

**DESERT TORTOISE COUNCIL**

3807 Sierra Highway #6-4514

Acton, CA 93510

[www.deserttortoise.org](http://www.deserttortoise.org)

[eac@deserttortoise.org](mailto:eac@deserttortoise.org)

**Via email only**

13 May 2024

Attn: Matt Drahnak, Derek Eysenbach, Angelica Rose, Erica Stewart  
Bureau of Land Management  
Lower Sonoran Field Office  
2020 E. Bell Road,  
Phoenix, AZ 85022  
[BLM\\_AZ\\_PDO\\_Solar@blm.gov](mailto:BLM_AZ_PDO_Solar@blm.gov)  
[deysenbach@blm.gov](mailto:deysenbach@blm.gov)  
[adrose@blm.gov](mailto:adrose@blm.gov)  
[estewart@blm.gov](mailto:estewart@blm.gov)

RE: Thistle, TAP, and Yellow Cups Solar Projects – Scoping Comments (DOI-BLM-AZ-C000-2023-0001-OTHER\_NEPA)

Dear Bureau of Land Management,

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 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 Derek Eysenbach contacted the Council directly via email on 4/14/2024 so that several of our Board members were able to attend the virtual public meeting on 4/17/2024 and to provide these comments in a timely manner. We were instructed that a single letter may be written

and applied to all three projects. Given the location of the proposed projects in habitats potentially occupied by Sonoran desert tortoise (*Gopherus morafkai*) (synonymous with Morafka's desert tortoise), our comments include recommendations intended to enhance protection of this species and its habitat during activities authorized by the Bureau of Land Management (BLM), which we recommend be added to the projects terms and conditions in the authorizing document (e.g., right of way grant, etc.) as appropriate. Please accept, carefully review, and include in the relevant project files the Council's following comments and attachments for the proposed project.

## **Descriptions of the Projects**

The following three project descriptions are provided in project-specific preliminary plans of development and or variance factor analysis reports for the projects, provided on the BLM's eplanning website (<https://eplanning.blm.gov/eplanning-ui/project/2024049/510>).

**Thistle Solar**, LLC, is proposing to construct, operate, maintain, and decommission a 500-megawatt (MW) alternating current (AC) solar photovoltaic (PV) energy facility with a 500- MW battery energy storage system (BESS) and a 500-kilovolt (kV) generation-tie transmission line (gen-tie). The proposed project is approximately 10 miles north of Aguila, Arizona, on 8,200 acres of land administered by the BLM Phoenix District Office, Hassayampa Field Office and 117 acres of Arizona State Trust land in Yavapai County, Arizona (8,317 acres total). The large application area will provide flexibility for future design of the proposed project to avoid sensitive resources, if necessary. The applicant would pursue issuance of Title V Federal Lands Policy and Management Act of 1976 rights-of-way (ROWs) from the BLM for a 30-year term.

For **TAP Solar**, Sawtooth DevCo, LLC, is proposing the construction, operation, and eventual decommissioning of the TAP Solar Project. The Project involves both solar energy generation and BESS, located on approximately 1,488 acres of BLM managed public land in Pinal County, Arizona. It is located south, southwest of Phoenix about 5 miles east of the Sonoran Desert National Monument and 5 miles west of Maricopa. The Project includes a solar array area and BESS area, which will contain photovoltaic modules, inverters, a substation/switchgear, a gen-tie line to connect from the Solar Project Area into the existing and regional transmission system at the Pinal West Substation, and a gen-tie line connecting from the Substation to the BESS Project Area. The BESS Project Area is comprised of approximately 46 acres located 0.73 mile southeast of the Pinal West Substation. The Solar Project Area is comprised of 1,442 acres located adjacent to the Pinal West Substation.

**Yellow Cups Solar** LLC, is proposing to construct, operate, maintain, and decommission a 500-MW AC PV energy facility with a 500-MW BESS and a 500-kV gen-tie in power line. The proposed project would interconnect with the existing Arizona Public Service (APS) Saguaro to Cholla 500-kV transmission line via a 10.6-mile-long 500-kV gen-tie or the Tucson Electric Power (TEP) Pinal Central (Pinal South) to Tortolita 500-kV transmission line via an 8.5-mile-long 500-kV gen-tie. The proposed project is located approximately 9.5 miles southeast of Florence, Arizona, on 5,148 acres of land administered by the BLM Gila District Office, Tucson Field Office, in Pinal County, Arizona, 26 to 43 acres of privately owned land, and 174 to 186 acres Arizona State Trust lands (5,610 acres total).

## Scoping Comments

The purpose of scoping is to allow the public to participate in an “early and open process for determining the scope of issues to be addressed, and for identifying the significant issues related to a proposed action” [40 Code of Federal Regulations (CFR) 1501.7]. For purposes of our letter, we assume that the BLM will require a Draft Environmental Impact Statement (DEIS) for the projects. The DEIS should include for each project:

1. Discuss how each proposed project fits within the management structure of the current land management plans for the area, including management of adjacent/nearby lands, and meets the regulatory requirements and most important, the statutory requirements under the Federal Land Policy and Management Act (FLPMA).
2. Provide maps of Areas of Critical Environmental Concern (ACECs), and other areas identified for special management by BLM (e.g., Important Connectivity Zones such as in Figure 9 in the variance factor analysis report for Yellow Cups) and how each project would impact the resources for which these lands are managed.
3. Provide maps of all areas identified by Arizona Game and Fish Department (AZGFD) and BLM as managed for the tortoise and other wildlife species and if those lands are mitigation lands for previous projects.
5. Provide maps with the locations of *existing* and *proposed* solar development projects and transmission lines in the immediate region and an analysis of their direct, indirect, cumulative, interactive, and synergistic impacts for the tortoise and other wildlife species.
6. Provide maps that identify the ownership of the lands associated with the proposed projects and ownership of surrounding lands.

