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Via regulations.gov portal and email

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Re: Draft Habitat Conservation Plan – Spring Mountain Raceway 227-Acre Northern Expansion
and
Draft Environmental Assessment – Spring Mountain Raceway and Motor Resort 227-Acre Expansion, Nye County, Nevada (Docket No. FWS-R8-ES-2020-0115)

Dear Mr. Knowles,

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

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed action in habitats occupied by Agassiz's desert tortoise (*Gopherus agassizii*) (also known as "Mojave desert tortoise"), our comments pertain to enhancing protection of this species during activities authorized by the U.S. Fish and Wildlife Service (USFWS).

Draft Habitat Conservation Plan

Proposed Project

Spring Mountain Raceway and Motor Resort (SMRMR or Applicant) is applying for an incidental take permit for activities associated with the development of 227 acres of private land (Project Site or northern parcel) on the east edge of Pahrump, Nye County, Nevada. Because SMRMR's activities are likely to result in "take" of the federally threatened desert tortoise, they have prepared a Draft Habitat Conservation Plan for Spring Mountain Raceway 227-Acre Northern Expansion (Draft HCP) as part of their request for an incidental take permit (ITP) for the Mojave desert tortoise. The HCP along with an ITP application and other documents are required for the USFWS to evaluate and determine whether to issue an ITP for take of a federally listed species.

SMRMR currently operates existing facilities to the south of the Project Site. They include more than 6 miles of race track, classroom and training facilities and associated parking, maintenance facilities (presumably for vehicles and the track), and support amenities. The Resort and Country Club includes a clubhouse, luxury condominiums, Spring Mountain Estates residential community, and a man-made freshwater lake.

Of 600+ acres purchased in 2019 from the Bureau of Land Management (BLM) that border the north and east boundaries of their existing facilities, SMRMR is proposing to develop the 227-acre northern parcel at this time. If they develop the 400-acre eastern parcel, they will prepare a separate habitat conservation plan at that time.

Covered Activities: At the northern parcel, SMRMR would construct a 3.6-mile track extension that would connect to the existing track. The track would meander through most of the 227-acre northern parcel with a large drainage retention/detention basin (1,450 feet x 300 feet) located on the northeast side of the parcel. Other facilities to be built include classrooms and bathrooms for students and customers and a vehicle paddock to stage cars during events (Proposed Project). SMRMR would implement avoidance, minimization, and mitigation measures for anticipated take of the tortoise as required by regulations. These measures include installation and maintenance of tortoise exclusion fencing on the north, east, and west sides of the northern parcel, tortoise clearance surveys, translocation and monitoring of moved tortoises, and weed management and litter control practices at the northern parcel. A translocation plan is included in Appendix D of the Draft HCP. To mitigate for loss of tortoise habitat, the SMRMR would provide remuneration funding of $923 per acre of disturbance of suitable habitat. The USFWS would decide how to use the funding for the conservation and recovery of the tortoise.

Covered Species: The Proposed Project is located in habitat of the Mojave desert tortoise. During spring 2018, SMRMR had the northern and eastern parcels surveyed for the Mojave desert tortoise. Survey results from spring 2018 surveys were 3 adult tortoises and 43 burrows for the northern parcel and 6 adult tortoise and 49 burrows for the eastern parcel (Draft HCP -Appendix C – Spring Mountain Raceway Mojave Desert Tortoise). No tortoise carcasses were found on either parcel. The estimated density of tortoises on the 227-acre Project Site was 6 adults per km^2 with 7 hatchlings and 29 tortoises older than hatchlings but younger than adults. The estimated total number of tortoises on the Project Site is 44.

The northern and eastern parcels are not within the boundary of designated critical habitat or a BLM Area of Critical Environmental Concern. There are no other Covered Species identified in this Draft HCP.

Permit Duration: SMRMR estimates it will take 5 years to complete construction of their Proposed Project and implement the conservation program described in the HCP. They have requested a permit term of 5 years. They are requesting the option to extend the duration of the ITP.

Alternatives Considered: No alternatives were considered. The land was purchased in early 2020 for the purpose of expanding the existing race track. The proposed activities require the entire 227 acres to be fenced and tortoises removed for the safety of the tortoises and the drivers on the track.

Comments on the HCP

Permit Area and Plan Area

We were unable to find a description of the Plan Area and Permit Area in the HCP. Rather the term "Covered Lands" is used. This term appears to be describing the Permit Area. Please include information on and maps of the Plan Area, that is, "all areas that will be used for any activities described in the HCP, including covered activities and the conservation program" (USFWS & NMFS 2016). This would include the translocation area and the area(s) where the remuneration fees would be spent to compensate for the loss of 227 acres of tortoise habitat. This is a requirement for an HCP per the HCP Handbook (USFWS and NMFS 2016).

Anticipated Take of Desert Tortoises

The Applicant anticipates potential incidental take during the 5-year permit term for the desert tortoise as:

"Construction

- Six (6) desert tortoise larger than 180 mm in length in the form of capture for translocation
- Two (2) desert tortoise larger than 180 mm in the form of injury or kill
- Thirty (30) desert tortoise smaller than 180 mm in length in the form of capture through translocation or death or injury

Operations and Maintenance

- Three (3) desert tortoise over the 5-year permit term larger than 180 mm in length in the form of injury or kill from the presence of the exclusion fence
- Twenty-five (25) tortoise taken through capture and translocation from within the area, or in the form of injury or kill within the area."

In the HCP Handbook, USFWS says, "Determining the amount of take requires the analysis of the proposed activities to identify ways the species or their habitats may be affected and whether those effects rise to the level of take. Identify all the 'direct interactions' or 'stressors' to resources required by covered species that may be associated with each activity." Although translocation is being used as a minimization and mitigation measure, it is a stressor and has adverse effects to the translocated population of tortoises and recipient population.

The USFWS (2020a) says, "Some take can be in the form of a decrease in biological fitness due to reduced ability to breed or a shortened lifespan." For the Mojave desert tortoise, this decrease in biological fitness occurs with male tortoises that are translocated. Mulder et al. (2017) reported that four years after translocating tortoises, the translocated males did not provide genetic material (i.e., had not successfully bred) with female tortoises at the recipient site. "Competitive exclusion by resident males may contribute to the lower reproductive output of translocated males (Mulder et al. 2017)." The findings indicate a loss of paternal genetic integration of the translocated tortoises with the resident tortoises at the recipient site. Please add a discussion of the stressors/effects to tortoises from implementation of translocation for both the translocated population and recipient population and provided measures in the conservation program to fully mitigate these effects.

