

Thank you for your comment, Stefanie Stavrakas.

The comment tracking number that has been assigned to your comment is SolarM60232.

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Solar Energy Development PEIS
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Attachment: 041865-signed.pdf

Comment Submitted:



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Washington, D.C. 20240

SEP 14 2009



In Reply Refer To:

FWS/AFHC-DHRC-CPA/041865

Lisa Jorgensen, Department of Energy
Linda Resseguie, Bureau of Land Management
Solar Energy PEIS
Argonne National Laboratory
9700 S. Cass Avenue—EVS/900
Argonne, Illinois 60439

Dear Ms. Jorgensen and Ms. Resseguie:

U.S. Fish and Wildlife Service (Service) has reviewed the subject notice and has prepared as an enclosure detailed comments pursuant to the: (1) Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*); (2) Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 *et seq.*); (3) Migratory Bird Treaty Act (MBTA), 16 U.S.C. 703; (4) Bald and Golden Eagle Protection Act (BGEPA), 16 U.S.C. 668; (5) the Clean Water Act (CWA); (6) National Wildlife Refuge System Administration Act of 1966; (7) Section 211 of the Energy Policy Act of 2005 (EPAct), and other applicable Executive Orders, regulations and policies.

As stated in this Notice of Availability (NOA), the Solar Programmatic Environmental Impact Statement (PEIS) will help the Bureau of Land Management (BLM) identify lands appropriate for solar energy development and establish a comprehensive list of mitigation requirements applicable to all future solar energy development on BLM administered lands. As part of the Solar PEIS, this NOA designates 24 proposed Solar Energy Study Areas (SESA) that will be evaluated to determine if the SESAs could be designated as solar energy zones (SEZs) to be included in the PEIS. The BLM and the Department of Energy (DOE) will conduct in depth environmental analyses of these 24 SESAs to determine whether these site-specific locations are suited for large-scale production of solar energy.

The attached comments supplement those submitted last year in response to the Notice of Intent (please incorporate by reference our letter to DOE and BLM dated July 7, 2008) and address most of the 24 SESAs for potential project effects on fish and wildlife and their habitats. It is critically important that direct, indirect and cumulative effects to fish, wildlife, plants, and their habitats are evaluated and that all reasonably foreseeable developments are identified and analyzed. It is our understanding that this PEIS provides a general evaluation of potential

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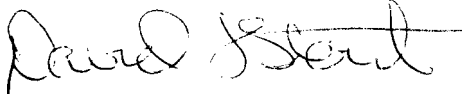
Ms. Jorgensen

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impacts to fish and wildlife resources from subsequent development and that the 24 SESAs identified within the NOA that qualify as SEZs will be analyzed as site-specific areas pursuant to the National Environmental Policy Act and other applicable laws.

Thank you for the opportunity to provide comments for this action. More detailed comments are also enclosed. We look forward to continued collaboration with you on the development of your PEIS. Please contact Stefanie Stavrakas at (703) 358-2161, if you have any questions or need further information.

Sincerely,


Active
Assistant Director for Fisheries
and Habitat Conservation

Enclosure

U.S. Fish and Wildlife Service
 Division of Habitat and Resource Conservation
 Comments on the

Notice of Availability of Maps and Additional Public Scoping for Programmatic Environmental Impact Statement To Develop and Implement Agency-Specific Programs for Solar Energy Development; Bureau of Land Management Approach for Processing Existing and Future Solar Applications

The Bureau of Land Management (BLM) and Department of Energy (DOE) issued a Notice of Availability (NOA) supplementing the Solar Programmatic Environmental Impact Statement (PEIS) with the designation of 24 proposed Solar Energy Study Areas (SESAs; BLM 2009a) to determine if these site-specific areas could be used for utility-scale Solar Energy Zones (SEZs) for inclusion in the PEIS. Concurrently and on behalf of the BLM, the Secretary of the Interior has proposed to withdraw these lands from other multiple uses for a period of 20 years to protect and preserve the SESAs for future solar development (BLM 2009b). For a period of 2 years, BLM will segregate the proposed lands from other uses until it can carry out various analyses in support of a final decision on the withdrawal application. The identification, analysis, and designation of SESAs/SEZs as dedicated sites for solar energy development are aimed at meeting the Secretary’s policy goals set forth in May 2009.

BLM and DOE identified the proposed SESAs based on the following criteria: a minimum size of 2,000 acres; near existing roads; near existing or designated transmission line routes; and have a slope of less than 5 percent. The proposed SESAs constitute 676,048 acres of BLM-managed, public lands and are partitioned as described in Table 1.

Table 1. Proposed solar energy study areas by state

State (# of SESAs)	Acres	Megawatt Capacity at Build-out
Arizona (3)	16,492	1,832 - 3,298
California (4)	351,048	39,005 - 70,210
Colorado (4)	20,910	2,323 - 4,182
Nevada (7)	149,375	16,597 - 29,875
New Mexico (3)	121,459	13,495 - 24,292
Utah (3)	16,763	1,863 - 3,353
Total (24)	676,048	75,115-135,210

The U.S. Fish and Wildlife Service (Service) submits the following general analyses applying to all 24 SESAs, and specific analyses for 20 of the 24 SESAs identified in the NOA.

General Comments and Recommendations

The comments contained in our July 7, 2008 correspondence relative to the following issues remain important and applicable (not in any particular order):

- Clearly stated purpose and need;
- Alternatives considered;
- Exclusion of special management areas and consistency with existing land and resource management plans;
- Programmatic planning process and project site selection;
- Avoidance, minimization, and mitigation and compensation measures;
- Cumulative effects and analysis;
- Cost analysis;
- Trust resources and species of concern;
- Ground water; and
- Policies and incentives.

We encourage the BLM and DOE to carefully consider these issues as they move forward in drafting the PEIS. In addition, we offer the following:

While the Federal Register notice provided some information on the methods used to identify the proposed SESAs, we are unclear as to how specific resource factors (i.e., biological, cultural, Tribal, visual, etc.), land uses (i.e., recreation and military, etc.), and proximity to load centers and other infrastructure were used in identifying proposed SESA boundaries. Without fully understanding the screening process used to select SESA locations, we have a more difficult task in providing constructive comments relative to potentially significant impacts. The Service recommends that the BLM and DOE utilize landscape level analysis with a spatial decision support system and then identify the specific resource factors and methods used in identification of the proposed SESA boundaries in the PEIS. This will enable prioritization of projects and appropriate siting relative to economic feasibility, transmission infrastructure, and fewer impacts to environmental, cultural, and military resources. This type of approach may also aid in the identification of mitigation opportunities and alternative development and transmission scenarios. The Service also recommends that BLM and DOE base final SEZs on resource values without consideration of existing right-of-way applications.

Given the potential extent, magnitude, and long-term nature of habitat impacts associated with solar energy development, the Service also recommends that the PEIS place limits on projects within the proposed SESAs that will use technologies that have not been commercially tested or proven to avoid unnecessary impacts to wildlife and habitat. The BLM has stated that under its policies and regulations, it cannot approve or disapprove projects based on the type of technology proposed. Because of these limitations, the Service recommends that the BLM approve these types of projects in phases to minimize the amount of unnecessary habitat loss in the event that the project proves to be unfeasible, or is rendered economically obsolete by technological advances during the phased development schedule. Alternatively, the BLM could

identify specific areas within the proposed SESAs to serve as research and development or pilot sites on areas with lowest biological function and value to further perfect technological capabilities.

