



DESERT TORTOISE COUNCIL

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Via email only

Date: February 18, 2024

Attn: Crystal Hoyt, BLM National Project Lead

choyt@blm.gov

RE: Section 368 Energy Corridors - Environmental Impact Statement and Resource Management Plan Amendments (DOI-BLM-HQ-3500-2023-0001-RMP-EIS)

Dear Ms. Hoyt,

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 we received an invitation to comment on December 4, 2023 directly from the Bureau of Land Management (BLM). Unfortunately, we miscopied the due date as "2/22/2024" rather than "2/2/2024," so our comments are being submitted after the deadline. We hope that BLM will be receptive to receiving our scoping comments, even though they are late. Even if our comments are not accepted, we take this opportunity to request that the Council be identified as an Affected Interest when environmental documents are distributed.

Given the location of the proposed project in habitats known to be occupied by Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise) and (Sonoran desert tortoise (*Gopherus morafkai*) (synonymous with Morafka's desert tortoise), our comments include recommendations intended to enhance protection of these species and their habitats during activities authorized by the BLM, which we recommend be added to project 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 file the Council's following comments and attachments for the proposed project.

Project Description

Herein, "Final Report" refers to the April 2022 document, entitled "Energy Policy Act of 2005 Section 368 Energy Corridor Review, Final Report: Regions 1-6¹." Therein, the project is described as follows: "The final report provides a national, interagency perspective that will assist Bureau of Land Management and U.S. Forest Service decision-makers in consistently adjusting corridor placement and management to maintain feasible, Agency-preferred pathways for energy transmission. The findings in this final report support federal initiatives to 1) improve transmission and pipeline development that stabilizes the electrical grid and strengthens America's energy infrastructure; 2) expand broadband access across the rural United States (Executive Order 13821); and 3) increase renewable energy production on federal lands while ensuring robust protection for our lands, waters, and biodiversity and creating good jobs (Executive Order 14008)." The BLM, U.S. Forest Service (USFS), and the U.S. Department of Energy (DOE), hereinafter referred to collectively as "the Agencies."

The BLM is proposing to develop an environmental impact statement modifying (revising, deleting, or adding to) seven designated Section 368 energy corridors (also known as West-wide Energy Corridors). The BLM proposes to amend 19 BLM RMPs in seven states (Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming).

An energy corridor is land designated for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on federal lands. Section 368 energy corridors were established in 2009, were subject to litigation requiring that they be revisited, and are the preferred locations for development of energy transport projects on lands managed by the BLM. Each corridor has a defined centerline, width, and compatible uses (underground-only, electric-only, or multi-modal).

Locations for designation of energy corridors for construction, operations and maintenance of transmission or multi-modal lines include the Corridor 113-114 Mesquite, NV to Milford, UT with two routes in the Beaver Dam Slope Critical Habitat Unit (CHU) and Beaver Dam Wash National Conservation Area ; Corridor 18-23 Yerrington, NV to Ridgecrest, CA following US 395 as a wide corridor; Corridor 27-41 Daggett, CA to Bullhead City, AZ with a route in the Black Mountains of Arizona and potentially the Piute-Fenner CHU; and Corridor 30-52 Palo Verde (Nuclear Power Plant), AZ to Palm Springs, CA deviating from the I-10 corridor in some places. Some of these corridors are on BLM-designated National Conservation Lands.

¹ <https://corridoreis.anl.gov/documents/docs/Section-368-Energy-Corridor-Final-Report.pdf>

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]. In the Draft Environmental Impact Statement/Resource Management Plan (DEIS/RMP), the Agencies should:

1. Discuss how this proposed project fits within the management structure of the current land management plans for the area [e.g., California Desert Conservation Area Plan (CDCA Plan) (BLM 1980 as amended), Las Vegas Resource Management Plan (BLM 1998)], and meets the regulatory requirements and most important, the statutory requirements under the Federal Land Policy and Management Act (FLPMA).
2. Provide maps of critical habitat for the Mojave desert tortoise (USFWS 1994a) and other areas identified by the U.S. Fish and Wildlife Service (USFWS) as essential to the survival and recovery of the tortoise (e.g., linkage habitats between desert tortoise populations).
3. Provide maps of Areas of Critical Environmental Concern (ACECs), and other areas identified for special management by BLM [e.g., National Conservation Lands (NCLs)].
4. Provide maps of all areas identified by California Department of Fish and Wildlife (CDFW), Nevada Department of Wildlife (NDOW), Arizona Game and Fish Department (AZGFD), Utah Division of Wildlife Resources (UDWR), USFWS, and the 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 energy corridors, solar development projects, and transmission lines occurring within the ranges of these two species of tortoises.
6. Provide maps that identify the ownership of the lands associated with the proposed project and ownership of surrounding lands.

Please be sure that the project adheres to and fully implements measures, regulations, and policies in 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 the Agencies will comply with all applicable statutes, regulations, Executive and Departmental Orders, BLM manuals, and other requirements as they pertain to this project. The Agencies should demonstrate in the DEIS/RMP that the proposed project meets all these requirements with respect to the tortoise, that the proposed project will:

- be in conformance with decisions in current land use plan(s) and the Federal Land Policy and Management Act (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 land species and reduction/elimination of non-native, invasive species, etc.);
- be developed or maintained in areas 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 or acquired for conservation purposes, or mitigation lands identified in previously approved projects such as translocation areas for desert tortoise;
- be sure applicants have coordinated with governments and agencies, including consideration of consistency with officially adopted plans and policies (e.g., conservation plans);
- site the corridors so that significant cumulative impacts on resources of concern should not occur as a result of the proposed project (i.e., exceeding an established threshold such as population viability for the tortoise and connectivity between tortoise populations); and,
- ensure that the Agencies' analysis must use current data on the tortoise for the project area, 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. 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 or critical habitat); and

- a plan included in the DEIS/RMP that would effectively monitor desert tortoise impacts, including verification that desert tortoise connectivity corridors are functional. The required Federal Endangered Species Act (FESA) consultation should further define this monitoring plan.

Regarding the first concern, we believe that a multiagency approach is best to ensure the Agencies are meeting their obligations, soliciting review and input from pertinent federal and state resource agencies, Tribal governments/agencies, and non-governmental organizations (NGOs). Mitigation of impacts should include, in priority order, avoidance, minimization and compensation for unavoidable impacts. Mitigation should at a minimum offset all direct, indirect, and cumulative impacts, especially given the status and trend of the tortoise (please see Appendix A attached to this letter). The Agencies must ensure they are effectively implementing their section 7(a)(1) conservation mandate under the FESA.

