

**DESERT TORTOISE COUNCIL**

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**Via email and BLM NEPA ePlanning webpage**

Date: 3 June 2024

Attn: Derek Eysenbach  
Bureau of Land Management  
Yuma Field Office  
7341 E. 30th St.  
Yuma, AZ, 85365  
[deysenbach@blm.gov](mailto:deysenbach@blm.gov)

Re: Jove Solar Project Draft Environmental Impact Statement (DOI-BLM-AZ-C020-2022-0006-EIS)

Dear Mr. Eysenbach,

The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and northern Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

Both our physical and email addresses are provided above in our letterhead for your use when providing future correspondence to us. When given a choice, we prefer to receive emails for future correspondence, as mail delivered via the U.S. Postal Service may take several days to be delivered. Email is an "environmentally friendlier way" of receiving correspondence and documents rather than "snail mail."

We appreciate that the Bureau of Land Management (BLM) contacted the Council in an email and hard copy announcement of the proposed project on 4/23/2024, which enabled several Board members to attend the virtual public meeting on 5/14/2024.

## Draft Environmental Impact Statement

Unless otherwise noted, the page numbers referenced in this section are taken from the Draft Environmental Impact Statement (DEIS) dated April 2024.

As given on page i of the DEIS, the project is described as: “Jove Solar, LLC is seeking a 30-year Right-of-way to use 3,495 acres administered by the Bureau of Land Management (BLM) and 38 acres administered by La Paz County in southwestern Arizona to construct, operate and maintain, and decommission a utility-scale solar photovoltaic (PV) facility, the Jove Solar Project (the Project). The Project would consist of up to 1.2 million solar PV modules and associated infrastructure, including new and improved roads, powerlines for collection and transmission of electricity, operation and maintenance facilities, and possibly a battery energy storage system. The Project would have a generation capacity of 600 megawatts or more.”

Table ES-2, page vi indicates that the “Effects for the Sonoran Desert tortoise may include traffic mortality and indirect predation effects during the construction and operation and maintenance phases.” Additionally on page 3-29, “Additional effects for the Sonoran Desert tortoise may include indirect predation effects during the construction and operation and maintenance phases: if personnel or activities create subsidies for tortoise predators (such as artificial water sources) predators may have an increased presence because of the Project, and increase predation on tortoises.” And “The Project and other proposed projects would directly impact up to 38,213 acres of potential dispersal habitat for Sonoran Desert tortoise.” We see on page 3-16 that this large number of acres includes numerous other projects within 10 miles of the Project and that the project, itself, will directly impact 3,533 acres, which we assume is depicted in Figure 3-1.

Design Feature #29 states: “Ensure the biologist inspects construction pipes, culverts, or similar structures: (a) with a diameter greater than 3 inches, (b) stored for one or more nights, (c) less than 8 inches aboveground, and (d) within desert tortoise habitat (such as outside the permanently fenced area), before the materials are moved, buried, or capped. As an alternative, cap such materials before storing outside the fenced area or placing on pipe racks. Avoid inspection or capping if the materials are stored within the permanently fenced area after completing desert tortoise clearance surveys.” As currently written, all four conditions would need to be in effect before a biologist would inspect construction pipes, culverts, or similar structures. However, a tortoise could walk into a pipe during the day to use it as a shelter site. We request that “(b) stored for one or more nights” be removed. In addition, we suggest that the design feature be amended to indicate the steps to be taken in the event a tortoise IS found on the site including contacting the Arizona Game and Fish Department (AZGFD).

The eighth bullet in Design Feature #37 states, “Monitoring the potential for increase in predation of special status species (especially desert tortoise) from ravens and other species that are attracted to developed areas and opportunistically use tall structures to spot vulnerable prey.” We are disappointed that no raven monitoring plan was made available with the DEIS. The #37 statement is general enough that we are unable to interpret what this monitoring activity entails. Therefore, we recommend that members of the AZGFD and U.S. Fish and Wildlife (USFWS) help formulate the predator management plan or, at least, review its components. Additionally, the statement implies that tall structures are used by ravens to find prey, but perhaps more importantly, such

structures may also be used for nesting. We recommend that #37 be amended (or a new design feature developed) to prevent raven nesting on any such structures and other potential nesting sites created by the project. Suggested solutions to deter nesting include using tubular monopoles that minimize the area available to support nest construction.

