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Hector Villalobos
Ridgecrest Field Office
Bureau of Land Management
300 S. Richmond Drive
Ridgecrest, CA 93555

SENT VIA FAX, EMAIL, and US MAIL ON JANUARY 30, 2007

RE: Environmental Assessment (CA-650-2004-36) for the renewal of ephemeral sheep grazing permits on the Cantil Common, Monolith Cantil, Boron, Bissell, Antelope Valley, Warren, Spangler Hills, Hansen Common, Lava Mountain, Rudnick Common, and Walker Pass Common sheep allotments

Dear Mr. Villalobos,

Thank you for providing our office with copies of Environmental Assessment ('EA'; CA-650-2004-36), for the renewal of ephemeral sheep grazing permits on the Cantil Common, Monolith Cantil, Boron, Bissell, Antelope Valley, Warren, Spangler Hills, Hansen Common, Lava Mountain, Rudnick Common, and Walker Pass Common sheep allotments. We appreciate the opportunity to comment and offer the following comments on behalf of the staff and more than 32,000 members of the Center for Biological Diversity; and the staff and members of the Western Watersheds Project, the Mojave Group of the San Geronio Chapter of the Sierra Club, Natural Resources Defense Council, and the California Turtle and Tortoise Club, on behalf of that organization. As you know, we have been actively commenting on this EA since it was first developed in 2004 and have submitted comments twice on these sheep permit renewals.

The EA purports to analyze the impacts of authorizing sheep grazing on nearly a half a million acres of public lands. The proposed action essentially will allow up to 45,705 ewes and their offspring to range through the area up to three months each spring with limited or no hard numbers, maps, plans, or dates, with the potential to remove over *9 million pounds* of vegetation in the meantime (9141 AUMs x 990 pounds of forage, *See* EA page 17). This action is highly significant and merits the preparation of a complete Environmental Impact Statement.

The EA, despite several iterations released by the Ridgecrest Field Office, remains incomplete, and is still marred by internal inconsistencies and inadequate consideration and analysis of the impacts of the proposed action. The NEPA implementing regulations require that "Statements shall be concise, clear, and to the point, and shall be supported by evidence that the agency has made the necessary environmental analyses." As such, the failure to present such basic facts as the correct acreages

throughout the document is a fatal flaw. We wish to note that the new EA appears to be disclosing significantly less information and sustained analysis concerning two key topics (cultural resources and desert tortoise population trends) than was disclosed in the previous two EA drafts.

INADEQUACIES OF THE EA

The EA considers an insufficient range of alternatives. NEPA requires agencies to “study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources.” 42 U.S.C. § 4332(2)(E).

No alternatives were evaluated that would have withdrawn the entire area of Desert Tortoise critical habitat from grazing or would have withdrawn the entire Desert Wildlife Management Areas from grazing. The BLM will argue that the No Grazing alternative accomplished this objective, but the No Grazing alternative does far more and thus does not provide a “range” of alternatives. Moreover, the no action alternative is rarely, if ever, selected as the preferred alternative and despite the BLM’s acknowledgement in the EA that this is the most environmentally-responsible alternative (leading to increased perennial vegetation cover, higher numbers of Desert Tortoise, increased numbers of Mohave Ground Squirrel, reduced soil disturbance). The inclusion of a “No Grazing” alternative here is merely the fulfillment of legal obligations.

The “No Action” alternative – one which allows the continuation of current management- is not a viable alternative: it is illegal under the conditions of the WEMO Plan. Therefore, analyzing this alternative is pointless and cannot be considered to expand the ‘range of reasonable alternatives’ at all.

The EA frequently acknowledges the similarity of the two main alternatives considered by BLM. The EA notes that livestock numbers under the proposed action would remain the same as the no action alternative; it further states that current season of use would not be affected by selection of the proposed action, and that grazing under the proposed action would be subject to many of the same conditions as outlined in the no action alternative, except where some are superseded by WEMO.

While we acknowledge some differences between the Proposed Action and the No Action alternatives with regard to forage utilization standards and allowable sheep band size, we must also note BLM itself does not appear to view these differences as significant.