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. As currently managed, BLM ACECs in Nevada and the California Desert Conservation Area are not meeting this criterion. 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 federal lead agencies and project proponent 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 Agencies describe the purpose and need for each of the future projects enabled by this project, 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 locating energy corridors that closely follow major highways, that is, areas where severe disturbance has already occurred. Further, energy corridors should not be sited in/near areas designated as conservation areas (e.g., national parks/preserves, national monuments, national conservation areas, critical habitat, conservation banks, mitigation lands, wilderness areas, etc.). The activities that occur in energy corridors including unintentional activities (e.g., off-highway vehicle activity by the public on access roads, etc.) result in numerous direct, indirect, and cumulative impacts (some of which are mentioned below) that are difficult to fully mitigate, especially temporal loss of tortoises and loss/degradation of tortoise habitats in desert environments that are slow to recover, if ever, from activities that cause surface disturbance.

For energy corridors with transmission lines, the Council supports alternatives to reduce the need for additional solar energy projects in relatively undisturbed tortoise habitats in the Sonoran and Mojave deserts. 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 the Agencies include urban solar alternatives for each future project enabled by this programmatic planning process. Under these alternatives, 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 future energy projects; 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/RMP should include an analysis of where the energy generated by future projects would be sent and the needs for energy in those targeted areas that may be satisfied by urban solar. For future projects enabled by this programmatic project, we request that at least one viable alternative be analyzed in resulting environmental documents 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, the Agencies should include viable alternatives of locating solar projects on bladed or highly degraded tracts of land (e.g., abandoned agricultural fields). Such alternatives 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 Nevada as well. 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 Project 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 project minimize the loss of vegetation.

The DEIS/RMP should consider the monitoring results of recently developed solar projects where soils have been bladed versus those facilities where the vegetation has been mowed or crushed 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 vegetation recolonizes the area. This could be an *option* for the currently described project alternative. 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 and Mojave 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 and Recovery Units* below). Long-term monitoring for the life of future projects would need to be included to accurately evaluate the effectiveness of this strategy.

Connected Actions

Pursuant to Section 1508.25 of the Council on Environmental Quality's (CEQ) regulations (40 CFR 1508.25), the DEIS/RMP 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 proposed actions within the affected regions are connected and if not, why.

The Council is concerned that the siting of these energy corridors will effectively seal the fate of lands near them for future renewable energy projects particularly solar projects. Most solar energy projects are located near energy corridors with transmission lines. The Agencies should include analyses in the DEIS of how the siting of the energy corridors will limit the placement of renewable energy projects, that is, the connected actions of "but for" the electrical energy corridor, the solar project could not distribute the energy it produces.

Affected Environment

Status of the Population of the Mojave Desert Tortoise: The Mojave desert tortoise is an indicator species and umbrella species of ecosystem health (Berry and Medica 1995). Indicator species are used to monitor environmental changes, assess the efficacy of management, and provide warning signals for impending ecological shifts. An umbrella species is a species whose conservation is expected to confer protections to a large number of co-occurring species. Thus, when the Mojave desert tortoise is declining in density, numbers, and recruitment, this decline is an indicator of environmental change that is degrading the desert environment, ineffective management by land management agencies, and a warning that ecological shifts in the Mojave and Colorado deserts are occurring. In addition, this decline indicates that other species in the Mojave and Colorado deserts are also declining in density, numbers, and recruitment. Consequently, the Agencies should consider the data on the demographic trend of the tortoise as a "wake-up call" that more must be done to effectively manage for the tortoise and other species in the Mojave and Colorado deserts. Impacts to other local and wide-ranging species and their habitats should be analyzed in the DEIS/RMP.

The Council provides the information in Appendix A for the Agencies so that these or similar data may be included in the DEIS/RMP. The Council believes that BLM's failure to implement recovery actions for the Mojave desert tortoise as given in the recovery plan (both USFWS 1994b

and 2011) has contributed to tortoise declines between 2004 to 2014 (Appendix A). There are 17 populations of Mojave desert tortoise described in Appendix A that occur in Critical Habitat Units (CHUs) and Tortoise Conservation Areas (TCAs); 14 are on lands managed by the BLM; 8 of these are in the California Desert Conservation Area (CDCA). Please be sure that the DEIS/RMP includes this information so the public is aware of the plight of the tortoise.

The Endangered Mojave Desert Tortoise: The Council believes that the Mojave desert tortoise meets the definition of an endangered species². In the FESA, Congress defined an “endangered species” as “any species which is in danger of extinction throughout all or a significant portion of its range...” In the California Endangered Species Act (CESA), the California legislature defined an “endangered species” as a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant, which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes (California Fish and Game Code § 2062). Because most of the populations of the Mojave desert tortoise were non-viable in 2014, most are declining, and the threats to the Mojave desert tortoise are numerous and have not been substantially reduced throughout the species’ range, the Council believes the Mojave desert tortoise should be designated as an endangered species by the USFWS and California Fish and Game Commission.

Standardized Surveys – Desert Tortoise and Other Species

For the DEIS/RMP to fully analyze the effects and identify potentially significant impacts, the following surveys must be performed for all future development enabled by the current project to determine the extent of rare plant and animal populations occurring within areas to be directly and indirectly impacted.

In California, prior to conducting surveys, a knowledgeable biologist should perform a records search of the California Natural Diversity Data Base (CNDDDB; CDFW 2024) for rare plant and animal species reported from the region. The results of the CNDDDB review would be reported in future environmental documents with an indication of suitable and occupied habitats for all rare species reported from the regions based on performing the species-specific surveys described below.

CDFG (2010) lists hundreds of plant communities occurring in California, including those that are considered Communities of Highest Inventory Priority, or “CHIPs.” Biologists completing surveys on behalf of the future projects should document such communities where they occur and indicate how impacts to them will be minimized.

In Nevada, prior to conducting surveys, a knowledgeable biologist should perform a records search of the Nevada Natural Heritage Program (NNHP) (http://heritage.nv.gov/get_data) for rare plant and animal species reported from the region. The results of the NNHP review would be reported in the resulting environmental documents with an indication of suitable and occupied habitats for all rare species reported from the regions based on performing species specific surveys described below.

² <https://www.dropbox.com/scl/fi/m04esqz5534te2dw6g5b/CESA-Petition-for-listing.4-16-2020.pdf?rlkey=fxfktmhkebl4sgzajt5a7t374&dl=0>

The project proponent should fund focused surveys for all rare plant and animal species reported from the vicinity of future proposed projects. Results of the surveys will determine appropriate permits from CDFW, NDOW, AZGFD, UDWR, BLM, and 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 winter rainfall to promote germination of annual plants in the spring. 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.

