

**DESERT TORTOISE COUNCIL**

3807 Sierra Highway #6-4514

Acton, CA 93510

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

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

**Via email only**

October 16, 2025

Oliver Mujica, Contract Planner III  
County of San Bernardino  
Land Use Services Department, Planning Division  
385 N. Arrowhead Ave First Floor  
San Bernardino, CA 92415-0187  
[Oliver.Mujica@lus.sbcounty.gov](mailto:Oliver.Mujica@lus.sbcounty.gov)

RE: Landers Hotel Project (PROJ-2023-00146)

Dear Mr. Mujica,

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

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

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitats potentially occupied by the Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments include recommendations intended to enhance protection of this species and its habitat during activities that may be authorized by the San Bernardino County Land Use Services Department (County), which we recommend be added to project terms and conditions in the authorizing documents [e.g., issuance of right-of-way (ROW) grants, management plan and decision document, etc.] as

appropriate. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachment for the proposed action.

The Mojave desert tortoise is among the top 50 species on the list of the world's most endangered tortoises and freshwater turtles. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers the Mojave desert tortoise to be Critically Endangered (Berry et al. 2021), "... based on population reduction (decreasing density), habitat loss of over 80% over three generations (90 years), including past reductions and predicted future declines, as well as the effects of disease (upper respiratory tract disease/mycoplasmosis). *Gopherus agassizii* (sensu stricto) comprises tortoises in the most well-studied 30% of the larger range; this portion of the original range has seen the most human impacts and is where the largest past population losses have been documented. A recent rigorous rangewide population reassessment of *G. agassizii* (sensu stricto) has demonstrated continued adult population and density declines of about 90% over three generations (two in the past and one ongoing) in four of the five *G. agassizii* recovery units and inadequate recruitment with decreasing percentages of juveniles in all five recovery units."

This status, in part, prompted the Council to join Defenders of Wildlife and the Desert Tortoise Preserve Committee (DTPC) to petition the California Fish and Game Commission in March 2020 to elevate the listing of the Mojave desert tortoise from Threatened to Endangered under the California Endangered Species Act (CESA) (Defenders of Wildlife et al. 2020). Importantly, following California Department of Fish and Wildlife's (CDFW) (2024a) status review, in their April 2024 meeting the California Fish and Game Commission voted unanimously to accept the CDFW's petition evaluation and recommendation to uplist the tortoise from threatened to endangered under the CESA based on the scientific data provided on the species' status, declining trend, numerous threats, and lack of effective recovery implementation and land management (CDFW 2024b). On July 15, 2025, the tortoise was officially uplisted to endangered status under the CESA (Commission 2025).

### **Description of the Proposed Project**

The project description given in the County's Notice of Intent (NoI) to Adopt an Initial Study/Mitigated Negative Declaration is as follows: "The applicant proposes to develop a single-story hotel comprised of 35 rooms (project). The main lodge includes a restaurant, bar, and goods market offering coffee and essential food goods to the neighborhood. The lodge's patio includes outdoor dining seats, a pool, hot tub, and spa structure. The spa is a wellness center consisting of a smaller soaking pool, hot tub, sauna, and showers. The pavilion is a structure intended for exercise classes and multipurpose meetings. The project totals approximately 30,000 square feet of space." The acreage is not included in the NoI but the Assessor's Parcel Number is 0630-031-05 and 06 (Figures 1a and 1b).

### **Comments on the Proposed Project**

We appreciate that the County notified us of the availability of this document and the closing date for providing public comments.



Figure 1a. Location of the proposed Landers Hotel.



Figure 1b. Aerial view of the location for the proposed Landers Hotel.

## Appendix B – Biological Resources Assessment

Unless otherwise noted, the following page numbers pertain to the “Biological Resources Assessment for the Proposed Hotel Project Located in Landers, San Bernardino County, California” prepared by ELMT Consulting (2023; herein, “ELMT” or “consultant”), dated 8/25/2023 (ELMT Consulting 2023). The consultant does not indicate the acreage that was surveyed, but our calculations are that it is about 6.0 acres.

The survey methodology given on page 2 indicates that two biologists, “...inventoried and evaluated the condition of the habitat within a 200-foot buffer around the project site, where applicable, on June 21, 2023. Plant communities and land cover types identified on aerial photographs during the literature review were verified by **walking meandering transects throughout the project site**” [emphasis added]. The report did not include standard components of most biological reports the Council reviews, including how long the survey took, prevalent weather conditions during the survey, whether the biologists followed USFWS (2019) tortoise survey protocol, or if adequate surveys were performed for western burrowing owl (CDFG 2012). It is also standard practice to include a list of references for the literature cited in the report, but no such list appears in this report, so we cannot be certain that the consultant is aware of and implemented CDFW and USFWS standardized survey methods for these species.

However, it concerns us that “meandering transects” were walked to survey for tortoises. The tortoise protocol survey (USFWS 2019) require that transects be spaced no farther than 10 meters to determine the presence or absence of any tortoise signs. Although there may be some minor departure from these transects, they are relatively straight-line transects that would not typically be referred to as “meandering.” The formal protocol survey for the tortoise has been developed using ecological and behavioral parameters for the tortoise as well as statistical analysis of the ability of qualified biologists to detect tortoises when they are above ground and to detect their signs. Consequently, a general meandering survey with no defined width is more likely to result in finding no evidence of the special status species present (e.g., Mojave desert tortoise, burrowing owl) on/near a project site, which in many cases would be an incorrect representation on the use of the project site by the special status species. Consequently, we cannot judge the validity of the consultant’s conclusions because they failed to divulge the field methods implemented and we assert that the County also cannot judge the validity of the consultant’s conclusions.

For the tortoise, the survey protocol for projects impacting small areas is that 100 percent of the *action area* [emphasis added] is surveyed for the presence of tortoise or tortoise sign (e.g., carcasses/skeletal remains, burrows, pellets, scat, nests, courtship rings, drinking depressions, etc.) (USFWS 2019). The “action area” is defined in 50 Code of Federal Regulations 402.2 and the USFWS 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.” Thus, the survey area is larger than the project footprint/project site. The survey protocol recommends that the project proponent contact the USFWS to determine the boundaries of the action area because the areal extent of the indirect impacts to the tortoise vary with the type of proposed project. Failure to do so may result in the area needing to be resurveyed. CDFW has adopted the USFWS’s methodology to use (<https://wildlife.ca.gov/Conservation/Survey-Protocols#377281283-reptiles>) to determine tortoise presence/use of the action area.

The apparent failure of the consultant to follow the current protocol survey method for the tortoise and failure of the County to require implementation of this protocol survey is troubling. These failures suggest that there is no need to comply with the purpose and intent of CEQA, which is to “to inform government decisionmakers and the public about the potential environmental effects of proposed activities and to prevent significant, avoidable environmental damage.”

We are especially concerned about the proximity of Pipes Wash to the subject property. Biologists with Circle Mountain Biological Consultants, Inc. (CMBC), including the coauthor of this comment letter, have performed surveys on 309 sites on 16,274 acres and 138.65 linear miles of pipelines since 1988 in the Morongo Basin, which encompasses the project site. Tortoise sign has been found 2.5 miles west (Survey on pipeline 224), 1.5 miles south (parcel 224), 1.9 miles south (#244), and 2.8 miles southeast (#86) (Figure 2).

The importance of these data is that tortoises have been observed during all four surveys located in Pipes Wash, including Surveys #133, 172, 224, and 244. The consultant’s 200-foot buffer area fails to include suitable habitats for both burrowing owls and desert tortoises that may occur in Pipes Wash, located east of the site. The site is located in an area of sparse residential development where tortoises have likely been extirpated from some sites, which is revealed in those red polygons where no tortoise sign was found, including along portions of four pipelines and three parcels (e.g., Surveys #101, 108, portions of 224, 191, and 196).

Washes are used by tortoises as foraging areas and for movements, including daily and seasonal movement and movements between populations. Desert tortoises tend to follow washes (Jennings 1993, Peaden et al. 2017). Tortoises choose washes more than flats or bajadas in which to forage especially in late spring (Jennings and Berry 2023). Therefore, in the CEQA document the County should analyze the direct and indirect impacts to the adjacent washes from the construction, use, and maintenance of the proposed project and existing projects especially with respect to tortoise movements, and availability of native annual and herbaceous perennial plants.