Desert Tortoise

As discussed in our July 7, 2008, letter, the desert tortoise (*Gopherus agassizii*), listed as threatened under the Endangered Species Act of 1973, as amended (ESA), in the state of California, is at the greatest risk of being significantly affected by solar energy development and transmission through extensive habitat loss, population and habitat fragmentation, changes in water flow (both surface and ground water), introduction of environmental contaminants, mortality by vehicle encounters, increased raven predation, alteration of habitat due to the introduction of non-native plant species, and alteration of adjacent desert tortoise conservation areas through edge effects. Given the large area associated with the proposed SESAs and the projects themselves, we anticipate that development of many projects would involve translocation of desert tortoises out of their existing home ranges, which could result in potentially significant impacts to both translocated individuals and individuals that are resident to any identified translocation site. We recommend that any analysis of the effects of translocation also include potential effects to resident desert tortoises in proposed recipient sites.

To address apparent conflicts with the solar program and desert tortoise, we have been working closely with local BLM offices to identify survey and minimization strategies that will aid in moving renewable energy projects forward. Discussions of each proposed SESA will include any information we have for the species under our purview in these areas. For the desert tortoise, we have provided some information on potential population densities based on line distance sampling (LDS) and available habitat within each proposed SESA based on the recently released desert tortoise habitat model (Nussear et al. 2009). The most important consideration when extrapolating these data to the specific SESAs is that the LDS long-term monitoring transects are in some cases based on very few transects or non-random placement of transects, which can confound the results. In addition, we do not advise making determinations relative to potential habitat based solely on the U.S. Geological Survey's (USGS) model absent on-the-ground verification of the outputs. Therefore, we are providing input on densities and available habitat within the proposed SESAs to assist DOE and BLM with the analysis on the potential magnitude of impacts. We also highly recommend site-specific surveys to estimate densities. We recommend that BLM and DOE use these more detailed data to refine SESA boundaries by excluding higher function and value habitats from development where sufficient acreage is otherwise available to achieve renewable energy objectives.

Groundwater, Wetlands, and Other Aquatic Resources

Because vast amounts of water are required for some proposed solar energy projects, these projects have the potential to significantly impact listed and sensitive species dependent on the regional ground water flow systems that a given proposed SESA overlies. Small changes in ground water levels, water quality, or flow patterns may significantly impact desert fishes and spring snail species, as many inhabit spring systems that these flow systems support. We recommend BLM require applicants to disclose their water source and determine whether impacts to listed and sensitive species would occur because of the proposed project's water consumption. The PEIS should identify requirements for project planning, construction, and

operation to avoid, minimize, and mitigate impacts to listed and sensitive species that are dependent on surface and ground water resources. As mentioned in our previous comments on the PEIS, we recommend BLM include in their policy a requirement that project proponents must use technology that uses minimal amounts of water for power production. The BLM and DOE should incorporate measures to monitor and adaptively manage for ground water resources that may be affected by development of solar energy projects within the SESAs.

Under Executive Order 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands, and preserve and enhance their natural and beneficial values. We recommend that BLM and Department of Energy (DOE) contact the U.S. Army Corps of Engineers (Corps) for permitting requirements under Section 404 of the Clean Water Act if your proposed action could impact wetlands. These habitats should be conserved through avoidance or mitigation should occur to ensure no net loss of wetlands functions and values. The Service recommends that established BLM best management practices (BMPs) for wetlands be used during construction.

Migratory Birds and Bats

The Migratory Bird Treaty Act (MBTA) prohibits the taking of migratory birds, nests, and eggs, except as permitted. The Service recommends the 24 SESAs specifically evaluate and plan mitigation for potential project impacts to migratory birds. The Service recommends that all 24 SESA sites be evaluated for habitat fragmentation for species that require large habitat patches, and whether habitat enhancement efforts may minimize displacement impacts for some species¹. Additionally we recommend habitat impacts for species on the Service's 2008 list of Birds of Conservation Concern (BCC) be evaluated for each of the 24 SESAs (<http://www.fws.gov/migratorybirds/NewReportsPublications/SpecialTopics/BCC2008/BCC2008.pdf>). The BCC List identifies those migratory and non-migratory avian species that, without additional conservation actions, may be considered candidates for listing under the ESA.

To help meet responsibilities under Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds), we also recommend construction activities occur outside the general migratory bird nesting and breeding season of February through July. To minimize adverse impacts to birds protected under the MBTA, tree stands or other adequately vegetated areas should be surveyed for the presence of nesting birds during the general migratory bird nesting season of February through July. Disturbance to nesting areas should be avoided until nesting is completed.

Birds at lower elevation appear to be influenced by local topography (Williams et al. 2001). Relative to other bird groups migrating over land, passerines tend to migrate at lower flight altitudes, whereas shorebirds and waterfowl tend to migrate at higher altitudes (Kerlinger 1995). Williams et al. (2001) observed that the lowest 300 meters of bird migration probably represented the densest stratum of nocturnal migrants. Mabee and Sanzenbacker (2008) reported

¹ The Service, for example, recommended a 2.25 mi buffer of un-fragmented habitat between leks of Lesser Prairie-chickens and development sites. For Greater Prairie-chickens, the Service recommended a 3.5 mile buffer of un-fragmented habitat, and for Sage-grouse, we recommended more than an 11-mi buffer between leks and development sites (Manville 2004) – which would include at least the 3 solar energy projects under review where Sage-grouse are present in Utah.

that the majority of nocturnal passerine migrants fly below 600 meters above ground level. Understanding the behavior of nocturnal bat migrants is also important for conservation because development for projects such as communication towers, wind-powered generators and electric lines are constantly increasing. The Service recommends that the construction of new transmission lines to solar facilities include a detailed study of bird and bat behavior at the precise location where construction is proposed to identify species that are particularly vulnerable, which sites are intensively used, and hence the optimum transmission line location.

Birds of prey such as eagles, hawks, and owls frequently use power lines and support structures for perching and nesting. These raptors can be electrocuted while using power lines, thus contributing to the cumulative mortality factors affecting these biologically important and environmentally sensitive birds. Standard techniques have been developed to prevent raptor electrocutions at electric distribution lines. This guidance is included in the publication *Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 2006* by the Avian Power Line Interaction Committee². The Service recommends using the APLIC guidance and suggested BMPs to minimize power line collisions and electrocutions.

Using the above-referenced guidance, new or modified electric distribution lines should be designed and constructed to prevent the electrocution of raptors. Proper design includes separation of energized hardware or insulation of wires where sufficient separation cannot be attained. Closely spaced transformer jumper wires, bushing covers, protective cutouts, or surge arresters can be made safe for raptors by use of special insulating material. The use of grounded steel cross-arms braces should be avoided. These measures should be implemented on each line and pole associated with the new or converted lines as necessary.

We also recommend that BLM carefully review potential impacts to nesting and resident Bald and/or Golden Eagles under the new “take” provisions of the Bald and Golden Eagle Protection Act (50 CFR 22.26 and 50 CFR 22.27) where taking is associated with, but is not the purpose of the solar development activity, and cannot practicably be avoided. These activities would include both disturbance and lethal take³.

Where communication towers may be an issue, based on the need for 2-way communications, the Service recommends that BLM use BMPs recommended to the Federal Communications Commission (Manville 2007). These include the use of un-guyed, unlit towers, less than 200 ft above ground level where towers are necessary. Whenever possible, antennas should be placed on existing structures. Steady burning lighting at night should be avoided where possible, using motion or heat sensors on security lighting instead (Manville 2007).

In addition to coordination with the Service, it is important to develop project design standards and monitoring requirements in cooperation with state wildlife agencies and the state Partners in

² The document may be requested from Edison Electric Institute, P.O. Box 266, Waldorf, Maryland, 20604-0266; telephone (800) 334-5453; http://www2.eei.org/products_and_services/descriptions_and_access/suggested_pract.htm; or may be requested from Linda Spiegel (916) 654-4703; lspiegel@energy.state.ca.us.