"Take" includes "harass." The definition of "harass" is "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering." Given this definition, it seems appropriate that the "types of take" identified in the HCP (e.g., capture, injury, kill/death) include harass from the displacement of translocated male tortoises and loss of reproduction.

In addition, in the HCP Handbook (USFWS & NMFS 2016), the USFWS says, "once we have identified the responses of individuals, [to stressors] we must determine the demographic consequence at the population and species levels and how that may affect the population's or species' status as a whole." We were unable to find a discussion of this demographic consequence and affect to the status of the population and species for the Mojave desert tortoise. Please include this information/analysis on the status of tortoises and demographic consequences with respect to their survival and recovery in the Plan Area, the Eastern Mojave Recovery Unit, and the range of the species. To assist the Applicant with this analysis, we have provided an attachment (Status of the Mojave Desert Tortoise) that summarizes the current status of the Mojave desert tortoise at the Recovery Unit and rangewide levels. Briefly, it shows the density of the Mojave desert tortoise in the Eastern Mojave Recovery Unit, which encompasses the Proposed Project, declined 67.26 percent from 2005 to 2014, adult tortoise density declined to 1.9 adults per km^2, well below the minimum viable density of 3.9 adult tortoises per km^2 (USFWS 1994a), and there was a 67 percent decline in the abundance of adult tortoises.

<u>Detention Basin</u>

We were unable to find information in the HCP on how the detention/retention basin would be operated and maintained. Because construction of this facility is a Covered Activity, we presume that its operation and maintenance would also be a Covered Activity. Please address this issue in the HCP.

<u>Biological Goals and Objectives</u>

"The Biological Goals of this HCP are:

- Avoid take of the desert tortoise in the form of mortality or injury resulting from the facility track expansion project, and
- Offset the loss of desert tortoise habitat.

The Biological Objectives of this HCP are:

- Avoid impacts to tortoises in the form of death or injury by moving them to adjacent suitable habitat prior to commencement of construction activities;
- Ensure tortoises do not enter the project area during operations and maintenance of the facility;
- Implement or provide sufficient funds to allow implementation of conservation measures to offset the loss of desert tortoise habitat associated with this project."

According to the HCP Handbook, "the permittee is responsible for meeting goals and objectives." In addition the goals and objectives should be expressed in the HCP in terms of specific actions, potential adaptive measures, or procedures to develop adaptive measures." The biological "objectives need to be specific, measurable, achievable, result-oriented, and time-fixed" (USFWS & NMFS 2016).

We did not find the biological objectives to meet these criteria. For example, the first two objectives are not achievable because the northern parcel is still accessible by tortoises from the south (Please see the discussion on Exclusion Fence below). For the third objective, we assume the Measures to Offset the Loss of Desert Tortoise Habitat to be conservation measures for the Proposed Project. For this objective, SMRMR says, they have agreed to "deposit funds in an account administered by the National Fish and Wildlife Federation [sic] or other organizations as directed by the USFWS." The Applicant "and USFWS agree that USFWS will use these funds to implement conservation or management measures and/or projects deemed to benefit the recovery of the Mojave desert tortoise. The specific conservation or management measures and/or projects to which the funds are directed will be at the discretion of the USFWS."

We found no information on what or where the conservation or management measures and/or projects would be implemented. The HCP provides some examples of types of projects for which the funds may be used. Unfortunately, we found no information on when the Measure to Offset the Loss of Desert Tortoise Habitat would be implemented, suggesting there may be a temporal loss of tortoise habitat in addition to physical loss. Because the mitigation to fully offset the loss of 227 acres of tortoise habitat is not presented in the HCP, we find the vagueness of this biological objective is not (1) specific – we do not know what will be implemented to mitigate for the loss of tortoise habitat; (2) measureable – how implementing specific habitat improvements elsewhere would be calculated to demonstrate it had fully offset the loss of 227 acres of tortoise habitat from implementation of the Proposed Project; (3) achievable – the examples of types of projects that may be implemented to fully offset habitat loss would occur on lands managed by the BLM. These lands are managed for multiple use and not conservation of the tortoise. In addition, their implementation to show success and a benefit to the tortoise to offset the loss of tortoise habitat would likely take longer than 5 years (the Permit Term) to achieve. Thus, it is unlikely their implementation would be successful at contributing to the recovery of the tortoise especially during the Permit Term; (4) result-oriented – because we do not know which projects would be implemented, therefore the results are not provided; and (5) time -fixed – because we found no mention of a time when the habitat improvements would be implemented/completed.

The Applicant says they will implement weed management and litter control practices at the developed site. We presume these practices would be limited to the 227-acre northern parcel. As mentioned above, the management of lands in the Plan Area, including the mitigation lands, should include management to substantially reduce/eliminate non-native invasive plant species and litter control practices. These management practices are necessary to reduce the presence of tortoise predators and fuel for fires, and decrease the presence of non-native invasive plant species that displace native annual forbs needed by tortoises for adequate nutritional quality.

Exclusion Fence

As a minimization measure, a tortoise exclusion fence with periodic shade structures would be installed and maintained along the north, east, and west sides of the northern parcel. The south side would not be fenced as it connects to the existing track. We found no information in the Draft HCP on whether the existing race track and other facilities owned by the Applicant and located immediately south of the Project Site are fenced to exclude tortoises.

The survey data for the northern and eastern parcels shows tortoises and tortoise burrows found on both parcels. Tortoises located on the southeast and western portions of the northern parcel and along the west and central portions of the eastern parcel with tortoise burrows distributed throughout both parcels (Figure 4 of Draft HCP). Because the proposed track in the northern parcel will be fenced on three sides to exclude nearby tortoises from entering this portion of the track during construction and operations and maintenance, we contend a similar situation exists for the tortoises on the eastern parcel and the translocated tortoises that wander/attempt to return home (Nussear et al. 2012, Farnsworth et al. 2015). Tortoises may move onto the track/associated facilities and be injured or killed during activities associated with construction or operations and maintenance of the Proposed Project. Similar take may occur from operation and maintenance of the existing facility.

To minimize take of tortoises from activities at both the proposed track expansion and existing track and associated facilities, we request the Applicant extend the tortoise exclusion fence and shade structures to include the eastern and southern boundary of the existing track/associated facilities as tortoises may enter the facility from the east. Extending the exclusion fence would reduce the incidental take described in section "5.4 Anticipate Take of Desert Tortoises" by up to 2 tortoises during construction and 25 tortoises during operations and maintenance. Given that one of the biological goals of the HCP is to ensure that tortoises do not enter the project area during operations and maintenance of the facility, extending the exclusion fence along the entire eastern and southern border until it intersects a major roadway seems relevant and feasible and in keeping with successful implementation of this goal.