Special Status Plants: For Nevada, there are likely to be special status plant species found in/near future project areas. This information should be assessed by accessing the NNHP literature review prior to conducting field surveys. Species or their habitats known to occur in/near the project areas should be sought during field surveys and their presence/absence discussed in the resulting environmental documents. Surveys should be completed at the appropriate time of year by qualified botanists using the latest acceptable methodologies. In addition, Nevada Administrative Code (NAC) 527 provides a list of species and subspecies of native plants to be critically endangered and threatened with extinction. These fully protected species may not be removed or destroyed except pursuant to a permit issued by the State Forester (NAC 527.090). The methods used to survey for special status plant species, the results, and the mitigation/monitoring/adaptive management that will be implemented to avoid or otherwise mitigate adverse effects to these species and their habitats should be included in the resulting environmental documents.

Specialized Reptile Surveys: In California, if there are any loose, shifting sands within/near the impact areas of the panels, along the gen-tie lines, or access routes resulting from development of the transmission corridors, focused surveys for Mojave fringe-toed lizards (*Uma scoparia*) should be performed (University of California, Riverside 2005, 2007).

Migratory Birds/Eagles: The Agencies should ensure that all actions they authorize 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: Since Nevada does not have a specified protocol, surveys for western burrowing owl (*Athene cunicularia*) should be coordinated with the USFWS as the species is protected under the Migratory Bird Treaty Act. The Agencies should consider implementing available survey methods (CDFG 2012). In addition to the project footprint, the protocol requires that peripheral transects be surveyed at 30-, 60-, 90-, 120-, and 150-meter intervals in all suitable habitats adjacent to subject properties to determine the potential indirect impacts of the projects on this species. If burrowing owl sign is found, CDFG (2012) describes appropriate minimization and mitigation measures that would be required. Also note that the Agencies should demonstrate in the DEIS/RMP how they will comply with “E.O. 13186 – Responsibilities of Federal Agencies To Protect Migratory Birds.” If burrowing owl sign is found, the Agencies and the project proponent should develop a science-based relocation/mitigation/monitoring/adaptive management plan with the USFWS and State agencies and ensure that the plans are implemented.

Mojave Desert Tortoise Surveys: Formal protocol surveys for Mojave desert tortoise (USFWS 2019) must be conducted at the proper times of year. Although there is not a formal protocol survey method for Sonoran desert tortoises, we believe that the survey methods for Mojave desert tortoise (USFWS 2019) would be appropriate. Because USFWS (2009) and State agencies require only experienced biologists to perform protocol surveys, USFWS and State agency biologists should review surveyors' credentials prior to initiating the surveys. Per this protocol, if the impact area is 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 any tortoise sign is found, the project proponent should coordinate with USFWS and State agencies to determine whether "take" under FESA or CESA is likely to occur from implementation of future proposed projects enabled by the proposed action. If tortoises are present, the project proponent must obtain a Section 10(a)(1)(B) incidental take permit for private lands, a biological opinion under Section 7(a)(2) from the USFWS for activities on federal lands/actions, and in California, a Section 2081 incidental take permit from the CDFW prior to conducting any ground disturbance.

We request that protocol-level surveys be performed in the action areas of the proposed projects *and the alternatives that are being considered* in environmental documents. The results of these surveys should be published in the environmental documents and should include density estimates for each alternative assessed.

To determine the full extent of impacts to tortoises and to facilitate compliance with the FESA and CESA, authorized biologist(s) must consult with the USFWS to determine the action area for future projects. The USFWS defines "action area" 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)."

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

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 such projects 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 future environmental documents enabled by the proposed action and that the alternative with the fewest impacts to tortoises be selected for development.

It is current management to require desert tortoise protocol surveys (USFWS 2019) on a given site, but all too often translocation sites are ignored. We feel strongly that protocol surveys should occur on multiple or enlarged sites as given above *and* on all proposed translocation sites, assuming tortoises will be translocated.

Mohave Ground Squirrel: For the West Mojave Desert, Mohave ground squirrel (*Xerospermophilus mohavensis*) is a threatened species under the CESA. If future proposed projects occur within/near the range of the Mohave ground squirrel, the project proponent should conduct focal Mohave ground squirrel surveys (CDFW 2023) to determine presence/absence. In the absence of these focal MGS surveys, the proponent must assume presence and mitigate accordingly.

Mojave/Sonoran Desert Tortoise Impacts Analysis:

Analysis of Direct and Indirect Impacts: The alternatives analysis in future environmental documents should include an economic analysis that provides the total cost of constructing the proposed project 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 project 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/RMP should include a thorough analysis of the status and trend of the tortoise in the action area, tortoise conservation area(s), recovery unit(s), and rangewide (see Appendix A). 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. Future environmental documents should use the data from focused plant and wildlife surveys in their analysis of the direct, indirect, synergistic, and cumulative impacts of the proposed project on the Mojave and Sonoran desert tortoises and their habitat, other listed species, and species of special concern designated by USFWS, CDFW, NDOW, AZGFD, UDWR, and BLM.

We expect that future environmental documents enabled by the proposed action will document how many acres would be impacted directly by solar arrays, access roads to the site, administration/maintenance buildings, parking areas, transmission towers, switchyards, laydown areas, internal access roads, access roads along gen-tie lines, a perimeter road, 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 these projects. As given below, these acreages should be based on field surveys for tortoises not just available models.

Road Effect Zone: We request that future environmental documents enabled by the proposed action 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 (see Appendix B).

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/RMP 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 critical habitat, other TCAs, and occupied habitats, areas identified as important linkage habitat for connectivity between nearby critical habitat units, TCAs, and 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 and Recovery Units* below). These and other indirect impacts to the Mojave and Sonoran desert tortoises should be analyzed in the DEIS/RMP from project construction, operations and maintenance, decommissioning, and habitat restoration.

Desert Tortoise Habitat Linkages/Connectivity among Populations and Recovery Units: The DEIS/RMP should analyze how this proposed project will impact the movement of tortoises relative to linkage habitats/corridors. The DEIS/RMP should include an analysis of the minimum linkage design necessary for conservation and recovery of the desert tortoise (e.g., USFWS 2011, Averill-Murray et al. 2013 and 2021, Hromada et al. 2020), and how the project, along with other existing projects, would impact the linkages between tortoise populations and all recovery units that are needed for survival and recovery. We strongly request that the environmental consequences section of the DEIS/RMP 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 Mojave and Sonoran desert tortoises and other wildlife species. Similarly, please document how this project may impact proximate conservation areas, such as BLM-designated ACECs, National Conservation Lands, National Park Service lands, and USFWS-designated critical habitat.

Jurisdictional Waters in California: A jurisdictional waters analysis should be performed for all potential impacts to washes, streams, and drainages. This analysis should be reviewed by the CDFW as part of the permitting process and a section 1600 Streambed Alteration Agreement acquired, if deemed necessary by CDFW.