Populations of the tortoise “continue to decline throughout the geographic range, in part because of degraded and fragmented habitats in the Mojave and western Sonoran deserts (Jennings and Berry 2023). Most of these impacts occur indirectly from the implementation of human developments and other human activities.

Because the tortoise is listed as a threatened species under the Federal Endangered Species Act (FESA) and an endangered species under the CESA, the County should require the project proponents implement survey protocols established by the U.S. Fish and Wildlife Service (USFWS) and CDFW. Consequently, to comply with CEQA, CESA, and FESA, the County should require that the most recent version of protocol level surveys for the tortoise be conducted by biologists deemed qualified by the USFWS and CDFW and the results submitted to the County, USFWS, and CDFW prior to initiating the preparation of a CEQA document. Protocol level surveys for the tortoise have been required under FESA and CESA since the early 1990s when a proposed project is located in the range of the tortoise and suitable habitat is present or nearby.

According to ELMT (2023), the meandering surveys, which were inadequate with respect to following federal and State protocol surveys under FESA and CESA, were conducted more than

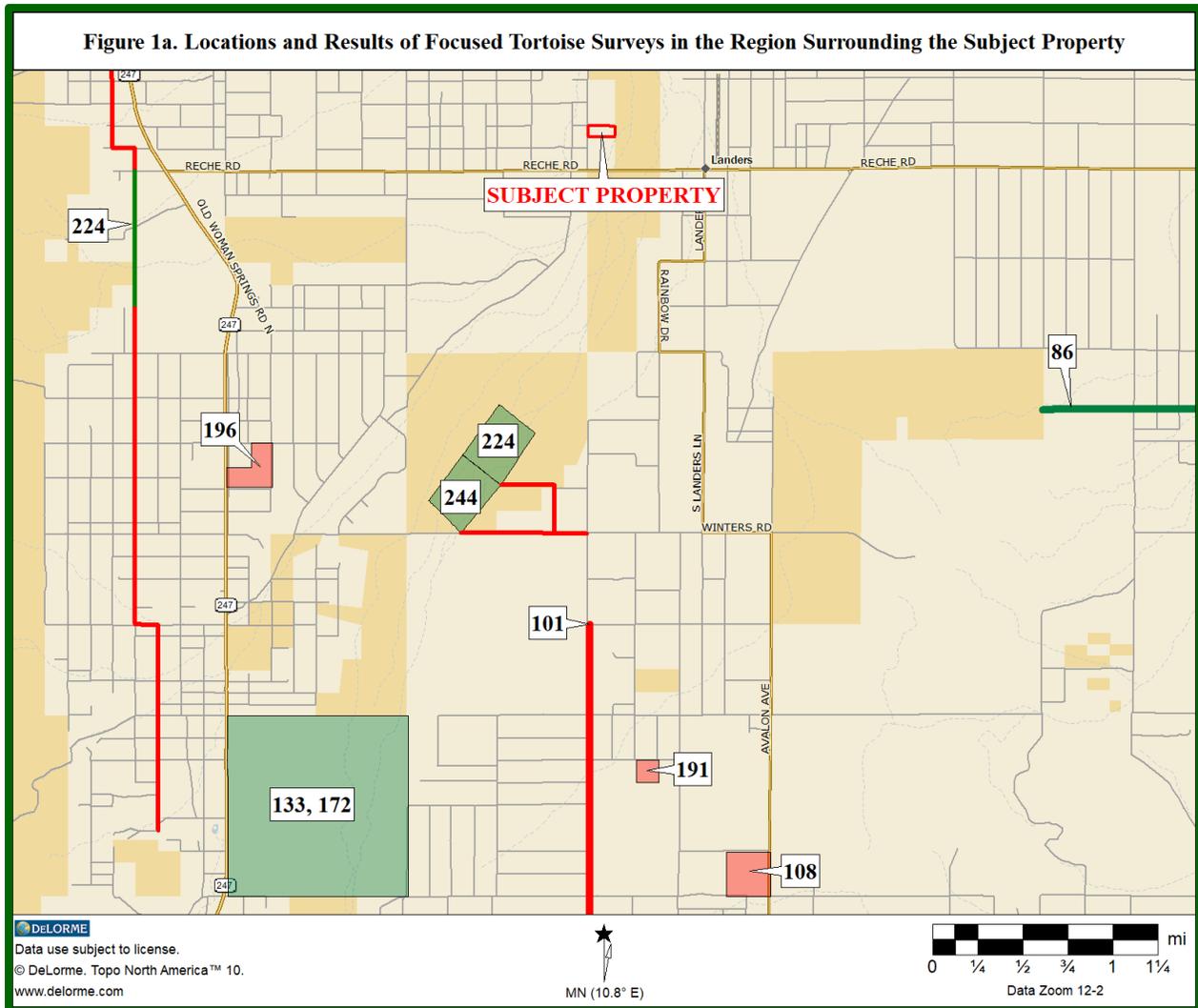


Figure 2. Parcels surveyed for Mojave desert tortoise and tortoise sign in the vicinity of the proposed Landers Hotel project and the results of those surveys.

2 years ago. Consequently, the Council advises the County that the project proponent or their consultant should contact the USFWS and CDFW and inquire whether another survey is required. USFWS (2019) states the following with regards to the longevity of the validity of a given survey: “If the survey data *are more than a year old [emphasis added]*, we encourage project proponents to contact us at the earliest possible time to allow us to assess the specific circumstances under which the data were collected (e.g., time of year, drought/rainfall conditions, size and location of the site, etc.) and to discuss whether additional surveys would be appropriate. Spatial information can be provided in pdf and GIS formats.”

In addition, CDFW usually accepts survey results for up to one year after they were performed. For surveys completed more than a year ago, CDFW usually requires that the formal survey protocol for the tortoise be implemented again and cover the action area for small projects such as this one.

On pages 1 and 2 of the Biological Assessment, ELMT (2023) described the methodology used with respect to a literature review and records search for special status species that “have the potential to occur on or within the general vicinity of the project site.” One important search that was not mentioned in this methodology was the search for information on linkage areas needed for habitat connectivity between populations of special status species. In searching the California Essential Habitat Connectivity Project website (CDFW 2010), we discovered that the proposed project appears to be located in a Mitigation Target Area for the tortoise. On this webpage CDFW says that more detailed analyses under the Desert Renewable Energy Conservation Plan (DRECP) Conservation Strategy was completed in 2016. Under the DRECP, linkage habitats were identified for the tortoise. The proposed project appears to be located in an area identified as linkage habitat needed to provide population connectivity between the Ord-Rodman Tortoise Conservation Area (TCA) to the northwest of the project site and Joshua Tree National Park (TCA) to the south of the project site (BLM 2016, Averill-Murray et al. 2021).

In addition, San Bernardino County should have a Conservation and Open Space Element in its General Plan and should have added an element for wildlife connectivity. Please include this information in the Initial Study/Mitigated Negative Declaration with respect to the tortoise and the project site.

Several scientific reports and journal articles have been written on this issue of connectivity between populations of the tortoise. The USFWS’s 1994 Recovery Plan and 2011 Revised Recovery Plan for the tortoise discussed this need for the tortoise to be able to recover. A recent publication by Averill-Murray et al. (2021) discusses in more detail the importance of connectivity of Mojave desert tortoise populations and linkage habitats. The authors emphasized that “[m]aintaining an ecological network for the Mojave desert tortoise, with a system of core habitats (TCAs = Tortoise Conservation Areas) connected by linkages, is necessary to support demographically viable populations and long-term gene flow within and between TCAs.” Core habitats connected with linkage areas are essential for the survival and eventual recovery of the tortoise.

In linkage areas, “[i]gnoring minor or temporary disturbance on the landscape could result in a cumulatively large impact that is not explicitly acknowledged (Goble, 2009); therefore, understanding and quantifying all surface disturbance on a given landscape is prudent.” Furthermore, “habitat linkages among TCAs must be wide enough to sustain multiple home ranges or local clusters of resident tortoises (Beier and others, 2008; Morafka, 1994), while accounting

for edge effects, in order to sustain regional tortoise populations.” Consequently, linkage habitats that are long narrow corridors or washes would not be effective linkage habitats. Any development within them or adjacent to them has an edge effect (i.e., indirect impact) that extends from all sides into the linkage habitat further narrowing or impeding the use of the linkage habitat, depending on the extent of the edge effect.