Please be sure that the projects adhere to and fully implement measures, regulations, and policies including but not limited to 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. June 2008
- 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"

### **Proposed Action and Alternatives Considered**

We fully expect that BLM will comply with all applicable statutes, regulations, Executive and Departmental Orders, BLM manuals, and other requirements as they pertain to these projects. BLM should demonstrate in the DEIS that the proposed projects meet all these requirements with respect to the tortoise, that the proposed projects will:

- conform with decisions in current land use plan(s) and the FLPMA with respect to sustained yield;
- be consistent with priority conservation, restoration, and/or adaptation objectives in the best available landscape-scale information (e.g., for tortoise population connectivity, management of native plant species and reduction/elimination of non-native, invasive species, elimination of sources or wildfire, etc.) during all phases of the projects;
- be in an area with low or comparatively low resource conflicts and where conflicts can be resolved;
- be located in, or adjacent to, previously contaminated or disturbed lands;
- minimize adverse impacts on important fish and wildlife habitats and migration/movement corridors including the desert tortoise;
- minimize impacts on lands with wilderness characteristics and the values associated with these lands;
- not adversely affect lands donated, acquired, or managed for conservation purposes, or mitigation lands identified in previously approved projects such as translocation areas for desert tortoise;
- ensure that the applicant has coordinated with governments and agencies, including consideration of consistency with officially adopted plans and policies (e.g., conservation plans).
- ensure that significant cumulative impacts on resources of concern should not occur as a result of the proposed projects (i.e., exceeding an established threshold such as population viability for the tortoise or connectivity between tortoise populations).
- analyzes, using current data on the tortoise for the projects' areas, population, and range wide, as population numbers and densities have substantially declined in many areas along with the recent destruction of habitat from fires, so environmental documents should publish the data/knowledge currently available.

We have serious concerns about BLM's commitment to manage effectively for the sustained yield of the tortoise as required under FLPMA. These concerns include past actions regarding:

- Mitigation to improve conditions within the connectivity areas, and if these options do not exist, mitigation may be applied toward the nearest tortoise conservation area (e.g., an ACEC for which tortoise has been identified in the Relevant and Important Criteria); and

- a plan included in the DEIS that would effectively monitor desert tortoise impacts, including verification that desert tortoise connectivity corridors are functional.

Regarding the first concern, we believe that a multiagency approach is best to ensure BLM is meeting its obligations, soliciting review and input from pertinent federal and state resource agencies, Tribal governments/agencies, and non-governmental organizations (NGOs). Mitigation of direct, indirect, and cumulative impacts should include, in priority order, avoidance, then minimization and compensation for unavoidable impacts. Mitigation should at a minimum offset all direct, indirect, and cumulative impacts.

Mitigation should be applied only in areas where the lands are effectively managed for the benefit of the tortoise for both the short-term and long-term. Consequently, mitigation should be implemented on lands with a durable conservation designation, or on privately owned lands with a conservation easement or other legal instrument that ensures conservation in perpetuity. Please see *Mitigation Plans* below for additional concerns and requested requirements.

Regarding the second concern, a monitoring plan should (1) be scientifically and statistically credible; (2) be implementable; and (3) require BLM/project proponents to implement adaptive management to correct land management practices if the mitigation is not accomplishing its intended purposes. Compliance with Chapter 11 of the BLM National Environmental Policy Act (NEPA) Handbook H-1790-1 BLM (2008a) is needed to ensure this occurs.

We note that a federal appellate court has previously ruled that in an EIS a federal agency must evaluate a reasonable range of alternatives to the project including other project and mitigation sites, and must give adequate consideration to the public's needs and objectives in balancing ecological protection with the purpose of the proposed project, along with adequately addressing the proposed project's impacts on the desert's sensitive ecological system [*National Parks & Conservation Association v. Bureau of Land Management*, Ninth Cir. Dkt Nos. 05-56814 et seq. (11/10/09)]. Therefore, the Council requests that the BLM describe the purpose and need for these projects and develop and analyze other viable alternatives, such as rooftop solar, which we believe constitute "other reasonable courses of actions" (40 CFR 1508.25).

The Council supports alternatives to reduce the need for additional solar energy projects in relatively undisturbed tortoise habitats in the Sonoran Desert. For example, the City of Los Angeles has implemented a rooftop solar Feed-in Tariff (FiT) program, the largest of its kind in America. The FiT program enables the owners of large buildings to install solar panels on their roofs, and sell the power they generate back to utilities for distribution into the power grid.

We request that BLM include an urban solar alternative. Under this alternative, owners of large buildings or parking areas would grant the project proponent permission to install solar panels on their roofs and cover parking areas, and sell the power they generate back to utilities for distribution into the power grid.

This approach puts the generation of electricity where the demand is greatest, in populated areas. It may also reduce transmission costs; greenhouse gas emissions from constructing energy projects far from the sources of power demand and materials for construction; carbon sequestration lost

from degrading/destroying thousands of acres of native vegetation for decades or longer to construct and operate this one project; the number of affected resources in the desert that must be analyzed under the NEPA; and mitigation costs for all direct, indirect, and cumulative impacts; monitoring and adaptive management costs; and habitat restoration costs following decommissioning. The DEIS should include an analysis of where the energy generated by these projects would be sent and the needs for energy in those targeted areas that may be satisfied by urban solar. We request that at least one viable alternative be analyzed in the DEIS where electricity generation via solar energy is located much closer to the areas where the energy will be used, including generation in urban/suburban areas.

In addition, BLM should include another viable alternative of locating solar projects on bladed or highly degraded tracts of land (e.g., abandoned agricultural fields). Such an alternative would not result in the destruction of desert habitats and mitigation for the lost functions and values of these habitats. These losses and mitigation are costly from an economic, environmental, and social perspective.