³ A draft Environmental Assessment is available on the Service’s website. The final EA and new regulation are anticipated to be released to the public in fall 2009.

Flight contact. These standards and practices should be regularly evaluated and revised to ensure that they are effective in lessening the detrimental effects of agency actions on migratory bird populations.

We recommend the BLM and DOE incorporate the following mitigation measures to minimize impacts to migratory birds. These general measures include the following:

- Avoid the breeding seasons
- Use spatial buffer when appropriate
- Minimize the footprint
- Provide habitat compensation
- Provide restoration for short-term projects
- Provide offsite replacement or enhancement for long-term impacts
- Any inventory, survey, or monitoring data should be provided to the state wildlife agency, heritage program, or coordinated bird monitoring program.

Proposed SESAs within Arizona:

For all three SESAs within Arizona: Proposed Bullard Wash SESA (8,201 acres), Proposed Brenda SESA (4,321 acres), and Proposed Gillespie SESA (3,970 acres)

The desert tortoise (*Gopherus agassizii*) may be present in the action area and within the Sonoran Desert. Although the Sonoran Desert population of desert tortoise is not protected by Federal law at this time, the Service was petitioned on October 9, 2008 to consider listing the Sonoran desert tortoise population as threatened or endangered under the ESA. We recommend the project proponent contact the Arizona Game and Fish Department regarding proper handling and mitigation measures. We recommend that any Biological Assessment (BA), prepared for the purpose of section 7 consultation, evaluate potential effects to the Sonoran Desert population of desert tortoise as the species' status could change prior to project completion.

Additionally, these project areas are likely traversed by numerous washes that are regulated as jurisdictional waters under section 404 of the Clean Water Act. We recommend the project proponent contact the Corps to evaluate the need for a permit. If a permit is needed, we recommend an analysis of effects on the biological function of jurisdictional waters, and the development of a mitigation plan that addresses the totality of project-related impacts.

Proposed Bullard Wash SESA (8,201 acres)

The Gila topminnow (*Poeciliopsis occidentalis occidentalis*) may be present in the action area at Yerba Mansa Spring along the Santa Maria River near Date Creek Ranch. We recommend this species be considered in the BA prepared for the purpose of section 7 consultation.

Proposed Gillespie SESA (3,970 acres)

The southwestern willow flycatcher (*Empidonax traillii extimus*), the Yuma clapper rail (*Rallus longirostris yumanensis*), and the yellow-billed cuckoo (*Coccyzus americanus*), may be present in the action area, likely along the Gila River. Both the flycatcher and rail are listed as

endangered under the ESA, while the cuckoo is a candidate for listing. We recommend these listed species be considered in the BA prepared for the purpose of section 7 consultation. We recommend inclusion of candidate species in the event that its status may change prior to project completion.

Additionally, this project could conceivably provide habitat for the Tucson shovel-nosed snake (*Chionactis occipitalis klauberi*). On July 29, 2008, the Service published a 90-day finding that a petition to list the Tucson shovel-nosed snake presented substantial information indicating that listing the species may be warranted. Again, we recommend consideration in the BA in the event the species' status changes prior to project completion.

Proposed SESAs within California:

Proposed Pisgah (26,282 acres) and Iron Mountain (109,642 acres) SESAs

Potentially Significant Impacts to Desert Tortoises and their Habitat

Based on the recently released USGS desert tortoise habitat suitability model (Nussear et al. 2009) and the location of the SESA boundaries, we estimate that the majority of the proposed Pisgah and Iron Mountain SESAs contain potential desert tortoise habitat that could be lost due to development of large-scale solar energy facilities. Depending on the need to install or upgrade transmission facilities, we anticipate potential additional losses of habitat outside of the proposed SESAs, including impacts to the Ord-Rodman and Chemehuevi designated critical habitat units. Within the PEIS cumulative effects analysis, we recommend that the BLM and DOE consider these habitat losses in combination with other sources of existing and reasonably foreseeable habitat loss in the Western Mojave and North Colorado recovery units. Given the difficulty and duration of restoration of desert tortoise habitat following large-scale disturbances, we recommend that the BLM consider a sufficient time scale when analyzing the significance of the effects of habitat loss on the desert tortoise.

In 2007, LDS transects were performed by the Service's Desert Tortoise Recovery Office in areas that overlap portions of the proposed Pisgah SESA, and estimated a density of 3.5 desert tortoises per square kilometer over the 2,682 square kilometers that their survey covered (L. Allison, Service, pers. comm. 2009). If we assume that the density across the proposed Pisgah SESA is similar to that within the LDS survey area, full build-out (i.e., development of all suitable habitat) of the proposed Pisgah SESA has the potential to result in adverse impacts to as many as 260 desert tortoises through direct injury and mortality or through adverse effects associated with translocation. LDS surveys of the Chemehuevi Desert Wildlife Management Area (DWMA), immediately adjacent to the proposed Iron Mountain SESA, estimated a desert tortoise density of approximately five individuals per square kilometer within the 4,038 square kilometer DWMA. While these surveys covered areas of good and poor areas of the DWMA, it is likely that overall average density within the proposed Iron Mountain SESA is less because much of the SESA is at very low elevation. Regardless of the density estimate, the large size of the proposed SESA and the amount of potential desert tortoise habitat within it means that full build-out of the proposed Iron Mountain SESA would potentially impact from several hundred to more than 1,000 desert tortoises.

In addition, fragmentation from development of the proposed Iron Mountain and Pisgah SESAs could potentially affect population connectivity and long-term genetic exchange and demographic augmentation between desert tortoise populations, including restriction of gene flow between DWMAs. The construction of large-scale solar energy projects within the proposed Pisgah SESA could potentially exacerbate fragmentation of habitat between the Ord-Rodman and Superior-Cronese DWMAs. Based on a review of the USGS desert tortoise habitat model, development of some higher elevation portions of the Iron Mountain SESA are likely to result in the loss of some of the higher quality desert tortoise habitat between the Pinto Mountains and Chemehuevi DWMAs. This loss may add to existing restrictions in gene flow associated with the very low elevation areas around Bristol, Cadiz, and Danby Lakes. We must stress that we do not know the current level of gene flow between any of these units, nor do we know how restriction of gene flow would affect our ability to recover the desert tortoise and provide for long-term population stability within DWMAs. However, there is evidence that gene flow has historically occurred between populations over large portions of the Mojave Desert, which may have important evolutionary consequences for the species.

Potential Impacts to Migratory Birds, Mojave Tui Chub, and Riparian Habitats

Depending on the types of solar technologies accommodated by the proposed SESAs, the BLM may need to investigate potentially significant impacts to riparian and aquatic resources at Camp Cady, Afton Canyon, and at other springs and seeps near these proposed SESAs. The USGS ground water flow model for the Mojave River identifies areas near Troy Lake in the western portion of the proposed Pisgah SESA as providing additive recharge for the ground water system that supports riparian and aquatic communities at Camp Cady and Afton Canyon (Stamos et al. 2001). This regional ground water system interconnects with the floodplain aquifer of the Mojave River. The existing Mojave River ground water flow system is currently in a state of overdraft due to increases in pumping since the 1940s (Stamos et al. 2001). Cumulative overdraft in this portion of the Mojave River Basin between 1950 and 1999 amounted to 1.1 million acre-feet (Stamos et al. 2001). Additive pumping due to large-scale, wet-cooled, solar facilities within some portions of the proposed SESA could potentially exacerbate the ground water overdraft in this area and possibly result in further degradation of riparian and aquatic habitats along the Mojave River. Any loss or degradation of these habitats would negatively impact a variety of neotropical migratory bird species that utilize these areas as stopover sites during migration or as nesting areas. Camp Cady also provides artificial refugia for the federally endangered Mojave tui chub. Reduction in ground water resources could significantly impact these refugia by making it difficult to pump water. Therefore, the PEIS should fully analyze the potential for significant impacts to these ground water dependent resources.