As given above, the DEIS does not identify any other tortoise protective measures than those addressed by Design Features #29 and #37. There are a multitude of other protective measures for the tortoise like performing clearance (USFWS 2009, AZGFD 2010); requiring qualified/authorized biologists and biological monitors during construction; administering worker education programs; mandating reporting requirements when tortoises are encountered; formulating a translocation plan to deal with displaced tortoises; prohibiting guns and pets during construction, operations, and maintenance; maintaining a litter-free environment and regular removal of trash to avoid attracting predators, particularly ravens; preventing unintentional water subsidies (e.g., from sources such as water used for dust control that creates puddles or access to ponds created for construction purposes) that attract tortoise predators (e.g., coyotes, common ravens, etc.) to the project area; posting and enforcing 15 mile per hour speed limits on project-related, dirt roads; etc. These are a few of many protective measures and regulations that are missing from the DEIS, the proponent's plan of development (Jove Solar, LLC 2023), and the biological technical report (Aztec 2022, revised 2023).

We recommend that the Final Environmental Impact Statement (FEIS) address these apparent deficiencies in these documents. Many of them will be addressed if the BLM ensures that protective measures, guidance, and regulations identified in the documents on the next page are applied by the proponent and enforced by BLM and AZGFD biologists during construction, operations, maintenance, and decommissioning.

In addition to these protective measures, there are design features that recently have become standard practice for solar projects on BLM land in the range of desert tortoises. These include avoiding washes, raising the height of the solar panels and mowing the vegetation under the panels, and providing openings in the security fence around the solar project to allow small wildlife to pass through the area with PV panels.

Regarding washes and surface hydrology, Devitt et al. (2022) studied “the impact of utility scale PV [photovoltaic] systems on adjacent desert ecosystems, where the soil–plant–water–atmospheric system was assessed.” According to Devitt et al. (2022), utility scale solar energy projects result in significant unintended impacts on desert ecosystems by altering surface hydrology. “Construction of roads, transmission lines and utility scale solar photovoltaic facilities can decouple up-gradient washes from down-gradient locations.” They reported that the decoupling of the wash system at the solar site “led to a significant decline in soil moisture, canopy level NDVI [normalized difference vegetation index] values and mid-day leaf xylem water potentials.” Over time especially combined with climate change, this impact may result in reduced plant reproduction, growth, and survival for plants downgradient of the decoupling sites including plants not on the project site.

We request that BLM require these design features be elucidated and implemented for the selected action alternative.

We fully expect that BLM will comply with all applicable statutes, regulations, Executive and Departmental Orders, BLM policies and manuals, and other requirements as they pertain to this project and the tortoise, which includes, among others, the following documents:

- Arizona Game and Fish Department. 2010. Desert Tortoise Survey Guidelines for Environmental Consultants.
- Arizona Game and Fish Department. 2014. Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects.
- Arizona Interagency Desert Tortoise Team. 2008. Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat.
- BLM Special Status Species Management. Handbook 6840.
- BLM Sensitive Species List for Arizona. Arizona Instructional Memorandum AZ-IM-2017-009.
- BLM Mitigation Handbook (H-1794-1).
- BLM Mitigation Manual (MS-1794).
- BLM Instruction Memorandum IM 2021-046 on Mitigation.
- BLM Habitat Connectivity on Public Lands Instruction Memorandum 2023-005.
- U. S. Fish and Wildlife Service and Cooperating Agencies comprising the Arizona Interagency Desert Tortoise Team. 2015. Candidate Conservation Agreement for the Sonoran Desert Tortoise (*Gopherus morafkai*) in Arizona. Phoenix, AZ.
- Council on Environmental Quality's (CEQ) Policy for Implementing NEPA, "Guidance for Federal Departments and Agencies on Ecological Connectivity and Wildlife Corridors."
- Compensation for the Desert Tortoise (MOG 1991)

In 1991, BLM committed to implementing a standard process for compensating for tortoise habitat for Mojave and Sonoran desert tortoises. However, the Council found no information in the DEIS that BLM is requiring the implementation of this commitment for compensation of habitat adversely affected by the proposed Project. The Council requests that BLM add this requirement to the Final EIS and ROW grant to comply with the commitments BLM has made regarding the tortoise and supported by its national mitigation policy.

In 2015, BLM signed the Candidate Conservation Agreement (CCA) for the Sonoran Desert Tortoise (*Gopherus morafkai*) in Arizona (USFWS et al. 2015). The purpose of this agreement was to implement conservation initiatives to conserve Sonoran desert tortoise populations and habitat in Arizona in an effort to preclude listing the tortoise under the Federal Endangered Species Act. As a signatory to this CCA, BLM committed to implementing:

- (1) BLM Manual 6840 (BLM 2008) that establishes specific procedures for managing the Sonoran desert tortoise as it is a BLM sensitive species, with the goal of conserving the Sonoran desert tortoise and its habitat on BLM-managed lands in cooperation with other agencies;
- (2) landscape level conservation measures (e.g., identifying areas of potential conflict between agency mission and Sonoran desert tortoise habitat and identifying and reducing or otherwise mitigating dispersal barriers between Sonoran desert tortoise populations, etc.); and
- (3) local level conservation measures (e.g., considering the effects of actions on the Sonoran desert tortoise during the planning process, and avoiding or minimizing impacts, or

implementing mitigation measures to offset impacts to tortoise populations and habitat where practical and feasible, avoid, where practicable, or otherwise minimize or mitigate adverse effects of actions that could result in isolation of known Sonoran desert tortoise populations and/or landscape-level fragmentation of Sonoran desert tortoise habitat, etc.).

