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Via email and BLM NEPA eplanning website

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Amber Hughes
Bureau of Land Management
Grand Canyon-Parashant National Monument
345 E Riverside Drive
Saint George, UT 84790
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RE: Environmental Assessment for Link Spring & Last Chance Allotments Grazing Permit Renewals (DOI-BLM-AZ-A030-2022-00XX-EA)

Dear Ms. Hughes,

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.

We appreciate this opportunity to provide comments on the above-referenced project. Given the location of the proposed project in habitats known to be occupied by Mojave desert tortoise (*Gopherus agassizii*) (synonymous with Agassiz's desert tortoise), our comments pertain to enhancing protection of this species during activities funded, authorized, or carried out by the Bureau of Land Management (BLM), which we assume will be added to the Decision Record for this project as needed. Please accept, carefully review, and include in the relevant project file the Council's following comments and attachments for the proposed project.

The Council would like to thank BLM for contacting us directly on June 18, 2022 with information about and a link to the Link Spring & Last Chance Allotments Grazing Permit Renewals Environmental Assessment (EA).

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

Proposed Action

The BLM has received grazing permit renewal applications from ZD Cattle Company, the current Permittee, to renew the ten-year term grazing permit authorization on the Link Spring and the Last Chance allotments. The authorization is primarily for cattle with some horses. The Link Spring and Last Chance allotments are wholly within the Grand Canyon-Parashant National Monument (GCPNM). When consistent with the goals and objectives of the Grand Canyon-Parashant National Monument Resource Management Plan (GCPNM RMP) (BLM 2008a) and Arizona Standards for Rangeland Health, allocation of forage for livestock use and the issuance of grazing permits to qualified applicants are provided for by the Taylor Grazing Act and Federal Land Policy and Management Act.

Description of the Allotments

The Last Chance Allotment is adjacent to the Link Spring Allotment. The Last Chance Allotment has an upper pasture and a lower pasture. Elevations range from 4,140 feet to 6,700 feet. The upper pasture is usually used in the spring and summer and the lower pasture in the fall and winter. Link Spring Allotment has four pastures with elevational differences. Elevations range from 3,400 feet in the northwestern portion, the lower part of Hidden Canyon, to 6,620 feet.

BLM (2022) reports there is a diversity of vegetation in the allotments ranging from pinyon-juniper in the higher elevations to desert shrub and annual and perennial grasses in the lower elevations. There are ten ecological site descriptions mapped within the two allotments.

Alternatives Analyzed

BLM analyzed two alternatives, the Proposed Action Alternative – Alternative A and the No Grazing Alternative – Alternative B.

Alternative A: In the Proposed Action, BLM would issue a new term grazing permit for the Link Spring Allotment and the Last Chance Allotment for ten years with updated terms and conditions. The animal unit months (AUMs) would be reduced by 685 to 1,071 AUMs in the Link Spring Allotment and by 346 to 609 AUMs in the Last Chance Allotment.

There are no changes in number or kind of livestock, or season of use. No new structural range improvements are proposed for either allotment. Any range improvements proposed in the future would be considered through a separate process under the National Environmental Policy Act (NEPA). Only maintenance of current range improvements would be allowed through an existing cooperative agreement.

Alternative B: Under this alternative, BLM would cancel the existing grazing permit(s) and issue new ten-year term grazing permit(s) on the authorization with zero AUMs for active preference. In ten years, the allotment(s) would be re-evaluated. No new range improvement projects would be constructed, and no modifications would be made to existing projects.

In addition, BLM described a third alternative it considered but eliminated from further analysis. In this alternative, new ten-year term grazing permits would be issued for the Link Spring and Last Chance allotments with the same terms and conditions as the current permits with no reduction in AUMs. We found no other specific information how this alternative differed from Alternative A.

As currently presented, the Council does not support the Proposed Action Alternative – Alternative A. We make this determination because we were unable to find data in the EA that demonstrated that the Proposed Action would comply with BLM’s policy on special status species - Handbook 6840 Special Status Species Management (BLM 2008b). The first objective of BLM’s special status species policy is to “conserve and/or recover ESA [Federal Endangered Species Act]-listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species.” At the field office level, BLM is responsible for:

- “Implementing conservation strategies for BLM special status species as contained in approved recovery plans, cooperative agreements, and other instruments the BLM has cooperatively participated in the development of.”
- “Ensuring that land use and implementation plans fully address appropriate conservation of BLM special status species.”
- “Monitoring populations of Bureau special status species to determine whether management objectives are being met. Records of monitoring activities are to be maintained and used to evaluate progress relative to such objectives. Monitoring shall be conducted consistent with the principles of adaptive management as defined in Department of the Interior policy, as appropriate.”