Proposed Imperial East SESA (12,830 acres)

Desert Tortoise

The USGS desert tortoise habitat model does not cover the proposed Imperial East SESA, nor is it contained within or adjacent to any LDS monitoring strata analyzed by the Service. The area occurs outside the known distribution of desert tortoise, which we assume is absent from the area.

Potential Impacts to Listed Birds and Wetland and Riparian Habitats

The proposed Imperial East SESA is east of the agriculture in the Imperial Valley, west of the Algodones Dunes, north of the International Boundary with Mexico, and south of Interstate 8. This area encompasses a sensitive wetland region occupied by the federally endangered Yuma clapper rail (*Rallus longirostris yumanensis*) and the State threatened California black rail (*Laterallus jamaicensis coturniculus*). This wetland has formed as a result of leakage from the unlined All-American Canal funded by the Bureau of Reclamation and is operated by Imperial Irrigation District. In planning for the lining of the canal, it was determined that the loss of wetlands of this extent could not be mitigated. The Bureau of Reclamation's chosen alternative (as identified in their Record of Decision of July 29, 1994) was to construct a parallel concrete-lined canal up to Drop 3 but not including the wetland area between Drops 3 and 4. Wetland losses in the lined segments were to be offset with new creation in the wetland area that would remain. This alternative was the subject of the Service's Biological Opinion (February, 8, 1996), in which we concurred that the action was not likely to adversely affect Yuma clapper rails because impacts to the habitat would be avoided. The enhancements required to offset losses along the lined portion are well underway, and both rail species have been detected consistently in the wetland complex. Because of the sensitivity of these areas, we recommend that BLM avoid these areas in future designations of the Imperial East SESA.

Proposed Riverside East SESA (202,295 acres)

The proposed Riverside East SESA is a large and sprawling area mostly on the north side of Interstate 10 (I-10) from Joshua Tree National Park east to the agricultural area around the City of Blythe, California. The central portion of the proposed SESA wraps around and appears to be immediately adjacent to the western, southern, and eastern boundaries of the Palen/McCoy wilderness area. The eastern portion of the proposed SESA in McCoy Wash is between the Rice Valley, Big Maria Mountain and Palen/McCoy wilderness areas, and the agricultural area of Blythe. To the west, the proposed SESA surrounds three sides of the southern Coxcomb Mountains in Joshua Tree National Park and the Palen Dry Lake and dune system including the Desert Lily Preserve and Palen Dry Lake Area of Critical Environmental Concern within the Chuckwalla Valley. The potential location of large-scale solar development within these sensitive and remote desert landscapes poses numerous potentially significant impacts that warrant in-depth analysis in the PEIS.

Potentially Significant Impacts to Desert Tortoises and their Habitat

The Riverside East SESA is located immediately adjacent to Joshua Tree National Park and the Chuckwalla DWMA. LDS density estimates from 2007 were 3.5 and 5.0 desert tortoises per square kilometer, respectively (L. Allison, Service, pers. comm. 2009). Note that this site is in the southern part of the Baker Sink, which occurs at very low elevations, and is not included in the USGS model as potential habitat. Because the proposed SESA shares borders with two DWMAs, the habitat is likely suitable for desert tortoises. Even if tortoises are present at low densities, solar development of a site this large is likely to impact numerous desert tortoises. The analysis below illustrates the potential magnitude of impacts using density estimates from neighboring areas.

Although the proposed SESA shares more of its boundaries with the Chuckwalla DWMA, we used the Joshua tree density estimates based on connectivity with the Pinto Basin. Therefore, under these assumptions, full build-out of the 818 square kilometer Riverside East SESA area could adversely affect approximately 2,865 desert tortoises if we assume that the density here is approximately 3.5 desert tortoises per square kilometer. It is our understanding that species-specific surveys have been conducted for the First Solar Project proposed within this proposed SESA; therefore, we recommend additional surveys and other site-specific information be obtained to help refine proposed SESA boundaries, with a defined process to exclude habitat areas with higher function and value where needed to achieve biological objectives on a regional scale. Prioritizing areas with lower population densities for development is imperative to maintain a reasonable level of survival for translocated individuals. As discussed above, the BLM and DOE need to thoroughly assess the effects of translocation on recipient and translocated populations of desert tortoises, as well as the availability of receiver sites where large scale translocation efforts are deemed likely to be successful.

Northern and Eastern Colorado Desert Coordinated Management Plan Context

The proposed Riverside East SESA occurs within the plan area for the BLM's Northern and Eastern Colorado Desert Coordinated Management Plan (NECO; BLM 2002), which is one of six regional amendments to the California Desert Conservation Area (CDCA) Plan. The NECO plan focused on several aspects of BLM's multiple use mandate including biological considerations. Stated biological purposes of the NECO plan include preventing the need for new listings as special status species (BLM 2002; p. 2-12), protecting connectivity between protected communities (BLM 2002; p. 2-58), and considering the fragmenting effects of new projects.

Under NECO, the term "Multi-species Conservation Zone" was defined to include existing restricted lands (BLM Wilderness Areas, Joshua Tree National Park, and Chocolate Mountain Aerial Gunnery Range lands), DWMA's, and Wildlife Habitat Management Areas (WHMA's). WHMA's identified some of the areas that support special status species and their habitats including dune, playa, and desert dry wash communities that would likely require special consideration, protection, and/or management (BLM2002; p. 2-2). Some regulatory elements were applied to WHMA's, such as closure of some routes of travel and closure of some dune and playa areas (Palen and Ford Dry Lake and associated dune systems) and requiring mitigation in some WHMA's as a disincentive to development in these locations (e.g., 3:1 habitat compensation ratio for disturbance to desert dry wash woodland communities) (BLM 2002; pgs. 2-57 and 4-83). A large portion of the proposed Riverside East SESA overlaps with several WHMA's (BLM 2002; Map 2-21), which may preclude implementing or achieving the conservation objectives for many of the approximately 60 special status plants, animals, and natural communities in the NECO plan (BLM 2002; p ES-1). The PEIS should fully analyze the extent to which these conservation objectives would not be realized, after application of all feasible mitigation measures to avoid and minimize the significance of these adverse effects.

NECO Wildlife Habitat Management Areas

Along I-10 between the Chuckwalla DWMA and the Chuckwalla Valley and the Chemehuevi DWMA to the north is a WHMA with the specific role of providing connectivity for the desert tortoise between these areas (BLM 2002; Map 2-21). The Riverside East SESA overlaps this

WHMA on the north side of I-10, potentially disrupting desert tortoise connectivity anticipated in NECO as generally recommended in the desert tortoise recovery plan (Service 2008c).

The proposed Riverside East SESA also overlaps most of Palen and Ford dry lakes and nearby dune systems and their associated sand source and transport corridors, which are designated as a combination of WHMAs: dune and playa, desert dry wash woodland, and multi-species (BLM 2002; Map 2-20, 3-3, and 2-21). Dune systems generally support high biological diversity with unique and often endemic species assemblages (Andrews et al 1979; Crawford 1988; Pavlik 1985; Pitts et al 2009; Crawford and Seely 1987; Holm and Scholtz 1980). Some of the species unique to sand dune systems are included in NECO's list of special status species such as the Mojave fringe-toed lizard (*Uma scoparia*).