As a result, the EA notes, under the environmental consequences sections for Air Quality, Biological Soil Crusts, Social and Economic Values, Environmental Justice, Invasive, Non-Native Species, Recreation, Soils, Water Quality, Surface, and Ground Water, Wilderness, and Vegetation, that the impacts of the Proposed Action will be the "same as" or "similar" or "very similar" to the No Action alternative.

The EA notes, significantly, in the Wildlife T&E section that the impacts of the two alternatives are not expected to be substantially different from each other. The differences between the

two alternatives are, as the BLM admits, slight. For instance, on page 63, the EA states, under the heading **Impacts of the No Action Alternative on Wildlife Habitat - All Allotments**, that "Adverse impacts will be slightly greater than those for the Proposed Action . . . slightly less forage would be available to wildlife under the No Action than under the Proposed Action. . . . Slightly more habitat would potentially be disturbed"

Again, implementation of either the Proposed Action or the No Action alternative in EA # CA-650-2004-36 is likely to generate a very similar outcome, as BLM is unlikely to change a policy that has already largely eliminated sheep grazing in most of the project area Desert Tortoise critical habitat and the Livestock Stock Driveway through Walker Pass since the mid 1980s.

Without a consideration of a broader range of alternatives and the consideration of a "reduced grazing" alternative that would be compliant with the Livestock Element of the CDCA Plan 1980 [(1999), pages 56 to 68], this and any associated decisions subsequently based on this EA cannot comply with NEPA. It is inexplicable that the BLM did not identify reduced grazing [i.e. reducing AUMs] as a potential alternative in this EA. As Administrative Law Judge James H. Heffernan noted in a similar case, "The intended purpose of the proposed action is to meet, or make progress toward, remedying problems caused in large part by grazing. Accordingly, a reasonable range of alternatives to meet this intended purpose should include the alternative of reducing authorized grazing." *Western Watersheds Project vs. Bureau of Land Management*, USDOJ Office of Hearings and Appeals, NV-010-2004-01, NV-010-2004-02, dated March 1, 2006, page 26. Judge Heffernan's view is supported at 40 CFR 1500.2(e): "Such alternatives should include reasonable alternatives to the proposed action, which will accomplish the intended purpose, are technically and economically feasible, and yet have a lesser impact."

The EA fails to identify alternatives that would more rapidly improve poor vegetative and soil conditions. As we recommended in 2004, the BLM should consider an alternative that would reduce adverse impacts of livestock grazing on currently degraded lands and help to restore ecological conditions. This alternative would be especially applicable to the Rudnick Commons allotment, as the recent rangeland health assessment conducted for this allotment documented significant damage to the upland areas of this allotment where Desert Tortoise and Mohave Ground Squirrel are likely to be present.

We support the official closure of 26,952 acres of the Monolith Cantil allotment east of highway 395 that has been out of use since 1991 and is largely composed of Desert Tortoise critical habitat. Clearly, this area is not needed to sustain grazing operations and the official withdrawal of it under the proposed action is a reasonable activity; grazing within critical habitat and DWMA's is an incompatible use. However, the importance of the formal withdrawal of critical Desert Tortoise habitat and the Walker Pass Commons Allotment non-critical habitat from sheep grazing appears exaggerated in this EA. These withdrawals amount to a "paper reduction" only, as sheep have not grazed (or have rarely grazed) these lands over the last 10-20 years.

The level of sheep grazing authorized on these public lands is unclear. The EA does not analyze ephemeral authorizations on any of these allotments that are also subject to perennial grazing

permits, though page 10 of the EA states that the forage prescription of 230 pounds per acre “is not applicable to those allotments that authorize sheep use of perennial forage.” The level and extent of perennial and class of livestock grazing on the multiple-permit allotments (Hansen Common, Rudnick common, Walker Pass, and Warren) are not revealed and the BLM makes no mention of cumulative effect of these permits with the proposed action in violation of NEPA.