We request that this information be added to the EA with respect to the tortoise so BLM demonstrates it is complying with its policy.

We believe the range of alternatives presented is not sufficiently broad. Section 102(2)E) of the NEPA and BLM’s Handbook on NEPA (BLM 2008c) directs BLM to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources...”

We assert BLM should present an alternative that focuses on management for the conservation of the Mojave desert tortoise and other special status species (i.e., improving the habitat to meet their needs) while bringing the allotments to rangeland health standards. Management for tortoises/tortoise habitat includes (1) adequate quality and quantity of native herbaceous plant species with adequate nutritional value, and (2) sufficient cover from predators and temperature extremes. Managing for these factors should be included in the range of alternatives. In addition, we presume BLM’s Proposed Action is to reduce AUMs until rangeland health standards improve (rather than are met), but we were unable to find any scientifically proven Best Management

Practices that address the needs of the tortoise. (Please see **Best Management Practices** below). We are left with the assumption that BLM assumes that managing for rangeland health standards would also manage for tortoises/tortoise habitat. Because cattle and tortoises have different habitat requirements and different nutritional requirements, this assumption is incorrect and should be analyzed in the EA.

Because of BLM's multiple use and sustained yield mandates, the Council contends BLM should be managing for all resources, not just livestock. When examining the methodology used by BLM to determine rangeland health, we were unable to determine how BLM evaluated specific attributes of the environment that are needed by tortoises for their survival, growth, reproduction, and recruitment, as required under 43 Code of Federal Regulations (CFR) FR 4180.1(d). The primary dietary component of the Mojave desert tortoise's diet is native annual herbaceous vegetation, with perennial herbaceous vegetation and perennial grasses comprising a substantially lesser component (Jennings and Berry 2015). Mojave desert tortoises need plant species with a high water and protein content, but low potassium content (Oftedal et al. 2002).

However, BLM's methodology selected a few species of woody shrubs and perennial grasses as evaluation species and determined rangeland health from this information. It appears that BLM has selected certain perennial plant species as indicators of rangeland health that constitute livestock forage, but has neglected to include plant species needed as forage by special status species of animals including desert tortoises. Because of this omission, BLM is not able to assess the effects of livestock grazing on special status animal species including desert tortoises. Through the rangeland health evaluation procedures, BLM should specify how it is ensuring that there is adequate forage quantity and nutritional quality for the Mojave desert tortoise so that growth, reproduction, and recruitment will occur for this species, and that adequate shrub cover from temperature extremes and predators is provided, thus contributing to its recovery. Consequently, we request that BLM develop this third alternative, that it be supported by science, and included in the EA. Such an alternative is supported by past court decisions [e.g., *Klamath-Siskiyou Wildlands Center v. Bureau of Land Management*, 387 F.3d 989 (9th Cir. 2004); *Kern v. BLM*, 284 F.3d 1062, 1075-76 (9th Cir. 2002); and *Fritiofson v. Alexander*, 772 F.2d 1225, 1243, 1245-46 (5th Cir. 1985)].

There are several range improvements within these allotments that provide water to livestock. These improvements should be designed, operated, and maintained such that no wildlife species, including Mojave desert tortoises, are entrapped or drowned. Such activity would be considered take under the Federal Endangered Species Act for the tortoise. Additionally, it is important that no known tortoise predators, particularly common ravens, are subsidized by these water sources. These stipulations should be required in any new grazing permit.

Best Management Practices

Best Management Practices (BMPs) should be included in the Proposed Action and any other alternative that authorizes grazing to occur. BMPs should include monitoring that is part of a science-based management plan with quantifiable requirements and standards that must be met to comply with the issued grazing permit. Failure to meet requirements and standards should have penalties and require corrective actions = adaptive management. We request that BLM revise the EA to include a science-based management plan for livestock and tortoises with appropriate BMPs, quantifiable requirements and standards, and penalties and corrective actions.