The proposed Riverside East SESA does not appear to consider the protection of these dune systems and their associated sand source and sand transport corridors as reflected under NECO. If full build-out occurs within this proposed SESA, the development would likely alter and permanently degrade these large dune systems. NECO requires mitigation in these dune and playa areas to "discourage projects on these very rare communities" (BLM 2002; pgs. 2-57 and 4-83). Designating a SESA on these dune systems and playas appears to contradict the intended purpose of the WHMA designation and would result in permanent alteration of these unique habitats. Further, the proposed SESA on dune and playa WHMAs appears to be in conflict with a major intended purpose of NECO to help avoid threats and alleviate the need for potential future listing of species since dune systems are likely to contain high biodiversity with many restricted species (e.g., the Mojave fringe-toed lizard and other endemic or undescribed taxa).

Other areas of the proposed Riverside East SESA such as parts of the McCoy Wash area and portions south of I-10 within the SESA are designated as desert dry wash woodland and multi-species WHMAs (BLM 2002; Map 2-21 and 3-3). Proposing SESAs over these WHMAs appears to conflict with the intended purpose of discouraging projects that would degrade and eliminate this high function and value wildlife habitat (BLM 2002; p. 3-29) Desert dry wash woodlands contain high species richness, especially for migratory songbirds and resident game bird species. The desert dry wash woodlands of eastern Riverside County have been identified by the Audubon Society as an Important Bird Area (IBA) (Cooper 2004) and the Ironwood forest in the upper reaches of McCoy Wash were identified by the BLM as a Unique Plant Assemblage in the 1980 CDCA Plan (BLM 1980). The BLM and DOE should consider effective avoidance and mitigation measures for these natural communities within the proposed Riverside East SESA. These dry wash woodlands typically occur along washes and in floodplains that pose feasibility and logistical problems to solar development. Therefore, a detailed analysis in the PEIS is needed to determine the applicability of particular solar technologies and other mitigation measures that would be less disruptive to the many braided wash systems that typify McCoy Wash and other areas of the SESA.

In general, we recommend proposing SESAs in areas that do not overlap with the specific resources that the WHMAs were established to conserve.

Fragmentation

As described above, the size, location, and shape of the proposed Riverside East SESA appears to maximize fragmentation of wildlife populations north and south of I-10 for more than 40 miles. We expect that there are several existing culverts and overpasses that may be used by wildlife to move across I-10 where the Riverside East SESA is proposed and recommend that information relative to existing crossings and wildlife species that may be using them is analyzed in the draft PEIS.

The proposed Riverside East SESA closely surrounds the southern end of the Coxcomb Mountains in Joshua Tree National Park. Developing solar energy projects in this area may affect the use of the mountains by desert bighorn sheep (*Ovis canadensis nelsoni*). We request that the PEIS provide information about the use of the southern end of the Coxcomb Mountains by desert bighorn sheep and an analysis of effects on desert bighorn sheep resulting from project development in this area, including connectivity to other desert bighorn sheep populations in nearby mountain ranges.

Proposed SESAs within Nevada:

Proposed Amargosa Valley SESA (32,699 acres)

Potentially Significant Impacts to Desert Tortoises and their Habitat

The federally listed desert tortoise (Mojave population) may be present within the proposed Amargosa Valley SESA. Specific information on density of desert tortoises for the proposed Amargosa Valley SESA is not currently available. LDS transects have been conducted south of this SESA; however, extrapolating those densities to this particular area would not be an appropriate use of the data. A number of desert tortoises, however, were observed anecdotally along U.S. Highway 95 between Nevada State Route (SR) 373 (SR 127 in California) in Amargosa Valley and Indian Springs. The USGS model identifies the proposed Amargosa Valley SESA as potential desert tortoise habitat (Nussear et al. 2009); therefore, we recommend site-specific surveys to estimate desert tortoise densities prior to any solar energy development projects. If you determine that desert tortoises occur within the SESA, we ask that you disclose project impacts to the desert tortoise and its habitat, and provide avoidance, minimization and mitigation measures for impacts to desert tortoise as appropriate in the PEIS.

Potential Impacts to Ground Water and Ground Water Dependent Species

The Service's Nevada Fish and Wildlife Office works closely with the BLM on ground water issues relative to renewable energy development within and adjacent to the Amargosa Desert hydrographic basin and previously submitted two memoranda to the BLM's Southern Nevada District Manager regarding our concerns. These include the following:

- The Ash Meadows National Wildlife Refuge is located within the Amargosa basin and encompasses 23,000 acres of spring-fed wetlands. The refuge is a complex of thermal springs and was established to protect 12 federally listed threatened and endangered plant and wildlife species, including the endangered Devils Hole pupfish (*Cyprinodon diabolis*). Devils Hole is a 40-acre disjunct unit of Death Valley National Park that

occurs within the boundaries of the refuge. The refuge provides habitat for at least 24 plants and animals that occur nowhere else in the world.

- The Ash Meadows region is one of the major discharge areas within the regional Death Valley ground water flow system (of which the Amargosa basin is a subunit) of southern Nevada and adjacent California. Ground water recharge relies primarily on precipitation within the basin, and discharge is influenced by climatic conditions and ground water pumping. These factors also impact the water level in Devils Hole.
- Ground water development in the Amargosa basin in the 1960s and early 1970s was determined to have had a negative impact on the water level in Devils Hole and thereby population viability of the pupfish. A Supreme Court decision in 1976 upheld a lower court ruling that established a minimum water level threshold for Devils Hole in order to protect the pupfish. This decision together with the State-based water right at Ash Meadows and Devils Hole underpins the Federal interest.
- Based on the perennial safe yield relative to the number of existing water rights, the Nevada State Engineer has determined that the Amargosa basin is currently over-allocated (i.e., the volume permitted under existing rights exceeds that which is available by about 33 percent). In response, he has instituted a moratorium on the approval of applications for new water rights and the ability to transfer rights or change points of diversion will be limited. Recent rulings (Ruling 5750 in 2007; 5971 in 2009) and Order 1197 (in 2008) restrict ground water pumping within this basin.
- Service, National Park Service, and USGS hydrologists are greatly concerned with the potential negative effects on the ground water flow system, the species and ecosystems that it supports, and the public interest that could be impacted over time, especially in light of the multitude of proposed renewable energy projects that utilize ground water intensive technologies.
- The PEIS analysis should consider the interconnectedness of the regional ground water basins and the aquatic and terrestrial ecosystems they support. While ground water pumping for one project may have near-term, obvious effects, another project may have effects that are not evident for many years, even decades. The cumulative impacts to ground water and aquatic and biological resources that are dependent upon this system are likely to be significant.
- The PEIS and cumulative effects analyses will be critical in bringing together all of the information relative to the solar technologies being proposed, the amount of ground water necessary to support development and operations of facilities, and other impacts to the environment. The PEIS should explore all possible alternatives and technologies to minimize significant impacts.

The Service was recently petitioned to list the Amargosa toad (*Bufo nelsoni*), a toad species endemic to the Oasis Valley, and 45 species of spring snails under the ESA. Solar development has the potential to directly or indirectly impact 10 of the 45 species of springsnails in the

proposed Amargosa Valley SESA. These species are the Crystal springsnail (*Pyrgulopsis crystalis*), Ash Meadows pebblesnail (*P. erythropoma*), Fairbanks springsnail (*P. fairbanksensis*), Elongate gland springsnail (*P. isolatus*), Distal gland springsnail (*P. nanus*), Median gland Nevada pyrg (*P. pisteri*), Sporting goods tryonia (*Tryonia angulata*), Point of Rocks tryonia (*T. elata*), Minute tryonia (*T. ericae*), and Amargosa tryonia (*T. variegata*).