The latter two alternatives are important to consider to minimize or avoid the loss of vegetation that sequesters carbon. Studies around the world have shown that desert ecosystems can act as important carbon sinks. For example, the California deserts account for nearly 10 percent of the state's carbon sequestration; below ground in soil and root systems, and above ground in biomass. Protecting this biome can contribute to securing carbon stores in the state (MDLT 2021). This situation is likely true for Arizona. Given the current climate change conditions, there is an increasing need for carbon sequestration. Because vascular plants are a primary user of carbon and the proposed projects would result in the loss/degradation of thousands of acres of plants and their ability to sequester carbon for decades or longer unless successful measures are implemented to restore the same biomass of native vegetation as it is being destroyed, it is imperative that the proposed projects not result in the loss of vegetation.

The DEIS should consider the monitoring results of recently developed solar projects where soils have been bladed versus those facilities where the vegetation has been mowed and allowed to revegetate the area. In the latter case, it may be appropriate to allow tortoises to enter the facilities and re-establish residency (i.e., repatriate) under the solar panels as native vegetation recolonizes the area. This could be an *option* for the project alternatives. It should be designed/implemented as a scientific experiment to add to the limited data on this approach to determine the extent of effects on Sonoran desert tortoise populations and movements/connectivity between populations, which is an important issue for this species, particularly over the long-term (see *Desert Tortoise Habitat Linkages/Connectivity among Populations* below). Long-term monitoring for the life of the projects would need to be included to accurately evaluate the effectiveness of this strategy. We remind BLM that it is directed by Congress under FLPMA to “take any action necessary to prevent unnecessary or undue degradation of the lands.” Mowing rather than blading and allowing for wildlife access would reduce the degradation of lands used for solar energy projects.

### **Connected Actions**

Pursuant to Section 1508.25 of the Council on Environmental Quality's (CEQ) regulations (40 CFR 1508.25), any DEIS must cover the entire scope of a proposed action, considering all

connected, cumulative, and similar actions in one document. Pursuant to Section 1506.1(a) of these regulations, an agency action cannot “[l]imit the choice of reasonable alternatives” before reaching a final decision in a published [Record of Decision] (ROD). These regulations ensure agencies will prepare a complete environmental analysis that provides a “hard look” at the environmental consequences of all proposed actions instead of segmenting environmental reviews (Novack 2015). Please explain whether any current or proposed actions within the region are connected and if not, why.

### **Standardized Surveys – Desert Tortoise and Other Species**

For the DEIS to fully analyze the effects and identify potentially significant impacts, the following surveys should be performed to determine the extent of rare plant and animal populations occurring within areas to be directly and indirectly impacted.

The project proponent should fund focused surveys for all rare plant and animal species reported from the vicinity of the proposed projects. Results of the surveys will determine appropriate permits from AZGFD, Arizona Department of Agriculture (AZDA) BLM, and U.S. Fish and Wildlife Service (USFWS) and associated avoidance, minimization, and mitigation measures. Focused plant and animal surveys should be conducted by knowledgeable biologists for respective taxa (e.g., rare plant surveys should be performed by botanists), and to assess the likelihood of occurrence for each rare species or resource (e.g., plant community) that has been reported from the immediate region. Focused plant surveys should occur only if there has been sufficient rainfall to promote germination of annual plants in the spring and late summer. Alternatively, the environmental documents may assess the likelihood of occurrence with a commitment by the proponents to perform subsequent focused plant surveys prior to ground disturbance, assuming conditions are favorable for germination.

Migratory Birds/Eagles: BLM should ensure that all actions it authorizes are implemented in compliance with the Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, and associated regulations, executive orders, and policies (e.g., Driscoll 2010, Pagel et al. 2010) to avoid mortality or injury to migratory birds and harassment of eagles.

Burrowing Owl: Surveys for western burrowing owl (*Athene cunicularia*) should be coordinated with the USFWS as the species is protected under the Migratory Bird Treaty Act. BLM should require the implementation of the Burrowing Owl Project Clearance Guidance for Landowners (AZGFD 2009). Surveys for burrowing owls should be conducted by persons with both knowledge and field experience in the biology, ecology, and behavior of burrowing owls and identifying burrowing owl sign. BLM should also require implementing surveys at 30-, 60-, 90-, 120-, and 150-meter intervals in all suitable habitats adjacent to the subject property to collect data to help assess the potential indirect impacts of the project on this species (CDFG 2012). If burrowing owl sign is found, AZGFD (2007) and CDFG (2012) describe appropriate minimization and mitigation measures to offset these impacts.

In addition, BLM should demonstrate in the DEIS how it will comply with “E.O. 13186 – Responsibilities of Federal Agencies To Protect Migratory Birds.” If burrowing owl sign is found, BLM and the project proponent should develop a science-based relocation/ mitigation/ monitoring/

adaptive management plan with the USFWS and AZGFD and ensure that this plan is implemented. We recommend that researchers with expertise on the western burrowing owl from the U.S. Geological Survey, the scientific research branch of the Department of the Interior, be included in the development of the relocation/ mitigation/ monitoring/ adaptive management plan.

Sonoran Desert Tortoise Surveys: Although there is not a formal protocol survey method for Sonoran desert tortoise, we believe that the survey methods for Mojave desert tortoise (USFWS 2019) would be appropriate. If the density or cover of perennial vegetation in the project areas is greater than for typical Mojave desert scrub, the transect width would need to be less than 10 meters to ensure that cryptic tortoises are seen during the tortoise surveys. Because USFWS (2009) and AZGFD require only experienced biologists to perform protocol surveys, USFWS and AZGFD biologists should review surveyors' credentials prior to initiating the surveys. Per this protocol, if the impact areas are larger than 500 acres, the surveys must be performed in the time periods of April-May or September-October so that a statistical estimate of tortoise densities can be determined for the "action area" (please see below). If summer rains occur at a project site, surveying following monsoon rains may facilitate seeing tortoises that emerge to forage on new plant growth (Sullivan et al. 2016). If any tortoise sign is found, the project proponents should coordinate with USFWS and AZGFD to determine if significant environmental impacts are likely to occur from implementation of the proposed projects. If tortoises are present, the project proponent must obtain appropriate agency authorization prior to conducting any ground disturbance.