Mitigation Plans

The DEIS/RMP should include effective mitigation for all direct, indirect, and cumulative effects to the two tortoise species and their habitats. The mitigation should use the best available science with a commitment to implement the mitigation commensurate to impacts to the tortoises and their 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 project is decommissioned.

All plans should be provided in future environmental documents enabled by the proposed action 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 the Agencies, other decision makers, and the interested public to determine the environmental consequences of the project 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 project 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.

BLM Manual 6840: Special Status Species Management includes the following BLM directives (BLM 2008b) that are applicable to the Mojave/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 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. With respect to the Mojave desert/Sonoran desert tortoise, we request that future projects enabled by 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: For future projects enabled by this proposed action, the following questions should be answered in pertinent environmental documents: How many tortoises will be displaced by the proposed project? 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, surface disturbance, wildfire, etc.)? These questions should be answered in the Environmental Consequences section of future environmental documents.

Future project proponents should implement the USFWS' Translocation Guidance (USFWS 2020) for the Mojave desert tortoise or most recent guidance and coordinate translocation with BLM and State agencies. In addition, the proponent's project-specific translocation plan should be based on current data and developed using lessons learned from earlier translocation efforts (e.g., increased predation, drought). (see *Desert Tortoise Translocation Bibliography Of Peer-Reviewed Publications*³ in the footnote).

The Translocation Plan should include implementation of a science-based monitoring plan approved by the USFWS and State agencies 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 proponent confer with the USFWS and State agencies 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.

³ https://www.fws.gov/nevada/desert_tortoise/documents/reports/2017/peer-reviewed_translocation_bibliography.pdf

Moving tortoises from harm's way, the focus of the Translocation Guidance, does not guarantee their survival and persistence at the translocation site (Mack and Berry 2023), especially if it 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 site to enhance it for the benefit of the tortoise in perpetuity.

Tortoise Predators and a Predator Management Plan: Common ravens are known predators of the Mojave and Sonoran desert tortoises 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.

Future environmental documents should analyze if this new use 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 Agencies should require science-based management of common raven, coyote, and badger predation on tortoises in the action area. 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 project). This includes buildings, fences, and other vertical structures associated with the project site. 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 project 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.

In California, for regional and cumulative impacts, the Agencies should require project proponents to participate in efforts to address regional and cumulative impacts. For example, in California, the project proponent should be required to contribute to the National Fish and Wildlife Foundation's Raven Management Fund to help mitigation for regional and cumulative impacts. This Fund was established in 2010 and unfortunately has not revised its per acre payment fees to reflect increased labor and supply costs during the past decade to provide for effective implementation. The National Fish and Wildlife Foundation should revise the per acre fee.

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.

For California, according to Appendix A of Common Raven Predation on the Desert Tortoise (USFWS 2010), “The BLM’s biological assessments and the USFWS’ biological opinions for the California Desert Conservation Area (CDCA) plan amendments reiterate the need to address the common raven and its potential impacts on desert tortoise populations.” Please ensure that all standard measures to mitigate the local, regional, and cumulative impacts of raven predation on the tortoise are included in this DEIS/RMP, including developing a raven management plan for this specific project. USFWS (2010) provides a template for a project-specific management plan for common ravens. This template includes sections on construction, operation, maintenance, and decommissioning (including restoration) with monitoring and adaptive management during each project phase (USFWS 2010).

Fire Prevention/Management Plans: Surface disturbance from construction activities and vehicle use along access roads for operations and maintenance facilitates foster the establishment and proliferation of invasive, nonnative annual plants, which provide a carpet of fuel that spreads fire caused by human activities (e.g., catalytic converters, vehicle fires, smoking, etc.). Future proposed projects could include numerous infrastructure components that have been known to cause fires. Lithium-ion batteries at the project site 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/RMP and/or future project environmental documents 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 site.

Habitat Compensation Plan: In California, when the project proponent seeks an incidental take permit from the CDFW, because their project would result in take of a listed species under CESA (e.g., Mojave desert tortoise, Mohave ground squirrel, etc.), compensatory mitigation would be required. The mitigation lands must be occupied by the species and secured and managed in perpetuity for the listed species. Hence, the DEIS/RMP should consider a Habitat Compensation Plan for the loss/degradation of habitat on private lands. This plan should calculate how it will fully mitigate the impacts of the proposed project including direct, indirect, cumulative, and temporal impacts.

For Sonoran desert tortoise, the DEIS/RMP 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” (USFWS et al 2015).

Climate Change and Non-native Plants

Climate Change: We request that the DEIS/RMP address the effects of the proposed action on climate change warming and the effects that climate change may have on the proposed action. For the latter, we recommend including: an analysis of habitats within the project area that may provide refugia for tortoise populations; an analysis of how the proposed action 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 action may affect the likelihood of human-caused fires. We strongly urge that the Agencies require future 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/RMP should include an analysis of how the proposed project 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 project 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 Agencies require future 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 water quality of surface and ground water, the DEIS/RMP should include an analysis of the impacts of water acquisition, use, and discharge for panel washing, potable uses, and any other uses associated with this proposed action, and cumulative impacts from water use and discharge on native perennial shrubs and annual vegetation used for forage by the Mojave and Sonoran desert tortoises, including downstream and downstream impacts. Future environmental documents enabled by the proposed action 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 will impact downstream/downslope flows that are reduced, altered, eliminated, or enhanced. This analysis should include impacts to native and non-native vegetation and habitats for wildlife species including the Mojave and Sonoran desert tortoises, for which washes are of particular importance for feeding, shelter, and movements.

Therefore, we request that future environmental documents enabled by the proposed action 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 basin. 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 and Federal Endangered Species Act

Federal Land Policy and Management Act (FLPMA): In 1976, Congress passed the FLPMA and established the CDCA Plan "to provide for the immediate and future protection and administration of the public lands in the California desert within the framework of a program of multiple uses and sustained yield, and the maintenance of environmental quality." Congress further declared "the California desert environment is a total ecosystem that is extremely fragile, easily scarred, and slowly healed; the use of all California desert resources [including rare and endangered species of wildlife, plants, and fishes] can and should be provided for in a multiple use and sustained yield management plan to conserve these resources for future generations..."

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 Mojave and Sonoran desert tortoises and their 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, Agencies must consider the quality or condition of the environment of the Mojave and Sonoran desert tortoises with respect to the species’ requirements for persistence and must maintain this habitat quality.

The Council believes that BLM’s management of the Mojave desert tortoise and its habitats in California/Nevada, in particular, is not in compliance with FLPMA or the purposes for establishing the CDCA in California. The large number of non-viable populations and downward trend in population densities for the Mojave desert tortoise in the CDCA confirm non-compliance with the “immediate and future protection of public lands,” “conserving resources for future generations,” and definitions of multiple use, sustained yield, and environmental quality.

