



DESERT TORTOISE COUNCIL

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Via email only

6 December 2023

Mindy Edwards, Planner
County of San Bernardino
Land Use Services Department - Planning Division
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RE: Initial Study / Mitigated Negative Declaration for AT&T Wireless Site (Kendall Property)
Hesperia, San Bernardino County (PROJ-2022-00008)

Dear Ms. Barragan,

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

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

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitat within the known distribution of 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 authorized by the San Bernardino County, which we recommend be added to the project terms and conditions in the authorizing permit. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachments for the proposed project.

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 Desert Tortoise Preserve Committee (Defenders of Wildlife et al. 2020) to petition the California Fish and Game Commission in March 2020 to elevate the listing of the Mojave desert tortoise from threatened to endangered in California.

We appreciate that the San Bernardino County Land Use Services Department (County) contacted the Council directly so we would have the opportunity to provide comments on the above-referenced project. Our comments are intended to ensure that the County fully complies with the purpose and intent of the California Environmental Quality Act (CEQA), Federal Endangered Species Act (FESA), California Endangered Species Act (CESA), other applicable environmental laws, regulations, and codes to implement these laws. Our focus is ensuring that these laws/regulations/codes are applied on behalf of the tortoise and its habitat to provide for its conservation.

Description of the Proposed Project

According to the Initial Study and Mitigated Negative Declaration (IS/MND), prepared by the County, and Biological Resources Impact Analysis CSL02583, Kendall Property APN: 0357-411-12-0000 Hesperia, San Bernardino County, California (Biological Resources Analysis) prepared by Environmental Assessment Specialists, Inc., the proposed project is to construct a new AT&T wireless facility (cell tower). Specific components of the proposed project include constructing/installing:

- A new 117-foot faux water tank antenna structure on a new 60' x 45'4" lease area;
- 12 panel antennas inside the faux water tank;
- 36 Remote radio units (RRUs) and six (6) DC9 surge suppressors inside faux water tank;
- 1 new CWIC equipment shelter within a 52' x 26' concrete masonry unit (CMU) walled enclosure measuring 10' high;
- 1 20kw AC Generac generator with 140-gallon diesel fuel tank;
- 1 GPS antenna and power and telco panels;
- Approximately 300 linear feet of power, telco, and fiber cabling in underground conduit; and
- An access road that is about 320' long leading from the proposed compound to an existing road.

The project site is undeveloped and surrounding land use is rural residential development. Previous disturbances on the site include off-road vehicle use. Existing dirt roads provide access to the site.

Elevation of the project site is about 3,700 feet. Vegetation within the vicinity of the project site primarily consists of a mixed desert scrub community of Joshua tree woodland and creosote bush scrub habitat. Common species observed include rubber rabbitbrush (*Ericameria nauseosus*), western Joshua tree (*Yucca brevifolia*), desert tea (*Ephedra californica*), burrobrush (*Ambrosia dumosa*), big sagebrush (*Artemisia tridentata*), and California buckwheat (*Eriogonum fasciculatum*).

Comments on the Initial Study/Mitigated Negative Declaration

8. Property Location and Project Description

In this section of the IS/MND, the Council found no description of the maintenance activities that would be conducted at the proposed AT&T wireless facility and therefore no description or analysis of the impacts from the implementation of maintenance activities. We presume that AT&T will perform maintenance activities especially because there is a generator and diesel tank at the wireless facility. We request that the IS/MND be revised to include a description of the maintenance activities, and under the resource issues analyzed, provide a discussion and analysis of impacts from maintenance activities to biological resources and special status species including the Mojave desert tortoise. Both direct and indirect impacts should be described and analyzed.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement)

The agencies listed in this section of the IS/MND were limited to San Bernardino County agencies. Permits/authorizations from the U.S. Fish and Wildlife Service (USFWS) and/or California Department of Fish and Wildlife (CDFW) may be required before the proposed project is constructed. For example, the proposed project is located in the distribution of and habitat for the Mojave desert tortoise, a threatened species listed under the FESA and CESA. With this listing, any action that is likely to result in take of a tortoise cannot occur without first obtaining an incidental take permit from the USFWS and CDFW. These agencies, not the County or Environmental Assessment Specialists, make this determination. Please add to the IS/MND the requirement that USFWS and CDFW be consulted to determine whether an incidental take permit/other authorizations from these agencies will be required to comply with the FESA, CESA, and California Fish and Game Code.

Biological Resources

Under the resource issue “Biological Resources,” the IS/MND (pages 12–16) responds to six standard questions (a through f) from a CEQA Handbook to determine whether the impacts of a proposed project need to be analyzed in an environmental impact report. The Council provides additional information to show that the current responses to these questions are incomplete, unsupported, and do not consider results from scientific reports and peer reviewed literature when arriving at these conclusions.

Question A – Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

The County’s response to this question is, “To determine if there were any ‘Sensitive’ or ‘special status’ biological species in the proposed project area, a records search of several databases was conducted. This included a search of the following:

- Plants - California Department of Fish and Wildlife (CDFW 2022), California Natural Diversity Data Base (CNDDDB 2022), and California Native Plant Society (Tibor 2001 and CNPSEI 2022).
- Habitats - CNDDDB (2022), Holland (1986)
- Wildlife - USFW (2022), CNDDDB (2022).”