Averill-Murray et al. (2021) further notes that “To help maintain tortoise inhabitation and permeability across all other non-conservation-designated tortoise habitat, all surface disturbance could be limited to less than 5-percent development per square kilometer because the 5-percent threshold for development is the point at which tortoise occupation drops precipitously (Carter and others, 2020a).” They caution that the upper threshold of 5 percent development per square

kilometer may not maintain population sizes needed for demographic or functional connectivity; therefore, development thresholds should be lower than 5 percent.

The lifetime home range for the Mojave desert tortoise is more than 1.5 square miles (3.9 square kilometers) of habitat (Berry 1986) and tortoises may make periodic forays of more than 7 miles (11 kilometers) at a time (Berry 1986). Using Averill-Murray's information, linkage habitats need to be wide enough to sustain multiple home ranges with one home range more than 1.5 square miles.

In addition, a fundamental tenet of conservation biology is the need for gene flow to occur between populations to maintain genetic diversity; this enables a species to more likely survive, especially during climate change, which enables biodiversity. Linkage habitats are important as they provide gene flow/genetic connectivity among wildlife populations to maintain viability within each species and biodiversity in the current and future distribution of species when adapting to the impacts of climate change. Consequently, development in tortoise linkage habitat that exceeds this development threshold in non-conservation-designated tortoise habitat such as the Ord-Rodman TCA to Joshua Tree National Park linkage habitat would result in the loss of the function of the linkage habitat, the loss of population connectivity, and would be considered a significant impact to the tortoise.

The proposed project is a permanent disturbance to this linkage habitat and would result in permanent edge effects (=indirect impacts) during construction, use, and maintenance that extend into the linkage habitat thereby reducing its effectiveness. The County needs to analyze the remaining linkage habitat using the criteria provided in Averill-Murray et al. (2021) to determine whether it would contain the requisite properties needed to function as linkage habitat for the tortoise from the impacts from existing development and human activities, the addition of the construction and use of the proposed project, and future planned projects and activities. This would include increased vehicle use as well as the indirect impacts some of which are mentioned below.

The County needs to demonstrate in the CEQA document that the proposed project together with existing and future planned projects and human activities is "wide enough to sustain multiple home ranges or local clusters of resident tortoises (Beier and others, 2008; Morafka, 1994), while accounting for edge effects [=indirect impacts], in order to sustain regional tortoise populations" (Averill-Murray et al. 2021).

Please revise the CEQA document to include this information and the information on requirements for linkage habitats for the tortoise in Averill-Murray et al. (2021) when the County conducts its analysis of impacts to the tortoise on movements and population connectivity from the proposed project.

The burrowing owl is a candidate for potential listing as a protected species under the California Endangered Species Act (Commission October 9, 2024). As such it is treated as a listed species under CESA. The ELMT report was prepared in 2023, prior to the Commission's decision and prior to the additional protection now provided by CESA to this species. The Biological Assessment and the County's Initial Study and Mitigated Negative Declaration should be revised to reflect this change in legal status and appropriate mitigation required to offset the impacts to the burrowing owl from the proposed project. Please see our comments below on CDFW's survey

requirements to determine whether burrowing owls use the project site/may be impacted by the proposed project, and to begin the initial compliance with CESA.

We note on page 2 that a "...200-foot buffer around the project site" was surveyed. CDFW (CDFG 2012) requires that transects be surveyed at 100-, 200-, 300-, 400-, and 500-foot intervals around a project site for burrowing owls and their sign, so the consultant did not comply with this requirement.

The conclusions given on pages 10 and 11 state that "...the project will have no significant impacts on federally or State listed species known to occur in the general vicinity of the project site" followed by "No further surveys are recommended." The report then recommends, (1) "...a nesting bird clearance survey should be conducted prior to any ground disturbance or vegetation removal activities that may disrupt the birds during the nesting season," which we recognize as current management; (2) pre-construction clearance surveys for burrowing owl; and (3) pre-construction clearance surveys for desert tortoise. We are confused for several reasons. First, it is not clear what is meant by, "No further surveys are recommended." Second, the surveys that were conducted are more than 2 years old and do not comply with the USFWS and CDFW survey protocols for the tortoise or burrowing owl. Third, because of the information provided earlier in this comment letter on the occurrence of tortoises/tortoise sign near the project site, we disagree strongly with the ELMT conclusion that the proposed project will have no significant impacts on federally or State listed species known to occur in the general vicinity of the project site. The information provided above clearly demonstrates that the tortoise is present in the vicinity of the proposed project. Regarding significance, please see our comments under "Significant Impacts" below.

Please ensure that the surveys for burrowing owl follow the CDFW stipulations/protocol (CDFG 2012) and that those for desert tortoise follow USFWS stipulations/protocol for clearance surveys (USFWS 2009). Note that to conduct clearance surveys for the tortoise incidental take permits from the USFWS and CDFW are required because the authorized biologist(s) conducting the clearance survey would be handling any tortoises found during this survey. Handling is a form of take under FESA and CESA and authorization from USFWS and CDFW is required prior to taking a species.

At the bottom of page 11, ELMT (2023) recommends, "In accordance with Section 88.01.060 of the County of San Bernardino Development Code, Tree or Plant Removal Permits are required for each relevant plant and species that will be impacted by project implementation." The consultant does a good job on pages 7 and 8 describing recent protections provided by the California Fish and Game Commission relative to the western Joshua tree, however, under Recommendations (page 11), the report fails to indicate that an incidental take permit will be required from CDFW in addition to any County permits before any Joshua trees are removed from the site. Please add this requirement to the Biological assessment Report and the Initial Study & Mitigated Negative Declaration.

Whereas the consultant has performed a records search for special status plants and animals (see page 2), we have found that the California Natural Diversity Data Base (CNDDDB) is not an adequate source of information with regards to the presence of tortoises. The CNDDDB relies on reports by consultants, which must necessarily be supplemented by the consultant's personal knowledge of the region. In Table C-1 in Attachment C of the Biological Assessment Report,

ELMT (2023) listed seven special status bird species reported from the region, but the text focuses only on loggerhead shrike where on page 8, the consultant, "...determined that the proposed project site has a high potential to support" this species. Although we agree with this conclusion, we believe that several other bird species are equally likely to occur, yet we found no information about whether the proposed project site has a potential to support this species. Please add this information to the Biological Assessment Report.

This assertion is based on available data associated with Figure 2. For example, loggerhead shrikes have been observed on Survey #101, 108, 133, and 172, which supports the consultant's conclusion that there is a high likelihood for occurrence on the subject property. However, available data and familiarity with the species supports our contention that the consultant erroneously concludes that there is no habitat onsite or in adjacent areas for LeConte's thrashers. In fact, LeConte's thrashers have been observed during an equal number of surveys (#86, 101, 108, and 172) in habitats similar to those occurring onsite. Five LeConte's thrashers were mostly observed in Pipes Wash on the square-mile parcel located 3.3 miles southwest of the subject property on Survey #172 (CMBC 2006).

Although in Table C-1 the consultant concluded there is no suitable habitat for golden eagle and prairie falcon, they neglect to point out that there are both foraging and nesting habitats, and that suitable foraging habitat occurs through the site and adjacent areas to the north, south, and east for both species. Two golden eagles were observed in 2006 over the site located 3.3 miles southwest (#172). In addition, the following special status bird species, which are NOT included in Table C-1, have been observed on the same square-mile site (CMBC 2006) located 3.3 miles southwest of the subject property, and each has the potential to occur on the subject property: Cooper's hawk, short-eared owl, and Vaux's swifts (although the last two species are migrants and likely to occur only as incidental visitors to the site).