We presume the tortoise exclusion fence is to be inspected and maintained as long as there is development on the track-side of the fence and tortoise habitat on the other side. This would require monitoring and maintenance of the fence beyond the proposed 5-year Permit Term. Once the construction of the track and associated facilities is completed, the USFWS would have no leverage to require monitoring and maintenance of the exclusion fence. Therefore, we request that a fund be established with a neutral third party that is sufficient to pay for monitoring and maintaining the tortoise exclusion fence for the anticipated time the track facility will be present. In addition, the HCP should clearly state the duration for maintaining the exclusion fence.

According to the HCP Handbook, "planned activities [e.g., construction of the track] also include the time needed to complete mitigation, monitoring, adaptive management, other requirements or conditions, and meet goals and objectives of the conservation program. Because conservation benefits ideally occur prior to the take, conservation activities will either precede or, at a minimum, keep pace with other planned activities." One of the biological objectives of the conservation program is to "ensure tortoises do not enter the project areas during operations and maintenance of the facility." Therefore, we request that the Applicant provide assurances in the HCP that the fence monitoring and maintenance will continue as long as tortoise habitat is nearby to the track/associated facilities. Such assurances should be in the form of a legal agreement with a neutral third party and would provide a guaranteed funding mechanism to conduct the required exclusion fence monitoring and maintenance before, during, and after the construction of the Proposed Project is completed and after the permit term expires. Failure to maintain the tortoise exclusion fence after the 5-year permit term would result in no protection for tortoises and would not result in implementation of the conservation program as described in the Biological Goals and Objectives.

Draft Translocation Plan

According to Appendix D – Desert Tortoise Translocation Plan, Spring Mountain Raceway Northern Expansion, Nye and Clark County [sic], Nevada (Translocation Plan) in the Draft HCP (Translocation Plan) the goals and objectives of the Translocation Plan "include:

- Establish procedures to successfully translocate at-risk tortoises to suitable habitat located adjacent to the project;
- Implement measures to minimize effects of translocation on all affected tortoises within the Project; and
- Collect data and monitor tortoises to promote post-translocation survivorship."

Another objective of the Translocation Plan should be to minimize effects of translocation of all resident tortoises in the Relocation Area. Measures should be added to the Translocation Plan to assure that these resident tortoises are not adversely affected by implementation of the Translocation Plan. If not possible, the impacts, including the injury/mortality to resident tortoise from the translocation, need to be fully mitigated.

The Translocation Plan includes:

- Constructing tortoise exclusion fencing around the Project Site and tortoise shade structures;
- Implementing clearance surveys to locate and remove all desert tortoises from the 227-acre Project Site;
- Having qualified biologists assess tortoises for health condition;
- Quarantining tortoises that do not pass the initial health assessment;
- Equipping tortoises greater than 100 mm MCL with transmitters;
- Marking all tortoises removed from the Project Site for future identification;
- Moving tortoises to a Recipient Site of undetermined size and located on land managed by BLM; and,
- Monitoring transmittered tortoise >180 mm MCL for one year post translocation.

We note an inconsistency in the size of tortoises that would receive transmitters. Page 12 of the Translocation Plan indicates tortoise >100 mm MCL and >100 grams would have a transmitter attached, while page 16 indicates tortoise >180 mm MCL would have transmitters. Please clarify this discrepancy.

According to the Applicant, the Translocation Plan "summarizes the current guidelines from the USFWS (2009; 2020) for the translocation of the desert tortoise." The Recipient Site was surveyed using 10 to 100-meter wide transects in fall 2019. From this cursory survey, the consultant reported finding three tortoises and tortoise sign at the northeast side of the Recipient Site. A general assessment of the soils and perennial woody vegetation was provided. Human use in the form of trash and vehicle tracks was also reported.

According to the Translocation Plan, the Recipient Site was selected because it is contiguous with public (BLM) lands to the north and east, has a high likelihood of being within the existing home ranges of translocated tortoises, contains habitat suitable for all life stages of tortoises, is similar in habitat type and quality to the Project Site, contains tortoises, and has no foreseeable development or other impacts precluding tortoise occupancy. However, these conclusions were reached after conducting a general assessment of the Recipient Site in fall. We were unable to find a metric in the Translocation Plan of how habitat quality was assessed, especially nutritional quality (availability of native forbs in the spring) for tortoises or natural/subsidized predators. We found no information on human uses/impacts in the buffer areas identified for the Recipient Sites as indicated in the USFWS' Translocation of Mojave Desert Tortoises from Project Sites: Plan Development (2020b) (Translocation Plan) (please see below). We found no information whether the Recipient Site has depleted densities of tortoises and that it is able to support the additional numbers of tortoises anticipated to be translocated (estimated total number of tortoises on the Project Site is 44). Please add this information to the HCP.

The Recipient Site is northeast of the Project Site. It is bordered on the east by the Spring Mountains, and the west by the Project Site, and a cluster of active gravel pits along Wheeler Pass Road (Figure 1 of Translocation Plan).

The purpose(s) for attaching transmitters to adult tortoises should be explained in the Translocation Plan. If it is to determine if a translocated tortoise has survived the 1-year monitoring period, then a transmitter will provide this information. If it is to determine how far a tortoise moves or how long it takes to "settle" into its new area, a GPS datalogger rather than a transmitter would be the appropriate technology to use. Please add the reason(s) for attaching a transmitter to adult desert tortoise to the Draft HCP.

In researching the allowed uses of BLM land at the Recipient Site, we discovered the following. Figure 2 of the Draft HCP labels most of the Recipient Site as a north-south utility corridor beginning on the east boundary of the northern parcel and extending east for about 1 mile. Apparently this is a West-Wide Energy multi-modal energy corridor (i.e., "a corridor that may accommodate multiple pipelines (such as for oil, gas, or hydrogen), electricity transmission lines, and related infrastructure, such as access and maintenance roads, compressors, pumping stations, and other structures" (BLM 2020). According to the BLM's Las Vegas Resource Management Plan (BLM 1998), BLM's management designations for the Recipient Site appear to be as follows:

- Open to target shooting (a fire hazard in addition to mortality and injury from projectiles to tortoises);
- Closed to fluid mineral leasing (e.g., oil and natural gas);
- Open to locatable minerals (e.g., gold, silver, etc.) and mining;
- Open to salable minerals (sand, gravel, decorative rock, etc.) and mining;
- Limited off-highway vehicle use to designated routes;
- Open to grazing;
- May be open to wind energy development and obtaining a variance for solar energy development; and,
- Located within an Extensive Recreation Management Area.