Section 7(a)(1) of the Endangered Species Act: Section 7(a)(1) of the Endangered Species Act states that all federal agencies “...shall... utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to Section 4 of this Act.” In Section 3 of the FESA, “conserve,” “conserving,” and “conservation” mean “to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition...”

The Council believes that the data given in Appendix A demonstrate that BLM’s management of the Mojave desert tortoise and its habitat under the CDCA Plan and Plan Amendments has not been effective in meeting BLM’s Section 7(a)(1) mandate of carrying out programs for its conservation. To meet its Section 7(a)(1) responsibilities, the BLM needs to adopt and implement the management actions of the one population of the Mojave desert tortoise in California that is increasing, which is managed by the National Park Service (NPS). The NPS’ land management practices are closer to managing areas of land as reserves, which is what the 1994 recovery plan (USFWS 1994b) described as part of the recovery strategy for the Mojave desert tortoise.

While BLM designated Desert Wildlife Management Areas (DWMAs) as one part of the recovery strategy, it did not implement the other parts of the recovery strategy. According to the Recovery Plan, DWMAs were to be managed as reserves; that is, they were areas of land to keep, save, preserve, or protect tortoises and their habitats. BLM not only did not identify and implement needed recovery actions within each DWMA to manage the DWMAs as protected areas for the Mojave desert tortoise, in California, DWMAs were eliminated with the BLM's Record of Decision for the Desert Renewable Energy Conservation Plan (DRECP) (BLM 2015).

When analyzing and implementing aspects of the proposed action, we request that Agencies demonstrate how they are contributing effectively to the conservation and recovery of the Mojave desert tortoise and conservation of the Sonoran desert tortoise. We request that BLM show how mitigation for the proposed action will do more than offset all direct, indirect, synergistic, and cumulative impacts so that the status of the Mojave desert tortoise as described herein will improve. By providing this information, the Agencies would demonstrate their compliance with section 7(a)(1) of the FESA for the Mojave desert tortoise.

Cumulative Effects

With regards to cumulative effects, the DEIS/RMP should list and analyze all project impacts within the affected 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 DRECP (BLM 2015) and Solar PEIS (BLM and DOE 2012) be analyzed.

In the cumulative effects analysis of the DEIS/RMP, 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 action 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/RMP 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 affected regions.

For federal projects where the lead Agencies fund, authorize, or carry out some part of the project, 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.

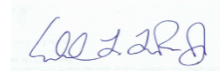
To help the Agencies understand the complexity of the cumulative and interactive nature of multiple anthropogenic threats to desert tortoise populations and to help develop the Agencies' analysis of cumulative impacts in the DEIS/RMP for this project, we have included a map of some of these multiple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

Note that CEQ includes analysis of interactive and synergistic impacts with cumulative impacts. We request that the DEIS/RMP (1) include these eight principles in its analysis of cumulative impacts to the Mojave and Sonoran desert tortoises; (2) address the sustainability of the tortoise in the affected regions given the information in Appendix A; and (3) 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 the Agencies add this project and its potential impacts to a database and geospatial tracking system for special status species, including Mojave and Sonoran desert tortoises, that 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 analyze cumulative impacts to special status species (e.g., desert tortoises) with any degree of confidence.

We appreciate this opportunity to provide scoping comments on this project 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 Agencies 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 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

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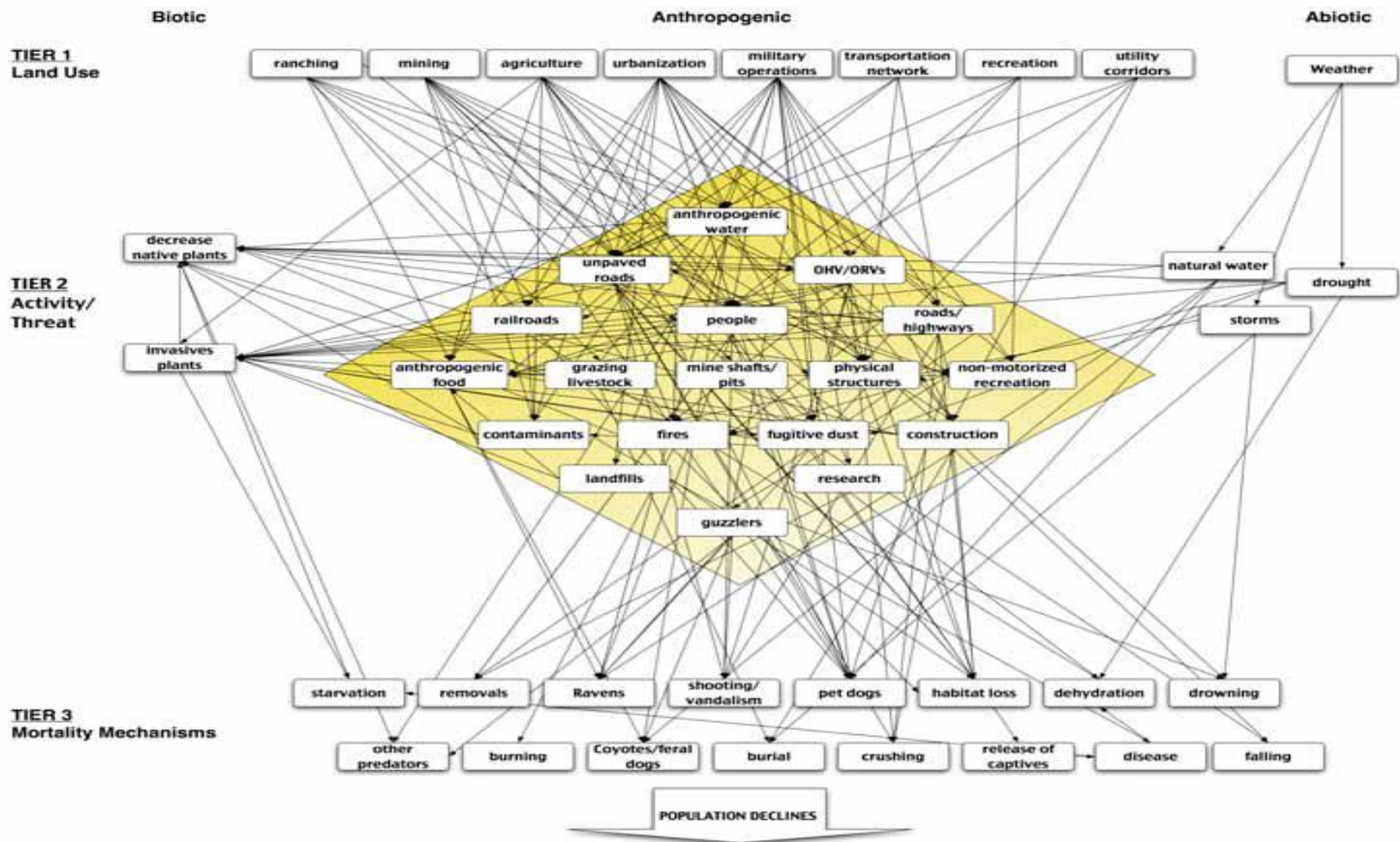


Figure 1. Network of threats demonstrating the interconnectedness between multiple human activities that interact to cause mortality and prevent recovery of tortoise populations. Tier 1 includes the major land use patterns that facilitate various activities (Tier 2) that impact tortoise populations through 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).