The EA contains insufficient factual information to reveal the impacts of the proposed action on these public lands. The historical information about what has occurred on this allotment is sketchy, at best. On page 19 of the EA, it states that to track what occurred each year on the allotments, “the sheep operators submit to BLM, a map showing the loading, unloading, and route of travel as the sheep graze their area of use through the season.” The EA describes this as an annual occurrence but does not indicate the levels of compliance, any monitoring information, or any system for checking the accuracy of this system.

Appendix 3 shows that more than half of the time, there were no maps provided by the sheep operators. This table indicates the average time spent on public lands in the last fifteen years on four of the allotments. There is no indication that the BLM has even this basic (and mostly surmised) information for the other seven allotments and the estimations indicate that the annual reporting is inconsistent, potentially inaccurate, and incomplete. This must be remedied and stipulations must be in place before the proposed action is authorized.

We are concerned that the EA only provides averages and no hard numbers in any of the tables of the document. The EA does not reveal actual use information nor does it provide any trespass or undocumented use records. The EA fails to specify how much acreage is typically sheep-grazed on each allotment during a wet or normal precipitation year. This type of accurate history is an important indicator of permittee compliance and helps provide a reasoned expectation of annual operations. The environmental documents should contain this basic information.

The EA contains insufficient details about monitoring. The only information that the EA reveals about monitoring under the proposed action on these sheep allotments is that there will be weekly monitoring similar to the current management. Current monitoring activities are described as follows: “weekly, for each active sheep operation, the bands are checked for their location, and the forage production is estimated to ensure minimum production thresholds are maintained.” (EA page 16) It is unclear what is meant by “estimated”. Ephemeral forage production must be estimated weekly using the Comparative Yield Method to document on-the-ground vegetation conditions and trigger movement.

There have been no rangeland health assessments completed for these allotments. Without this information, it is impossible to know the current condition of the lands and the impacts that the proposed action might have. There is no documentation of condition and trend, no documentation about potential problems or hotspots, and no description of rangeland health included anywhere in the EA or the appendices. If it is assumed therefore that this information is lacking, the RHA must be completed before further grazing is authorized. If it was not included in the EA, this must be remedied before the action is authorized.

Lacking RHAs, the BLM appears to be attempting to "lock in" a grazing regime for the next 10 years that is only marginally different than current management *before* it has conducted meaningful assessments of the likely consequences of this proposed grazing regime on desert natural resources. In earlier, separate draft EAs for the Walker Pass and Rudnick Common allotments, the BLM had included the results of RHAs- results which documented significant adverse impacts to natural resources caused by livestock grazing in the project area. It is, therefore, not unreasonable to assume that the other allotments have also sustained significant livestock-induced damage over the recent past; conversely, it is unreasonable for the BLM to conclude in advance that the proposed action (which is largely the same as current management) will have no further significant adverse impacts upon the natural resources of the other, un-assessed allotments.

The EA claims that its analysis will "sharply focus on . . . specific areas of the allotment [*sic*] which are not meeting land health standards due to grazing" (page 5). The EA does not provide any of this type of analysis. Indeed, the BLM Ridgecrest FO cannot do this, as no meaningful resource condition assessments appear to have been initiated or completed for most of these allotments, especially the crucial large allotment in the center of the project, Cantil Commons.

By regulation, the BLM is required to manage livestock grazing at the allotment level in a manner that results in resource conditions that conform to the Fundamentals of Rangeland Health (43 CFR 4180.1). Furthermore, BLM is required to manage livestock grazing in a manner that achieves the standards and conforms to guidelines for grazing administration (43 CFR 4180.2). Pending approval of the standards and guidelines for the CDCA by the Secretary of the Interior, the BLM is required to comply with the fallback standards and guidelines in 43 CFR 4180.2. Included among them are the standard requiring that "Healthy, productive and diverse populations of native species exist and are maintained," and the guideline that "Conservation of Federal threatened or endangered, Proposed, Category 1 and 2 Candidate, and other special status species is promoted by the restoration and maintenance of their habitats."