The Amargosa toad and springsnail species are most at risk from habitat loss and the depletion of ground water resources within their respective hydrologic basins. We recommend that the analysis for this study area include the potential direct and indirect effects to these species and their habitat from the use of ground water associated with solar energy production and maintenance of facilities. We also ask that proposed energy development projects be consistent with the goals and objectives of the multi-agency conservation agreement and its strategy for the Amargosa toad (NDOW 2000). Though no legal protection currently exists for these species, the PEIS should consider incorporating measures to avoid and minimize impacts to these species and their habitats in the interest of avoiding potential future listings.

Proposed Delamar Valley SESA (17,932 acres)

Desert Tortoise

Although the proposed Delamar SESA is not covered by the USGS desert tortoise habitat model, nor is it contained within or adjacent to any LDS monitoring strata, the desert tortoise may occur in low densities in the south portion of study area. Surveys should be conducted to assess impacts to the desert tortoise and its habitat. The PEIS should provide desert tortoise avoidance, minimization, and mitigation measures as appropriate.

Potential Impacts to Ground Water and Ground Water Dependent Species

As discussed above and in our previous comments on the subject project PEIS, potential long-term hydrological effects and impacts to listed and sensitive species as they relate to solar energy projects should be carefully considered. Solar energy projects in the proposed Delamar Valley SESA may affect listed and sensitive species dependent on the White River Valley regional ground water flow system. This system is comprised of the pluvial White River, which extends from Ely in central Nevada to the Moapa Valley in southern Nevada. Small changes in ground water levels, water quality, or flow patterns may impact desert fish species, as many inhabit spring systems that these flow systems recharge. Listed desert fishes, including the White River springfish (*Crenichthys baileyi baileyi*), Hiko White River springfish (*Crenichthys baileyi grandis*), Railroad Valley springfish (*Crenichthys nevadae*), Pahrump poolfish (*Empetrichthys latos*), Pahrnagat roundtail chub (*Gila robusta jordani*), White River spinedace (*Lepidomeda albivallis*), Big Spring spinedace (*L. mollispinis pratensis*), and Moapa dace (*Moapa coriacea*), are dependent on recharge from the White River ground water flow system.

Ground water pumping from the system underlying the proposed Delamar Valley SESA has the potential to indirectly affect sensitive species located in adjoining areas such as Pahrnagat Valley. Decreases in water availability within Pahrnagat Valley could adversely affect the foraging and nesting habitat of the endangered southwestern willow flycatcher (*Epidonax traillii extimus*) and candidate, yellow-billed cuckoo (*Coccyzus americanus*). In addition, the Hubbs pyrg (*P. hubbsi*), Pahrnagat pebblesnail (*P. merriami*) and Grated tryonia (*T. clathrata*) (3 of

the 45 springsnails identified in the petition) may be indirectly affected by ground water withdrawal from this system. We recommend that the analysis of this SESA consider the potential indirect effects to these species and their habitat from the use of ground water associated with solar energy production and maintenance of facilities.

Migratory Birds

The PEIS should evaluate solar projects in the proposed Delamar Valley SESA for potential impacts to migratory birds. In particular, a species identified as a priority species by the Partners in Flight Nevada Working Group, Scott's oriole (*Icterus parisorum*) breeds in Yucca forests within the proposed Delamar Valley SESA. Concerns over the loss of Mojave scrub habitat, particularly Joshua tree stands, have resulted in its selection as a species of priority focus for the Nevada Partners in Flight, Bird Conservation Plan (PIF 1999). We recommend Joshua tree stands be avoided and land clearing, or other surface disturbance be conducted outside the avian breeding season to avoid potential destruction of bird nests or young, or birds that breed in the area. If this is not feasible, we recommend a qualified biologist survey the area prior to land clearing. If nests are located, or if other evidence of nesting (*i.e.*, mated pairs, territorial defense, carrying nesting material, transporting food) is observed, a protective buffer (the size depending on the habitat requirements of the species) should be delineated and the entire area avoided to prevent destruction or disturbance to nests until they are no longer active.

Proposed Dry Lake SESA (16,516 acres)

Potential Impacts to Desert Tortoises and their Habitat

The proposed solar energy projects in the proposed Dry Lake SESA may affect the desert tortoise. LDS transects have been sampled in the vicinity of the proposed Dry Lake SESA, which is immediately adjacent to the Mormon Mesa desert tortoise critical habitat unit and identified as potential habitat by the USGS model. Results of LDS yield density estimates of 1.6 to 3.2 desert tortoises per square kilometer over the survey area (Service 2008a, L. Allison, Service, pers. comm. 2009). Applied across the proposed Dry Lake SESA, full build-out of this area has the potential to result in adverse effects to 107 to 213 desert tortoises through direct injury, mortality or translocation. Avoidance, minimization and mitigation measures for impacts to desert tortoise should be included as appropriate in the PEIS.

Sensitive Plants

The threecorner milkvetch (*Astragalus geyeri* var. *triquetrus*), listed as critically endangered by the State of Nevada under Nevada Revised Statutes 527.260 and designated as a BLM special status species may occur in or near the Dry Lake SESA. As a State listed plant, this species may not be removed or destroyed at any time by any means except under special permit issued by the State Forester (NRS 527.270). Consideration of this species during project planning and early coordination with the State is important to assist with species conservation efforts and to prevent the need for Federal listing actions in the future.

We are concerned that the solar projects located within the proposed Dry Lake SESA may impact at-risk plant species tracked by the State of Nevada's Natural Heritage Program (Heritage Program). In particular, populations of the rosy two-tone beardtongue (*Penstemon bicolor* subsp. *roseus*) may occur within the proposed Dry Lake SESA. We recommend that a qualified

botanist survey for this species prior to any construction activities within the study area. If individuals are located, we recommend individuals or populations be avoided through fencing and flagging of the area, including an appropriate buffer zone.

Potential Impacts to Groundwater and Water-dependent Species

As mentioned above, springsnails may be indirectly affected by ground water withdrawal from solar projects. The springsnail Flag pyrg (*P. breviloba*), is also included in the springsnail petition, and its habitat may be affected from the use of ground water associated with solar energy production and maintenance of facilities. We recommend that the analysis for this study area include the potential indirect effects to this species and its habitat from the use of ground water associated with solar energy production and maintenance of facilities.

Migratory Birds

The proposed solar energy projects in the Dry Lake SESA may affect migratory birds such as the Le Conte's thrasher (*Toxostoma lecontei*), a bird of conservation concern (Service 2008b), and crissal thrasher (*Toxostoma crissale*). Both species have been identified as priority species in the Partners in Flight Nevada Bird Conservation Plan (in prep). The crissal thrasher occurs in mesquite and other brush along desert washes. The Le Conte's thrasher occurs in saltbush and creosote bush scrub. Therefore, we recommend that areas of mesquite and saltbush within the proposed Dry Lake SESA be avoided. If these habitat types cannot be avoided, minimization and mitigation measures for potential impacts to Le Conte's thrasher and crissal thrasher should be included in the PEIS.

Proposed Dry Lake Valley North SESA (49,775 acres)

Desert Tortoise

Desert tortoises do not occur within the Dry Lake Valley North SESA.