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Appendix A. Demographic Status and Trend of the Mojave Desert Tortoise (*Gopherus agassizii*)

We provide the following information on the status and trend of the listed population of the desert tortoise to assist the BLM with its analysis of the direct, indirect, and cumulative impacts of the Proposed Project on the Mojave desert tortoise.

BLM's implementation of a conservation strategy for the Mojave desert tortoise in its resource management plans through 2020 has resulted in the following changes in the status for the tortoise throughout its range and in Nevada from 2004 to 2014 (Table 1; USFWS 2015) and 2004 to 2020 (Table 2). There are 17 populations of Mojave desert tortoise described below that occur in the Critical Habitat Units (CHUs) and Tortoise Conservation Areas (TCAs); 14 are on lands managed by the BLM.

The Desert Tortoise Council (Council) has serious concerns about direct, indirect, and cumulative sources of human mortality for the Mojave desert tortoise given the status and trend of the species range-wide, within each of the five recovery units, and within the TCAs that comprise each recovery unit.

Densities of Adult Mojave Desert Tortoises: A few years after listing the Mojave desert tortoise under the Federal Endangered Species Act (FESA), the U.S. Fish and Wildlife Service (USFWS) published a Recovery Plan for the Mojave desert tortoise (USFWS 1994a). It contained a detailed population viability analysis. In this analysis, the minimum viable density of a Mojave desert tortoise population is 10 adult tortoises per mile² (3.9 adult tortoises per km²). This assumed a male-female ratio of 1:1 (USFWS 1994a, page C25) and certain areas of habitat with most of these areas geographically linked by adjacent borders or corridors of suitable tortoise habitat. Populations of Mojave desert tortoises with densities below this density are in danger of extinction (USFWS 1994a, page 32). The revised recovery plan (USFWS 2011) designated five recovery units for the Mojave desert tortoise that are intended to conserve the genetic, behavioral, and morphological diversity necessary for the recovery of the entire listed species (Allison and McLuckie 2018).

Range-wide, densities of adult Mojave desert tortoises declined more than 32% between 2004 and 2014 (Table 1) (USFWS 2015). At the recovery unit level, between 2004 and 2014, densities of adult desert tortoises declined, on average, in every recovery unit except the Northeastern Mojave (Table 1). Adult densities in the Northeastern Mojave Recovery Unit increased 3.1% per year (SE = 4.3%), while the other four recovery units declined at different annual rates: Colorado Desert (-4.5%, SE = 2.8%), Upper Virgin River (-3.2%, SE = 2.0%), Eastern Mojave (-11.2%, SE = 5.0%), and Western Mojave (-7.1%, SE = 3.3%) (Allison and McLuckie 2018). However, the small area and low starting density of the tortoises in the Northeastern Mojave Recovery Unit (lowest density of all Recovery Units) resulted in a small overall increase in the number of adult tortoises by 2014 (Allison and McLuckie 2018). In contrast, the much larger areas of the Eastern Mojave, Western Mojave, and Colorado Desert recovery units, plus the higher estimated initial densities in these areas, explained much of the estimated total loss of adult tortoises since 2004 (Allison and McLuckie 2018).

At the population level, represented by tortoises in the TCAs, densities of 10 of 17 monitored populations of the Mojave desert tortoise declined from 26% to 64% and 11 have densities less than 3.9 adult tortoises per km² (USFWS 2015).

Population Data on Mojave Desert Tortoise: The Mojave desert tortoise was listed as threatened under the FESA in 1990. The listing was warranted because of ongoing population declines throughout the range of the tortoise from multiple human-caused activities. Since the listing, the status of the species has changed. Population numbers (abundance) and densities continue to decline substantially (please see Tables 1 and 2).

Table 1. Summary of 10-year trend data for 5 Recovery Units and 17 CHUs/TCAs for the Mojave desert tortoise, *Gopherus agassizii* (=Agassiz’s desert tortoise). The table includes the area of each Recovery Unit and CHU/TCA, percent of total habitat for each Recovery Unit and CHU/TCA, density (number of breeding adults/km² and standard errors = SE), and the percent change in population density between 2004-2014. Populations below the viable level of 3.9 adults/km² (10 adults per mi²) (assumes a 1:1 sex ratio) and showing a decline from 2004 to 2014 are in red (Allison and McLuckie 2018, USFWS 2015).

Recovery Unit Designated CHU/TCA	Surveyed area (km ²)	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km ² (SE)	% 10-year change (2004– 2014)
Western Mojave, CA	6,294	24.51	2.8 (1.0)	-50.7 decline
Fremont-Kramer	2,347	9.14	2.6 (1.0)	-50.6 decline
Ord-Rodman	852	3.32	3.6 (1.4)	-56.5 decline
Superior-Cronese	3,094	12.05	2.4 (0.9)	-61.5 decline
Colorado Desert, CA	11,663	45.42	4.0 (1.4)	-36.25 decline
Chocolate Mtn AGR, CA	713	2.78	7.2 (2.8)	-29.77 decline
Chuckwalla, CA	2,818	10.97	3.3 (1.3)	-37.43 decline
Chemehuevi, CA	3,763	14.65	2.8 (1.1)	-64.70 decline
Fenner, CA	1,782	6.94	4.8 (1.9)	-52.86 decline
Joshua Tree, CA	1,152	4.49	3.7 (1.5)	+178.62 increase
Pinto Mtn, CA	508	1.98	2.4 (1.0)	-60.30 decline
Piute Valley, NV	927	3.61	5.3 (2.1)	+162.36 increase
Northeastern Mojave	4,160	16.2	4.5 (1.9)	+325.62 increase
Beaver Dam Slope, NV, UT, AZ	750	2.92	6.2 (2.4)	+370.33 increase
Coyote Spring, NV	960	3.74	4.0 (1.6)	+ 265.06 increase
Gold Butte, NV & AZ	1,607	6.26	2.7 (1.0)	+ 384.37 increase
Mormon Mesa, NV	844	3.29	6.4 (2.5)	+ 217.80 increase
Eastern Mojave, NV & CA	3,446	13.42	1.9 (0.7)	-67.26 decline
El Dorado Valley, NV	999	3.89	1.5 (0.6)	-61.14 decline
Ivanpah Valley, CA	2,447	9.53	2.3 (0.9)	-56.05 decline
Upper Virgin River	115	0.45	15.3 (6.0)	-26.57 decline
Red Cliffs Desert	115	0.45	15.3 (6.0)	-26.57 decline
Total amount of land	25,678	100.00		-32.18 decline