The BLM uses the Rangeland Health Assessment and the Rangeland Health Determination to assess the condition and trend on public lands livestock grazing allotments, to determine if management is contributing to or detracting from achieving the standards of rangeland health. **There are no rangeland health assessments or evaluations included in the EA.** BLM must provide a current rangeland health assessment before it can accurately analyze the impacts of the proposed grazing lease renewals on the health of the range and the species that depend on this habitat.

The regulations for administration of livestock grazing require the authorized officer to take corrective action to achieve the Standards for Rangeland Health and conform to the Guidelines for livestock grazing following the completion of Rangeland Health Assessments and associated determinations. Corrective actions need to be taken "...as soon as practicable but not later than the start of the next grazing year upon determining that existing grazing management practices or levels of grazing use on public lands are significant factors in failing to achieve the standards and conform to the guidelines..." (43 CFR 4180.1, 4180.2). Without health assessments, without monitoring data, and

without clear descriptions of current conditions, it is impossible to know what mitigation measures are needed and what will be implemented.

The EA does not contain accurate or adequate maps of the management areas of the allotments. The EA does not include maps of the Desert Wildlife Management Area (DWMA) boundaries, which are key components of the BLM's plans to manage and recover the western Mojave Desert's Desert Tortoise. In the case of the proposed action in this EA, the mapping of the DWMA boundaries in relationship to both the current and the proposed allotment boundaries would go a long way towards correcting many of the inconsistencies in acreages that are found throughout the document and facilitate the decision making process.

The map titled "Mohave Ground Squirrel habitat in Ridgecrest BLM Area and Relation to Sheep allotments" actually shows one of the WMP versions of proposed Mohave Ground Squirrel Conservation areas unadjusted for the adopted DWMA boundaries. The map does not show the range or distribution of the species. Recent ground squirrel trappings confirm their presence in the California City area in Cantil Common South, and within the boundaries of the Bissell and Boron allotments. Table 10 should be corrected.

The four maps that show the Cantil Common allotment show an area of approximately 5,000 acres that is within the Fremont-Kramer DWMA north of the Randsburg Mojave Road. This area is between Randsburg-Mojave Road and Highway 395 (in the southeast part of T30S R40E and 2 sections in T30S R41). This is a highly significant habitat corridor that ensures connectivity for Desert Tortoise and Mohave Ground Squirrel between the Desert Tortoise Natural Area and the southern flanks of the Rand Mountains, and the rest of the DWMA. Sheep grazing in this area will significantly impair the functioning of the Fremont-Kramer DWMA yet there is no analysis of this in the document. This area is in addition to the 6,196 acres of critical habitat west of Highway 395 that is mentioned in the document.

The 6,196 acres of Desert Tortoise critical habitat west of Highway 395 is the only viable north-south corridor west of Highway 395. The area within the DWMA north of Randsburg-Mojave Road is the only linkage between tortoises at the Desert Tortoise Natural Area, one of the few areas in the entire region where tortoise recruitment was documented by West Mojave planning team biologists and the larger part of the Fremont-Kramer and Superior-Cronese DWMA to the east. This is also the only significant linkage between the Mohave Ground Squirrel core areas on Edward's Air Force Base and the core areas to the north.

Given the conservation strategy adopted in the Bureau's West Mojave Plan, these areas of the Cantil Common Allotment are key to the recovery of both the Desert Tortoise and the Mohave ground squirrel. The significant impacts of continued sheep grazing in areas within the Fremont-Kramer DWMA given the adopted DWMA strategy must be addressed and analyzed. The Cantil allotment boundary should be adjusted to remove all Desert Tortoise critical habitat and the approximately 12,000 acres currently with the Fremont Kramer DWMA on the west side of Highway 395. The allotment acreages inside and outside DWMA boundaries should be added to Table 2A.

The proposed action doesn't go far enough to protect Desert Tortoise or Mohave Ground Squirrel. While we support the more restrictive sheep utilization standards of the proposed action, we still do not consider the proposed 15 percent utilization reduction to be significant with regard to the alteration of probable long-term outcomes on critical and non-critical Desert Tortoise habitat and on Mohave Ground Squirrel habitat. In one respect the proposed action is clearly worse (with regard to weakened, less restrictive grazing utilization standards for formerly Category 2 Desert Tortoise habitat in the El Paso Mountains) than the no action alternative.