Sensitive Plants and Wildlife

The proposed solar energy projects in the Dry Lake Valley may affect Blaine fishhook cactus (*Sclerocactus blaneii*). Dry Lake Valley is one of three known locations in Nevada for this species. This cactus is considered very rare at all of its known locations. It is one of the most desirable species in a genus prized by cactus collectors and the locations of most of its populations are well known and appear to have declined appreciably over the past two decades. This rare species is also known from Iron County, Utah, where one of its known populations has been lost to residential development. The Dry Lake Valley population, with 14 known individuals, is currently the largest known population of this species. Thorough surveys by a qualified botanist should be conducted for Blaine fishhook cactus prior to any ground disturbing activities. A qualified botanist should be on-site for construction activities in Dry Lake Valley to ensure that Blaine fishhook cactus is adequately protected. Individuals located within the project area should be avoided through fencing and flagging of the area, including an appropriate buffer zone. If construction impacts are unavoidable, a qualified botanist should develop and implement a plan to salvage and transplant individuals.

We are concerned that the solar projects located within the Dry Lake Valley North SESA would impact at-risk plant and animal species as identified by the Heritage Program. In particular, Eastwood milkweed (*Asclepias eastwoodiana*) and Desert Valley kangaroo mouse (*Microdipodops megacephalus albiventer*) may occur within the Dry Lake Valley North SESA. A qualified botanist should survey the project area for Eastwood milkweed prior to any construction activities within the SESA. If the species is located, individuals or populations should be avoided through fencing and flagging of the area, including an appropriate buffer zone. We also recommend that surveys be conducted for the Desert Valley kangaroo mouse. If this species is determined to be present within the Dry Lake Valley North SESA, avoidance, minimization, and mitigation measures for this species should be included as appropriate in the PEIS.

Proposed East Mormon Mountain SESA (7,418 acres)

Potential Impacts to Desert Tortoises and their Habitat

The proposed solar energy projects in the proposed East Mormon Mountain SESA may affect the desert tortoise. The proposed East Mormon Mountain SESA is located between the Mormon Mesa and Beaver Dam Slope DWMA. LDS density estimates from 2007 were 3.7 and 1.3 desert tortoises per square kilometer, respectively (L. Allison, Service, pers. comm. 2009). Because this proposed SESA is not separated by elevated areas from the Beaver Dam Slope strata, and assuming that there is therefore more connectivity to this critical habitat unit, we have applied the density estimate that corresponds to the Beaver Dam Slope to this proposed SESA. Accordingly, about 30 desert tortoises have the potential to be adversely affected by full build-out of the East Mormon Mountain SESA. Avoidance, minimization and mitigation measures for direct impacts to desert tortoise and indirect effects to adjacent critical habitat as a result of placement of solar projects within the proposed East Mormon Mountain SESA should be identified in the PEIS.

Candidate Plant Species

The Service is concerned about potential impacts to the Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii*). In 2007, the Las Vegas buckwheat was designated as a candidate species under the ESA. A candidate species receives no legal protection under the ESA, but could be proposed for listing in the near future. We are concerned about the status of the Las Vegas buckwheat because approximately 95 percent of this species' historic range has been lost to development or other factors.

Currently, about 890 acres of occupied Las Vegas buckwheat habitat exist, of which more than 50 percent is subject to development. We recommend that a qualified botanist survey for the Las Vegas buckwheat prior to any construction activities within the SESA. If individuals are located within the study area, they should be avoided through fencing and flagging of the area, including an appropriate buffer zone. Consideration of this plant species during project planning and early coordination with the State and the Service is important to assist with species conservation efforts and to prevent the need for Federal listing actions in the future.

Proposed Millers SESA (19,205 acres)

Desert Tortoise

Desert tortoises do not occur within the proposed Millers SESA. The Millers SESA is not covered by the USGS desert tortoise habitat model, nor is it contained within or adjacent to any LDS monitoring strata analyzed by the Service.

Sensitive Plants

We are concerned that solar energy development within the proposed Millers SESA may impact the candelaria blazingstar (*Mentzelia candelariae*), a species included on the Heritage Program's watch list. We recommend that a qualified botanist survey for this species prior to any construction activities within the SESA. If individuals are located, we ask that you avoid individuals or populations through fencing and flagging of the area, including an appropriate buffer zone.

Migratory Birds

We are concerned that solar projects located within the proposed Millers SESA may impact migratory birds. In particular, a rest area with a small stand of cottonwood occurs adjacent to Highway 95/SR6. The stand of cottonwoods is used as a stopover site for migratory birds such as vireos and warblers and is a popular site for bird watchers. Based on the Nevada SESA map, it is unclear whether or not this particular cottonwood stand would be affected by the solar projects. We recommend that this area be avoided.

Proposed Gold Point SESA (5,830 acres)

Other than our general concern for migratory birds, we are not aware of any potential impacts to federally listed or sensitive species from placement of solar projects within the proposed Gold Point SESA. Desert tortoises do not occur within the proposed Gold Point SESA.

Proposed SESAs within New Mexico:

For all three Proposed SESAs within New Mexico: Afton (55,810 acres), Mason Draw (17,802 acres), and Red Sand (46,972 acres) SESAs

Aplomado Facon

Potential significant impacts to the northern aplomado falcon (*Falco femoralis septentrionalis*) and their habitats could occur at each of the three proposed SESA sites in New Mexico.

A northern aplomado falcon reintroduction program began in 2006 in southern New Mexico under section 10(j) of the Endangered Species Act. Between 2006 and 2008, 120 aplomado falcons were reintroduced into several sites in southern New Mexico, and additional reintroductions are planned during the next several years in southern New Mexico.

Our understanding of northern aplomado falcon ecology indicates that a sustainable falcon population is likely to be detrimentally affected by the alteration and loss of grassland habitat. Changes or losses of grassland habitats in New Mexico will affect species that are grassland

adapted. As such, grassland conservation is critical in conserving northern aplomado falcons and other grassland birds in New Mexico. Northern aplomado falcons are associated with savannas and grasslands with a sparse canopy of mature woody vegetation. In New Mexico, northern aplomado falcons are associated with semi-desert grasslands in the Chihuahuan Desert. These grasslands are characterized by scattered yuccas, mesquite, and cactus. The Service recommends that BLM and DOE avoid savannas and grasslands with a sparse canopy of mature woody vegetation. In addition, impacts to mature trees containing other raptor or raven nests should be avoided because aplomado falcons use this highly limited resource for their nests.

Identification of suitable habitats and pre-activity surveys for the northern aplomado falcon should be conducted during project planning and typically include systematic observations in suitable habitat for territorial northern aplomado falcons and/or nest sites. Pre-activity surveys should be conducted by qualified, permitted individuals in accordance with protocols that are recognized by the Service and/or the New Mexico Department of Game and Fish (NMDGF). Currently, protocol guidance is contained in the Interim Survey Methodology for the northern aplomado falcon (*Falco femoralis septentrionalis*) in Desert Grasslands (USFWS 2003).

The BMPs are recommended measures that, if implemented as part of the proposed action, would to the extent practicable, avoid, minimize, and mitigate for adverse effects of that proposed action on the northern aplomado falcon. However, even with these BMPs in place, there may be adverse effects that may remain and require initiation of formal conference. The inclusion of BMPs into the project proposal would streamline any formal conference that may be required.

BMPs and Recommendations to avoid and minimize impacts to northern aplomado falcon include the following:

1) Project Planning:

Roads, fences, security zones, surveillance sites, and other facilities that would require land clearing and have associated noise and artificial lighting components should be located at least 0.5 miles outside of any northern aplomado falcon territory or an active reintroduction site. Northern aplomado falcon home range size is estimated to be about 8,400 acres. For management purposes, this can be described as a circle with a radius of two miles around a particular habitat feature (e.g., a nest site or the preferred roosting site of a territorial northern aplomado falcon).

