



DESERT TORTOISE COUNCIL

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Via email

30 October 2020

Glen W. Knowles, Field Supervisor
U.S. Fish and Wildlife Service
Southern Nevada Fish and Wildlife Office
4701 N Torrey Pines Drive
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Re: Connectivity of Mojave Desert Tortoise Populations: Management Implications for
Maintaining a Viable Recovery Network (25 September 2020)

Dear Mr. Knowles,

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 the 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.

We appreciate this opportunity to provide comments on the above-referenced paper given its discussion of management issues for the Mojave desert tortoise (*Gopherus agassizii*) (also known as "Agassiz's desert tortoise"), our comments pertain to enhancing protection of this species.

General Comments

The purpose of this connectivity paper (paper) is to: 1) review current information on connectivity especially with respect to the tortoise, and 2) provide information to managers for maintaining or enhancing desert tortoise population connectivity as they consider future proposals for development and management actions across the landscape. This paper is an excellent consolidation of existing scientific data/findings on connectivity for Mojave desert tortoise populations. However, we believe managers are unlikely to use it to maintain or enhance connectivity of tortoise populations because of its length and emphasis on scientific research.

Most managers are not scientists. They have limited time and expertise in specialized areas of scientific study (e.g., population connectivity). They want a concise compilation of information relevant to an issue and recommendations on how to deal with it. For tortoise connectivity, a manager needs to know what management actions they should implement to achieve connectivity. We suggest that a separate version of this document be developed for managers to read, understand, and use that is concise (one or two pages; perhaps a layman's abstract?), easy to understand, and contains clearly stated management actions needed to maintain/enhance desert tortoise population connectivity. The manager's version would refer to this paper for data and discussion to support their management actions.

Specific Comments

For the manager's version of this paper, we recommend changing the title to "Management Actions to Provide a Viable Recovery Network." Please see our comments for page 8 for an explanation of this suggested title change.

Page 4 – Under *Functional connectivity of desert tortoise populations across the landscape*, "decreased connectivity results from various degrees of landscape resistance." This landscape resistance includes an accumulation of numerous and varying effects depending on the type of disturbance to the habitat. The effects of permanent and temporary disturbance (both authorized and unauthorized) may have permanent effects or long-term effects with respect to the life history of the tortoise. As with reserve design (discussed on page 3), the location/spatial arrangement of the existing and proposed disturbance should be modeled. It should include the disturbance footprint and the effects that extend beyond the project footprint that affect a tortoise's use of habitat. The temporal effects of disturbance should be combined with the spatial arrangement/effects in the model/map so they are incorporated when designing/managing linkages for tortoise populations. Modelling and mapping this information for a manager at a local, regional, and rangewide scale for the tortoise will help a manager determine the extent of impacts to connectivity between populations of tortoises including redundancies that currently exist, and determine where disturbance cannot be authorized in the future so connectivity is maintained. This process would be incorporated under points 1 and 2 (please see comment on page 8).

Page 4 – Under *Functional connectivity of desert tortoise populations across the landscape*, "Equivalent man-made [linear] features include walls and fences..." that preclude movement, and "[tortoise exclusion] fencing reduces mortality in tortoises by reducing or removing movement across dangerous surfaces but thereby also eliminates [emphasis added] connectivity between populations." We presume that fencing does not preclude tortoises from using culverts, bridges, or other forms of existing access to move safely from a population/habitat on one side of a roadway to the other if these features are accessible to them. If so, we suggest that tortoise exclusion fencing along a roadway would be semi-permeable and would not eliminate connectivity between populations.

"Semi-permeable features include... burned areas or playa edges, or other features, such as ploughed lots, roads,... which can act as filters that reduce connectivity." This wording suggests that a semi-permeable situation (e.g., roadway with no exclusion fencing) is preferred to a roadway with tortoise exclusion fencing and underpass structures (e.g., culverts, bridges, etc.) that are accessible by tortoises. We suggest that roadways at some locations eliminate connectivity (e.g., busy roadways with no underpass structures accessible by tortoises) and should not be called semi-permeable. Please revise this paragraph to clarify the effects of man-made linear features on tortoise connectivity.