Density of Juvenile Mojave Desert Tortoises: Survey results indicate that the proportion of juvenile desert tortoises has been decreasing in all five recovery units since 2007 (Allison and McLuckie 2018). The probability of encountering a juvenile tortoise was consistently lowest in the Western Mojave Recovery Unit. Allison and McLuckie (2018) provided reasons for the decline in juvenile desert tortoises in all recovery units. These included decreased food availability for adult female tortoises resulting in reduced clutch size, decreased food availability resulting in increased mortality of juvenile tortoises, prey switching by coyotes from mammals to tortoises, and increased abundance of common ravens that typically prey on smaller desert tortoises.

Declining adult tortoise densities through 2014 have left the Eastern Mojave adult numbers at 33% (a 67% decline of their 2004 levels) (Allison and McLuckie 2018, USFWS 2015). Such steep declines in the density of adults are only sustainable if there are suitably large improvements in reproduction and juvenile growth and survival. However, the proportion of juveniles has not increased anywhere in the range of the Mojave desert tortoise since 2007, and in the Eastern Mojave Recovery Unit the proportion of juveniles in 2014 declined from 14 to 11 percent (a 21% decline) of their representation since 2007 (Allison and McLuckie 2018).

The USFWS and Utah Division of Wildlife Resources have continued to collect density data on the Mojave desert tortoise since 2014. The results are provided in Table 2 along with the analysis USFWS (2015) conducted for tortoise density data from 2004 through 2014. These data show that adult tortoise densities in most Recovery Units continued to decline in density since the data collection methodology was initiated in 2004. In addition, in the Northeastern Mojave Recovery Unit that had shown an overall increase in tortoise density between 2004 and 2014, subsequent data indicate a decline in density since 2014 (USFWS 2016, 2018, 2019, 2020, 2022a, 2022b).

Table 2. Summary of data for Agassiz’s desert tortoise, *Gopherus agassizii* (=Mojave desert tortoise) from 2004 to 2021 for the 5 Recovery Units and 17 CHUs/TCAs. The table includes the area of each Recovery Unit and CHU/TCA, percent of total habitat for each Recovery Unit and CHU/TCA, density (number of breeding adults/km² and standard errors = SE), and percent change in population density between 2004-2014 (USFWS 2015). Populations below the viable level of 3.9 breeding individuals/km² (10 breeding individuals per mi²) (assumes a 1:1 sex ratio) (USFWS 1994a, 2015) or showing a decline from 2004 to 2014 are in **red**.

Recovery Unit: Designated CHU/TCA &	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/ km ² (SE)	% 10-year change (2004–2014)	2015 density/ km ²	2016 density/ km ²	2017 density/ km ²	2018 density/ km ²	2019 density/ km ²	2020 density/ km ²	2021 density/ km ²
Western Mojave, CA	24.51	2.8 (1.0)	-50.7 decline							
Fremont-Kramer	9.14	2.6 (1.0)	-50.6 decline	4.5	No data	4.1	No data	2.7	1.7	No data
Ord-Rodman	3.32	3.6 (1.4)	-56.5 decline	No data	No data	3.9	2.5/3.4*	2.1/2.5*	No data	1.9/2.5*
Superior-Cronese	12.05	2.4 (0.9)	-61.5 decline	2.6	3.6	1.7	No data	1.9	No data	No data
Colorado Desert, CA	45.42	4.0 (1.4)	-36.25 decline							
Chocolate Mtn AGR, CA	2.78	7.2 (2.8)	-29.77 decline	10.3	8.5	9.4	7.6	7.0	7.1	3.9
Chuckwalla, CA	10.97	3.3 (1.3)	-37.43 decline	No data	No data	4.3	No data	1.8	4.6	2.6
Chemehuevi, CA	14.65	2.8 (1.1)	-64.70 decline	No data	1.7	No data	2.9	No data	4.0	No data
Fenner, CA	6.94	4.8 (1.9)	-52.86 decline	No data	5.5	No data	6.0	2.8	No data	5.3
Joshua Tree, CA	4.49	3.7 (1.5)	+178.62 increase	No data	2.6	3.6	No data	3.1	3.9	No data

Recovery Unit: Designated CHU/TCA	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km ² (SE)	% 10- year change (2004– 2014)	2015	2016	2017	2018	2019	2020	2021
Pinto Mtn, CA	1.98	2.4 (1.0)	-60.30 decline	No data	2.1	2.3	No data	1.7	2.9	No data
Piute Valley, NV	3.61	5.3 (2.1)	+162.36 increase	No data	4.0	5.9	No data	No data	No data	3.9
Northeastern Mojave AZ, NV, & UT	16.2	4.5 (1.9)	+325.62 increase							
Beaver Dam Slope, NV, UT, & AZ	2.92	6.2 (2.4)	+370.33 increase	No data	5.6	1.3	5.1	2.0	No data	No data
Coyote Spring, NV	3.74	4.0 (1.6)	+ 265.06 increase	No data	4.2	No data	No data	3.2	No data	No data
Gold Butte, NV & AZ	6.26	2.7 (1.0)	+ 384.37 increase	No data	No data	1.9	2.3	No data	No data	2.4
Mormon Mesa, NV	3.29	6.4 (2.5)	+ 217.80 increase	No data	2.1	No data	3.6	No data	5.2	5.2
Eastern Mojave, NV & CA	13.42	1.9 (0.7)	-67.26 decline							
El Dorado Valley, NV	3.89	1.5 (0.6)	-61.14 decline	No data	2.7	5.6	No data	2.3	No data	No data
Ivanpah Valley, CA	9.53	2.3 (0.9)	-56.05 decline	1.9	No data	No data	3.7	2.6	No data	1.8

Recovery Unit: Designated CHU/TCA	% of total habitat area in Recovery Unit & CHU/TCA	2004 density/ km ²	2014 density/km ² (SE)	% 10-year change (2004–2014)	2015	2016	2017	2018	2019	2020	2021
Upper Virgin River, UT & AZ	0.45		15.3 (6.0)	-26.57 decline							
Red Cliffs Desert**	0.45	29.1 (21.4-39.6)**	15.3 (6.0)	-26.57 decline	15.0	No data	19.1	No data	17.2	No data	
Range-wide Area of CHUs - TCAs/Range-wide Change in Population Status	100.00			-32.18 decline							

*This density includes the adult tortoises translocated from the expansion of the MCAGCC, that is resident adult tortoises and translocated adult tortoises.