In addition, we suggest that the Permittee be required to mitigate for the impacts to the human environment that livestock grazing causes including climate change and impacts to soils, soil crusts, and native vegetation. These mitigation measures should be part of the project description. Please see mitigation described under **Wildfire and Invasive Plant Species and Mitigation** below.

Methodology to Determine Rangeland Health

According to BLM (2022), “[a]ttempting to monitor 100% of any given rangeland is not practical. Instead, representative study sites are selected based on their ability to predict range conditions over much larger areas (University of Arizona 2010).” “Arizona Standards for Rangeland Health on BLM and NPS [National Park Service]-administered lands Evaluation sites, or key areas as defined in Technical Reference 1734-4 (BLM 1999b), were selected (location and amount) using professional judgment based upon terrain, past uses of the area, and location of waters. Existing trend studies, ecological condition data, actual use, and utilization studies for each allotment was analyzed (see Section 3.4.1). The trend identified in the rangeland health assessment survey assessed erosion status, vegetative cover, vigor, species diversity, and location of the most palatable plants in relation to access to a grazing animal” (BLM 2022).

There are ten ecological site descriptions contained in the two allotments. However, according to Appendix A, Figure 3, only two evaluation sites in each allotment were selected. From the limited information provided by BLM in the EA on the application the Arizona Rangeland Standards to these two allotments, this small sample size and non-random site selection do not appear to meet the scientific rigor to ensure unbiased and well-controlled experimental design, methodology, analysis, interpretation, and reporting of accurate results that represent the ecological variation in the allotments. Consequently, we question the compliance with 40 CFR 1502.22, which is Incomplete or Unavailable Information and 40 CFR 1502.24, which is Methodology and Scientific Accuracy.

BLM further stated, “[e]xisting management practices and levels of use on grazing allotments will be reviewed and evaluated on a priority basis to determine if they meet or are making progress toward meeting the Arizona Standards for Rangeland Health on BLM and NPS-administered lands.” We presume this to mean that this review and evaluation does not occur frequently. According to information provided by BLM in the EA, BLM “conducted field evaluations of rangeland health conditions on the Link Spring Allotment in 2002 and Last Chance Allotment in 2004” and again in 2021. During these evaluations, BLM reported that Standard 3 – Desired Resource Condition continue to be partially met on all 16 key areas on both allotments for each key area. “Livestock management was not the reason for not meeting all standards, the results of wildfire, years of drought, and woody vegetation encroachment have slowed recovery and achievement of objectives.”

We are concerned that BLM’s revisit to the allotments to assess Rangeland Health took 17 and 19 years for these two allotments. During this time the impacts of climate change increased substantially, several fires occurred, the worst drought in the southwestern United States in 1,200 years is ongoing, and the tortoise experienced substantial declines in abundance and density. We are concerned that BLM appears to have limited ability to monitor and implement adaptive management for livestock grazing permits when BLM’s assessments show the rangeland health standards are not being met. Please ensure that the grazing permit has science-based monitoring and adaptive management requirements that provide flexibility to modify or suspend grazing if environmental conditions for livestock and wildlife do not improve.

In some cases, the EA contains statements with no supporting references. For example, BLM says, “[u]tilization levels below 50% allow the [plant] species to maintain themselves in drought, even with grazing.” We question whether this is true for all plant species and especially during the megadrought when we have provided references that this is not always correct (please see **Climate Change, Greenhouse Gas Emissions, and Vegetation below**).

In another example, BLM says, “the Proposed Action was designed to manage the allotments for livestock grazing, provide for a diversity of wildlife and plant species, maintain functioning ecosystems, and maintain or improve ecological condition to meet Rangeland Health Standards.” Unfortunately, we found no information (e.g., references of scientific literature, BLM reports, etc.) that support/substantiate this statement by BLM. We were unable to find an analysis (emphasis added) of how the Proposed Action would provide for a diversity of wildlife and plant species and maintain functioning ecosystems given the data on drought, invasive plant species, fire, and climate change. Further, we found no analysis that showed how implementation of the Proposed Action would result in achieving the desired plant community and maintaining it for both livestock and tortoises. We request that BLM add this analysis and support its statements with appropriate scientific references.