With regards to western burrowing owl, the consultant concluded in Table C-1, "Suitable foraging habitat is present within and surrounding the project site. No suitable burrows found onsite." However, on page 5, the consultant lists California ground squirrel as one of the species occurring onsite, which is one of the primary burrow types used by burrowing owls, assuming they are not occupied by squirrels. As such, the conclusion seems to conflict with the survey findings. As given above, because the consultant did not perform CDFW's protocol survey for burrowing owl (CDFG 2012), the consultant's conclusion does not account for the possibility that owls may occur adjacent to the site. CMBC observed four burrowing owls to the south (#172) and observed an inactive owl burrow during Survey #196, located 2.4 miles southwest (CMBC 2007). Based on these data, burrowing owls are known from the area.

#### **Initial Study & Mitigated Negative Declaration Landers Hotel Project (PROJ-2023-00146)**

It would be easier to reference statements in the draft Initial Study & Mitigated Negative Declaration if this document had page numbers. We recommend that page numbers be added in the final Initial Study.

With regards to the following statement in Section IV, Biological Resources, "The Project Site would also have a high potential to support loggerhead shrike (*Lanius ludovicianus*) and low potential to support burrowing owl and desert tortoise (*Gopherus agassizii*). As a result, activities during Project construction and operations could potentially impact any **existing critical habitats**

**of these special status avian species** [emphasis added]. “Critical habitat” is a formal designation that applies to desert tortoises (USFWS 1994) and other species listed under FESA, but would not apply to avian species not listed under FESA. We suggest replacing the bold wording with the following wording (or something similar): “...could potentially impact ~~any~~ **suitable and/or occupied** habitats...” in the final initial study.

With regards to BIO-2 western burrowing owl, we appreciate that our concerns expressed above regarding the consultant’s reduced level of survey effort in a 200-foot buffer would be addressed by BIO-2, which requires surveys, “...including adjacent suitable habitat within a 500-foot buffer.” However, with respect to CEQA, there remains a void of information about the types and extent of direct, indirect, and cumulative impacts to the burrowing owl. This is because the appropriate survey protocol for this species has not been conducted to determine the use of the project site and surrounding area by the owl. Before the County can make a determination under CEQA about the direct, indirect, and cumulative impacts to the burrowing owl from the implementation of the proposed project and whether a mitigated negative declaration is the appropriate CEQA document because it mitigates these impacts to less than significant, the collection of appropriate data for the species is needed followed by an analysis of these impacts from the construction, use, and maintenance of the proposed project. Please revise the CEQA document to include this information.

For BIO-3, to be sure that authorized biologists are implementing fully the appropriate survey type, please clarify that the appropriate clearance survey methodology as described in USFWS (2009), requires two negative passes along transects spaced at 5-meter intervals. We request this clarification so that the clearance survey for the tortoise is not confused with the presence-absence survey as described in USFWS (2019), which requires a single pass along transects spaced at 10-meter intervals.

As for BIO-3, which states, “If desert tortoises are found to be present within the Project impact area during pre-construction clearance surveys, coordination between the Project Applicant and the California Department of Fish[*sic*] [and Wildlife] to determine appropriate minimization and mitigation measures to offset Project related impacts to this species,” we assume that it is an oversight that the USFWS was not included in this mitigation measures. Because the tortoise is also designated as Threatened by the USFWS, the final initial study (and, if necessary, the Mitigated Negative Declaration) should be amended to indicate that consultation with USFWS biologists in the Palms Springs office (whom are carbon copied) should also be contacted.

In addition, we remind the County that their statement that coordination between the Project Applicant and the CDFW is required “to determine appropriate minimization and mitigation measures to offset Project related impacts to this [desert tortoise] species” supports the Council’s assertion that the County does not yet have adequate information to conclude that a Mitigated Negative Declaration is the appropriate CEQA document for the proposed project. This decision by the County is premature because the County (1) has not required the collection of appropriate data for the species to determine its use and need of the project area for feeding, breeding, sheltering, and linkage habitats; (2) using this information has not analyzed the direct, indirect, and cumulative impacts from the construction, use, and maintenance of the proposed project to the tortoise using current information available in scientific journals and reports; and (3) has not identified and required the implementation of effective mitigation and monitoring to offset the

direct, indirect, and cumulative impacts so the impacts are less than significant. Until the County completes these steps, the County is unable to determine the appropriate CEQA document to prepare. The Council strongly requests that the County implement these three actions before making a decision about the appropriate CEQA document to prepare and approve.

The following statement is made for BIO-3, e): “As stated above, four western Joshua trees were observed within the Project Site. The Project would not include the removal of any on-site trees, and the existing western Joshua trees would be preserved. Furthermore, no other plant species protected under the County Code were observed or identified on-site. Thus, the Project would not conflict with the County’s local ordinances protecting desert native plants.”

Region 6 CDFW biologists, who are carbon copied, should be consulted to be sure that development in the vicinity of the Joshua trees does not adversely affect them. Although they are to be avoided, which is laudable, CDFW may require impact avoidance buffers that may affect the proposed project and the wording of this mitigation measure. Depending on the results of this consultation, an incidental take permit may be required even if the trees are not physically removed.

**Significant Impacts:** As previously mentioned, the proposed project would result in direct, indirect, and cumulative impacts to the tortoise. We remind the County of the demographic status of the tortoise. The USFWS has documented substantial declines in tortoise abundance and density since 2004, especially in California (see attachment “Appendix A – Demographic Status and Trend of the Mojave Desert Tortoise including the Tortoises in Western Mojave Recovery Unit”). The primary reason for its substantial decline has been from increased mortality caused by indirect impacts from human development (Jennings and Berry 2023). These include human activities that result in the destruction, degradation and/or fragmentation of tortoise habitat; surface disturbance and introduction of non-native invasive plant species via construction equipment, vehicles, and other sources; replacement of native forbs with high nutritional and water value with low nutritional non-native invasive grasses (Drake et al. 2016); increased occurrence of fire size, intensive, and frequency of human-caused wildfires from fuels provided by non-native invasive plant species (Brooks and Esque 2002); increased predation from substantially increased numbers of predators that utilize subsidies of food, water, and nesting locations (Boarman 2003); and increased human access (e.g., new roads, road improvements, increased vehicle use on roads, etc.) that provides opportunities for vandalism and collecting tortoises for pets as well as direct mortality and injury from vehicle strikes. Major sources of surface disturbance include residential, commercial, (such as the proposed project) and industrial development projects and associated roads/highways; military training; and off-highway vehicle use (USFWS 2011, Tuma et al. 2016).

An example of one indirect impact from the project’s construction, use, and operations and how it is likely to result in take of the tortoise is increased tortoise predation. Common ravens are known to prey on juvenile desert tortoises based on direct observations and circumstantial evidence, such as shell-skeletal remains with holes pecked in the soft carapace (Boarman 1993). The number of common ravens increased by 1,528% in the Mojave Desert since the 1960s (Boarman 1993). This increase in raven numbers is attributed to unintentional subsidies provided by humans in the Mojave Desert.

In the Mojave Desert, common ravens are subsidized predators because they benefit from resources associated with human activities that allow their populations to grow beyond their “natural” carrying capacity in the desert habitat. Kristan et al. (2004) found that human developments in the western Mojave Desert affect raven populations by providing food subsidies, particularly trash and road-kill. Boarman et al. (2006) reported raven abundance was greatest near resource subsidies, specifically food (= trash) and water. Human subsidies include food and water from landfills and other sources of waste, reservoirs, sewage ponds, agricultural fields, feedlots, gutters. Subsidies also include perch, roost, and nest sites on power towers, telephone poles, light posts, billboards, fences, freeway or railroad overpasses, abandoned vehicles, and buildings (Boarman 1993). The human-provided subsidies allow ravens to survive in the desert during summer and winter when prey and water resources are typically inactive or scarce. Boarman et al. (1993) concluded that the human-provided resource subsidies must be reduced to facilitate a smaller raven population in the desert and reduced predation on the tortoise.

Coyotes are known predators of tortoises. High adult tortoise mortality from coyote predation was reported by Petersen (1994), Esque et al. (2010) and Nagy et al. (2015) in part of the range of the tortoise. In some areas, numbers of ravens correlated positively with coyote abundance (Boarman et al. 2006). Lovich et al. (2014) reported tortoise predation may be exacerbated by drought if coyotes switch from preferred mammalian prey to tortoises during dry years. Because the Mojave Desert has been in a multi-decade drought (Stahle 2020, Williams et al. 2022) due to climate change and drought conditions are expected to continue and intensify in future years, increased predation pressure from coyotes on tortoises is expected to continue.