This response should be corrected. The Biological Resources Analysis does not report using any USFWS or CDFW documents/data when developing this list. The USFWS has the Information for Planning and Consultation (IPaC) that the public can access. IPaC is a digital project planning tool that provides information to project proponents to help determine whether a project will have effects (= impacts) on federally listed species or designated critical habitat, as well as other sensitive resources managed by the USFWS. IPaC is accessed at <https://ipac.ecosphere.fws.gov/>. We found no information in the Biological Resources Analysis that IPaC was accessed for this project. When we accessed IPaC and entered the location of the proposed project, the results revealed that the proposed project may impact the Mojave desert tortoise along with other federally listed and candidate species.

Note that the USFWS’ (2011) *Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Gopherus agassizii)* states that the tortoise “occupies a variety of habitats from flats and slopes typically characterized by creosote bush scrub dominated by *Larrea tridentata* (creosote bush) and *Ambrosia dumosa* (white bursage) at lower elevations to rocky slopes in blackbrush scrub and juniper woodland ecotones (transition zone) at higher elevations.” Their elevational range is typically below 5,500 feet. The Biological Resources Analysis says, “this report provides an assessment of the sensitive resources found on the site and analyzes the biological significance of the site in view of federal, state, and local laws and policies.” We question how this is true with respect to federal laws and policies when it is apparent that USFWS sources were not accessed.

In addition, the County says, “an on-site reconnaissance of the subject property and proposed project areas was conducted by EAS Biologist Kyle Workman on November 11, 2022. Particular attention was focused on sensitive and special interest biological resources identified in the database searches mentioned above.”

The County is relying solely on information provided by Environmental Assessment Specialists, Inc, (2023) (EAC) in its Biological Resources Analysis that describes the results of conducting a literature review of the California Natural Diversity Database (CNDDDB) and a 1-day reconnaissance-level survey of the project site in November 2022. This limited information provides a starting point from which to initially determine whether special status/rare species may occur/use the project site (= project footprint) and the project area, and whether suitable habitat for listed/special status/rare species occurs on the project site as well as in the project area. It does not provide necessary data to determine whether listed/special status/rare species do or do not occur on the project site. To accomplish that, a presence-absence survey (not a reconnaissance survey) as described in USFWS (2019), is necessary.

Information from CNDDDB and information about a species range/distribution and vegetation associations used by listed/special status/rare species are needed to initially determine whether a species **may** use [emphasis added] the project area. These sources of information are needed because the data in CNDDDB is limited to occurrences reported to the database. Thus, CNDDDB data do not show all locations where all listed/special status/rare species occur.

Animal species are not fixed in their occurrence or use of specific areas including the project site.

Further, the County’s response included, “[b]ecause of the disturbed nature of the site, an on-site biological assessment determined that the areas proposed for the AT&T equipment compound, access road and utility trench contain no suitable habitat for any sensitive plant species. Since there is no moderate or high potential for sensitive plant species to occur on the proposed project site, no focused surveys are recommended.” “[N]o portions of the proposed development footprint contain the important habitat suitability elements for any of the above-listed sensitive wildlife species; and none are likely to occur within the proposed development footprint itself.”

Plants species are not always evident if they are annual species or perennial species that die back with respect to their aboveground shoots, leaves, and flowers during drought or the non-growing season. The reconnaissance visit to the project site occurred in November, which is a month that is not within the growing season for most plants in the Mojave Desert.

The impacts of the proposed project will extend beyond the project site. The Biological Resources Analysis limited its conclusions with respect to listed species physically occurring on the project site. The impacts to adjacent areas were not considered, especially with respect to wildlife linkages/movement corridors/wildlife population connectivity (Please see “Question D” below).

We found no information in the Biological Resources Analysis to support the conclusions that the Project Site or nearby areas (Project Area) are not used by listed/special status species. For example, the survey protocol for western burrowing owl (CDFG 2012), which should have been performed for this project (see next page) but was not because only a reconnaissance survey was performed, requires that transects be surveyed in adjacent areas at 30-, 60-, 90-, 120-, and 150-meter intervals. Nor is there any indication that the “action area” described herein on page 7, not only the project footprint, was surveyed.

The Project Site is in the range/distribution of the Mojave desert tortoise, Mohave ground squirrel, western burrowing owl, American badger, western Joshua tree, and other sensitive species. The IS/MND should include information provided on CDFW’s website about these species and their distributions. As examples, we have provided links to relevant information below.

Mojave desert tortoise –

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2660&inline=1>

and

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2659&inline=1>

Mohave ground squirrel –

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2420&inline=1>

and

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2419&inline=1>

American badger (*Taxidea taxus*) –

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2598&inline=1>

and

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=2597&inline=1>

Western burrowing owl (*Athene cunicularia*) –

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=1872&inline=1>

and

<https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=1871&inline=1>

Western Joshua tree (*Yucca brevifolia*) –

https://www.dropbox.com/scl/fi/kclapr0cukio1t8xc0n7r/Western-Joshua-Tree-Conservation-Act_AB-1008.pdf?rlkey=r9qh99l9rzfx9zjp21eoogahb&dl=0

Additionally, we were unable to find data and/or citations from the scientific literature to support the conclusions made by EAC that the listed/special status species whose ranges/distributions and vegetation associations occur on the project area do not use the project area.