**Methodology for collecting density data initiated in 1999.

Abundance of Mojave Desert Tortoises: Allison and McLuckie (2018) noted that because the area available to tortoises (i.e., tortoise habitat and linkage areas between habitats) is decreasing, trends in tortoise density no longer capture the magnitude of decreases in abundance. Hence, they reported on the change in abundance or numbers of the Mojave desert tortoise in each recovery unit (Table 2). They noted that these estimates in abundance are likely higher than actual numbers of tortoises, and the changes in abundance (i.e., decrease in numbers) are likely lower than actual numbers because of their habitat calculation method. They used area estimates that removed only impervious surfaces created by development as cities in the desert expanded. They did not consider degradation and loss of habitat from other sources, such as the recent expansion of military operations (753.4 km² so far on Fort Irwin and the Marine Corps Air Ground Combat Center), intense or large scale fires (e.g., 576.2 km² of critical habitat that burned in 2005), development of utility-scale solar facilities (as of 2015, 194 km² have been permitted) (USFWS 2016), or other sources of degradation or loss of habitat (e.g., recreation, mining, grazing, infrastructure, etc.). Thus, the declines in abundance of Mojave desert tortoise are likely greater than those reported in Table 3.

Table 3. Estimated change in abundance of adult Mojave desert tortoises in each recovery unit between 2004 and 2014 (Allison and McLuckie 2018). Decreases in abundance are in red.

Recovery Unit	Modeled Habitat (km ²)	2004 Abundance	2014 Abundance	Change in Abundance	Percent Change in Abundance
Western Mojave	23,139	131,540	64,871	-66,668	-51%
Colorado Desert	18,024	103,675	66,097	-37,578	-36%
Northeastern Mojave	10,664	12,610	46,701	34,091	270%
Eastern Mojave	16,061	75,342	24,664	-50,679	-67%
Upper Virgin River	613	13,226	10,010	-3,216	-24%
Total	68,501	336,393	212,343	-124,050	-37%

Habitat Availability: Data on population density or abundance does not indicate population viability. The area of protected habitat or reserves for the subject species is a crucial part of the viability analysis along with data on density, abundance, and other population parameters. In the Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994a), the analysis of population viability included population density and size of reserves (i.e., areas managed for the desert tortoise) and population numbers (abundance) and size of reserves. The USFWS Recovery Plan reported that as population densities for the Mojave desert tortoise decline, reserve sizes must increase, and as population numbers (abundance) for the Mojave desert tortoise decline, reserve sizes must increase (USFWS 1994a). In 1994, reserve design (USFWS 1994a) and designation of critical habitat (USFWS 1994b) were based on the population viability analysis from numbers (abundance) and densities of populations of the Mojave desert tortoise in the early 1990s. Inherent in this analysis is that the lands be managed with reserve level protection (USFWS 1994a, page 36) or ecosystem protection as described in section 2(b) of the FESA, and that sources of mortality be reduced so recruitment exceeds mortality (that is, $\lambda > 1$)(USFWS 1994a, page C46).

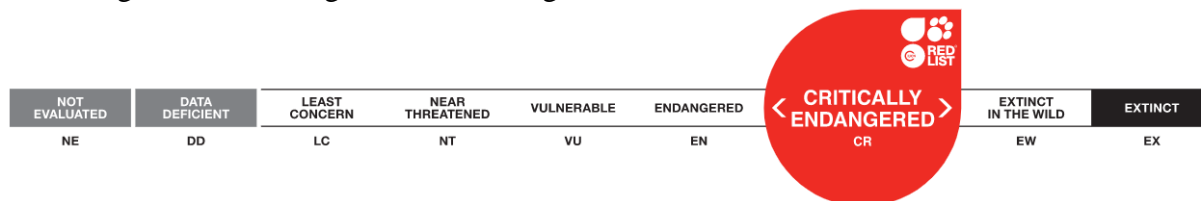
Habitat loss would also disrupt the prevailing population structure of this widely distributed species with geographically limited dispersal (isolation by resistance Dutcher et al. 2020). Allison

and McLuckie (2018) anticipate an additional impact of this habitat loss/degradation is decreasing resilience of local tortoise populations by reducing demographic connections to neighboring populations (Fahrig 2007). Military and commercial operations and infrastructure projects that reduce tortoise habitat in the desert are anticipated to continue (Allison and McLuckie 2018) as are other sources of habitat loss/degradation.

Allison and McLuckie (2018) reported that the life history of the Mojave desert tortoise puts it at greater risk from even slightly elevated adult mortality (Congdon et al. 1993; Doak et al. 1994), and recovery from population declines will require more than enhancing adult survivorship (Spencer et al. 2017). The negative population trends in most of the TCAs for the Mojave desert tortoise indicate that this species is on the path to extinction under current conditions (Allison and McLuckie 2018). They state that their results are a call to action to remove ongoing threats to tortoises from TCAs, and possibly to contemplate the role of human activities outside TCAs and their impact on tortoise populations inside them.

Densities, numbers, and habitat for the Mojave desert tortoise declined between 2004 and 2014 and densities continue to decline in most Recovery Units since 2014. As reported in the population viability analysis, to improve the status of the Mojave desert tortoise, reserves (area of protected habitat) must be established and managed. When densities of tortoises decline, the area of protected habitat must increase. When the abundance of tortoises declines, the area of protected habitat must increase. We note that the Desert Tortoise (Mojave Population) Recovery Plan was released in 1994 and its report on population viability and reserve design was reiterated in the 2011 Revised Recovery Plan as needing to be updated with current population data (USFWS 2011, p. 83). With lower population densities and abundance, a revised population viability analysis would show the need for greater areas of habitat to receive reserve level of management for the Mojave desert tortoise. In addition, we note that none of the recovery actions that are fundamental tenets of conservation biology has been implemented throughout most or all of the range of the Mojave desert tortoise.

IUCN Species Survival Commission: The Mojave desert tortoise is now on the list of the world’s most endangered tortoises and freshwater turtles. It is in the top 50 species. The International Union for Conservation of Nature’s (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers Mojave desert tortoise to be Critically Endangered (Berry et al. 2021). As such, it is a “species that possess an extremely high risk of extinction as a result of rapid population declines of 80 to more than 90 percent over the previous 10 years (or three generations), a current population size of fewer than 50 individuals, or other factors.” It is one of three turtle and tortoise species in the United States to be critically endangered. This designation is more grave than endangered.



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