Under 43 CFR 4180.1, we believe that BLM is directed to ensure that the following conditions of rangeland health exist:

- (a) Watersheds are in, or are making significant progress toward, properly functioning physical condition, including their upland, riparian-wetland, and aquatic components; soil and plant conditions support infiltration, soil moisture storage, and the release of water that are in balance with climate and landform and maintain or improve water quality, water quantity, and timing and duration of flow.
- (b) Ecological processes, including the hydrologic cycle, nutrient cycle, and energy flow, are maintained, or there is significant progress toward their attainment, in order to support healthy biotic populations and communities.
- (c) Water quality complies with State water quality standards and achieves, or is making significant progress toward achieving, established BLM management objectives such as meeting wildlife needs.
- (d) Habitats are, or are making significant progress toward being, restored or maintained for Federal threatened and endangered species, Federal Proposed, Federal candidate and other special status species.

Of these, (a), (b), and (d) apply to desert tortoises. We request that BLM’s implementation of rangeland health standards (a), (b), and (d) incorporate the needs of tortoises and other special status species.

Collecting/Evaluating Data

We urge BLM to implement scientific methodologies with statistical rigor (e.g., more than two sample sites per allotment) to assess rangeland health. The methodologies should incorporate properly functioning ecological processes, biotic integrity, and soil stability at levels that reflect the needs of special status plant and animal species as well as livestock.

Most Key Areas used in this evaluation were established before many plant and animal species were added to the list of threatened and endangered species, considered special status species, or before the BLM's Manual 6840 on Special Status Species Management was updated in 2008. We would appreciate BLM providing information on how its methodology that evaluates rangeland health considers and complies with BLM Manual 6840 and BLM's obligation to manage for the conservation of listed species under section 7(a)(1) of the Federal Endangered Species Act. We request this information specifically for the Mojave desert tortoise.

Resource Issues Analyzed in the EA/Affected Environment

The Last Chance Allotment has an upper pasture at higher elevation and a lower pasture. Elevations range from 4,140 feet to 6,700 feet. The upper pasture is usually used in the spring and summer and the lower pasture in the fall and winter. Link Spring Allotment has four pastures with elevational differences. Elevations range from 3,400 feet in the northwestern portion, lower part of Hidden Canyon, to 6,620 feet.

BLM (2022) reports there is a diversity of vegetation in the allotments ranging from pinyon-juniper in the higher elevations to desert shrub and annual and perennial grasses in the lower elevations.

In the EA, BLM determined that for Threatened, Endangered or Candidate Animal Species – they are present but “not affected to a degree that detailed analysis is required.” For critical habitat for the tortoise, BLM says, “Designated critical habitat for the federally threatened desert tortoise occurs within the Link Spring Allotment along the Grand Wash Cliffs. This critical habitat is part of the Gold Butte-Pakoon Critical Habitat Unit (CHU).” “The Link Spring Allotment does not contain any suitable habitat. Additionally, it is geographically separated from the Pakoon Basin, which contains suitable critical habitat and tortoises, by the Grand Wash Cliffs. Thus, no effect on desert tortoise, desert tortoise critical habitat or its primary constituent elements is expected from the proposed action.”

This information is unclear with respect to whether tortoises have been present in the past, are currently present, or may use the allotments as linkage habitats or future habitats because of climate change especially at higher elevations. We found no information in the EA that provided the results of surveys for tortoises/tortoise sign recently or in the past. Desert tortoises occur from below sea level to an elevation of 7,300 feet (USFWS 2011). Typically, tortoises are found below 5,500 feet elevation (USFWS 2011).

The allotments appear to be within the range of the tortoise and where habitats for the tortoise have been modeled (Feinberg et al. 2019, Gray et al. 2019). The elevational ranges of each allotment and ecological site descriptions are also within the parameters where tortoises may occur (e.g., Loamy Upland, Gravelly Clay Loam Upland, Shallow Sandy Loam, and Calcareous Sandy Wash).

We request that BLM provide data in the EA to show that formal protocol surveys for the tortoise were conducted (USFWS 2019) for the action area, not just the project footprint. The USFWS defines “action area” in 50 CFR 402.2 and their Desert Tortoise Field Manual (USFWS 2009) as “all areas to be affected directly or indirectly by proposed development and not merely the immediate area involved in the action (50 CFR §402.02).” We strongly recommend that the BLM require that only experienced biologists perform protocol surveys, which may mean that the USFWS review their credentials prior to the surveys.