We request that the Biological Resources Analysis provide data that support these conclusions/determinations.

The Biological Resources Analysis addresses only the potential impacts from the construction activities of the proposed project. It does not address impacts from operation/use of the proposed project or maintenance activities. Thus, the Biological Resources Analysis is limited in its ability to determine the impacts of the construction, operation/use, and maintenance of the proposed project on listed/special status species that may use the project site including the tortoise. CEQA analysis should include all activities that are likely to occur from approval of the proposed project, not just construction activities, and their impacts.

Other resource issues that are discussed in the IS/MND (e.g., air quality) provide data on impacts during the operation/use phase of the proposed project, and present data to reach a conclusion about the impacts of the proposed project to air quality. This same process should have been applied to biological resources that are likely to be impacted by the proposed project from the operation/use and maintenance phases of the proposed project.

In summary, the County should not rely solely on the Biological Resources Analysis when making its determination for Question A. EAC did not conduct the necessary protocol surveys (USFWS 2019) needed to collect and analyze the data needed to determine whether the project site and surrounding area (CDFG 2012) is used by listed/special status species or to determine the direct, indirect, and cumulative impacts of the proposed project on these species. That would require conducting the survey protocols of the USFWS and CDFW for these species.

To determine the impacts from implementation of the proposed project to these species, the County should require the Project Proponent to perform the USFWS and CDFW surveys for these species. Note that these surveys would extend beyond the footprint of the Proposed Project and are designed based on the biology, behavior, and ecological needs of each species – hence the need for different survey protocols for each species.

Only qualified biologists/botanists for the respective listed/special status species should conduct the species-specific surveys. Results of these surveys will be used by these agencies to determine whether permits are needed from CDFW and USFWS and the appropriate mitigation measures. Focused plant surveys should occur only if there has been sufficient winter rainfall to promote germination of annual plants in the spring. Alternatively, the CEQA document may assess the likelihood of occurrence of rare plants with a commitment by the Project Proponent to perform subsequent focused plant surveys prior to ground disturbance, assuming conditions are favorable for germination.

To assist the County, we have provide information below about the USFWS and CDFW focused surveys for some listed/special status species in the Project Area.

Mojave Desert Tortoise Survey: The USFWS has two types of surveys for the Mojave desert tortoise, preconstruction surveys and tortoise clearance surveys (USFWS 2009). Preconstruction surveys are conducted to determine whether tortoises/tortoise sign are present in the “action area” for the proposed project (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” (50 Code of Federal Regulations §402.02). Thus, the preconstruction survey area is larger than the project footprint or project site. CDFW has adopted the USFWS’ preconstruction survey as the methodology to use (<https://wildlife.ca.gov/Conservation/Survey-Protocols#377281283-reptiles>) to determine tortoise presence/use of the action area.

If the results of the presence-absence survey indicate the likelihood of presence, then tortoise clearance surveys (USFWS 2009) are conducted immediately prior to the initiation of ground disturbing work associated with the proposed project and after obtaining incidental take permits from USFWS and CDFW. Both types of surveys are conducted by biologists authorized by the USFWS and CDFW to ensure compliance with FESA and CESA.

The biologists should be approved by the USFWS and CDFW prior to performing the presence-absence or clearance surveys. If any tortoise sign is found, the Project Proponent should coordinate with USFWS and CDFW to determine whether “take” under FESA or CESA is likely to occur from implementation of the Proposed Project. If USFWS or CDFW determine that the construction, operation/use, or maintenance of the proposed project is likely to result in take of the tortoise, the Project Proponent must obtain from the USFWS a Section 10(a)(1)(B) incidental take permit and a Section 2081 incidental take permit from the CDFW prior to conducting any ground disturbance.

We remind the County that this and any other action funded, carried out, or authorized by the County such as issuance of a permit, must comply with FESA and CESA. Therefore, the County should require the Project Proponent to comply with the USFWS and CDFW presence-absence survey protocol for the tortoise, **and** [emphasis added] if the agencies determine an incidental take permit is required, the Project Proponent must obtain the permits prior to initiating any clearance surveys or ground disturbing activities.

Mohave Ground Squirrel Survey: CDFW protocol for surveying for the Mohave ground squirrel was revised in 2023. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83975&inline>. The purpose of the survey is “to determine presence or probable absence of the Mohave ground squirrel (*Xerospermophilus mohavensis*, hereafter MGS), a species listed as threatened under the California Endangered Species Act (CESA). Such surveys may be conducted as part of the environmental review process for proposed projects subject to the California Environmental Quality Act and California certified state regulatory programs, (hereafter collectively referred to as CEQA) and CESA within or near the geographic range of MGS¹. As part of the assessment and disclosure requirements of CEQA and CESA, proposed projects that would disturb or remove MGS habitat or might result in take² (as defined by section 86 of the California Fish and Game Code) of MGS should either determine whether the species is present on the project site through surveys or assume MGS presence and proceed with CESA incidental take authorization through Fish and Game Code section 2081.” Given that the site is located within the MGS range, it is prudent for the County and/or Project Proponent to ask CDFW if an MGS survey is warranted.