The proposed project would likely increase the availability of human-provided subsidies for predators of the tortoise including the common raven and coyote during the construction, operation, and maintenances phases of the project. For example, during the construction phase the water used to control dust and the waste generated during construction including food brought to the project site by workers for meals, etc., are examples of food and water subsidies for ravens and coyotes that would attract these predators to the project site and increase their numbers in the surrounding area. Grading the site would expose, injure, or kill fossorial animals and provide a subsidized food source for ravens and coyotes. During operation and maintenance phases, the presence of food waste in uncovered trash cans and dumpsters would provide food subsidies for ravens and coyotes that would attract them to the project area and increase the likelihood of them preying on tortoises in the project area. Vertical structures (e.g., light poles, structural canopies, etc.) provide nesting subsidies for common ravens and increase their numbers in the project area resulting in greater predation on tortoises in nearby areas. We found no analysis of these impacts or requirements to mitigate these impacts in the Initial Study.

Increased traffic on roads is another indirect source of mortality for tortoises. The impacts of road use are extensive and far reaching. Road construction, use, and maintenance impact wildlife through numerous mechanisms that can include mortality from vehicle collisions, and loss, fragmentation, alteration/destruction of habitat, collection, vandalism, increased predation, and modification of behavior. Field studies (LaRue 1992; Nafus et al. 2013; von Seckendorff Hoff and Marlow 2002) have shown impact zones from road use eliminate or substantially reduce tortoise numbers along/near roadways. These impacts are attributed to road kill with roads acting as a population sinks for tortoises.

Nafus et al. (2013) state that the ecologically affected areas along roads, otherwise known as “road-effect zones,” are those in which a change in wildlife abundance, demography, or behavior is observed. Von Seckendorff Hoff and Marlow (2002) reported that they detected reductions in tortoise numbers and sign from infrequent use of roadways to major highways with heavy use. There was a linear relationship between traffic level and 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 = 0.68 to 0.87 mile) from the road. For roads with more than 5000 vehicles per day, the reduction was evident more than 4000 meters (13,166 feet = 2.49 miles) from the road. They noted that the installation of exclusion fences and other barriers along roadways help reduce direct tortoise mortalities. However, exclusion fencing needs to be monitored and maintained. It also fragments populations of tortoise and other wildlife.

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 increased road use 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. The proposed project would increase vehicle use on existing roads resulting in increases in these indirect impacts to the tortoise and tortoise habitat. We found no analysis of these impacts or requirements to mitigate these impacts in the Initial Study.

Another indirect impact that is frequently overlooked is from the construction, use, and maintenance of drainage systems. Depending on their design, these systems can trap tortoises resulting in injury or mortality to tortoises, from hatchlings to adult tortoises, that enter them or can drown tortoises. These and other indirect impacts to the tortoise and its habitat from implementation of the proposed project should be described and analyzed in the CEQA document and effective mitigation required to offset these impacts.

Currently the priority for managing the tortoise is to substantially reduce mortality and manage desert tortoise habitat for persistence and connectivity of the species (Averill-Murray et al. 2021, Holcomb 2025 personal communication). The major threat to the tortoise is mortality from human sources, directly, indirectly, and cumulatively. These sources of mortality must be substantially reduced or eliminated if the tortoise is to survive in the near future. The indirect impacts from the proposed project that are not addressed in the Initial Study include all the indirect impacts listed earlier in this letter and possibly more (e.g., presence of unleashed dogs, etc.).

In the section on “Mandatory Findings of Significance,” two of the three questions under the CEQA Handbook are applicable to the tortoise. They are:

Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

and

Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects?)

To assist the County in answering these two questions regarding the impacts to the tortoise from the construction, operations, and maintenance of the proposed project, we are attaching "Appendix A – Demographic Status and Trend of the Mojave Desert Tortoise including Tortoises in the Western Mojave Recovery Unit." Note that the proposed project is in the Western Mojave Recovery Unit, the tortoise populations in this Unit are below the density needed for population viability (Allison and McLuckie 2018), and the density of tortoises continues to decline in the Western Mojave Recovery Unit (USFWS 2025). The adult tortoise population declined by about 50 percent and the number of juvenile tortoises decline by 91 percent between 2004 and 2014 (Allison and McLuckie 2018), and this downward trend continues (USFWS 2025). Also note that the tortoise cannot achieve recovery, that is, be removed from the list of threatened species under FESA unless it achieves recovery in all five recovery units including the Western Mojave Recovery Unit (USFWS 2011). This includes having viable populations. We conclude that having populations below the density needed for population viability means these populations are below the level needed to be self-sustaining, and any additional impacts to these populations would exacerbate this declining trend and remain below the level of self-sustaining. Using the information in this Appendix, we conclude the answer to these two questions is "yes," which means the impacts from the proposed project would be significant. Please include this information in the County's analysis of the project in the CEQA document.

Because the County has prepared a draft Initial Study/Mitigated Negative Declaration, it contains mitigation and monitoring sections that are supposed to demonstrate that implementation of mitigation and monitoring actions will reduce the level of impacts from the construction, use, and maintenance of the proposed project to less than significant. However, until the County (1) determines the use of the project site and surrounding area by tortoises; (2) determines the type and extent of the direct, indirect, and cumulative impacts to the tortoise/tortoise habitat from the construction, use and maintenance of the proposed project; and (3) analyzes these impacts to the tortoise, the County is unable to identify the appropriate mitigation and monitoring to offset these impacts. Consequently, the County is currently unable to determine whether a mitigated negative declaration or an environmental impact report is the appropriate CEQA document to prepare for the proposed project with respect to impacts to the tortoise.

The County should reassess all relevant biological data, require appropriate surveys for special status species including the tortoise and burrowing owl, and use the results of these surveys along with the available literature on species status species to determine the types and extent of the direct, indirect and cumulative impacts to these species including the tortoise. Only then will the County have sufficient information to determine the appropriate and effective mitigation to require to reduce the level of impacts to less than significant and determine whether a mitigated negative declaration or an environmental impact report is the appropriate CEQA document to prepare.

We appreciate this opportunity to provide the above comments and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Council wants to

be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the County 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 the County continue to notify the Council at [eac@deserttortoise.org](mailto:eac@deserttortoise.org) of any proposed projects that may affect the desert tortoise so we may comment on them to ensure the County fully considers and implements actions to conserve tortoises as part of its directive to conserve biodiversity on lands it oversees in San Bernardino County.

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

Respectfully,



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

Attachment: Appendix A – Demographic Status and Trend of the Mojave Desert Tortoise including Tortoises in Western Mojave Recovery Unit.

Cc: Brian Croft, Assistant Field Supervisor, Palm Springs Fish and Wildlife Office, U.S. Fish and Wildlife Office, [brian\\_croft@fws.gov](mailto:brian_croft@fws.gov)  
Peter Sanzenbacher, Mojave Desert Division Supervisor, [peter\\_sanzenbacher@fws.gov](mailto:peter_sanzenbacher@fws.gov)  
Heidi Calvert, Regional Manager, Region 6, Inland and Desert Region, California Department of Fish and Wildlife, [Heidi.Calvert@wildlife.ca.gov](mailto:Heidi.Calvert@wildlife.ca.gov)  
Steven Recinos, Environmental Scientist, Region 6, Inland Deserts Region, California Department of Fish and Wildlife, [steven.recinos@wildlife.ca.gov](mailto:steven.recinos@wildlife.ca.gov)

### Literature Cited

- Allison L.J. and A.M. McLuckie. 2018. Population trends in Mojave desert tortoises (*Gopherus agassizii*). *Herpetological Conservation and Biology*. 2018 Aug 1;13(2):433-52. [http://www.herpconbio.org/Volume\\_13/Issue\\_2/Allison\\_McLuckie\\_2018.pdf](http://www.herpconbio.org/Volume_13/Issue_2/Allison_McLuckie_2018.pdf)
- Averill-Murray, R.C., T.C. Esque, L.J. Allison, S. Bassett, S.K. Carter, K.E. Dutcher, S.J. Hromada, K.E. Nussear, and K. Shoemaker. 2021. Connectivity of Mojave Desert tortoise populations—Management implications for maintaining a viable recovery network. U.S. Geological Survey Open-File Report 2021–1033, 23 p., <https://doi.org/10.3133/ofr20211033>. <https://pubs.usgs.gov/of/2021/1033/ofr20211033.pdf>
- Beier, P., D.R. Majka, and W.D. Spencer. 2008, Forks in the road—Choices in procedures for designing wildland linkages: *Conservation Biology* 22(4):836–851. <https://doi.org/10.1111/j.1523-1739.2008.00942.x>
- Berry, K.H. 1986. Desert tortoise (*Gopherus agassizii*) relocation: Implications of social behavior and movements. *Herpetologica* 42:113-125.