For designated critical habitat, BLM should conduct surveys to determine whether one or more of the primary constituent elements/physical and biological features is present in the allotments. If tortoise sign or primary constituent elements/physical and biological features is present, then BLM should be obligated to manage the critical habitat for the tortoise and to consult with the U.S. Fish and Wildlife Service (USFWS) on the effects of the grazing on the tortoise and designated critical habitat.

Critical habitat may be occupied or unoccupied by tortoises. Management of unoccupied critical habitat is especially important for future survival and recovery of the tortoise as its occurrences, numbers, and densities have declined substantially since listing (Allison and McLuckie 2018, USFWS 2022a, 2022b) and this area may become more important as the tortoise recovers.

In addition, climate change is rapidly changing the locations of suitable habitat for many wildlife species including the tortoise. Areas that currently may not be considered suitable habitat because of vegetation or altitude are converting to habitats that can be used as linkages to other tortoise habitats or as habitats for the tortoise. Gray et al. (2019) developed a range-wide, omnidirectional (coreless) connectivity model and map for the threatened Mojave desert tortoise at a high spatial resolution. Comparing it to the maps provided in the EA, it appears that tortoise habitat is present in the area of these allotments.

Gray et al. (2019) emphasized that as habitat degradation/destruction “leads to species extinctions globally, conservation planning that account for population-level connectivity and gene flow is an urgent priority. Models that only approximate habitat potential are incomplete because areas of high habitat potential may be isolated, whereas intermixed areas of lower habitat potential may still be critical for maintaining connectivity between and among populations.”

We urge BLM to reassess the current and potential future functions and values of the lands in the allotments as tortoise habitat with changing climate conditions when evaluating its management of public lands and habitats/linkage areas for the Mojave desert tortoise.

The Proposed Action is located in the Northeastern Mojave Recovery Unit of the Mojave desert tortoise and is within the range and elevation of tortoises/tortoise habitat (Feinberg et al. 2019, Gray et al. 2019). Because the tortoise is a federally threatened species, BLM should conduct a records search of the Arizona Heritage Data Management System (Arizona HDMS/<https://www.azgfd.com/Wildlife/HeritageFund/>) for rare plant and animal species reported from the region. The results of the Arizona HDMS review should be reported in the EA with an indication of suitable and occupied habitats for all rare species reported from the region based on performing species-specific surveys described below.

Analysis of Impacts to the Mojave Desert Tortoise and Its Habitat

The EA should include a thorough analysis and discussion of the status and trend of the tortoise in the action area, Gold Butte – Pakoan Tortoise Conservation Area, Northeastern Mojave Recovery Unit, and range wide. A discussion of all likely sources of direct and indirect mortality for the tortoise and degradation and loss of habitat used for feeding, breeding, shelter and population connectivity from implementation of the alternatives should be analyzed. We presume that hauling livestock, maintenance of existing range improvements, and livestock grazing would impact soils

and vegetation including promoting the growth of non-native invasive annual grasses that outcompete native plants and contribute to the increased frequency, size, and intensity of fires. The promotion of the growth of non-native invasive annual grasses, reduction in native annual and perennial plants, increased fuel for fires/impacts of fires, and grazing pressure on native annual and herbaceous perennial plants during a multi-decadal drought should be analyzed in the EA with respect to the tortoise, and associated impacts to soils/soil crusts. Please expand this analysis to include impacts from the operation and maintenance of livestock facilities including vehicles used to access the site.

Wildfire and Invasive Plant Species

Both allotments have a history of fire. The Last Chance Allotment had eight wildfires since 1997 with 3,972 acres burned. Fire size ranged from 1 to 3,873 acres. The Link Spring Allotment had 23 wildfires between 1980 and 2019. Fire size ranged from 1 to 9,196 acres with 25,301 total acres burned.

In the EA, BLM mentions the presence of past wildfire and current presence of non-native invasive red brome (*Bromus rubens*) and cheatgrass (*Bromus tectorum*). Both species are grasses that invade areas with soil surface disturbance and increase the intensity, size, and frequency of fire (Brooks 1999, Brooks and Esque 2002). As such, both fire and management of non-native invasive plants should be issues that are important components of grazing management and the grazing permit. Actions to prevent the causes of human-caused fire and reduction of the presence fuels that carry fire such as red brome, cheatgrass, other non-native annual plant species, and their seed banks should be implemented, especially in tortoise habitats.