Please explain in the Final EIS how BLM is implementing these initiatives for the conservation of the tortoise with respect to the Jove Solar Project.

BLM's commitment to compensating for tortoise habitat is especially important because the management BLM has been implementing since the signing of the CCA does not appear to be working. This statement is supported by the International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, recent designation of the Sonoran desert tortoise, located in Arizona and Sonora, Mexico, to be Vulnerable at this time, but nearly qualifies as Endangered (Averill-Murray et al. 2023). "Steep declines of approximately 54% have occurred in recent years in several formally monitored local subpopulations in Arizona." "Despite evidence that several subpopulations have stabilized or increased, survival rates are predicted to decline with future drought conditions, which are expected to intensify with global climate change." In Mexico, "patterns of rainfall and drought across Sonora mirror those in Arizona and suggest that Sonoran subpopulations likely increased and decreased similarly over time." According to the IUCN, this designation of Vulnerable means that the species is "considered to be facing a high rate of extinction in the wild" and is one step above endangered or the equivalent of threatened.

The IUCN identified several threats to the survival of the Sonoran desert tortoise including residential, commercial, and industrial development; ranching and farming; roads and railroads; hunting and trapping; recreational activities; wildfires and fire suppression activities; invasive non-native plant species; and drought/temperature extremes from climate change.

With respect to requirements to address habitat connectivity and wildlife corridors, there is limited information on linkage areas/habitats for the Sonoran desert tortoise. However, information in the scientific literature suggests that interpopulation movements that historically linked tortoise populations has been drastically reduced by the development of anthropogenic barriers, so much so that these movements have likely become impossible (Edwards et al. 2004). Sutor et al. (2023) noted that "linear barriers to tortoise movement and dispersal are fragmenting landscape connectivity" and "may be changing the role and spatial distribution of important habitat patches, which may suppress the species' ability to persist in the rapidly changing landscape that is the Sonoran Desert." Consequently, linkage habitat managed for tortoises is important for range wide connectivity for the tortoise (Sutor et al. 2023).

We suggest using recent data about the Mojave desert tortoise in analyzing impacts of the Jove Solar Project for this resource issue of linkage areas. In 2021, Averill-Murray et al. published a paper on connectivity of Mojave desert tortoise populations and linkage habitat. The authors emphasized that "[m]aintaining an ecological network for the Mojave desert tortoise, with a system of core habitats (TCAs = Tortoise Conservation Areas) connected by linkages, is necessary to support demographically viable populations and long-term gene flow within and between TCAs."

“Ignoring minor or temporary disturbance on the landscape could result in a cumulatively large impact that is not explicitly acknowledged (Goble 2009); therefore, understanding and quantifying all surface disturbance on a given landscape is prudent.” Furthermore, “habitat linkages among TCAs must be wide enough to sustain multiple home ranges or local clusters of resident tortoises (Beier et al. 2008, Morafka 1994), while accounting for edge effects, in order to sustain regional tortoise populations.” Consequently, effective linkage habitats are not long narrow corridors. Any development within them has an edge effect (i.e., indirect impact) that extends from all sides into the linkage habitat further narrowing or impeding the use of the linkage habitat, depending on the extent of the edge effect.

Averill-Murray et al. (2021) further notes that “To help maintain tortoise inhabitation and permeability across all other non-conservation-designated tortoise habitat, all surface disturbance could be limited to less than 5-percent development per square kilometer because the 5-percent threshold for development is the point at which tortoise occupation drops precipitously (Carter et al. 2020).” They caution that the upper threshold of 5 percent development per square kilometer may not maintain population sizes needed for demographic or functional connectivity; therefore, development thresholds should be lower than 5 percent.