We request that protocol-level surveys be performed in the action area of the proposed project *and the alternatives that are being considered* in the DEIS. The results of these surveys should be published in the DEIS and should include density estimates for each alternative assessed for each of the three sites.

To determine the full extent of impacts to tortoises and to facilitate compliance with pertinent guidelines, authorized biologist(s) should consult with the USFWS to determine the action area for these projects. The USFWS defines "action area" in the Code of Federal Regulations and their Desert Tortoise Field Manual (USFWS 2009) as "all areas to be affected directly or indirectly by proposed development and not merely the immediate area involved in the action (50 CFR §402.02)." Although the "action area" is a term applied to consultation for species listed under the Federal Endangered Species Act, this methodology is relevant to all species regardless of their regulatory status.

The Council's persisting concern is that proponents of solar projects continue to identify a single site for development without any attempt to identify alternative sites. As such, when focused studies reveal significant accumulations of tortoises on the proponent's selected site, because there is only one site identified for the project, there is no opportunity to select an alternative site where impacts would be minimized.

Too often, a single impact footprint is identified, all surveys are restricted to that site, and no alternative sites are assessed, as required by NEPA. We are concerned that these projects may have already pre-determined the project footprint. As such, there may be other areas of lower tortoise densities where impacts could be minimized. However, those areas would not be considered if the



project footprint is predetermined before survey data are available. As such, we request that more than one site, preferably three, be identified and analyzed in the DEIS for each project and that the alternative with the fewest impacts to tortoises be selected for development.

If that is not feasible, we ask that the “action area” of the proposed project be several times larger than the project footprint so that those portions of the site with fewer tortoises could be selected. Proponents of the Gemini Solar Site in southern Nevada, for example, ignored these recommendations, and displaced more than 100 tortoises, when based on their presence-absence tortoise surveys, a shift of the site to the east would have avoided many of those animals.

The USFWS’s Desert Tortoise Recovery Office recommends desert tortoise protocol surveys (USFWS 2019) for the Sonoran desert tortoise be conducted on a given site, but all too often translocation sites are ignored. We feel strongly that protocol surveys should occur on multiple or enlarged project sites as given above *and* on all proposed translocation sites, assuming tortoises will be translocated.

#### Sonoran Desert Tortoise Impacts Analysis:

*Analysis of Direct and Indirect Impacts:* The alternatives analysis should include an economic analysis that provides the total cost of constructing the proposed projects versus other alternatives, so the public can see how much the total cost of each alternative is. This would include an analysis of the costs of replacing all public resources that would be lost from granting the proposed projects including direct, indirect, and cumulative impacts. Please note, this analysis would include habitat replacement or restoration costs including the time needed to achieve full replacement, not just acquisition, management, monitoring, and adaptive management costs.

The DEIS should include a thorough analysis of the status and trend of the tortoise in the action area, tortoise conservation area(s), and rangewide. Tied to this analysis should be a discussion of all likely sources of mortality for the tortoise and degradation and loss of habitat from implementation of solar development including construction, operation and maintenance, decommissioning, and restoration of the public lands. The DEIS should use the data from focused plant and wildlife surveys in their analysis of the direct, indirect, synergistic, and cumulative impacts of the proposed projects on the Sonoran desert tortoise and its habitat, other listed species, and species of special concern designated by USFWS, AZGFD, and BLM.

We expect that the DEIS will document how many acres would be impacted directly by solar arrays, access roads to the sites, administration/maintenance buildings, parking areas, transmission towers, switchyards, laydown areas, internal access roads, access roads along gen-tie lines, perimeter roads, perimeter fencing, substations, battery storage (e.g., the project footprint). We also request that separate calculations document how many acres of desert tortoise habitats would be temporarily and permanently impacted both directly and indirectly (e.g., “road effect zone,” etc.) by the proposed Project. As given below, these acreages should be based on field surveys for tortoises not just available models.

*Road Effect Zone:* We request that the DEIS include information on the locations, sizes, and arrangements of roads to the proposed projects and within them, who will have access to them,

whether the access roads will be secured to prevent human access or vandalism, and if so, what methods would be used. The presence/use of roads even with low vehicle use has numerous adverse effects on the desert tortoise and its habitats that have been reported in the scientific literature. These include the deterioration/loss of wildlife habitat, hydrology, geomorphology, and air quality; increased competition and predation (including by humans); and the loss of naturalness or pristine qualities.

Vehicle use on new roads and increased vehicle use on existing roads equates to increased direct mortality and an increased road effect zone for desert tortoises. Road construction, use, and maintenance adversely affect wildlife through numerous mechanisms that can include mortality from vehicle collisions, and loss, fragmentation, and alteration of habitat (Nafus et al. 2013; von Seckendorff Hoff and Marlow 2002).

In von Seckendorff Hoff and Marlow (2002), they reported reductions in Mojave desert tortoise numbers and sign from infrequent use of roadways to major highways with heavy use. There was a linear relationship between traffic level and tortoise reduction. For two graded, unpaved roads, the reduction in tortoises and sign was evident 1.1 to 1.4 km (3,620 to 4,608 feet) from the road. Nafus et al. (2013) reported that roads may decrease tortoise populations via several possible mechanisms, including cumulative mortality from vehicle collisions and reduced population growth rates from the loss of larger reproductive animals. Other documented impacts from road construction, use, and maintenance include increases in roadkill of wildlife species as well as tortoises, creating or increasing food subsidies for common ravens, and contributing to increases in raven numbers and predation pressure on the desert tortoise.

Please include in the DEIS analyses, the five major categories of primary road effects to the tortoise and special status species: (1) wildlife mortality from collisions with vehicles; (2) hindrance/barrier to animal movements thereby reducing access to resources and mates; (3) degradation of habitat quality; (4) habitat loss caused by disturbance effects in the wider environment and from the physical occupation of land by the road; and (5) subdividing animal populations into smaller and more vulnerable fractions (Jaeger et al. 2005a, 2005b, Roedenbeck et al. 2007). These analyses should be at the population, recovery unit, and rangewide levels.