In viewing Google Earth, imagery date May 13, 2019, we found several dirt roads in the Recipient Site. The western boundary of the Site is bordered by a well-defined dirt road, and the width of the road is at least 30 feet. This well-defined road may indicate frequent vehicle use, which is not compatible with survival of translocated tortoises, especially during their first year following translocation as their home ranges are larger (Nussear et al. 2012, Farnsworth et al. 2015) increasing the likelihood of being killed or injured by a vehicle or collected.

Most tortoises (greater than 97.5%) moved greater than 500 meters from their capture location are expected to settle within 6.5 km of their release point within the first year of release (USFWS 2020b). Using the location where two tortoises were found on the Project Site, they would likely be moved more than 500 m to the Recipient Site. Given that distance, the translocated tortoises would likely "wander" during their first year of translocation, and the allowable/existing uses on and near the Recipient Site would not be compatible with their survival. In addition, we found no assurance in the Draft HCP that BLM would manage the Recipient Site for the benefit of the Mojave desert tortoise. Because translocation is a mitigation measure for the tortoise, there should be some guarantee of success such as selecting sites that have land use management prescriptions compatible with long-term tortoise survival and implement these prescriptions.

The USFWS' (2020b) Translocation of Mojave Desert Tortoises from Project Sites: Plan Development Guidance (Translocation Guidance) is based on "three overarching principles:

> 1) Once translocation of desert tortoises from a project site has been deemed necessary and appropriate, the first consideration is *how can those tortoises best contribute to recovery of the species*.
>
> The guidance prioritizes **regional augmentation sites** to boost **depleted populations** that are important to recovery."
>
> 2) *Rigorous monitoring* will document the contribution of **translocated tortoises** to recovery as well as the effectiveness of translocation in minimizing impacts to the affected tortoises.
>
> Long-term monitoring of projects with a **small number of tortoises** *for which a* ***regional augmentation site*** *is not available* lacks statistical power to rigorously evaluate translocation effectiveness.
>
> 3) Translocation protocols will *minimize risks to both translocated tortoises and the recipient population*, especially relative to disease transmission."

In addition to implementing these principles, the Translocation Guidance contains numerous factors to consider when determining where and how to translocate tortoises. Unfortunately, we were unable to find a discussion in the Translocation Plan of these numerous factors (e.g., why there is no control site, why 44 tortoises are considered a small number of tortoises from a scientific/statistical analysis perspective, why the Recipient Site does not appear to have a 1.5 to 6.5 km buffer, why the Recipient Site has a designated multi-modal utility corridor overlaying most of it, etc.) and how the Translocation Plan is adhering to the three overarching principles.

For example, the USFWS estimated the densities of adult tortoises in the Eastern Mojave Recovery Unit, which is where the proposed project is located, at 2.6 tortoises per km^2 for 2019 (USFWS 2020c) and 1.9 tortoises per km^2 for monitoring from 2005-2014 (USFWS 2015). Because the adult tortoise densities are so low, it is unlikely that any project in tortoise habitat, unless it affects tens of square kilometers of tortoise habitat, would impact a sufficient number of adult tortoises to yield the "statistical power to rigorously evaluate translocation effectiveness" for the adult tortoises. Because many of the projects in the range of the tortoise are less than a few square kilometers including the Proposed Project, it seems critically important that USFWS identify/establish regional augmentation sites in all recovery units so tortoises from all small and medium-size projects will contribute to the three principles of the USFWS' Translocation Guidance. We strongly recommend the USFWS do this as soon as possible and that a regional augmentation site be the recipient site for tortoises to be translocated from the Project Site.

According to the Translocation Plan, there are an estimated 44 desert tortoises to translocate. These 44 tortoises from this one project should be moved to a USFWS-approved regional augmentation site, and not the adjacent Recipient Site/multi-modal utility corridor site so they may (1) contribute to the recovery of the species; (2) be rigorously monitored to determine their contribution to recovery of the species and the effectiveness of translocation in minimizing impacts to the affected tortoises; and (3). minimize the risks of survival of these translocated tortoises and the tortoise in the recipient population.

We recommend the Translocation Plan explain each decision made in the flow chart in Figure 1 of the USFWS' Translocation Guidance (2020b) to demonstrate how the Plan complies with the USFWS' Guidance:

- Avoid or minimize the need for translocation;
- Estimate the number of tortoise on the project site;
- If there is no identified regional augmentation site, identify recipient and control sites in coordination with USFWS (i.e., a project with a small number of adult tortoises);
- If any tortoise is to be moved more than 300 meters, the recipient site should include a 6.5 km buffer. If moved less than 300 meters, the recipient site should include a 1.5 km buffer;
- Recipient site is surveyed to determine translocation capacity [and how this capacity is determined];
- Major unfenced roads (i.e., high traffic volumes/speed limits and no desert tortoise exclusion fence), highways, or human development that would pose a risk to desert tortoises, are no closer than 6.5 km to the release area. Distances from unfenced hazards may be reduced if proposed monitoring or topographic features justifies a shorter distance;

- The site has no detrimental rights-of-way or other encumbrances that would pose ongoing risks to successful establishment of translocated tortoises; and,
- The site will be managed compatibly with continued desert tortoise occupancy.

For the reasons presented above, we believe the Recipient Site is inappropriate as a mitigation location to receive translocated tortoises. No scientific data have been provided in the Draft HCP demonstrating that (1) the Recipient Site will provide for the long-term survival of the translocated tortoises with respect to current and future human impacts; and (2) the Recipient Site does not meet the principles and factors in the Translocation Guidance (USFWS 2020b).

Mitigation for the Loss of Tortoise Habitat

One biological goal is to offset the loss of desert tortoise habitat from development and fencing of the 227-acre northern parcel. To accomplish this, the Applicant is proposing to provide sufficient funds to pay for implementation of conservation measures to offset the loss of desert tortoise habitat associated with this project. The Applicant says this amount is $923 per acre. The funds will be used to implement mitigation in a manner to be determined by the USFWS.