Because Mojave desert plant species are not adapted to fire, their recovery is not likely to occur for decades or longer without the implementation of restoration efforts (Abella 2009, 2010; Vamstad and Rotenberry 2010). Another action should be to substantially reduce or eliminate human-caused stressors on the native plant communities. Such stressors include but are not limited to plant predation (caused by livestock and burro grazing), activities resulting in surface disturbance (that bury/destroy seed banks, disrupt soil crusts, etc.), and sources of non-native plant propagules (e.g., vehicles, etc.) that affect germination, growth, and forage quality of native plants. In addition, BLM should implement actions to restore the native annual and perennial plant species diversity, abundance, seed banks, and biotic soil components (e.g., soil crusts). To facilitate restoration of native plant species and soils, we suggest that BLM implement the actions described in Abella and Berry (2016), as this would facilitate restoration of native vegetation communities for desert tortoises, other wildlife species, and livestock. We have included a link to this publication in the **Literature Cited** section of this letter for your use.

Climate Change, Greenhouse Gas Emissions, and Vegetation

We have been experiencing a megadrought since 2000 in the southwestern United States (Stahle, 2020, Williams et al. 2022), the worst long-term drought in more than 1,200 years. Also documented has been a strong decline in vegetation cover, with the drier locations showing the strongest declines (Hantson et al. 2021). In some parts of the Mojave Desert, “total shrub cover and volume have decreased significantly by roughly 10% between 2000 and 2009 (Fig. 4; paired sign test: P, 0.001, n 575, for both shrub cover and volume). Mortality of these long-lived shrubs has been high (48%), and the recruitment of new shrubs (5%) has been too low to maintain their

populations at previous levels” (Huggins et al. 2010). Changes in rainfall could only explain part of the observed trends, with the long-term vegetation trends closely related to warming climate. These results indicate that dryland ecosystems may be more susceptible to changing climate than previously thought (Hantson et al. 2021). As noted by Archer and Predick (2008), vegetation in arid lands that live near their physiological limits are experiencing additional stressors from climate change.

We request that the EA address the effects of the Proposed Action on climate change and the effects that climate change may have on the Proposed Action. For the latter, we recommend including: an analysis of habitats within the action area that may provide refugia for tortoise populations; an analysis of how the Proposed Action would contribute to the spread and proliferation of nonnative invasive plant species; how this spread/proliferation would affect the desert tortoise and its habitats (including the frequency, size, and intensity of fires); and how the Proposed Action may affect the likelihood of fires. We strongly urge the BLM and the permittee to develop and implement a science-based management and monitoring plan using this analysis and other relevant data that would reduce the transport to and spread of nonnative seeds and other plant propagules within the action area and eliminate/reduce the likelihood of fires. The plan should integrate vegetation management with fire management and fire response.

Livestock production is a major producer of greenhouse gas emissions and a significant contributor to climate change (IPCC 1990, Dijkstra et al. 2011, McGregor et al. 2021). The livestock sector is responsible for 18% of global anthropogenic greenhouse gas emissions, with enteric CH₄ of livestock being 25% of the livestock related greenhouse gases (Dijkstra et al. 2011). Since even a reduction in AUM authorizations would still result in greenhouse gas emissions, please explain in the EA how the Proposed Action, which would be approved by the federal government, complies with the President’s Executive Order 14008 on “Tackling the Climate Crisis at Home and Abroad” (e.g., section 204, etc.).

Mitigation

If BLM intends to reauthorize grazing for the Last Chance and Link Springs allotments, then we recommend that BLM and the permittee mitigate for the impacts that climate change is causing to soils and vegetation in the allotments and for the impacts that grazing is contributing to climate change. Megadroughts, loss of shrub cover, and volume used as measurements of forage availability and range health should demonstrate that the greenhouse gas (GHG) emissions are not substantially increased by the Proposed Action. One way to offset GHG emissions is to produce more native plants. We suggest revegetating burned areas with plant species that provide nutritional forage for tortoises and other special status species to help offset the loss of vegetation from grazing that could sequester GHGs. In addition, because livestock operations contribute to GHGs, the permittee should be required to mitigate for these emissions. Mitigation could include successfully revegetating degraded areas on BLM land with native plant species that would sequester GHG emissions.