In summary, road establishment/increased use is often followed by various indirect impacts such as increased human access causing disturbance of species' behavior, increased predation, spread of invasive species that alters/degrades habitat, and vandalism and/or collection. The analysis of the impacts from road establishment and use should include cumulative effects to the tortoise with respect to nearby occupied habitats, areas identified as important linkage habitat for connectivity between nearby occupied habitats as these linkage areas serve as corridors for maintaining genetic and demographic connectivity between populations, recovery units, and rangewide (see *Desert Tortoise Habitat Linkages/Connectivity among Populations* below). These and other indirect impacts to the Sonoran desert tortoise should be analyzed in the DEIS from project construction, operations and maintenance, decommissioning, and habitat restoration.

*Desert Tortoise Habitat Linkages/Connectivity among Populations:* The DEIS should analyze how these proposed projects will impact the movement of tortoises relative to linkage habitats/corridors. The DEIS should include an analysis of the minimum linkage design necessary

for conservation of the desert tortoise (e.g., USFWS 2011, Averill-Murray et al. 2013, Hromada et al. 2020), and how the project, along with other existing projects, would impact the linkages between tortoise populations. We strongly request that the environmental consequences section of the DEIS include a thorough analysis of this indirect effect (40 Code of Federal Regulations 1502.16) and appropriate mitigation to maintain the function of population connectivity for the Sonoran desert tortoise and other wildlife species. Similarly, please document how these projects may impact proximate conservation areas, such as BLM-designated ACECs. Please refer to the Council on Environmental Quality’s “Guidance for Federal Departments and Agencies on Ecological Connectivity and Wildlife Corridors” issued in 2023 for more information on how to analyze these impacts.

## **Mitigation Plans**

The DEIS should include effective mitigation for all direct, indirect, and cumulative effects to the tortoise and its habitats. The mitigation should use the best available science with a commitment to implement the mitigation commensurate to impacts to the tortoise and its habitats. Mitigation should include a fully-developed desert tortoise translocation plan, including protection of tortoise translocation area(s) from future development and human disturbance in perpetuity; raven management plan; non-native plant species management plan; fire prevention plan; compensation plan for the degradation and loss of tortoise habitat that includes protection of the acquired, improved, and restored habitat in perpetuity for the tortoise from future development and human use; and habitat restoration plan when the lease is terminated and the proposed projects are decommissioned.

All plans should be provided in the DEIS so the public and the decision maker can determine their adequacy (i.e., whether they are scientifically rigorous and would be effective in mitigating for the displacement and loss of tortoises and degradation and loss of tortoise habitat from project implementation). Too often, such plans are alluded to in the draft environmental document and promised later, which does not allow the reviewers to assess their adequacy, which is unacceptable. If not available as appendices in draft documents, all indicated plans must be published in the final environmental documents. Their inclusion is necessary to determine their adequacy for mitigating direct, indirect, synergistic, and cumulative impacts, and monitoring for effectiveness and adaptive management regarding the desert tortoise. If these plans are not provided, it is not possible for BLM, other decision makers, and the interested public to determine the environmental consequences of the projects to the tortoise.

These mitigation plans should include an implementation schedule that is tied to key actions of the construction, operation, maintenance, decommissioning, and restoration phases of the projects so that mitigation occurs concurrently with or in advance of the impacts. The plans should specify success criteria, include an effectiveness monitoring plan to collect data to determine whether success criteria have been met, and identify/implement actions that would be required if the mitigation measures do not meet the success criteria.

Desert Tortoise Management Oversight Group’s (MOG) “Compensation for the Desert Tortoise”:  
The DEIS should demonstrate how it will comply with the commitment BLM made in this

document to compensate for tortoise habitat degraded or destroyed from implementation of the proposed projects.

BLM Manual 6840: Special Status Species Management includes the following BLM directives (BLM 2008b) that are applicable to the Sonoran desert tortoise:

*6840.01 Purpose.* The purpose of this manual is to provide policy and guidance for the conservation of BLM special status species and the ecosystems upon which they depend on BLM-administered lands. BLM special status species are: (1) species listed or proposed for listing under the Federal Endangered Species Act (FESA), and (2) species requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the FESA, which are designated as BLM sensitive by the State Director(s).

*6840.02 Objectives.* The objectives of the BLM special status species policy are (1) to conserve and/or recover FESA-listed species and the ecosystems on which they depend so that FESA protections are no longer needed for these species, and (2), to initiate proactive conservation measures that reduce or eliminate threats to BLM-sensitive species to minimize the likelihood of and need for listing of these species under the FESA, which includes the Sonoran desert tortoise. With respect to the Sonoran desert tortoise, we request that the proposed action or other alternatives contribute to meeting objectives in BLM Manual 6840 – Special Status Species Management (BLM 2008b).

Translocation Plan – Translocated Tortoises & Translocation Sites: How many tortoises will be displaced by the proposed projects? How long will translocated tortoises be monitored? Will the monitoring report show how many of those tortoises lived and died after translocation and over time? Are there any degraded habitats or barren areas that may impair success of the translocation? Are there incompatible human uses in the new translocation area that need to be eliminated or managed to protect newly-translocated tortoises? Were those translocation areas sufficiently isolated that displaced tortoises were protected by existing or enhanced land management? How will the proponent minimize predation of translocated tortoises and avoid adverse climatic conditions, such as low winter rainfall conditions that may exacerbate translocation success? Were tortoises translocated to a site where they would be protected from threats (e.g., off-highway vehicles, future development, etc.)? These questions should be answered in the Environmental Consequences section of the DEIS.

The project proponents should implement the USFWS’ Translocation Guidance (USFWS 2020) and any revisions or amendments to this guidance by the USFWS’s Desert Tortoise Recovery Office (DTRO), and coordinate translocation with BLM and AZGFD. In addition, each proponent’s project-specific translocation plan should be developed in coordination with the DTRO using lessons learned from earlier and ongoing translocation efforts (e.g., increased predation, drought, time of year, distance moved, etc.). Please see “Appendix A – Recent Research, Results, and Guidance on Translocation of the Desert Tortoise” (attachment).