In the Sonoran Desert, Sullivan et al.’s (2016) 3-year tortoise study reported that home range size was 11.9 ha (range = 4–20 ha) for males and 12.2 ha (range 4–29 ha) for females. At another south-central Arizona site, Reidle et al.’s (2008) 5-year study reported the mean home range size for adult tortoises as  $33.4 \pm 28.9$  ha for males and  $14.8 \pm 14.1$  ha for females. Consequently, effective linkage habitats for the tortoise are not long narrow corridors or washes. Any development within them has an edge effect (i.e., indirect impact) that extends into the linkage habitat further narrowing or impeding the use of the linkage habitat, depending on the extent of the edge effect. Similarly, any development adjacent to linkage habitat may have an indirect impact that extends into the linkage habitat further narrowing or impeding the use of the linkage habitat depending on the extent of the effect. Averill-Murray et al. (2020) reported that immature and adult Sonoran desert tortoises make periodic forays ranging from 1 to 7 km. Sutor et al. (2023) reported that Sonoran desert tortoise populations were historically well-connected, as evidenced by little population genetic structuring throughout their range, suggesting that individuals are capable of making long-distance movements.

Because of the findings reported by Averill-Murray et al. (2021) of how human activities including development projects affect connectivity for the Mojave desert tortoise, these impacts are likely similar for the Sonoran desert tortoise. The Council requests that BLM revisit the wildlife linkage area shown on the resources map provided by BLM in earlier documents for the proposed Project and analyze whether this delineated area meets the requirements to function as an effective linkage area for the tortoise. If it does not, BLM should modify this linkage area so it complies. This information and analysis should be provided in the Final EIS.

Regarding the omission of data on linkage areas and habitat connectivity in the DEIS, please see our comments on this issue under “Biological Resources Technical Report” below.

## Biological Resources Technical Report

The Biological Technical Report prepared by Aztec Engineering (2022, revised 2023) indicates on pages 23 and 24 that “Transect surveys for Sonoran desert tortoise burrows and shelter sites were conducted on February 17, 2022, by walking transects spaced 20 meters apart. Transect surveys were conducted at two separate areas that were identified as potentially being impacted by the project and having suitable sheltering habitat for Sonoran desert tortoise.” Figure 6 on page 25 then shows that the entire site is vegetated by creosote-white bursage with ironwood and mesquite, and that there is a “sheet flow depression” running east-west through the center of the site (see Figure 6 on the next page). We then see on page 31 of the report the extent of the survey area, which is shown as two red polygons *outside and west of* the Project footprint (Figure 7 on the next page). On page 30, Aztec concludes, “Although suitable burrow or shelter sites were not observed within the Project area, it may serve as dispersal habitat between mountain ranges.”

It is not clear from the DEIS or biological report what the experience levels of the surveying biologists were, why surveys were performed in February, a month with limited above-ground tortoise activity, or if they contacted AZGFD before performing surveys. It seems counterintuitive that the only tortoise surveys were performed off site and in very small polygons of undisclosed acreages. Nor is it clear why these polygons were restricted to the small hills to the west and did not include the other small hills located to the south, midway between the Little Harquahala and Eagletail mountains, which seem intuitively to be ideal linkage habitat between these two mountain ranges that are known to be occupied by tortoises (Zylstra et al. 2013).

By performing the limited surveys in February 2022, the biologists failed to implement AZGFD (2010) recommendations that surveys be performed “...during tortoise activity periods, primarily during the summer monsoon season (July – September) but also in the spring (April) and fall (October).” Nor did the biologists adhere to the guidelines for conducting surveys, which include “Presence-absence surveys (3 hectare plots) or clearance surveys (100% coverage), depending on project type, are recommended to survey a discrete parcel of land. The number of 3 hectare plots per unit area depends on the desired intensity of the survey.” We note that no 3 hectare plots were surveyed and the proponent’s documents do not commit to performing 100% clearance surveys prior to ground disturbance.

Figure 6 shows that the entire site is comprised of habitats suitable for tortoise dispersal and that there is a centrally-located, east-west wash through the center of the site. The description at the top of page 23 indicates that this wash was assessed using aerial imagery, and we know that it was not surveyed for tortoises, as *no* tortoise surveys were performed on the actual site. Herein we ask BLM and AZGFD biologists to consider this information and make a determination if these off-site surveys were sufficient to adequately assess potential impacts to tortoises *on the subject property*. We believe that a more thorough survey should be performed throughout the site using standardized survey methodology (USFWS 2019) to detect evidence of dispersing tortoises (e.g., scats and perhaps pallet burrows) and that the “sheet flow depression” area and wash, in particular, be surveyed for any evidence of burrowing tortoises or carcasses.

Figures 6 and 7 show a wash crossing much of the Project site and adjacent area. Washes are used by tortoises as important foraging areas, for movements within local populations, and as linkage habitats between populations. Linkage habitats are necessary to support demographically viable populations and long-term gene flow between tortoise populations. Please see the discussion above on habitat connectivity and wildlife corridors that discusses the potential importance of this wash to tortoises in/near the Project area.