American Badger Survey: CDFW protocol for surveying for the American badger is Wearn, O. R. and P. Glover-Kapfer. 2017. Camera-trapping for conservation: a guide to best-practices. WWF Conservation Technology Series 1. WWF-UK, Woking, United Kingdom. (<https://www.wwf.org.uk/sites/default/files/2019-04/CameraTraps-WWF-guidelines.pdf>)

Western Burrowing Owl Survey: The Western burrowing owl is a migratory bird and protected under the Migratory Bird Treaty Act and several California Fish and Game Codes. Surveys for western burrowing owl should be coordinated with the USFWS as the species is protected under the Migratory Bird Treaty Act and CDFW as the species is protected under California Fish and Game Code. CDFW has a survey protocol for the owl (CDFG 2012). In addition to the project footprint, the survey protocol requires that peripheral transects be surveyed at 30-, 60-, 90-, 120-, and 150-meter intervals in all suitable habitats adjacent to the subject property to determine the potential indirect impacts of the project to this species. If burrowing owl sign is found, CDFG (2012) describes appropriate minimization and mitigation measures that would be required.

Rare Plant Survey Protocols: The Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Sensitive Natural Communities are described in the document accessed through this link - <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>

The Council appreciates that CDFW has been consulted with respect to actions needed to comply with the Western Joshua Tree Conservation Act.

The IS/MND should ensure that the protocols for these species are implemented and the results reported in the final CEQA document. A list of effective mitigation measures that will be required to offset the direct and indirect impacts to biological resources including the Mojave desert tortoise should be included with these results.

In addition, we are concerned about the narrowness of Question A. It appears to address only direct impacts from the Proposed Project and is limited to those that occur on the Project Site. For the tortoise, many reasons for its substantial declines in the last few decades have been because of indirect impacts. One example of an indirect impact from the Proposed Project’s construction, operation/use, and/or maintenance that may 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 carapace (Boarman 1993). The number of common ravens increased by 1,528% in the Mojave Desert since the 1960s (Boarman 1993). This increased 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, dumpsters, as well as perch, roost, and nest sites from power towers, utility poles, light posts, billboards, fences, freeway or railroad overpasses, abandoned vehicles, and buildings (Boarman 1993). Human subsidies allow ravens to survive in the desert during summer and winter when prey and water resources are typically inactive or scarce in nature. Boarman (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.

The proposed project may increase the availability of human-provided subsidies for predators of the tortoise including the common raven during construction, operation/use, and maintenance. For example, during the construction phase water would be used to control dust from soil that is disturbed (i.e., excavated, bladed, compacted, etc.) and the solid 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 that may attract these predators to the project site and increase their numbers in the surrounding area. Grading or digging at the site would expose, injure, or kill fossorial animals and provide a subsidized food source for ravens and coyotes. Construction of vertical features such as towers and utility poles provides new nesting substrates for ravens. Breeding ravens concentrate their hunting efforts with a few miles of their nests. During the operation/use and maintenance activities, the presence of food waste in waste containers/dumpsters would provide food subsidies for ravens.

These subsidies of tortoise predators could be easily mitigated by requiring Best Management Practices (BMPs) that include limiting the use of water for dust suppression so it does not form puddles or streams, requiring solid waste containers that are predator-proof, wind-proof, and regularly maintained by the Applicant/Owner of the property, etc. We request that these BMPs be added to the CEQA document and the Applicant/Owner be required to implement them. Please see the Council’s (2017) “A Compilation of Frequently Implemented Best Management Practices to Protect Mojave Desert Tortoise during Implementation of Federal Actions” (https://deserttortoise.org/wp-content/uploads/dtc_construction_BMPs_090517.pdf) for examples of BMPs for the tortoise, many of which are applicable to the Proposed Project. While the title mentions implementation of Federal actions, the BMPs should also be implemented on non-Federal projects to avoid/minimize the likelihood of take under FESA or CESA. Please see the **Mitigation** section below for a list of the applicable BMPS from this compilation document.

We request that the County revise the CEQA document to include an analysis of increased predation and other indirect impacts to the tortoise that are likely to occur from the construction, operation/use, and maintenance of the proposed project. The County should require the Project Proponent to implement BMPs to substantially reduce/eliminate these indirect impacts to the tortoise and other special status species. Coordination with the USFWS and CDFW should occur in the finalization of these BMPs. In addition, the County should require the Project Proponent to contribute to the National Fish and Wildlife Foundation’s Raven Management Fund for regional and cumulative impacts of projects that subsidize common ravens (USFWS 2010) and other predators of the tortoise and other wildlife, as other project proponents have done for projects on private property in San Bernardino County.

Question D – Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? The County’s response to this question is, “The subject property is currently undeveloped land with substantially disturbed vegetation and heavily compacted bare ground. No small mammal burrows were identified in proposed project areas, and no portions of the proposed development footprint contain the important habitat suitability elements for any listed sensitive wildlife species. While the site is not within any migratory wildlife corridors; the vegetation located within the immediate vicinity of the proposed project site could provide suitable nesting habitat for several avian species. Mitigation Measure BIO-2 would minimize impacts to migratory and/or nesting birds to less than significant levels.”