Cumulative Effects Analysis

Please see *Grand Canyon Trust v. F.A.A.*, 290 F.3d 339, 345-46 (D.C. Cir. 2002) in which the court decided that agencies must analyze the cumulative impacts of actions in environmental assessments.

We were unable to find an analysis (emphasis added) of impacts to special status species such as desert tortoises in the EA. We found no consideration of climate change and its impacts on wildlife species including desert tortoises. For BLM to analyze cumulative impacts to desert tortoises and other special status species, it must have a baseline of what their current status and trend is. We did not find this in the Affected Environment section of the EA. Once the baseline status and trend are presented, cumulative impacts analysis in the EA should follow the Council on Environmental Quality (CEQ) (1997) guidance to federal agencies on how to analyze cumulative environmental consequences. The BLM NEPA Handbook – H-1790-1 (BLM 2008a) has adopted this guidance. This guidance contains eight principles listed below to help federal agencies conduct an appropriate cumulative impacts analysis of their alternatives:

In the cumulative effects analysis of the EA, please ensure that the CEQ’s “Considering Cumulative Effects under the National Environmental Policy Act” (1997) is followed, including the eight principles (reiterated below), when analyzing cumulative effects of the Proposed Action to the tortoise and its habitats. CEQ states, “Determining the cumulative environmental consequences of an action requires delineating the cause-and-effect relationships between the multiple actions and the resources, ecosystems, and human communities of concern. The range of actions that must be considered includes not only the project proposal but all connected and similar actions that could contribute to cumulative effects.” The analysis “must describe the response of the resource to this environmental change.” Cumulative impact analysis should “address the sustainability of resources, ecosystems, and human communities.” CEQ’s guidance on how to analyze cumulative environmental consequences contains eight principles listed below:

- 1. Cumulative effects are caused by the aggregate of past, present, and reasonable future actions.** The effects of a Proposed Action on a given resource, ecosystem, and human community, include the present and future effects added to the effects that have taken place in the past. Such cumulative effects must also be added to the effects (past, present, and future) caused by all other actions that affect the same resource.
- 2. Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, non-federal, or private) has taken the actions.** Individual effects from disparate activities may add up or interact to cause additional effects not apparent when looking at the individual effect at one time. The additional effects contributed by actions unrelated to the Proposed Action must be included in the analysis of cumulative effects.
- 3. Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected.** Environmental effects are often evaluated from the perspective of the Proposed Action. Analyzing cumulative effects requires focusing on the resources, ecosystem, and human community that may be affected and developing an adequate understanding of how the resources are susceptible to effects.
- 4. It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.** For cumulative effects analysis to help the decision maker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to the affected parties.

5. **Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.** Resources are typically demarcated according to agency responsibilities, county lines, grazing allotments, or other administrative boundaries. Because natural and sociocultural resources are not usually so aligned, each political entity actually manages only a piece of the affected resource or ecosystem. Cumulative effects analysis on natural systems must use natural ecological boundaries and analysis of human communities must use actual sociocultural boundaries to ensure including all effects.
6. **Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.** Repeated actions may cause effects to build up through simple addition (more and more of the same type of effect), and the same or different actions may produce effects that interact to produce cumulative effects greater than the sum of the effects.
7. **Cumulative effects may last for many years beyond the life of the action that caused the effects.** Some actions cause damage lasting far longer than the life of the action itself (e.g., acid mine damage, radioactive waste contamination, species extinctions). Cumulative effects analysis needs to apply the best science and forecasting techniques to assess potential catastrophic consequences in the future.
8. **Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters.** Analysts tend to think in terms of how the resource, ecosystem, and human community will be modified given the action's development needs. The most effective cumulative effects analysis focuses on what is needed to ensure long-term productivity or sustainability of the resource.

Principles 5 through 8 are especially relevant to the tortoise given its (2) overall declining trend, (2) densities for most populations below the viability threshold, and (3) low recruitment (USFWS 1994, Allison and McLuckie 2018). Recall that for the Mojave desert tortoise to achieve recovery tortoises in all five recovery units must achieve recovery (USFWS 2011).

We appreciate this opportunity to provide input and trust that our comments will help protect tortoises during any authorized project activities. Herein, we ask that the Desert Tortoise Council be identified as an Affected Interest for this and all other BLM projects that may affect species of desert tortoises, and that any subsequent environmental documentation for this particular action is provided to us at the contact information listed above.

Regards,



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

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