<https://www.jstor.org/stable/3892242>

Berry, K.H., L.J. Allison, A.M. McLuckie, M. Vaughn, and R.W. Murphy. 2021. *Gopherus agassizii*. The IUCN Red List of Threatened Species 2021: e.T97246272A3150871. <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T97246272A3150871.en>

[BLM] U.S. Bureau of Land Management. 2016. Record of Decision for the Land Use Plan Amendment to the California Desert Conservation Plan, Bishop Resource Management Plan, and Bakersfield Resource Management Plan for the Desert Renewable Energy Conservation Plan (DRECP). Dated September 2016. Sacramento, CA

Boarman, W.I. 1993. When a native predator becomes a pest—A case study, *in* Majumdar, S.K., Miller, E.W., Baker, D.E., Brown, E.K., Pratt, J.R., and Schmalz, R.F., eds., Conservation and resource management: Easton, Pennsylvania Academy of Science, p. 186–201.

Boarman, W. 2003. Managing a Subsidized Predator Population: Reducing Common Raven Predation on Desert Tortoises. *Environmental Management* 32, 205–217 (2003). <https://doi.org/10.1007/s00267-003-2982-x>

Boarman, W.I., M.A. Patten, R.J. Camp, and S.J. Collis. 2006. Ecology of a population of subsidized predators: Common ravens in the central Mojave Desert, California. *Journal of Arid Environments* 67 (2006) 248–261. <https://www.sciencedirect.com/science/article/abs/pii/S0140196306003016>

Brooks, M.L., and T.C. Esque. 2002. Alien plants and fire in desert tortoise (*Gopherus agassizii*) habitat of the Mojave and Colorado Deserts. *Chelonian Conservation and Biology* 4:330–340. <https://pubs.usgs.gov/publication/1008328>

[CDFG] California Department of Fish and Game. 2012. Staff report on burrowing owl mitigation. The 7 March 2012 memo replacing 1995 staff report, State of California Natural resources Agency, Department of Fish and Wildlife. Sacramento, CA. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83843&inline>

[CDFW] California Department of Fish and Wildlife. 2024a. Status Review for Mojave Desert Tortoise (*Gopherus agassizii*) Report to the Fish and Game Commission, February 2024. <https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=CESA-Listing>

[CDFW] California Department of Fish and Wildlife. 2024b. 2022-2024 News Releases. California Fish and Game Commission Holds Hybrid Meeting, April 23, 2024. <https://wildlife.ca.gov/News/Archive/california-fish-and-game-commission-holds-hybrid-meeting11>

Carter, S.K., K.E. Nussear, T.C. Esque, I.I.F. Leinwand, E. Masters, R.D. Inman, N.B. Carr, and L.J. Allison. 2020. Quantifying development to inform management of Mojave and Sonoran desert tortoise habitat in the American southwest. *Endangered Species Research* 42:167–184.

<https://doi.org/10.3354/esr01045>.  
<https://www.int-res.com/abstracts/esr/v42/p167-184/>

Circle Mountain Biological Consultants. 2006. Focused survey for desert tortoise and western burrowing owl and general biological resource assessment for a 640-acre± site (APN 0629-181-01) in the vicinity of Yucca Valley, San Bernardino County, California. Unpublished report prepared by Ed LaRue on behalf of Danmark Development, LLC. Job 06-080. Wrightwood, CA. (Same as Job 06-012).

Circle Mountain Biological Consultants, Inc. 2007. Focused survey for desert tortoise and western burrowing owl and general biological resource assessment for a 25-acre± site (APN 0629-091-07) in the community of Flamingo Heights, San Bernardino County, California. Unpublished report prepared by Ed LaRue on behalf of Robert Rojas. Job 07-038. Wrightwood, CA.

[Commission] California Fish and Game Commission. 2025. CESA, Petitions to List Species Under the California Endangered Species Act, Finalized Petitions. <https://fgc.ca.gov/CESA#1089124-mojave-aka-agassizs-desert-tortoise-2025>

[County] San Bernadino County Land Use Planning 2025. Initial Study & Mitigated Negative Declaration PROJ-2023-00146, Belfield Developments, LLC, APNs: 0630-031-05 and 0630-031-06. September 2025.  
<https://lus.sbcounty.gov/planning-home/environmental/desert-region/>

Defenders of Wildlife, Desert Tortoise Preserve Committee, and Desert Tortoise Council. 2020. A Petition to the State of California Fish And Game Commission to move the Mojave desert tortoise from listed as threatened to endangered.  
[https://defenders.org/sites/default/files/2020-03/Desert%20Tortoise%20Petition%203\\_20\\_2020%20Final\\_0.pdf](https://defenders.org/sites/default/files/2020-03/Desert%20Tortoise%20Petition%203_20_2020%20Final_0.pdf)

Drake, K. K., L. Bowen, K. E. Nussear, T. C. Esque, A. J. Berger, N. A. Custer, S. C. Waters, J. D. Johnson, A. K. Miles, and R. L. Lewison. 2016. Negative impacts of invasive plants on conservation of sensitive desert wildlife. *Ecosphere* 7(10):e01531. 10.1002/ecs2.1531.  
<https://esajournals.onlinelibrary.wiley.com/doi/pdf/10.1002/ecs2.1531>

ELMT Consulting. 2023. Biological Resources Assessment for the Proposed Hotel Project Located in Landers, San Bernardino County, California. Unpublished report prepared on behalf of Belfield Developments LLC., dated 8/25/2023. Santa Ana, CA. 12 pages plus attachments.

Esque, T.C., K.E. Nussear, K.K. Drake, A.D. Walde, K.H. Berry, R.C. Averill-Murray, A.P. Woodman, W.I. Boarman, P.A. Medica, J. Mack, and J.H. Heaton. 2010. Effects of subsidized predators, resource variability, and human population density on desert tortoise populations in the Mojave Desert, U.S.A. *Endangered Species Research*, Vol. 12-167-177, 2010, doi: 10.3354/esr00298.  
<https://www.int-res.com/articles/esr2010/12/n012p167.pdf>