When reading the Biological Resources Analysis, we found no information supporting the statement that the vegetation was “substantially disturbed.”

The County appears to have answered part of the question about migratory routes for birds, but missed answering the part about native resident wildlife movements and native resident corridors. The County should respond to the entire question especially as it applies to the listed Mojave desert tortoise, a native resident species that has been documented to make periodic forays of more than 7 miles (11 kilometers) at a time (Berry 1986).

The needs of each species differ with respect to the effectiveness/use of wildlife linkages. For example, the characteristics of linkage habitats for the Mojave desert tortoise would be substantially different than for desert bighorn sheep or Mohave ground squirrel. The Council provides the following information from the scientific literature about the need for and design of wildlife linkages to connect populations of the desert tortoise to maintain biodiversity.

Mojave desert tortoise linkage habitat: In 2021, Averill-Murray et al. published a paper on connectivity of Mojave desert tortoise populations and linkage habitat. The authors emphasized that “[m]aintaining an ecological network for the Mojave desert tortoise, with a system of core habitats (TCAs = Tortoise Conservation Areas) connected by linkages, is necessary to support demographically viable populations and long-term gene flow within and between TCAs.”

“Ignoring minor or temporary disturbance on the landscape could result in a cumulatively large impact that is not explicitly acknowledged (Goble, 2009); therefore, understanding and quantifying all surface disturbance on a given landscape is prudent.” Furthermore, “habitat linkages among TCAs must be **wide enough** [emphasis added] 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, effective linkage habitats are not long narrow corridors. Any development within them has an edge effect (i.e., indirect impact) that extends from all sides into the linkage habitat further narrowing or impeding the use of the linkage habitat, depending on the extent of the edge effect.

Averill-Murray et al. (2021) further notes that “To help maintain tortoise inhabitation and permeability across all other non-conservation-designated tortoise habitat, all surface disturbance could be limited to less than 5-percent development per square kilometer because the 5-percent threshold for development is the point at which tortoise occupation drops precipitously (Carter 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, as previously mentioned, may make periodic forays of more than 7 miles (11 kilometers) at a time (Berry 1986).

We add that the fundamentals of conservation biology include the need for gene flow between populations to maintain genetic diversity; this enables a species to more likely survive, especially during climate change, which enables biodiversity. Thus, linkage habitats are important as they provide connectivity among wildlife populations to maintain viability and biodiversity.

The County should not rely solely on the Biological Resources Analysis when making its determination for Question D. The scientific literature, CDFW, and USFWS should be consulted to determine whether there are linkages that have been identified as important to any special status species. Once identified, if any linkage occurs in the project area, the County should analyze whether the additional development would affect the effectiveness of the linkage habitat for that species. For example, CDFW (2019) has identified linkages for the Mohave ground squirrel in their Mohave Ground Squirrel Conservation Strategy. Without this information and analysis, it is not possible to make a conclusion about the impacts of the proposed project on the effectiveness of the linkage habitat with the addition of the proposed project.

This management concern of providing for effective linkage habitat to connect wildlife populations has been emphasized recently in California. In 2019, the Board of Supervisors for Ventura County adopted a program that identifies and manages for wildlife connectivity. It provides incentives for landowners to avoid development that may hinder wildlife connectivity. It is the first program of its kind in California. A California Court of Appeals unanimously ruled in November 2023 that these protections for wildlife linkages were lawful. In addition, Governor Newsome issued Executive Order N-82-20 to combat biodiversity and the climate crisis. The executive order seeks to restore and protect biodiversity in California.

The Council strongly recommends that San Bernardino County follow Ventura County's lead and identify and enact a set of land use ordinances that would be effective in protecting linkages needed by wildlife to travel among key populations, especially for the Mojave desert tortoise.

We remind the County that the status and trend of the tortoise has declined substantially since 2004 and most populations are below the threshold of viability. Consequently, it is advisable that any additional adverse impacts to the tortoise be they, direct, indirect, or cumulative, be fully mitigated if California is to manage for biodiversity that includes the tortoise. Please see our discussion below under "**Mandatory Finding of Significance – Cumulative Impacts**" and in an attachment to this letter, "**Appendix A – Demographic Status and Trend of the Mojave Desert Tortoise including the Western Mojave Recovery Unit.**"

Mandatory Finding of Significance – Cumulative Impacts

Two of the three questions in the CEQA Handbook for Mandatory Findings of Significance are applicable to the Mojave desert 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, we are attaching "**Appendix A – Demographic Status and Trend of the Mojave Desert Tortoise including the Western Mojave Recovery Unit.**" Note that the Proposed Project is in the Western Mojave Recovery Unit, where the tortoise populations in this Recovery Unit are below and have been below the density needed for population viability for almost a decade (Allison and McLuckie 2018), and the density of tortoises continues to decline in the Western Mojave Recovery Unit (USFWS 2022a, 2022b, Appendix A). Also note that the tortoise cannot achieve recovery, that is, be removed from the list of threatened species under FESA unless recovery is achieved in all five recovery units including the Western Mojave Recovery Unit (USFWS 2011). Recovery criteria include having viable tortoise populations. We conclude that having populations below the density needed for population viability means these population are below the level needed to be self-sustaining and any additional impact to these populations would exacerbate this density below the level of self-sustaining, contribute to ongoing population declines, and extirpation. We conclude from these data that the answer to these two questions is "yes." Please include this information on the status and trend of the Mojave desert tortoise (e.g., Appendix A) in the CEQA document.