Page 7 – Under *Recent research relevant to desert tortoise habitat and connectivity*, we suggest adding the habitat suitability model, human footprint model, and habitat connectivity model recently developed (Feinberg et al. 2019) for the Mojave desert tortoise. The first model reduces/eliminates some of the limitations of the USGS model [e.g., has a finer resolution (30 meters versus 1 km), incorporates higher spatial and temporal resolution climate data, etc.] and would be more representative of current habitat conditions for the Mojave desert tortoise. The USGS model predicts tortoise habitat in areas the 2019 habitat suitability model does not, probably because of the more fine-scale environmental variables and the exclusion of Sonoran desert tortoise data. Consequently, the USGS model (mapped in Figure 1) may provide an “overestimate” of suitable habitat, including linkage habitat, for the Mojave desert tortoise.

Page 8 – Under *Management implications*, “Below are four ~~points~~ for wildlife and management agencies to ~~consider~~ to help maintain functional connectivity of Mojave desert tortoise populations” (suggested replacements for strikeout wording are shown in bold font below). We recommend this be revised to say, “Below are four **actions** for wildlife and **land** management agencies to **implement** to help maintain/**restore** functional connectivity of Mojave desert tortoise populations.” To stress the need for their implementation, we suggest wording each numbered “point” as a management action. For example, 1) *Management of all desert tortoise habitat for connectivity* would be changed to *Manage all desert tortoise habitat for connectivity*. This slight change conveys clearly what should be implemented rather than considered, and possibly dismissed.

For the second Management Implication, *Limitations on landscape-level disturbance across habitat managed for the desert tortoise*, while some management plans may delineate tortoise linkages, the existence of a plan does assure its successful implementation. For most federal agencies with land management responsibilities in the range of the tortoise, a major obstacle is implementing the plan. For example:

1. The Bureau of Land Management (BLM) in the California Desert District has prepared numerous management plans but received inadequate funding and staffing for their implementation, including on-the-ground management and monitoring that is crucial for successful implementation. In addition, BLM’s mandate of managing its land for “multiple use” makes it difficult for them to manage linkage areas that would restrict many land uses within them.

2. Although BLM (2016) established 0.1-1.0% new surface-disturbance caps for Tortoise Conservation Areas and mapped linkages, this cap applies to certain types of permanent disturbances authorized by BLM on public lands it manages. It does not include unauthorized disturbances, temporary disturbances (which may result in decades of habitat degradation and loss, thereby not meeting the needs of the tortoise as a linkage), or the type of disturbance that may have impacts extending beyond the project footprint. It does not consider the cumulative configuration of the disturbance. While it is “a step in the right direction,” it only addresses part of the impact from the disturbance on connectivity. In addition, the spatial configuration of existing and future disturbance is not considered, only the percentage of disturbance. For example, the development of an additional 1% may be concentrated in an area that severs the connectivity at a location in the linkage.

3. Department of Defense (DOD) agencies have a military training, vehicle/weapon development and testing, and other defense support missions, which frequently are not compatible with managing linkage habitats for tortoises within a military reservation boundary. DOD agencies must prepare Integrated Natural Resources Management Plans (INRMPs) every five years to include the management needs of endangered, threatened, and candidate species, but DOD's history of funding and implementing these INRMPs has not been adequate for plan implementation.

4. The three national parks in the Mojave Desert have experienced funding and staffing limitations for implementing their management plans.

Thus, many federal government agencies plan a lot but do little for implementing on-the-ground management actions for the tortoise.

Much tortoise habitat occurs on private lands, and in some areas, it is interspersed with BLM lands. Unless a local government changes its general management plan and changes/enforces zoning requirements to accommodate management for tortoise linkages, this is unlikely to occur.

We recommend this paper on tortoise connectivity and the manager's version identify the progress made in designating and managing linkages of tortoise habitat among populations, and identify additional actions needed at the federal, state, and local levels to revise current management plans/zoning for tortoise linkages to be effective based on current scientific information and principles of population ecology.

We appreciate this opportunity to provide input on this well-written paper and trust that our comments will contribute to conservation and management of the tortoise. Herein, we ask that the Desert Tortoise Council be notified about this and all other U.S. Fish and Wildlife Service proposed actions that may affect species of desert tortoises, and that any revision of this paper is provided to us at the contact information listed above.

Regards,



Edward L. LaRue, Jr., M.S.
Chair, Ecosystems Advisory Committee

Literature Cited

[BLM] Bureau of Land Management. 2016. Desert Renewable Energy Conservation Plan Land Use Plan Amendment to the California Desert Conservation Area Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan. BLM/CA/PL-2016/03+1793+8321.

Feinberg, P., M. Moskwik, J. Page, and M. Salvo. 2019. Protecting the Mojave desert tortoise: A model approach. Defenders of Wildlife, Washington, D.C.
<https://defenders.org/sites/default/files/2019-11/Desert-Tortoise-Report.pdf>