The permit issuance criteria require the USFWS to determine if the measures in the HCP will minimize and mitigate the impacts of the taking to the maximum extent practicable [section 10(a)2(B) of the federal Endangered Species Act (FESA)]. The HCP Handbook clarifies what this means – "completely mitigating any impacts expected to remain after avoidance and minimization measures are implemented. In other words, fully offset means the biological value that will be lost from covered activities will be fully replaced through implementation of conservation measures with equivalent biological value. Fully offset also means the mitigation is commensurate (equal) with the impacts of taking." We were unable to find information in the HCP that describes how the amount of $923 per acre was calculated to determine that it would fully offset the permanent loss of 227 acres of desert tortoise habitat.

In addition, the Applicant "must ensure sufficient control of the land to achieve mitigation objectives" wherever the mitigation is implemented (USFWS & NMFS 2016). We found no information on where the mitigation would be implemented to comply with this requirement or that this requirement would be ensured.

We contend the information on how this per-acre fee was derived to fully offset the impacts of permanent loss of tortoise habitat and other impacts to tortoise not avoided or minimized from the Proposed Project should be provided in the HCP. This information is required to demonstrate that the implementation of the HCP will minimize and mitigate to the maximum extent practicable (USFWS & NMFS 2016). The calculation should include the cost of implementation, long-term management, monitoring, and adaptive management to ensure the implementation of the mitigation project is effective, and includes the temporal loss of the habitat to the tortoise. Because the habitat loss is permanent, the location where the mitigation is implemented should have a legal assurance (e.g., permanent conservation easement) placed on the area to ensure this mitigation is not later degraded or destroyed by another project/human activity. "If habitat will be permanently lost, alternative habitat must be protected in perpetuity to offset the loss and the appropriate habitat conditions at the mitigation site must be maintained in perpetuity" (USFWS & NMFS 2016.)

Another approach would be to calculate the cost of acquiring, enhancing, monitoring, and managing tortoise habitat in perpetuity for a 227-acre parcel adjacent to other protected desert tortoise habitat. We contend the cost of implementing either of these approaches would be more than $923 per acre. Thus, if the Applicant decides to pay a per-acre mitigation fee, the amount should be revised to reflect actual costs of implementation in perpetuity. It should include appropriate inflation factors for the types of labor, technology, products, and equipment needed for implementation (USFWS & NMFS 2016).

The Applicant says payment of the per-acre fee to mitigate for the loss of tortoise habitat (or in-lieu-fee mitigation) would be paid to a sponsor, in this case, a third party. We presume there would be an agreement signed by the Applicant, USFWS, and third party regarding how these funds would be managed and used.

According to the HCP Handbook (USFWS & NMFS 2016), "[u]nder an in-lieu-fee agreement, a mitigation sponsor (e.g., USFWS) collects funds from an individual (or a number of individuals) who are required to complete compensatory mitigation. The sponsor, under the ultimate supervision of the permittee, directs the funds to one or a number of projects authorized by the instrument to satisfy the permittees' mitigation obligations. A failure of the sponsor to carry out the permittee's mitigation obligations is attributed to the permittee."

In addition, the Handbook cautions, "if the funds paid to a sponsor do not result in on-the-ground conservation in advance or contemporaneously with impacts, there could be temporal impacts to the species and there is the possibility that the mitigation may not occur. Therefore, development of an in-lieu fee program agreement must be carefully crafted as a safety net for the species. The agreement should be time-limited. If the sponsor cannot get conservation on-the-ground according to the agreement, the sponsor must report this to the permittee and to the Services immediately. If the agreed-upon conservation cannot be accomplished in a timely fashion, the permittee may have to pay additional fees to offset those temporal impacts."

If the Applicant wishes to use in-lieu-fee mitigation, we request that a copy of the agreement between the Applicant and the sponsor (e.g., USFWS) be included in the HCP. The agreement would describe what actions would be implemented, when they would be completed, and how their implementation would fully mitigate for the loss of value of the 227 acres of tortoise habitat. The last requirement would require information on the location and land ownership/land management status where the mitigation actions would be implemented to ensure their effectiveness and continued management of the lands in perpetuity for the tortoise.

The Applicant "will document completion of the off-setting mitigation actions in accordance with agreements established between USFWS and SMR[MR], and other agencies or stakeholders when those measures have been established." This language implies that the type, amount, location, and timing of mitigation to be implemented for loss of tortoise habitat is unknown. Consequently, it is not possible for the USFWS or the public to comment on the adequacy of the mitigation to fully offset the impacts of the taking. We request that these agreements with this information be included in the HCP.

Timing of Construction and Mitigation

According to the HCP Handbook, "the HCP must provide a clear timeline for implementing the mitigation. The timing of implementing mitigation should prevent any lag time between the occurrence of the impacts of the taking and the realization of the mitigation benefits to offset the impacts." For example, the implementation of the mitigation for the loss of tortoise habitat should precede or occur concurrently with the fencing of the Project Site that removes access by tortoises to this habitat. We request the HCP include a timeline of what and when the construction/operations/maintenance and mitigation components will be implemented and this timeline ensure the resource value achieved for the tortoise from the mitigation precede the resource values lost.

Monitoring

Because the Applicant has chosen to mitigate for the loss of tortoise habitat through in-lieu fees, the success of the mitigation is the Applicant's responsibility (see Mitigation for the Loss of Tortoise Habitat). Monitoring the effectiveness of its implementation is the responsibility of the Applicant. We request that monitoring the effectiveness of the mitigation paid for by the Applicant be included in the monitoring section of the HCP. This monitoring would include data on pre-mitigation implementation and post-mitigation implementation to measure the change that benefits the tortoise.

Adaptive Management

This section does not commit the Applicant to implementing adaptive management. Rather it only says the USFWS or the Applicant may request a discussion of issues.

According to the Department of the Interior, adaptive management "involves exploring alternative ways to meet management objectives, predicting the outcomes of alternatives based on the current state of knowledge, implementing one or more of these alternatives, monitoring to learn about the impacts of management actions, and then using the results to update knowledge and adjust management actions" (Williams et al. 2009). Thus, adaptive management is not discussing; it is learning, discussing, and doing. Please revise the section on Adaptive Management to include this commitment by the Applicant. In addition, this section should include "the range of adjustments to the management actions that might be required as a result of any adaptive management provisions" (USFWS & NMFS 2016).

Changed Circumstances

This section addresses wildfire in the Project Area but does not address fire or any other impacts at the Recipient Site for translocated tortoises or the mitigation lands. Because the mitigation lands are unknown at this time, the HCP cannot adequately assess the changed circumstances at these locations. This is another reason why the HCP should include the locations of where the mitigation will be implemented to fully offset the impacts of the taking.