Mitigation

The IS/MND describes certain mitigation measures that would be required of the Project Proponent. We have the following comments about some of the mitigation measures.

BIO-2 – Burrowing Owl and Mohave Ground Squirrel Mitigation:

In the Biological Resources Analysis, EAC says, "while the on-site biological survey results determined that the immediate vicinity of the subject property was considered unoccupied by burrowing owls and Mohave ground squirrels, suitable habitat was observed in the vicinity of the project site. Because of this, a preconstruction clearance survey for burrowing owls and Mohave ground squirrels is recommended within two weeks of the onset of construction activity."

We are unsure how EAC was able to arrive at this conclusion when we found no information that the CDFW survey protocols for the Mohave ground squirrel or burrowing owl were conducted to determine presence/absence. We request that the appropriate survey protocols for these two species be implemented by qualified personnel and at the appropriate times of the year prior to any surface disturbance from the proposed project. Note that no preconstruction clearance survey methods have been identified for Mohave ground squirrel; rather, a series of trapping sessions between March and July of a given year are conducted to determine presence or potential absence of the species (CDFW 2023). We fully support the County's requirement that protocol burrowing owl surveys (CDFG 2012), including zone of influence transects, be performed prior to ground disturbance.

GEO-2 – Fugitive Dust Control

“During construction activities, the construction contractor must comply with Mojave Desert Air Quality Management District (MDAQMD) Rule 403 (Fugitive Dust Emissions Control). The following measures must be taken during the construction of the proposed AT&T project in order to reduce the amount of dust and other sources of PM10:

- a. Dust suppression at construction sites using vegetation, surfactants, and other chemical stabilizers;
- b. Wheel washers for construction equipment.
- c. Watering down of all construction areas.”

As mentioned above, providing surface water that pools or streams is a water subsidy for common ravens. Please see the list of BMPs below that, when effectively implemented, eliminate the likelihood of this subsidized source of water.

“LU-3

The maximum height of the proposed AT&T faux water tank/antenna structure shall not exceed 120-feet as measured from the lowest ground surface at the base of the tower to the top of the tower or to the top of any extension to the tower.”

As mentioned above, common ravens are tortoise predators. Vertical structures provide nest subsidies for the raven. The Council requests that the water tank, antennas, and tower be designed so they do not provide a substrate for ravens to build nests. We presume that the Project Proponent would not want ravens or other birds nesting on their equipment because of the damage to the equipment from uric acid in bird excrement and physical damage from placement of sticks when constructing a nest.

“LU-5

Applicant shall repair disturbed areas immediately following construction and shall regularly check to ensure that disturbances to the natural landscape do not occur or are promptly repaired.”

The County should require that repair of disturbed areas includes successful revegetation using native plant species. This would help reduce the fuel load provided by invasive non-native annual plants, and reduce the likelihood of a fire being carried throughout the project area.

Appendix B Site Map/Project Plans/Construction Drawings

In the construction drawing, we found at least one utility pole. As mentioned above, the Council requests that the pole(s) be constructed and maintained so that ravens are not able to use the pole(s) for nesting. In addition, this request applies to the lattice supports for the tower shown in the construction drawings for the south elevation and west elevation (pages 62 and 63 of the pdf document).

The Council requests that the following additional mitigation measures be required of the Project Proponent:

- Mitigation Measure BIO-2 be reworded to say:
A qualified biologist approved by the USFWS and CDFW will conduct a preconstruction survey for the Mojave desert tortoise following USFWS and CDFW protocols. The entire action area as determined by the USFWS and CDFW will be surveyed using these

protocols. The results of this survey will be reported in writing to these two agencies. The Project Proponent will then coordinate with USFWS and CDFW to determine whether the Project Proponent needs to obtain an incidental take permit from these agencies.

The Project Proponent will coordinate with CDFW to determine the surveys that will be conducted for special status species.

The results of all surveys and coordination with USFWS and CDFW will be reported in writing by the project proponent to the County.

Implementing all requirements of CDFW and USFWS will be a condition of approval for the proposed project by the County.

The County should require the Project Proponent to compensate for the functions and values of the tortoise habitat that would be destroyed by implementing the proposed project.

The County should require the Project Proponent to implement standard mitigation measures/Best Management Practices (BMPs) for development projects within the range of the tortoise to minimize impacts to the tortoise. Some of these mitigation measures/BMPs would be implemented during the operation/use and maintenance phases of the proposed project.