The Translocation Plan should include implementation of a science-based monitoring plan approved by the USFWS and AZGFD that will accurately assess these and other issues to minimize losses of translocated tortoises and impacts to their habitat. For example, the health of tortoises

may be jeopardized if they are translocated during drought conditions, which is known to undermine translocation successes (Esque et al. 2010). If drought conditions are present at the time of project development, we request that the proponents confer with the USFWS and AZGFD immediately prior to translocating tortoises and seek input on ways to avoid loss of tortoises due to stressors associated with drought. One viable alternative if such adverse conditions exist is to postpone site development until which time conditions are favorable to enhance translocation success.

Moving tortoises from harm's way, the focus of the Translocation Guidance, does not guarantee their survival and persistence at the translocation sites, especially if they will be subject to increased human use or development. In addition to the Translocation Guidance and because translocation sites are mitigation for the displacement of tortoises and loss of habitat, these sites should be managed for the benefit of the tortoise in perpetuity. Consequently, a conservation easement or other durable legal designation should be placed on the translocation sites. The project proponent should fully fund management of the sites to enhance them for the benefit of the tortoise in perpetuity.

Tortoise Predators and a Predator Management Plan: Common ravens are known predators of the desert tortoise and their numbers have increased substantially because of human subsidies of food, water, and sites for nesting, roosting, and perching to hunt (Boarman et al. 2006). Coyotes and badgers are also predators of tortoises. Because ravens can fly at least 30 miles in search of food and water daily (Boarman et al. 2006) and coyotes can travel an average of 7.5 miles or more daily (Servin et al. 2003), this analysis should extend out at least 30 miles from the proposed project site.

The DEIS should analyze if these new uses would result in an increase in common ravens and other predators of the desert tortoise in the action area. During construction, operations and maintenance, decommissioning, and restoration phases of the proposed project, the BLM should require science-based management of common raven, coyote, and badger predation on tortoises in the action areas. This would include the translocation sites.

For local impacts, the Predator Management Plan should include reducing/eliminating human subsidies of food and water, and for the common raven, sites for nesting, roosting, and perching to address local impacts (footprint of the proposed projects). This includes buildings, fences, and other vertical structures associated with the project sites. In addition, the Predator Management Plan should include provisions that eliminate the pooling of water on the ground or on roofs.

The Predator Management Plan should include science-based monitoring and adaptive management throughout all phases of the projects to collect data on the effectiveness of the Plan's implementation and implement changes to reduce/eliminate predation on the tortoise if existing measures are not effective.

We request that for any of the transmission options, the project use infrastructure (particularly towers) that prevent raven nesting and perching for hunting. For example, for gen-ties/transmission lines the tubular design pole with a steep-pointed apex and insulators on down-sloping cross arms

is preferable to lattice towers, which should not be used. New fencing should not provide resources for ravens, like new perching and nesting sites.

Fire Prevention/Management Plans: The proposed projects could include numerous infrastructure components that have been known to cause fires. Lithium-ion batteries at the project sites have the potential to explode and cause fires and are not compatible with using water for fighting fires. Photovoltaic panel malfunctions have caused vegetation to burn onsite. We request that the DEIS include a Fire Prevention Plan in addition to a Fire Management Plan specifically targeting methods to deal with explosions/fires produced by these batteries/panels as well as other sources of fuel and explosives on the project sites.

Habitat Compensation Plan: The DEIS should include an analysis of all proposed mitigation and how its implementation (including monitoring for effectiveness and adaptive management) would result in “no net loss in quantity and quality of Sonoran desert tortoise habitat...and using offsite mitigation (compensation) for unavoidable residual habitat loss.”

Restoration Plan: BLM should require the Applicants to develop and implement a restoration plan that re-establishes the ecological functions and values that were present at the project sites prior to construction of the solar projects.

### **Climate Change and Non-native Plants**

Climate Change: We request that the DEIS address the effects of the proposed action on climate change warming and the effects that climate change may have on the proposed actions. For the latter, we recommend including: an analysis of habitats within the project areas that may provide refugia for tortoise populations; an analysis of how the proposed actions would contribute to the spread and proliferation of nonnative invasive plant species; how this spread/proliferation would affect the desert tortoise and its habitats (including the frequency and size of human-caused fires); and how the proposed actions may affect the likelihood of human-caused fires. We strongly urge that the BLM require the project proponents to develop and implement management and monitoring plans using this analysis and other relevant data that would reduce the transport to and spread of nonnative seeds and other plant propagules within the project areas and eliminate/reduce the likelihood of human-caused fires. The plans should integrate vegetation management with fire prevention and fire response.

Impacts from Proliferation of Nonnative Plant Species and Management Plan: The DEIS should include an analysis of how the proposed projects would contribute to the spread and proliferation of non-native invasive plant species; how this spread/proliferation would affect the desert tortoise and its habitats (including the frequency and size of human-caused fires); and how the proposed projects may affect the frequency, intensity, and size of human-caused and naturally occurring fires. For reasons given in the previous paragraph, we strongly urge that the BLM require the project proponents to develop and implement management and monitoring plans for nonnative plant species. The plans should integrate management/enhancement of native vegetation with fire prevention and fire response to wildfires.

## **Hydrology and Water Quality**

Regarding quality and quantity of surface and ground water, the DEIS should include an analysis of the impacts of water acquisition, use, and discharge for construction, panel washing, potable uses, decommissioning, and any other uses associated with these proposed projects, and cumulative impacts from water use and discharge on native perennial shrubs and annual vegetation used for forage by the Sonoran desert tortoise, including downstream and downstream impacts. The DEIS should analyze how much water is proposed to be used during construction and operation; how any grading, placement, and/or use of any project facilities including roads and washes will impact downstream/downslope flows that are reduced, altered, eliminated, or enhanced. This analysis should include impacts to soil moisture; cover, density and diversity of native and non-native vegetation (Devitt et al. 2022); and habitats for wildlife species including the Sonoran desert tortoise, for which washes are of particular importance for feeding, shelter, and movements (Zylstra and Steidl 2009).