Wildfire in the eastern Mojave Desert has become a documented threat in the past few decades. This threat of wildfire and actions to avoid/minimize its occurrence and help replace the biological value lost with respect to the tortoise (e.g., actions to help restore native vegetation, etc.) should be included in the HCP for the area to where tortoise will be translocated and tortoise mitigation lands. Brooks and Matchett (2006) report "an invasive plant/fire regime cycle

is probably establishing in the middle elevation of the Mojave Desert." In addition, the evolution of pathogens and occurrence/spread of new diseases and effects to the tortoise should be included under changed circumstances. The evolution of "new" diseases affecting wildlife has been on the rise for the past few decades. This should be included in changed circumstances for the tortoise at the location to where tortoise will be translocated and mitigation lands.

Funding

As mentioned in our comments above, the Draft HCP does not implement measures to minimize and mitigate to the maximum extent practicable. Once the conservation program has been revised to meet this requirement, the Funding section should be revised. It should include funding the additions to the conservation program, including (1) extending the location of the tortoise exclusion fence; (2) monitoring and maintaining the exclusion fencing beyond the 5-year permit term; (3) recalculating the cost of translocation; (4) recalculating the in-lieu fee for mitigation to fully mitigate; (5) providing permanent enhancement/management/monitoring of mitigation lands to fully offset permanent loss of tortoise habitat; and (6) funding for changed circumstances (e.g., wildfire in tortoise lands that are mitigation for lost habitat, recipient site for translocated tortoises, etc.).

The Applicant says they have "sufficient financial assets to implement the terms of this HCP and will provide financial assurances to guarantee that an adequate level of funding is available to implement all aspects of the HCP." However, we found no assurances that the funding for implementing the Conservation Program would occur prior to implementing the parts of the Proposed Project that would likely result in take of tortoises or loss of tortoise habitat. Please add this timing assurance so that the minimization and mitigation occurs prior to development.

Impacts to the Mojave Desert Tortoise from Implementation of the HCP

In the HCP handbook (USFWS & NMFS 2016), the USFWS says, when "analyzing the effects from plan implementation to the covered species, various tools including climate change effects analysis and population viability analysis should be considered. The Habitat Conservation Plan (HCP) must contain an analysis of the impact which will likely result from the taking of the covered species. The impact of the taking may have population or species-level effects substantially greater than just the number of individuals or acres of species habitat." Please add an analysis of these impacts to the tortoise in the HCP.

Alternatives Considered

In the HCP, the Applicant presents one Proposed Project and a no action alternative. No additional action alternatives are presented.

In the HCP Handbook (USFWS and NMFS 2016), the USFWS says, "The HCP must demonstrate that the applicant reasonably considered the alternatives to the proposed action and explain why the applicant did not select each alternative." Because the northern and eastern parcels were purchased in 2019 and the Applicant had tortoise surveys conducted on the parcels in 2018, the Applicant knew prior to the purchase of the parcels that tortoises were present and would be a factor in any development plans for these parcels. Please include a discussion in the HCP that there were other alternatives available to and considered by the Applicant and why these alternatives were not selected.

Issuance of an Incidental Take Permit based on the Draft HCP

Section 10(a)(2)B) of the FESA has five permit issuance requirements that must be met for the USFWS to issue an ITP. Three of these include:

"(ii) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;

(iii) the applicant will ensure that adequate funding for the plan will be provided;

(iv) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild."

For the reasons stated in the comments above, the Council asserts the Draft HCP has not demonstrated that it complies with these permit issuance requirements. Consequently, the USFWS should not issue an ITP to the Applicant until these requirements are met. We suggest the Applicant revise the HCP as suggested in the comments above and reissue the Draft HCP for public review.

Draft Environmental Assessment

Comments on the Draft Environmental Assessment

The Draft HCP is the Applicant's document, and Draft Environmental Assessment – Spring Mountain Raceway and Motor Resort 227-Acre Expansion, Nye County, Nevada (Draft EA) is the USFWS' document. The Draft HCP and Draft EA were prepared by BEC Environmental. Because both documents were prepared by the same consulting firm, this gives the public the perception of a conflict of interest. To avoid this perception and ensure that the National Environmental Policy Act (NEPA) document (i.e., Draft EA) was prepared as a separate document and under the direction of the USFWS, the USFWS (and NMFS 2016) advises the consultant to prepare a "a disclosure statement for inclusion in the draft and final EIS or EA to ensure the avoidance of any conflict of interest (40 CFR 1506.5(c), 43 CFR 46.105, and 516 DM 8)." "This helps to formalize the team separation" between the one team at the consulting firm preparing the HCP and the other team preparing the NEPA document, "and to establish ground rules for the preparation of the NEPA document that will ensure close coordination with the Services and an analysis that is independent from the HCP."

We were unable to find a copy of this disclosure agreement in the Draft EA, and request that it be included in the document.

Page 7 – Section 1.6 Decision to Be Made – The USFWS says, "a take during construction of the expansion would violate the ESA and thus SMR[MR] would be subject to federal penalties." Please add that take during construction or operations and maintenance of the track including the expansion of the track onto the 270-acre northern parcel would violate the FESA.

Page 8 – Section 2.3 Action Alternative or 2.4 Alternatives Considered but Eliminated from Further Analysis – Another alternative that could be considered (or considered and eliminated with reasons provided) would be to locate the track expansion on the eastern parcel rather than the northern parcel. An analysis of this alternative or reasons why it was not carried forward for analysis should be included in the EA.

Page 16 – Vegetation – This description should include the competition of non-native grasses with native annual forbs with this competition resulting in the decline/loss of native annual forbs that many species of wildlife including the desert tortoise need to provide adequate forage quality to survive.

The USFWS says the Proposed Project would not fragment habitat. To the west and south of the Project Site is the existing development and State Route 160. To the east is a multi-modal utility corridor, about 1 mile wide, which consolidates transmission/distribution lines and pipelines and their associated facilities (e.g., pumping stations, access roads, capacitor sites, substations etc.) within this corridor. Development of this corridor would result in the loss/degradation of tortoises and tortoise habitat. Immediately east of the utility corridor are the Spring Mountains. Hence the Proposed Project and future planned development on the eastern parcel would result in a "pinch point" of tortoise habitat on the east side of the Town of Pahrump. Combined with the utility multi-modal utility corridor designated on this pinch point, these developments would make it difficult for tortoises to move north or south of Pahrump on the east side.