These standard tortoise mitigation measures/BMPs (https://deserttortoise.org/wp-content/uploads/dtc_construction_BMPs_090517.pdf) include:

- 3.2.7 Desert Tortoise Exclusion Fencing and Gates
- 3.2.10 Education and Environmental Awareness Program for All Workers at the Site of the Proposed Action
- 3.2.11 Access to Project Site
- 3.2.13 Trash and Litter Control Program
- 3.2.14 Dogs, Other Pets, and Firearms
- 3.2.15 Avian Predator Control and Raven Management
- 3.2.17 Trenches, Borings, and Other Excavations Outside Desert Tortoise Exclusion Fencing
- 3.2.18 Checking for Tortoises beneath Vehicles and Equipment
- 3.2.23 Confining Activity to Delineated Areas and Times
- 3.2.24 Noise Reduction
- 3.2.26 Moving Construction Pipes, Culverts, and Similar Structures
- 3.2.28 Water Storage – and Use:– The use of water outdoors is limited such that no puddles on the soil surface would occur on the project site from construction, operation/use, and maintenance of the storage facility
- The Project Proponent will contribute to the Raven Management Fund managed by the National Fish and Wildlife Raven Foundation to mitigate for regional and cumulative impacts of projects that subsidize common ravens (USFWS 2010) and other predators of the tortoise and other wildlife, as other project proponents have done for projects on private property in San Bernardino County.

Updates to the Biological Resources Analysis

The Biological Resources Assessment should include the results of data searches (including CDFW and USFWS sources) along with information on the range/distribution of and vegetation associations used by listed/special status/rare species including those areas used/needed for population connectivity.

We appreciate this opportunity to provide comments on this project and trust they will help protect tortoises during any resulting authorized activities. Herein, we reiterate that the Desert Tortoise Council wants to be identified as an Affected Interest for this and all other projects funded, authorized, or carried out by the County that may affect the desert tortoise. As an Affected Interest, the Council requests that the County contact the Council via email to advise us of the opening date of the public comment period for any proposed action that may affect tortoises/tortoise habitat. In addition, we request and that any subsequent environmental documentation for this Project is provided to us at the contact information listed above. We ask that you respond in an email that you have received this comment letter so we can be sure our concerns have been registered with the appropriate personnel and office for this project.

Respectfully,



Edward L. LaRue, Jr., M.S.
Chairperson, Ecosystem Advisory Committee

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

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
- 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>
- 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.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>
- 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/articles/esr2020/42/n042p167.pdf>
- [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. 2018. Protocols for surveying and evaluating impacts to special status native plant populations and natural communities. California Natural Resources Agency, Department of Fish and Wildlife, 20 March 2018. Sacramento, CA. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=18959&inline>
- [CDFW] California Department of Fish and Wildlife. 2023. Mohave Ground Squirrel Survey Guidelines (January 2003; revised July 2010, October 2023). Unpublished guidelines produced by CDFW. Sacramento, CA.
- 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. Formal petition submitted 11 March 2020. https://defenders.org/sites/default/files/2020-03/Desert%20Tortoise%20Petition%202020%20Final_0.pdf

- Desert Tortoise Council. 2017. A Compilation of Frequently Implemented Best Management Practices to Protect Mojave Desert Tortoise during Implementation of Federal Actions. [dtc_construction BMPs_090517.pdf \(deserttortoise.org\)](https://www.deserttortoise.org/dtc_construction_BMPs_090517.pdf)
- Goble, D.D. 2009. The endangered species act—What we talk about when we talk about recovery: *Natural Resources Journal*, v. 49, p. 1–44. <https://www.jstor.org/stable/24889187>
- 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://wildlife.onlinelibrary.wiley.com/doi/abs/10.2193/0091-7648\(2004\)32\[244:DCOCRA\]2.0.CO;2](https://wildlife.onlinelibrary.wiley.com/doi/abs/10.2193/0091-7648(2004)32[244:DCOCRA]2.0.CO;2)
- 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, v. 13, p. 161–173.
- [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. 2010. Common raven predation on the desert tortoise. USFWS, Ventura Fish and Wildlife Office, Ventura, CA.
- [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. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). USFWS Desert Tortoise Recovery Office. Reno, NV. October 8, 2019. https://www.fws.gov/sites/default/files/documents/Mojave%20Desert%20Tortoise_Pre-project%20Survey%20Protocol_2019.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>

Wearn, O. R. and P. Glover-Kapfer. 2017. Camera-trapping for conservation: a guide to best-practices. WWF Conservation Technology Series 1. WWF-UK, Woking, United Kingdom. <https://www.wwf.org.uk/sites/default/files/2019-04/CameraTraps-WWF-guidelines.pdf>

Appendix A Demographic Status and Trend of the Mojave Desert Tortoise including 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 2021 (**Table 3**; USFWS 2016, 2018, 2019, 2020, 2022a, 2022b).

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 – Nevada and California

- This recovery unit had a 51 percent decline in tortoise density from 2004 to 2014.
- Tortoises 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/km² 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/km² (10 breeding individuals per mi²) (assumes a 1:1 sex ratio) or showing a decline from 2004 to 2014 are in red.