Therefore, we request that the DEIS include an analysis of how water use during construction, operations and maintenance, decommissioning, and habitat restoration will impact the levels of ground water in the region. These levels may then impact surface and near-surface flows at springs, seeps, wetlands, pools, and groundwater-dependent vegetation in the basins. The analyses of water quality and quantity of surface and ground water should include appropriate measures to ensure that these impacts are fully mitigated, preferably beginning with avoidance and continuing through CEQ's other forms of mitigation (40 CFR 1508.20).

## **Federal Land Policy and Management**

Federal Land Policy and Management Act (FLPMA): Congress wrote a lengthy definition of “multiple use” for the management of public lands and their various resource values. The definition included “... the use of some land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic return or the greatest unit output.”

Congress defined “sustained yield” as the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the public lands consistent with multiple use. The Sonoran desert tortoise and its habitats are renewable resources.

The definition of “environmental quality” is a set of properties and characteristics of the environment, either generalized or local, as they impinge on human beings and other organisms. It is a measure of the condition of an environment relative to the requirements of one or more species and or to any human need or purpose. Thus, BLM must consider the quality or condition of the environment of the Sonoran desert tortoise with respect to the species' requirements for persistence and must maintain this habitat quality.

## Cumulative Effects

With regards to cumulative effects, the DEIS should list and analyze all project impacts within the regions including future state, federal, and private actions affecting listed species on state, federal, and private lands. The Council asks that the relationship between this proposed project and the Solar PEIS (BLM and DOE 2012) be analyzed, particularly if any of the sites are not in Solar Energy Zones (SEZs). We also expect that the environmental documents will provide a detailed analysis of the “heat sink” effects of solar development on adjacent desert areas and particularly Sonoran desert tortoises in addition to climate change.

In the cumulative effects analysis of the DEIS, please ensure that the CEQs “Considering Cumulative Effects under the National Environmental Policy Act” (1997) is followed, including the eight principles, when analyzing cumulative effects of the proposed actions to the tortoise and its habitats. CEQ states, “Determining the cumulative environmental consequences of an action requires delineating the cause-and-effect relationships between the multiple actions and the resources, ecosystems, and human communities of concern. The range of actions that must be considered includes not only the project proposal but all connected and similar actions that could contribute to cumulative effects.” The analysis “must describe the response of the resource to this environmental change.” Cumulative impact analysis should “address the sustainability of resources, ecosystems, and human communities.” For example, the DEIS should include data on the estimated number of acres of tortoise habitats degraded/lost and the numbers of tortoises that may be lost to growth-inducing impacts in the regions.

CEQs guidance on how to analyze cumulative environmental consequences is given in the eight principles listed below:

**1. Cumulative effects are caused by the aggregate of past, present, and reasonable future actions.**

The effects of a proposed action on a given resource, ecosystem, and human community, include the present and future effects added to the effects that have taken place in the past. Such cumulative effects must also be added to the effects (past, present, and future) caused by all other actions that affect the same resource.

**2. Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, non-federal, or private) has taken the actions.**

Individual effects from disparate activities may add up or interact to cause additional effects not apparent when looking at the individual effect at one time. The additional effects contributed by actions unrelated to the proposed action must be included in the analysis of cumulative effects.

**3. Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected.**

Environmental effects are often evaluated from the perspective of the proposed action. Analyzing cumulative effects requires focusing on the resources, ecosystem, and human community that may be affected and developing an adequate understanding of how the resources are susceptible to effects.



**4. It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.**

For cumulative effects analysis to help the decision maker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to the affected parties.

**5. Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.**

Resources are typically demarcated according to agency responsibilities, county lines, grazing allotments, or other administrative boundaries. Because natural and sociocultural resources are not usually so aligned, each political entity actually manages only a piece of the affected resource or ecosystem. Cumulative effects analysis on natural systems must use natural ecological boundaries and analysis of human communities must use actual sociocultural boundaries to ensure including all effects.

**6. Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.**

Repeated actions may cause effects to build up through simple addition (more and more of the same type of effect), and the same or different actions may produce effects that interact to produce cumulative effects greater than the sum of the effects.

**7. Cumulative effects may last for many years beyond the life of the action that caused the effects.**

Some actions cause damage lasting far longer than the life of the action itself (e.g., acid mine damage, radioactive waste contamination, species extinctions). Cumulative effects analysis needs to apply the best science and forecasting techniques to assess potential catastrophic consequences in the future.

**8. Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.**

Analysts tend to think in terms of how the resource, ecosystem, and human community will be modified given the action's development needs. The most effective cumulative effects analysis focuses on what is needed to ensure long-term productivity or sustainability of the resource.

To help BLM understand the complexity of the cumulative and interactive nature of multiple anthropogenic threats to desert tortoise populations and to help develop BLM's analysis of cumulative impacts in the DEIS for these projects, we have included a map of some of these multiple threats and their relationships to other threats (Tracy et al. 2004) (please see Figure 1).