Page 18 - Invasive/Noxious Weeds – The Nevada Revised Statutes (NRS) cited in the Draft EA (https://www.leg.state.nv.us/NAC/NAC-555.html#NAC555Sec010) do not include all species of non-native invasive plant species. For example, the NRS do not include *Bromus rubens, Bromus madritensis, Bromus tectorum, Schismus arabicus, or Schismus barbatus*. These non-native annual grasses are invasive species in many areas of the Mojave Desert. Vehicles travelling along roadways provide a conduit for the transport and establishment of these non-native species (Brooks and Matchett 2006). Once established, they outcompete native forbs resulting in a substantial reduction in the number/densities of native plants that the tortoise needs for adequate nutritional quality and quantity. This is due in part to their fast seed germination times in areas with disturbed soil crusts. Further, they are assisted from the enhanced nitrogen deposition in soils from the exhaust from internal combustion engines (e.g., along roadways), which the race track promotes (Allen et al. 2009). Once established, they provide an enhanced fuel source to carry fires that degrade/destroy native vegetation. As the impacts of climate change increase, one impact is an increase in the occurrence, numbers, and densities of these non-native invasive grasses.

We assert that relying on the NRS designation of invasive/noxious weeds is not appropriate for determining whether any non-native invasive species are present or may become present that would adversely impact tortoises and their habitats from implementation of the Proposed Project. The impacts should include the areas adjacent/near the Project Site, translocation area, and mitigation locations. The presence of *Bromus rubens/Bromus madritensis* are mentioned in the HCP (Appendix C). This section of the EA should be revised to include information on the occurrence of the species in the Plan Area, and appropriate mitigation developed to prevent/deter the establishment of non-native species that are detrimental to tortoises and their habitats in the Plan Area, and prevent/deter the occurrence of fire in tortoise habitat in the Plan Area.

We found no mention in the Draft EA of whether the Nevada Department of Wildlife GIS Data Clearinghouse was queried to determine wildlife species that have been observed on/near the Project Area and Plan Area. This information should be included in section 3.3.5 Special Status Species and should supplement the observations made by the consultants during their visits/surveys of the Project Site and northern and eastern parcels.

Page 23 – In section 4.2 Effects of the Action Alternative, the USFWS says, the preferred action alternative "would also result in the translocation of up to xx desert tortoises from the 227-acre project site to adjacent federally managed land to the northeast." To be consistent with and reflective of the determinations made in the HCP, we request the estimated number of desert tortoises (presumably 44 animals) be added to this section of the document.

Page 24 – In section 4.2.1.1 Direct and Indirect Effects on Air Quality, the USFWS says, "[t]he maximum projected daily average vehicle miles traveled by vehicles on the full build-out 620-acre track expansion was calculated to be 1,500 v-m/d. This increase of 1,500 v-m/d resulting from the 620-acre track expansion is minor (0.5%) in comparison to the Pahrump Valley 2017 baseline value of 286,118 v-m/d for the Pahrump Valley." This information indicates the Applicant has concrete plans to develop the eastern parcel by adding a connected race track in addition to developing the 227-acre northern parcel.

According to Google Earth, the existing race track facilities at SMRMR (more than 6 miles of paved race track, classroom and training facilities and associated parking, maintenance facilities, and support amenities, clubhouse, luxury condominiums, Spring Mountain Estates residential community, and a man-made freshwater lake) were developed after October 2006, well after the tortoise was listed as threatened. In 2020, another phase of development is occurring and it depends on and will be connected to the existing race track, with a third phase planned that would connect to and depend on the existing race track. This phased development gives the appearance of segmentation of development of the race track and associated facilities.

40 CFR 1508.25 requires that connected actions, cumulative actions, or similar actions be discussed/analyzed in the same NEPA document. They cannot be segmented into separate NEPA documents. We request the USFWS comply with this section of NEPA's implementing regulations with respect to its analysis of the impacts to resources issues in the Spring Mountain Raceway and Motor Resort 227-acre Expansion, including the Mojave desert tortoise and its habitat.

Pages 26- 30 – Under the Environmental Consequences section of the Draft EA, the analysis of direct and indirect impacts is provided only for the northern parcel. We were unable to find analyses of the impacts to the Plan Area, which is all areas that will be used for any activities described in the HCP, including covered activities and the conservation program (USFWS & NMFS 2016). Please add these analyses for the resource issues of wildfire, invasive/nonnative plants, and special status species.

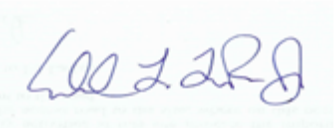
Page 28 - Cumulative Effects on Threatened, Endangered, or Candidate Species – This section uses arithmetic (i.e., addition and subtraction of acres of habitat) to justify a finding of a minor impact from the loss of 227 acres of tortoise habitat. 40 CFR 1500.1(b) says, "Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA" and "the information must be of high quality." 40 CFR 1502.16 says the Environmental consequences "section forms the scientific and analytic basis for the comparisons." 40 CFR 1502.24 on Methodology and scientific accuracy, says, "Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements."

We assert this section of the Draft EA does not use applicable science in its analysis of the cumulative impacts of the Proposed Project on the Mojave desert tortoise/tortoise habitat. We request this section include an analysis of the biological needs of a viable tortoise population/attributes of the tortoise habitat including population viability analysis, habitat patch size and shape, connectivity, edge effect, condition, and habitat quality (nutrition, reproduction, climate change, etc.). (Nussear et al. 2009, .USFWS 2011, Oftedal 2002, Feinberg et al. 2019).

Finally, it is important that the Applicant adhere to state requirements that are in addition to those required by the USFWS. Among others, if a desert tortoise needs to be moved out of harm's way, in addition to all applicable federal permits, the Applicant would need to obtain a Special Purpose Permit from the Nevada Department of Wildlife, in compliance with NRS 503.597 and NAC 503.0935, and to comply with the standard term and condition of a USFWS incidental take permit (i.e., the validity of an incidental take permit is conditioned upon strict observance of all applicable foreign, state, local, tribal, or other federal law).

We appreciate this opportunity to provide input and trust that our comments will further protect tortoises if the Proposed Action is authorized. Herein, we ask that the Desert Tortoise Council be identified as an Affected Interest for this and all other USFWS projects/proposed actions that may affect species of desert tortoises, and that any subsequent environmental documentation for this Proposed Project is provided to us at the contact information listed above.