Figure 6. Vegetation Communities Map

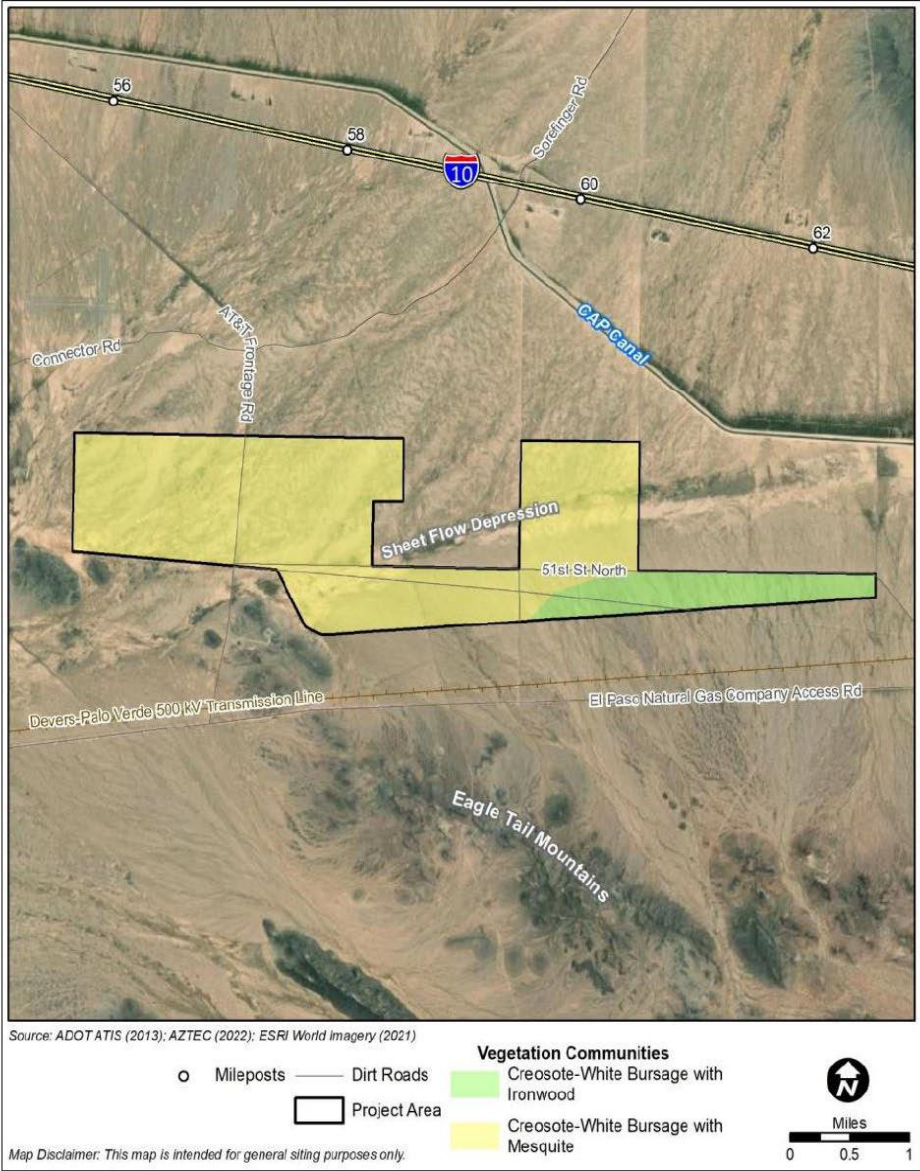
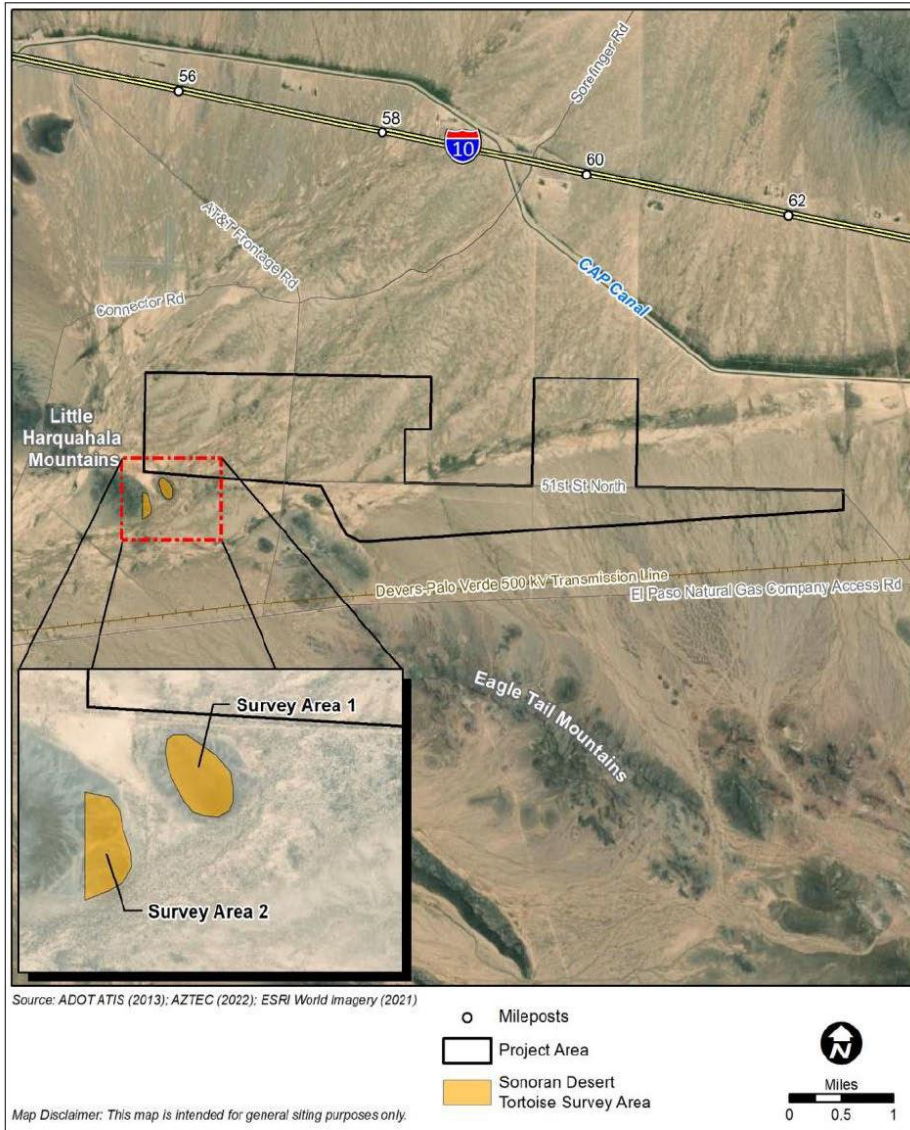




