permits through buyout reduces the BLM's costs for maintaining and administering the program, and allows their efforts to be concentrated on monitoring and improving habitat conditions on the remaining allotments.

(iii) Habitat Restoration

Restoration of degraded habitat or areas of degraded habitat is a common enhancement technique. Unfortunately, the Mojave Desert ecosystem is generally not conducive to successful, short-term, large-scale restoration projects. The Desert Managers Group has a number of documents related to desert restoration and we recommend that the project managers consult with the DMG's restoration specialists.[2] Similarly, the USGS Western Ecological Research Center has a number of specialists that could provide valuable input, and we suggest that the project managers may benefit from the considerable expertise of Dr. Lesley DeFalco who has extensive experience with desert restoration projects.[3] We also suggest that the project managers consult with local organizations such as the Desert Tortoise Preserve Committee who have ongoing restoration projects in the area.

Western Watersheds Project thanks you for the opportunity to submit additional scoping comments on the proposed solar plant project. Please keep Western Watersheds Project on the list of interested public for this project. If we can be of any assistance or provide more information please feel free to contact me by telephone at (818) 345-0425 or by e-mail at <mjconnor@westernwatersheds.org>.

Yours sincerely,



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[2] Available at: http://www.dmg.gov/documents.php
[3] Dr. DeFalco's publications and contact information are available at: http://www.werc.usgs.gov/products/res-prod-person.asp

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