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

¹ 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 ²)	2004 Abundance	2014 Abundance	Change in Abundance	Percent Change in Abundance
Western Mojave	23,139	131,540	64,871	-66,668	-51%
Colorado Desert	18,024	103,675	66,097	-37,578	-36%
Northeastern Mojave	10,664	12,610	46,701	34,091	270%
Eastern Mojave	16,061	75,342	24,664	-50,679	-67%
Upper Virgin River	613	13,226	10,010	-3,216	-24%
Total	68,501	336,393	212,343	-124,050	-37%

Table 3. Summary of data for Agassiz’s desert tortoise, *Gopherus agassizii* (=Mojave desert tortoise) from 2004 to 2021 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/km² and standard errors = SE), and percent change in population density between 2004-2014 (USFWS 2015). Populations below the viable level of 3.9 breeding individuals/km² (10 breeding individuals per mi²) (assumes a 1:1 sex ratio) (USFWS 1994a, 2015) or showing a decline from 2004 to 2014 are in **red**.

Recovery Unit: Designated CHU/TCA &	% of total habitat area in Recovery Unit & CHU/TCA	2004 density/ km ²	2014 density/ km ² (SE)	% 10- year change (2004– 2014)	2015 density/ km ²	2016 density/ km ²	2017 density/ km ²	2018 density/ km ²	2019 density/ km ²	2020 density/ km ²	2021 density/ km ²
Western Mojave, CA	24.51		2.8 (1.0)	-50.7 decline							
Fremont-Kramer	9.14		2.6 (1.0)	-50.6 decline	4.5	No data	4.1	No data	2.7	1.7	No data
Ord-Rodman	3.32		3.6 (1.4)	-56.5 decline	No data	No data	3.9	2.5/3.4*	2.1/2.5*	No data	1.9/2.5*
Superior-Cronese	12.05		2.4 (0.9)	-61.5 decline	2.6	3.6	1.7	No data	1.9	No data	No data
Colorado Desert, CA	45.42		4.0 (1.4)	-36.25 decline							
Chocolate Mtn AGR, CA	2.78		7.2 (2.8)	-29.77 decline	10.3	8.5	9.4	7.6	7.0	7.1	3.9
Chuckwalla, CA	10.97		3.3 (1.3)	-37.43 decline	No data	No data	4.3	No data	1.8	4.6	2.6
Chemehuevi, CA	14.65		2.8 (1.1)	-64.70 decline	No data	1.7	No data	2.9	No data	4.0	No data
Fenner, CA	6.94		4.8 (1.9)	-52.86 decline	No data	5.5	No data	6.0	2.8	No data	5.3
Joshua Tree, CA	4.49		3.7 (1.5)	+178.62 increase	No data	2.6	3.6	No data	3.1	3.9	No data
Pinto Mtn, CA	1.98		2.4 (1.0)	-60.30 decline	No data	2.1	2.3	No data	1.7	2.9	No data

Piute Valley, NV	3.61		5.3 (2.1)	+162.36 increase	No data	4.0	5.9	No data	No data	No data	3.9
Northeastern Mojave AZ, NV, & UT	16.2		4.5 (1.9)	+325.62 increase							
Beaver Dam Slope, NV, UT, & AZ	2.92		6.2 (2.4)	+370.33 increase	No data	5.6	1.3	5.1	2.0	No data	No data
Coyote Spring, NV	3.74		4.0 (1.6)	+ 265.06 increase	No data	4.2	No data	No data	3.2	No data	No data
Gold Butte, NV & AZ	6.26		2.7 (1.0)	+ 384.37 increase	No data	No data	1.9	2.3	No data	No data	2.4
Mormon Mesa, NV	3.29		6.4 (2.5)	+ 217.80 increase	No data	2.1	No data	3.6	No data	5.2	5.2
Eastern Mojave, NV & CA	13.42		1.9 (0.7)	-67.26 decline							
El Dorado Valley, NV	3.89		1.5 (0.6)	-61.14 decline	No data	2.7	5.6	No data	2.3	No data	No data
Ivanpah Valley, CA	9.53		2.3 (0.9)	-56.05 decline	1.9	No data	No data	3.7	2.6	No data	1.8
Upper Virgin River, UT & AZ	0.45		15.3 (6.0)	-26.57 decline							
Red Cliffs Desert**	0.45	29.1 (21.4- 39.6)**	15.3 (6.0)	-26.57 decline	15.0	No data	19.1	No data	17.2	No data	
Rangewide Area of CHUs - TCAs/Rangewide Change in Population Status	100.00			-32.18 decline							

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

**Methodology for collecting density data initiated in 1999.

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 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 population viability threshold. 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 is not declining is on land managed by the National Park Service, which has increased 178 percent in 10 years.

Important points to note from the data from 2015 to 2021 in Table 3 are:

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

- Density of tortoises continues to decline in the Western Mojave Recovery Unit
- Density of tortoises continues to fall below the density needed for population viability from 2015 to 2021

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

- The population that had the highest density in this recovery unit had a continuous reduction in density since 2018 and fell substantially to the minimum density needed for population viability in 2021.

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.
- The most recent data from three of the four populations in this recovery unit have densities below the minimum density needed for population viability.
- The population that had the highest density in this recovery unit declined since 2014.

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 individual 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 Demographic Status and Trend of the Mojave Desert Tortoise Including 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

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

[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. . <https://www.govinfo.gov/content/pkg/FR-1994-02-08/html/94-2694.htm>

- [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
- [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>