Figure 7. Sonoran Desert Tortoise Survey Area Map



On page 37 (Aztec 2022, revised 2023), we question the veracity of performing preconstruction surveys for burrowing owl but *not* performing preconstruction surveys for desert tortoises (USFWS 2009, AZGFD 2010); rather tortoises incidentally encountered during construction would be translocated as per the AZGFD (2014) handling guidelines. We believe that the proponent should follow AZGFD's (2010) guidance to perform 100% surveys of all impacted areas to be mowed or otherwise disturbed including along the proposed gen-tie lines. Again, we yield to the opinions of BLM and AZGFD biologists, but do ask that they (not the proponent) determine whether 100% clearance surveys for tortoises should be performed.

During the BLM public meeting webinar, Tiffany Shepherd of the BLM indicated that the entire site represents potential dispersal tortoise habitat between the two nearby mountain ranges, which are known to be occupied by tortoises. We understand from the presentation that the site's vegetation would be mowed rather than the entire site graded, which we applaud (short of implementing the No Action alternative). We also understood that the BLM and the proponent were undecided as to whether the perimeter fence would be raised to allow tortoises to pass through the area. The proponent's Plan of Development (Jove Solar, LLC 2023) states on page 4-2 that the "...permanent fence will be installed around the arrays and along the public roads through the Project area. The typical fence profile is 6 feet of 2-inch cyclone mesh, with two to three strands of barbed wire above the cyclone. The finished fence will be approximately 7.25 feet high." We recommend that the fence design incorporate a gap at the bottom that would facilitate tortoise dispersal through the site, particularly once the vegetation grows back.