- Goble, D.D. 2009. The endangered species act—What we talk about when we talk about recovery: *Natural Resources Journal* 49:1–44.  
<https://www.jstor.org/stable/24889187>
- Holcomb, K.L. 2025. Personal communication. Desert Tortoise Recovery Office. U.S. Fish and Wildlife Service, Palm Springs, CA.
- Kristan, W.B., W.I. Boarman, and J.J. Crayon. 2004. Diet composition of common ravens across the urban wildland interface of the west Mojave Desert. *Wildlife Society Bulletin* 32: 244–253.  
[https://doi.org/10.2193/0091-7648\(2004\)32\[244:DCOCRA\]2.0.CO;2](https://doi.org/10.2193/0091-7648(2004)32[244:DCOCRA]2.0.CO;2)
- LaRue, E. 1992. Distribution of desert tortoise sign adjacent to Highway 395, San Bernardino County, California. *Proceedings of the 1992 Symposium of the Desert Tortoise Council*.
- Lovich, J.E., C.B. Yackulic, J.E. Freilich, M. Agha, M. Austin, K.P. Meyer, T.R. Arundel, J. Hansen, M.S. Vamstad, and S.A. Root. 2014. Climatic variation and tortoise survival—Has a desert species met its match? *Biological Conservation* 169: 214–224.  
<https://www.sciencedirect.com/science/article/pii/S0006320713003443>
- Morafka, D.J. 1994. Neonates—Missing links in the life histories of North American tortoises, *in* Bury, R.B., and Germano, D.J., eds., *Biology of North American tortoises*: Washington, D.C., National Biological Survey, Fish and Wildlife Research 13:161–173.
- Nafus, M.G., T.D. Tuberville, K.A. Buhlmann, and B.D. Todd. 2013. Relative abundance and demographic structure of Agassiz’s desert tortoise (*Gopherus agassizii*) along roads of varying size and traffic volume. *Biological Conservation* 162 (2013) 100–106.  
<https://www.sciencedirect.com/science/article/abs/pii/S0006320713001043>
- Nagy, K.A., L.S. Hillard, M.W. Tuma, and D.J. Morafka. 2015. Head-started desert tortoises (*Gopherus agassizii*)—Movements, survivorship and mortality causes following their release: *Herpetological Conservation and Biology* 10: 203–215.  
<https://escholarship.org/content/qt67f7t2n6/qt67f7t2n6.pdf>
- Peterson, C.C. 1994. Different rates and causes of high mortality in two populations of the threatened desert tortoise *Gopherus agassizii*. *Biological Conservation* 70: 101–108.  
<https://www.sciencedirect.com/science/article/abs/pii/0006320794902771>
- Stahle, D.W. 2020. Anthropogenic megadrought. *Science* 368 (6488): 238-239. DOI: 10.1126/science.abb6902.  
<https://par.nsf.gov/servlets/purl/10166645>
- Tuma, M.W., C. Millington, N. Schumaker, and P. Burnett. 2016. Modeling Agassiz’s Desert Tortoise Population Response to Anthropogenic Stressors. *Journal of Wildlife Management* 80(3):414–429.  
<https://wildlife.onlinelibrary.wiley.com/doi/abs/10.1002/jwmg.1044>

- [USFWS] U.S. Fish and Wildlife Service. 2009. Desert Tortoise (Mojave Population) Field Manual: (*Gopherus agassizii*). December 2009. Region 8, Sacramento, California. <https://www.fws.gov/sites/default/files/documents/Desert-Tortoise-Field-Manual.pdf>
- [USFWS] U.S. Fish and Wildlife Service. 2011. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California. <https://www.fws.gov/sites/default/files/documents/USFWS.2011.RRP%20for%20the%20Mojave%20Desert%20Tortoise.pdf>
- [USFWS] U.S. Fish and Wildlife Service. 2019. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2018 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. <https://www.fws.gov/sites/default/files/documents/USFWS.2019%20report.%20Rangewide%20monitoring%20report%202018.pdf>
- [USFWS] U.S. Fish and Wildlife Service. 2025. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2024 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Las Vegas, Nevada. <https://www.fws.gov/sites/default/files/documents/2025-08/2024-range-wide-mojave-desert-tortoise-monitoring-report.pdf>
- von Seckendorff Hoff, K. and R. Marlow. 2002. Impacts of vehicle road traffic on desert tortoise populations with consideration of conservation of tortoise habitat in southern Nevada. *Chelonian Conservation and Biology* 4: 449–456.
- Williams, A.P., B.I. Cook, and J.E. Smerdon. 2022. Rapid intensification of the emerging southwestern North American megadrought in 2020–2021. *Nature Climate Change*. 12 (2022):232–234. <https://doi.org/10.1038/s41558-022-01290-z>.

**Appendix A**  
**Demographic Status and Trend of the Mojave Desert Tortoise**  
**including Tortoises in the Western Mojave Recovery Unit**

Status of the Population of the Mojave Desert Tortoise: The Council provides the following information for resource and land management agencies so that these data may be included and analyzed in their project and land management documents and aid them in making management decisions that affect the Mojave desert tortoise (tortoise).

There are 17 populations of Mojave desert tortoise described below 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).

As the primary land management entity in the range of the Mojave desert tortoise, the Bureau of Land Management's (BLM's) implementation of a conservation strategy for the Mojave desert tortoise in the CDCA through implementation of its Resource Management Plan and Amendments through 2014 has resulted in the following changes in the status for the tortoise throughout its range and in California from 2004 to 2014 (**Table 1, Table 2**; USFWS 2015, Allison and McLuckie 2018). The Council believes these data show that BLM and others have failed to implement an effective conservation strategy for the Mojave desert tortoise as described in the recovery plan (both USFWS 1994a and 2011), and have contributed to tortoise declines in density and abundance between 2004 to 2014 (**Table 1, Table 2**; USFWS 2015, Allison and McLuckie 2018) with declines or no improvement in population density from 2015 to 2024 (**Table 3**; USFWS 2016, 2018, 2019, 2020, 2022a, 2022b, 2025).

Important points from these tables include the following:

*Change in Status for the Mojave Desert Tortoise Range-wide*

- Ten of 17 populations of the Mojave desert tortoise declined from 2004 to 2014.
- Eleven of 17 populations of the Mojave desert tortoise are below the population viability threshold. These 11 populations represent 89.7 percent of the range-wide habitat in CHUs/TCAs.

*Change in Status for the Western Mojave Recovery Unit – California*

- This recovery unit had a 51 percent decline in tortoise density from 2004 to 2014.
- Tortoise populations in all three TCAs in this recovery unit have densities that are below viability.

*Change in Status for the Superior-Cronese Tortoise Population in the Western Mojave Recovery Unit.*

- The population in this recovery unit experienced declines in densities of 61 percent from 2004 to 2014. In addition, there was a 51 percent decline in tortoise abundance.
- This population has densities less than needed for population viability (USFWS 1994a).

**Table 1.** Summary of 10-year trend data for the 5 Recovery Units and 17 CHUs/TCAs for Mojave 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/km<sup>2</sup> and standard errors = SE), and the percent change in population density between 2004 and 2014. Populations below the viable level of 3.9 breeding individuals/km<sup>2</sup> (10 breeding individuals per mi<sup>2</sup>) (assumes a 1:1 sex ratio) or showing a decline from 2004 to 2014 are in red.

Recovery Unit: Designated Critical Habitat Unit <sup>1</sup> /Tortoise Conservation Area	Surveyed area (km <sup>2</sup> )	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km <sup>2</sup> (SE)	% 10-year change (2004–2014)
<b>Western Mojave, CA</b>	<b>6,294</b>	<b>24.51</b>	<b>2.8 (1.0)</b>	<b>-50.7 decline</b>
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
<b>Colorado Desert, CA</b>	<b>11,663</b>	<b>45.42</b>	<b>4.0 (1.4)</b>	<b>-36.25 decline</b>
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
<b>Northeastern Mojave</b>	<b>4,160</b>	<b>16.2</b>	<b>4.5 (1.9)</b>	<b>+325.62 increase</b>
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
<b>Eastern Mojave, NV &amp; CA</b>	<b>3,446</b>	<b>13.42</b>	<b>1.9 (0.7)</b>	<b>-67.26 decline</b>
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
<b>Upper Virgin River</b>	<b>115</b>	<b>0.45</b>	<b>15.3 (6.0)</b>	<b>-26.57 decline</b>
Red Cliffs Desert	115	0.45	15.3 (6.0)	-26.57 decline
<b>Range-wide Area of CHUs - TCAs/Range-wide Change in Population Status</b>	<b>25,678</b>	<b>100.00</b>		<b>-32.18 decline</b>

<sup>1</sup> U.S. Fish and Wildlife Service. 1994b. Endangered and threatened wildlife and plants; determination of critical habitat for the Mojave population of the desert tortoise. Federal Register 55(26):5820-5866. Washington, D.C.