Regards,



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

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Status of Mojave Desert Tortoise

A few years after listing the Mojave desert tortoise under the federal Endangered Species Act (FESA), the U.S. Fish and Wildlife Service (USFWS) published a Recovery Plan for the Mojave desert tortoise (USFWS 1994a). It contained a detailed population viability analysis. In this analysis, the minimum viable density of a Mojave desert tortoise population is 10 adult tortoises per mile^2 (3.9 adult tortoises per km^2). This assumed a male-female ratio of 1:1 (USFWS 1994a, page C25). Populations of Mojave desert tortoises with densities below this amount are in danger of extinction (USFWS 1994a, page 32). The revised recovery plan (USFWS 2011) designated five recovery units for the Mojave desert tortoise that are intended to conserve genetic, behavioral, and morphological diversity necessary for the recovery of the entire listed species (Allison and McLuckie 2018).

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

At the population level, represented by tortoises in the TCAs, densities of 10 of 17 monitored populations of the Mojave desert tortoise declined from 26% to 64% from 2004 to 2014, and 11 populations have a density is less than 3.9 adult tortoises per km2 (USFWS 2015). Of the two populations of the Mojave desert tortoise that are near the Proposed Project, the Ivanpah and El Dorado populations are below the minimum viable density, and both populations have a declining trend (USFWS 2015). We are concerned that the Proposed Project would bring additional indirect impacts to these populations and the Eastern Mojave Recovery Unit, and their densities and trends would further decline further.

Population Data on Agassiz's Desert Tortoise: The Mojave desert tortoise was listed as threatened under the federal Endangered Species Act in 1990. The listing was warranted because of ongoing population declines throughout the range of the tortoise from multiple human-caused activities. Since the listing, the status of the species has changed. Population numbers and densities continue to decline substantially (see Table 1).

Table 1. Summary of 10-year trend data for 5 Recovery Units and 17 Critical Habitat Units (CHU)/Tortoise Conservation Areas (TCA) for Agassiz's desert tortoise, *Gopherus agassizii* (=Mojave desert tortoise*)*. The table includes the area of each Recovery Unit

and Critical Habitat Unit (CHU)/Tortoise Conservation Area (TCA), percent of total habitat for each Recovery Unit and Critical Habitat Unit/Tortoise Conservation Areas, density (number of breeding adults/km^2 and standard errors = SE), and the percent change in population density between 2004-2014. Populations below the viable level of 3.9 breeding individuals/km^2 (10 breeding individuals per mi^2) (assumes a 1:1 sex ratio) and showing a decline from 2004 to 2014 are in red.

Recovery Unit Designated Critical Habitat Unit/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, CA	2,447	9.53	2.3 (0.9)	–56.05 decline
Upper Virgin River	115	0.45	15.3 (6.0)	–26.57 decline
Red Cliffs Desert	115	0.45	15.3 (6.0)	–26.57 decline
Total amount of land	25,678	100.00		–32.18 decline

Abundance of Mojave Desert Tortoises: Allison and McLuckie (2018) noted that because the area available to tortoises (i.e., tortoise habitat and linkage areas between habitats) is decreasing, trends in tortoise density no longer capture the magnitude of decreases in abundance. Hence, they reported on the change in abundance or numbers of the Mojave desert tortoises in each recovery unit (Table 2). They noted that these estimates in abundance are likely higher than actual numbers of tortoises and the changes in abundance (i.e., decrease in numbers) are likely lower than actual numbers because of their habitat calculation method. They used area estimates that removed only impervious surfaces created by development as cities in the desert expanded. They did not consider degradation and loss of habitat from other sources, such as the recent expansion of military operations (753.4 km2 so far on Fort Irwin and the Marine Corps Air

Ground Combat Center), intense or large scale fires (e.g., 576.2 km2 of critical habitat that burned in 2005), development of utility-scale solar facilities (so far 194 km2 have been permitted) (USFWS 2016), or other sources of degradation or loss of habitat (e.g., recreation, mining, grazing, infrastructure, etc.). Thus, the declines in abundance of Mojave desert tortoise are likely greater than those reported in Table 2.

Habitat Availability: Data on population density or abundance does not indicate population viability. The area of protected habitat or reserves for the subject species is a crucial part of the viability analysis along with data on density, abundance, and other population parameters. In the Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994a), the analysis of population viability included population density and size of reserves (i.e., areas managed for the desert tortoise) and population numbers (abundance) and size of reserves. The USFWS Recovery Plan reported that as population densities for the Mojave desert tortoise decline, reserve sizes must increase, and as population numbers (abundance) for the Mojave desert tortoise decline, reserve sizes must increase (USFWS 1994a). In 1994, reserve design (USFWS 1994a) and designation of critical habitat (USFWS 1994b) were based on the population viability analysis from numbers

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%**

(abundance) and densities of populations of the Mojave desert tortoise in the early 1990s. Inherent in this analysis is that the lands be managed with reserve level protection (USFWS 1994a, page 36) or ecosystem protection as described in section 2(b) of the FESA, and that sources of mortality be reduced so recruitment exceeds mortality (that is, lambda > 1)(USFWS 1994a, page C46).

Habitat loss would also disrupt the prevailing population structure of this widely distributed species with geographically limited dispersal (isolation by distance; Murphy et al. 2007; Hagerty and Tracy 2010). Allison and McLuckie (2018) anticipate an additional impact of this habitat loss/degradation is decreasing resilience of local tortoise populations by reducing demographic connections to neighboring populations (Fahrig 2007). Military and commercial operations and infrastructure projects that reduce tortoise habitat in the desert are anticipated to continue (Allison and McLuckie 2018) as are other sources of habitat loss/degradation.

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

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

Definition of an Endangered Species: Agassiz's desert tortoise is now on the list of the world's most endangered tortoises and freshwater turtles. It is in the top 50 species. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers Agassiz's desert tortoise to be Critically Endangered (Turtle Conservation Coalition 2018).

The IUCN places a taxon in the Critically Endangered category when the best available evidence indicates that it meets one or more of the criteria for Critically Endangered." These criteria are 1) population decline - a substantial (>80 percent) reduction in population size in the last 10 years; 2) geographic decline - a substantial reduction in extent of occurrence, area of occupancy, area/extent, or quality of habitat, and severe fragmentation of occurrences; 3) small population size with continued declines; 4) very small population size; and 5) analysis showing the probability of extinction in the wild is at least 50 percent within 10 years or three generations.

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…" Given the density and trend of the populations of the Mojave desert tortoise in Table 1, one may conclude that the Mojave desert tortoise is in danger of extinction throughout all or a significant portion of its range. Because most of the populations of the Mojave desert tortoise in 2014 had densities that were below the viable level of 3.9 tortoises per square kilometer, most are declining, and the threats to the Mojave desert tortoise are numerous and have not been substantially reduced throughout the species' range, the Desert Tortoise Council believes the Mojave desert tortoise should be uplisted to endangered by the USFWS.

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