### **Unresolved Issues Identified in the Council's January 2023 Comment Letter**

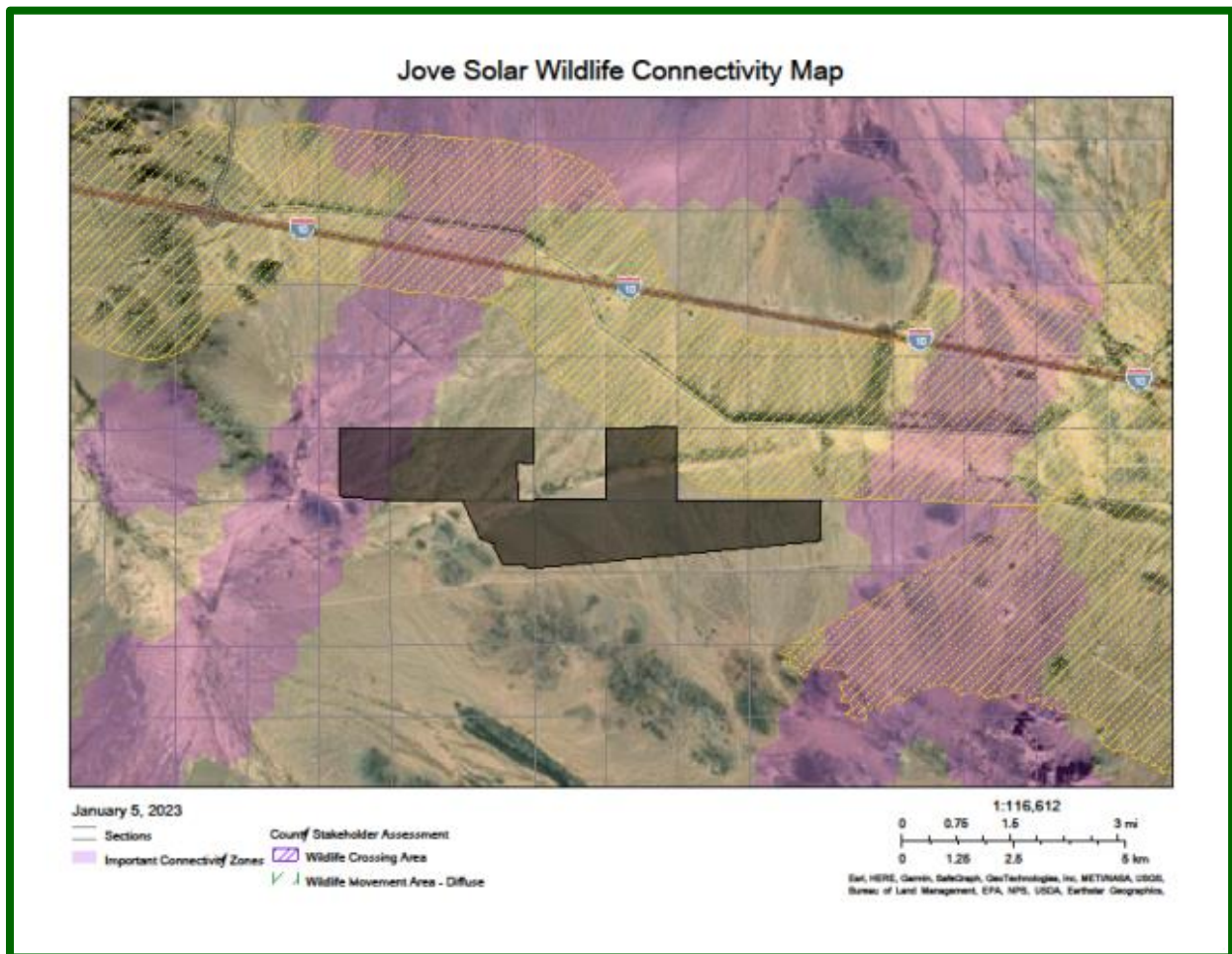
The Council provided scoping comments for this Project (Desert Tortoise Council 2023), which is incorporated by reference and included in the footnote below<sup>1</sup>. The following examples are provided as conclusive evidence that the BLM largely, perhaps entirely, failed to address many of our requests and concerns. There is no evidence that most of our comments were addressed in the DEIS, although BLM clearly received them because they are in Appendix C, Public Scoping Comments by Category. Following are a few examples of persisting concerns that were not addressed in the DEIS, which we reiterate we want to be addressed in the Final EIS.

Perhaps we missed it in the DEIS and associated documents, but the BLM's notice of preparation released for scoping comments included the figure on the next page showing that the northwest corner of the proposed Project would affect what AZGFD identified as "Important Connectivity Zones" for desert tortoises (AZGFD Source: <https://ert.azgfd.gov/content/home>). Is this map in the DEIS, or was it dropped? If it was not included, we ask that it be included in the Final EIS and that this impact to tortoise connectivity be addressed therein. It appears to us that there was important information about resource issues released by the BLM in January 2023, which we referred to in our scoping comment letter, that were not carried forth into the DEIS. We don't know if this was accidental omission or negligence.