**Table 2.** 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 <sup>2</sup> )	2004 Abundance	2014 Abundance	Change in Abundance	Percent Change in Abundance
<b>Western Mojave</b>	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%
<b>Total</b>	<b>68,501</b>	<b>336,393</b>	<b>212,343</b>	<b>-124,050</b>	<b>-37%</b>

**Table 3.** Summary of data for Agassiz’s desert tortoise, *Gopherus agassizii* (=Mojave desert tortoise) from 2004 to 2024 for the 5 Recovery Units and 17 Critical Habitat Units (CHUs)/Tortoise Conservation Areas (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/km<sup>2</sup> 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/km<sup>2</sup> (10 breeding individuals per mi<sup>2</sup>) (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 & CHU/TCA	% of total habitat area in Recovery Unit & CHU/TCA	2004 density / km <sup>2</sup>	2014 density/ km <sup>2</sup> (SE)	% 10-year change (2004– 2014)	2015 density / km <sup>2</sup>	2016 density / km <sup>2</sup>	2017 density / km <sup>2</sup>	2018 density / km <sup>2</sup>	2019 density / km <sup>2</sup>	2020 density / km <sup>2</sup>	2021 density / km <sup>2</sup>	2024 density /km <sup>2</sup>
<b>Western Mojave, CA</b>	<b>24.51</b>		<b>2.8 (1.0)</b>	<b>-50.7 decline</b>								
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	1.8
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*	2.7
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	No data
<b>Colorado Desert, CA</b>	<b>45.42</b>		<b>4.0 (1.4)</b>	<b>-36.25 decline</b>								
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	7.4
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	No data
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	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	No data
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	No data
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	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	4.0

<b>Northeastern Mojave AZ, NV, &amp; UT</b>	<b>16.2</b>		<b>4.5 (1.9)</b>	<b>+325.62 increase</b>								
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	1.7
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	2.7
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	No data
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	No data
<b>Eastern Mojave, NV &amp; CA</b>	<b>13.42</b>		<b>1.9 (0.7)</b>	<b>-67.26 decline</b>								
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	
<b>Upper Virgin River, UT &amp; AZ</b>	<b>0.45</b>		<b>15.3 (6.0)</b>	<b>-26.57 decline</b>								
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	No data	17.5†
<b>Rangewide Area of CHUs - TCAs/Rangewide Change in Population Status</b>	<b>100.00</b>			<b>-32.18 decline</b>								

\*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.

†Results from 2023

*Change in Status for the Mojave Desert Tortoise in California*

- Eight of 10 populations of the Mojave desert tortoise in California declined from 29 to 64 percent from 2004 to 2014 with implementation of tortoise conservation measures in the Bureau of Land Management's Northern and Eastern Colorado Desert (NECO), Northern and Eastern Mojave Desert (NEMO), and Western Mojave Desert (WEMO) Plans.
- Eight of 10 populations of the Mojave desert tortoise in California are below the viability threshold for density. These eight populations represent 87.45 percent of the habitat in California that is in CHU/TCAs.
- The two viable populations of the Mojave desert tortoise in California are declining. If their rates of decline from 2004 to 2014 continue, these two populations will no longer be viable by about 2030.

*Change in Status for the Mojave Desert Tortoise on BLM Land in California*

- Eight of eight populations of Mojave desert tortoise on lands managed by the BLM in California declined from 2004 to 2014.
- Seven of eight populations of Mojave desert tortoise on lands managed by the BLM in California are no longer viable.

*Change in Status for Mojave Desert Tortoise Populations in California that Are Moving toward Meeting Recovery Criteria*

- The only population of Mojave desert tortoise in California that did not decline is on land managed by the National Park Service, which increased 178 percent from 2004 to 2014.

Important points to note from the data from 2015 to 2024 in Table 3 are:

*Change in Status for the Mojave Desert Tortoise in the Western Mojave Recovery Unit:*

- The density of tortoises continues to decline in the Western Mojave Recovery Unit
- The density of tortoises from 2015 to 2024 continues to fall below the density needed for population viability.

*Change in Status for the Mojave Desert Tortoise in the Colorado Desert Recovery Unit:*

- Many of the populations in this recovery unit have densities that are near the threshold for population viability.

*Change in Status for the Mojave Desert Tortoise in the Northeastern Mojave Recovery Unit:*

- Two of the three population with densities greater than needed for population viability declined to level below the minimum viability threshold.
- Three of the four populations in this recovery unit have densities below the minimum density needed for population viability.

*Change in Status for the Mojave Desert Tortoise in the Eastern Mojave Recovery Unit:*

- Both populations in this recovery unit have densities below the minimum density needed for population viability.

*Change in Status for the Mojave Desert Tortoise in the Upper Virgin River Recovery Unit:*

- The one population in this recovery unit is small and appears to have stable densities.

The Endangered Mojave Desert Tortoise: The Council believes that the Mojave desert tortoise meets the definition of an endangered species. 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. Despite claims by USFWS (Averill-Murray and Field 2023) that a large number of individuals of a listed species and an increasing population trend in part of the range of the species prohibits it from meeting the definitions of endangered, we are reminded that the tenants of conservation biology include numerous factors when determining population viability. The number of individuals present is one of a myriad of factors (e.g., species distribution and density, survival strategy, sex ratio, recruitment, genetics, threats including climate change, etc.) used to determine population viability. In addition, a review of all the available data does not show an increasing population trend (please see Tables 1 and 3).

**Literature Cited in Appendix A**  
**Demographic Status and Trend of the Mojave Desert Tortoise**  
**including Tortoises in the Western Mojave Recovery Unit**

Allison L.J. and A.M. McLuckie. 2018. Population trends in Mojave desert tortoises (*Gopherus agassizii*). *Herpetological Conservation and Biology*. 2018 Aug 1. 13(2):433–452. [http://www.herpconbio.org/Volume\\_13/Issue\\_2/Allison\\_McLuckie\\_2018.pdf](http://www.herpconbio.org/Volume_13/Issue_2/Allison_McLuckie_2018.pdf)

or

<https://www.fws.gov/media/allison-and-mcluckie2018mojave-desert-tortoise-population-trends>

[USFWS] U.S. Fish and Wildlife Service. 1994a. Desert tortoise (Mojave population) Recovery Plan. U.S. Fish and Wildlife Service, Region 1, Portland, Oregon. 73 pages plus appendices. [https://ecos.fws.gov/docs/recovery\\_plan/940628.pdf](https://ecos.fws.gov/docs/recovery_plan/940628.pdf)

[USFWS] U.S. Fish and Wildlife Service. 1994b. Endangered and threatened wildlife and plants; determination of critical habitat for the Mojave population of the desert tortoise. Federal Register 55(26):5820-5866. Washington, D.C.

[USFWS] U.S. Fish and Wildlife Service. 2011. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California.

<https://www.fws.gov/sites/default/files/documents/USFWS.2011.RRP%20for%20the%20Mojave%20Desert%20Tortoise.pdf>

[USFWS] U.S. Fish and Wildlife Service. 2015. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2013 and 2014 Annual Reports. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. <https://www.fws.gov/sites/default/files/documents/USFWS.2015%20report.%20Rangewide%20monitoring%20report%202013-14.pdf>

[USFWS] U.S. Fish and Wildlife Service. 2016. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2015 and 2016 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. <https://www.fws.gov/sites/default/files/documents/USFWS.2016%20report.%20Rangewide%20monitoring%20report%202015-16.pdf>

[USFWS] U.S. Fish and Wildlife Service. 2018. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2017 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. <https://www.fws.gov/sites/default/files/documents/USFWS.2018%20report.%20Rangewide%20monitoring%20report%202017.pdf>

[USFWS] U.S. Fish and Wildlife Service. 2019. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2018 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. <https://www.fws.gov/sites/default/files/documents/USFWS.2019%20report.%20Rangewide%20monitoring%20report%202018.pdf>

[USFWS] U.S. Fish and Wildlife Service. 2020. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2019 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. 42 pages. [https://www.fws.gov/sites/default/files/documents/2019\\_Rangewide%20Mojave%20Desert%20Tortoise%20Monitoring.pdf](https://www.fws.gov/sites/default/files/documents/2019_Rangewide%20Mojave%20Desert%20Tortoise%20Monitoring.pdf)

[USFWS] U.S. Fish and Wildlife Service. 2022a. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2020 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. <https://www.fws.gov/sites/default/files/documents/USFWS.2022%20report.%20Rangewide%20monitoring%20report%202020.pdf>

[USFWS] U.S. Fish and Wildlife Service. 2022b. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2021 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada. <https://www.fws.gov/sites/default/files/documents/USFWS.2022%20report.%20Rangewide%20monitoring%20report%202021.pdf>

[USFWS] U.S. Fish and Wildlife Service. 2025. Range-wide Monitoring of the Mojave Desert Tortoise (*Gopherus agassizii*): 2024 Annual Reporting. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Las Vegas, Nevada.  
<https://www.fws.gov/sites/default/files/documents/2025-08/2024-range-wide-mojave-desert-tortoise-monitoring-report.pdf>