Note that CEQ includes analysis of interactive and synergistic impacts with cumulative impacts. We request that the DEIS (1) include these eight principles in its analysis of cumulative impacts to the Sonoran desert tortoise; (2) address the sustainability of the tortoise in the region; and (3)

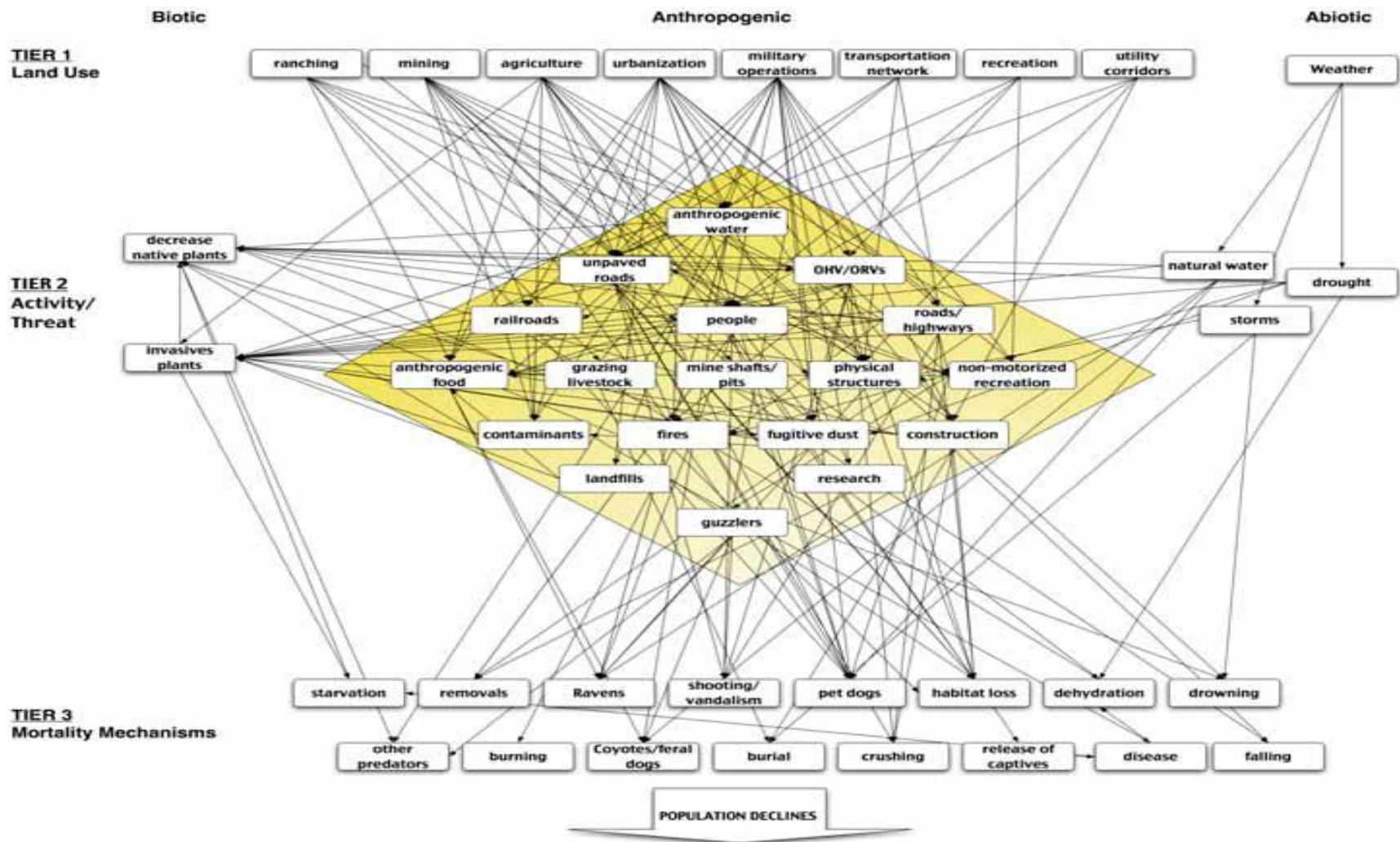


Figure 1. Network of threats demonstrating the interconnectedness between multiple human activities that interact to cause mortality and prevent recovery of tortoise populations. Tier 1 includes the major land use patterns that facilitate various activities (Tier 2) that impact tortoise populations through a suite of mortality factors (Tier 3). Just one land use results in several activities that are threats to the tortoise and cause numerous mortality mechanisms (from Tracy et al. 2004).

include mitigation along with monitoring and adaptive management plans that protect desert tortoises and their habitats during construction, operation, maintenance, and decommissioning of approved facilities.

In addition, we request that BLM add these projects and its impacts to a database and geospatial tracking system for special status species, including Sonoran desert tortoises, which track cumulative impacts (e.g., surface disturbance, paved and unpaved routes, linear projects, invasive species occurrence, herbicide /pesticide use, wildfires, etc.), management decisions, and effectiveness of mitigation for each project. Without such a tracking system, BLM is unable to determine whether its management for the tortoise complies with its commitment in the Candidate Conservation Agreement for the Sonoran Desert Tortoise (USFWS et al. 2015) to implement landscape level conservation measures (Section 9.1.1), local conservation measures (Section 9.1.2), and Agency-Specific Species and Habitat Conservation Actions (Section 9.2.1 for BLM). Please add these proposed projects to this data base and geospatial tracking system and explain in the DEIS how the proposed projects with required mitigation will adhere to these commitments in the CCA including in section 9.2.1 “[r]enewable energy projects have been sited to avoid all occupied SDT [Sonoran desert tortoise] habitat. Roads, pipelines and transmission lines have been designed to minimize impacts to SDT habitat or mitigated to achieve no net loss.”

We appreciate this opportunity to provide scoping comments on these projects and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Desert Tortoise 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 these projects is provided to us at the contact information listed above. Additionally, we ask that you 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 these projects.

Respectfully,



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

Attachment: Appendix A – Recent Research, Results, and Guidance on Translocation of the Desert Tortoise

Cc: Ann McPherson, Environmental Review, U.S. Environmental Protection Agency, [mcperson.ann@epa.gov](mailto:mcperson.ann@epa.gov)  
Raymond Suazo, Arizona State Director, Bureau of Land Management, [blm\\_az\\_asoweb@blm.gov](mailto:blm_az_asoweb@blm.gov)  
Heather Whitlaw, Field Supervisor, Arizona Ecological Services Field Office (Phoenix), U.S. Fish and Wildlife Service, [heather\\_whitlaw@fws.gov](mailto:heather_whitlaw@fws.gov)

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## Appendix A – Recent Research, Results, and Guidance on Translocation of the Desert Tortoise

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