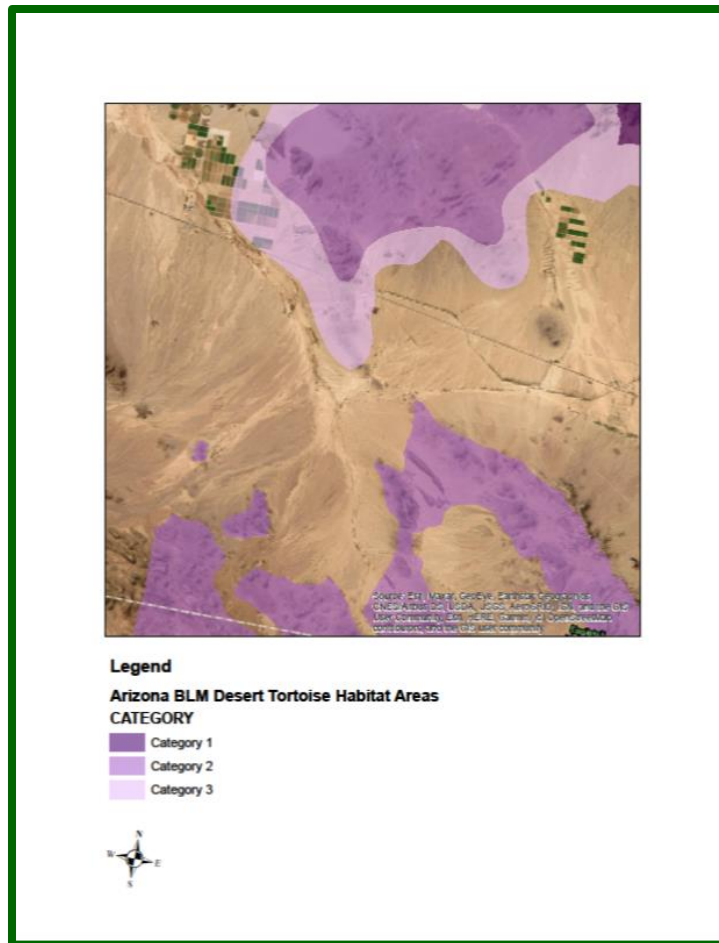
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<sup>1</sup> <https://www.dropbox.com/scl/fi/8royuzrd4681amynx8yw/Jove-Solar-Energy-Project.1-5-2023.docx?rlkey=n8gylrpg3427zfl77z0lxz67&dl=0>

In any case, the following map was provided in the notice of preparation, showing BLM habitat categories for tortoises. In our search of the DEIS, the term “habitat categories” does not appear in the DEIS and we were unable to find the map depicted below. In our scoping comments, we asked that the BLM add the Project boundaries to the category map so the public could see the relationship between the two, but it appears that not only was this requested information not forthcoming, but we are also unable to find BLM habitat categories in either the DEIS or the biologist’s technical report (Aztec 2022 revised 2023). Again, we ask that this map be added to the Final EIS, that the Project boundaries appear on the map, and the BLM discuss the potential direct, indirect, cumulative, and synergistic impacts that would likely result to habitat categories with site development.



In our scoping comments, we specifically asked that the DEIS report on desert tortoise studies performed on the Eagle-tail Mountains study plot and anecdotal accounts of tortoises in the Little Harquahala. This information was not provided in the DEIS. We suggested that the proponent help fund future studies, which we assumed was ignored, as the comment is not acknowledged. We do see that these specific comments are listed in Appendix C, Public Scoping Comments by Category, but there is no evidence that BLM addressed these concerns and suggestions in the DEIS. We ask, once again, that the Final EIS provide these data and address these unanswered concerns.

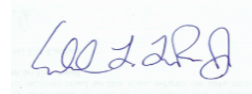


The above comments are only three of numerous unanswered requests we made in our January 2023 comment letter (Desert Tortoise Council 2023). Although our comments are included in Appendix C, there is no evidence that our comments have been adequately addressed; in fact, most of them seem to have been ignored. Our understanding of scoping comments is that BLM is obligated to respond to all reasonable requests, particularly with regards to analyses and disclosing available resources, like the two resource maps given above. Until these deficiencies are addressed, we find that the DEIS has fallen short of its obligatory responsibilities required by the National Environmental Policy Act (NEPA) and other regulations (see manuals in the literature cited section of this letter). We ask that these deficiencies be remedied in the Final EIS.

We appreciate this opportunity to provide the above comments and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Council wants to be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the BLM that may affect desert tortoises, and that any subsequent environmental documentation for this Project is provided to us at the contact information listed above. Additionally, we ask that you notify the Desert Tortoise Council at [eac@deserttortoise.org](mailto:eac@deserttortoise.org) of any proposed projects that BLM may authorize, fund, or carry out in the range of any species of desert tortoise in the southwestern United States (i.e., *Gopherus agassizii*, *G. morafkai*, *G. berlandieri*, *G. flavomarginatus*) so we may comment on it to ensure BLM fully considers actions to conserve these tortoises as part of its directive to conserve biodiversity on public lands managed by BLM.

Please respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this Project.

Respectfully,



Edward L. LaRue, Jr., M.S.  
Desert Tortoise Council, Ecosystems Advisory Committee, Chairperson

cc:

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