Firebreaks, fuels reduction, or other improved access for fire suppression should be incorporated, as appropriate in the placement of facilities. Facilities should not be located between northern aplomado falcon nests and their important forage areas such that movement between the two is compromised.

Pre-construction surveys should be conducted to identify any northern aplomado falcon territories in or adjacent to project areas located in or near suitable habitat. Presence/absence surveys may be conducted, or the presence of the northern aplomado falcon in the habitat area will be assumed.

All personnel that will be involved with the on-the-ground construction or maintenance for the proposed action should receive training in the species, the agreed upon BMPs, and the role of the construction monitor.

During construction or maintenance activities in or within 0.5 miles of a northern aplomado falcon territory or an active re-introduction site (or such distance that noise, light, or other effects reach the territory or site), a construction monitor with authority to halt construction at any time the appropriate BMPs are not being properly implemented as agreed to should be present on site.

New roads in the vicinity of northern aplomado falcon territories and other important habitat areas should be avoided to reduce effects of human activity. Existing roads used to access new or existing facilities may need to be closed to other access to protect important northern aplomado falcon habitat.

If an active territory is discovered during the planning phase of a proposed permanent facility, alternate locations for the facility should be considered for feasibility/use.

2) Construction/Maintenance:

Construction activities for roads, fences, or other facilities that must be built closer than .05 mile to an occupied northern aplomado falcon territory should occur between August 1 through January 31 to avoid the northern aplomado falcon breeding season. Staging areas for equipment and supplies should be as far as practicable from northern aplomado falcon habitats.

Maintenance activities for facilities may occur at any time; however, for major work on roads or fences where significant amount of equipment will be required, the August 1 through January 31 period is preferred.

Large, open-topped liquid storage containers will not be allowed on job sites as they can pose a drowning risk to northern aplomado falcons.

3) Post Construction:

The need for and extent of site restoration should be determined in coordination with the landowner/manager and the extent of impacts to northern aplomado falcon habitat and connectivity.

A restoration plan should be developed during project planning and provide an achievement goal to be met by the restoration activity.

The project management plan should provide a report describing the implementation of the BMPs and their effectiveness. This report should be completed at the completion of the project and posted to the BLM and DOE home websites. Documentation of completion of any mitigation actions should be included in the report.

4) Facility Operations:

Security/stadium lighting along fences and other facilities should be designed to minimize light pollution beyond the designated security zone while achieving light levels needed for operational purposes. Because directed lighting for security zones can extend ambient light levels well over 900 feet away from the source, the effects of lighting are widespread. Based on our lack of specific data on a “safe” level of light pollution, security lights should not shine onto habitat areas at a level greater than 1.5 foot candles. All lights should be shielded from the top to prevent up-lighting.

5) Other Mitigation Measures:

Shrub encroachment and non-native vegetation are significant concerns in northern aplomado falcon habitat. Potential mitigation to prevent shrub encroachment and non-native vegetation is funding to contribute to native grassland restoration programs.

Providing funds for surveying for northern aplomado falcons, monitoring of known northern aplomado falcon territories, inventorying suitable habitat, and reintroducing aplomado falcons in New Mexico is an appropriate option.

Recommendations to Minimize Impacts to Wildlife and Their Habitats at Construction Sites

Roads should be designed to appropriate standards.

Construction and maintenance activities should be conducted during daylight hours only to avoid noise and lighting issues during the night. If construction or maintenance work activities would continue at night, all lights should be shielded to direct light only onto the work site, the minimum wattage needed should be used, and the number of lights should be minimized. Noise levels for day or night construction and maintenance should be minimized. All generators should be in baffle boxes (a sound-resistant box that is placed over or around a generator), have an attached muffler, or use other noise-abatement methods in accordance with industry standards.

The perimeter of all areas to be disturbed during construction or maintenance activities should be clearly marked using flagging or temporary construction fence, and no disturbance outside that perimeter should be authorized. The area to be disturbed should be minimized through scheduling materials deliveries and equipment on site to only those needed for effective project implementation. All access routes into and out of the project disturbance area should be flagged, and no travel outside of those boundaries should be authorized. If new access is needed or existing access requires improvement to be usable for the project, roads should be constructed to accepted standards. To the extent possible, areas already disturbed by past activities or those that will be used later in the construction period should be used for staging, parking, and equipment storage. Waste materials and other discarded materials should be removed from the site as quickly as possible. This should assist in keeping the project area and surroundings free of litter and reduce the amount of disturbed area needed for waste storage.

Proposed SESAs within Utah:

For all three SESAs within Utah: Proposed Escalante Valley SESA (6,648 acres), Proposed Milford Flats South SESA (6,440 acres), and Proposed Wah Wah Valley SESA (3,676 acres):

Sage-Grouse and Sage-Grouse Habitat

It appears as if the project area encompasses sage-grouse habitat. If sage-grouse habitat is present within the project area, the PEIS should describe potential effects to this species resulting from project activities and habitat removal. We recommend no human disturbance within 2 miles of a lek during the breeding season and maintenance of a 15-25% sagebrush canopy cover and 7 inches or more of grass and forb understory to optimize nesting success. Guidelines, including seasonal and spatial buffers and habitat restoration recommendations, can be found in: the Utah Division of Wildlife Resources' *Strategic Plan for Management of Sage Grouse, 2002*, Publication No. 02-20 and in *Guidelines to Manage Sage Grouse Populations and Their Habitats* (Connelly et al. 2000). If sage-grouse are determined to be within range of disturbance, we recommend that you coordinate with the local Service Field Office to assess the feasibility of potential mitigation measures that could be employed to offset impacts to sage-grouse.

Proposed Escalante Valley SESA (6,648 acres) and Proposed Milford Flats South SESA (6,440 acres):

Utah Prairie Dog

Escalante Valley SESA and Milford Flats South SESA may provide habitat for the Utah prairie dog (*Cynomys parvidens*), a species listed as threatened under the ESA. We recommend that official surveys be conducted for this species as per the Service's approved protocol. The NEPA document should address the proximity of the project activities to any prairie dog colonies, analyze any potential impacts, including indirect impacts, and identify conservation measures. We recommend seasonal and/or spatial buffering to avoid prairie dog areas if they are determined to be within range of disturbance, as well as working with the Utah Field Office to determine additional best management practices for avoiding impacts to the prairie dogs.

Raptors

Raptor management guidelines, especially those developed by the Utah Field Office (Romin and Muck 2002), should be applied to all 24 of the proposed solar energy development areas. These guidelines include raptor protection measures that are designed to ensure that proposed projects will avoid adverse impacts to raptors, including the Peregrine Falcon. Before any projects are initiated, existing raptor nests need to be identified, taking all necessary steps to avoid direct loss of nesting sites or territories. Be aware that raptor arrival at nest sites can occur as early as December for certain species, with nesting and fledging continuing through August. The Utah Field Office recommended a spatial buffer of at least 1.0 mi for threatened and endangered raptors from their nests, 0.5 mi for other diurnal raptors, and 0.25 mi for nocturnal raptor nests. Spatial buffers for all raptor species present in Utah and the West are delineated by Romin and Muck (2002), along with seasonal presence, number of brooding days, fledging days, and post-fledge dependency to nests.

Summary

We appreciate the opportunity to provide additional comments on the inclusion of SESAs as part of the PEIS analysis and offer our perspective on renewable energy development. We request that the BLM and DOE continue to work closely with local Service Field Offices to ensure that fish and wildlife resources can be effectively identified and addressed early in the planning process. In addition, companies intending to utilize the PEIS should plan and develop their projects in close coordination with our field offices. This early engagement should help to streamline any subsequent permitting and consultation that may be necessary. We look forward to continuing working with you on the development of your PEIS.

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