The proposed action will allow increased grazing impacts on 22,000 acres of formerly Category 2 Desert Tortoise habitat on the Cantil Commons allotment (in the El Paso Mountains), reducing the pounds of forage per acre standard from 350 lbs./acre to 230 lbs/acre. This increase in allowable sheep grazing impact in a relatively productive Desert Tortoise habitat area will undermine recovery of the Desert Tortoise population in the West Mojave and violate both the Federal and state Endangered Species Act.

The formal withdrawal of Desert Tortoise critical habitat from sheep grazing on the Monolith-Cantil and Cantil Common allotments and the proposed 15 percent allowable utilization reduction on non-critical Desert Tortoise habitat *might* be legally sufficient to protect the Desert Tortoise if these populations are demonstrated to be inarguably healthy, not at-risk, not facing imminent threats, and the non-critical Desert Tortoise habitat were clearly unnecessary for the survival and recovery of the meta-populations. However, these Desert Tortoise populations are not healthy, continue to be at-risk, and face numerous threats over the long-term.

Significantly, the EA fails to address the issue of population trends of the Desert Tortoise on the project area grazing allotments; it also fails to adequately address the habitat needs, habitat trends, and habitat conditions for the species in both critical and non-critical habitat categories. Because of the absence of such a comprehensive assessment, this EA clearly violates both the National Environmental Policy Act and the Endangered Species Act. We recommend that such a comprehensive assessment be included as a key component of an environmental impact statement concerning this proposed action

The proposed action may irreparably harm critical habitat for the Desert Tortoise. The proposed action would continue to authorize grazing in 8,000 acres of Desert Tortoise critical habitat, putting areas identified as crucially important to the species' survival and recovery at risk of adverse impacts from sheep grazing.

Declines in tortoise numbers in the western Mojave Desert helped trigger the 1989 listing. Unfortunately, numbers have continued to decline (Tracy et al 2004) in part because of the long-delayed implementation of the recommendations of the 1994 Recovery Plan in the West Mojave Recovery Unit (La Rue 2000) associated with the 12-year gestation period for the BLM's West Mojave Plan. The 1994 critical habitat determination and the Recovery Plan itself necessarily relied on data collected prior to 1993. Given the continued declines in the West Mojave Recovery Unit it is essential that concerted action be taken to ensure that the Recovery Plan's DWMA reserve management strategy be fully implemented throughout the designated DWMA if the tortoise is to recover in the West Mojave. In addition, given the major declines in the Fremont-Kramer and

Superior-Cronese critical habitat units that have occurred, tortoises outside critical habitat are becoming an increasingly important resource for the recovery of the species and steps need to be taken to conserve them.

The proposed action may irreparably harm non-critical Desert Tortoise habitat. The EA should contain an in-depth evaluation of the status and importance of Desert Tortoise on non-critical Desert Tortoise habitat given the well documented decline in the West Mojave tortoise population. It may be crucial to substantially reduce environmental stress levels on these non-critical habitat tortoise sub-populations in order to ensure their survival and ability to contribute to the recovery of the West Mojave Desert Tortoise population.

The Desert Tortoise Recovery Office's Science Advisory Committee considers that tortoise meta-populations may have played a historic role in desert tortoise population dynamics (SAC May 16-17, 2005 meeting notes). The Science Advisory Committee is evaluating the importance of all tortoise sub-populations including those on non-critical habitat within the context of overall tortoise recovery.

The proposed action fails to protect the Desert Wildlife Management Areas from the substantial impacts of livestock grazing. As noted above, the amount of habitat within the Fremont-Kramer DWMA that the EA considers could be authorized for sheep grazing is of the order of 12,000 acres. To put this in context, this is about half the size of the existing Desert Tortoise Natural Area ACEC.

The EA states that sheep grazing use would be authorized in the Shadow Mountains and Cantil-Common allotments where they overlap Desert Wildlife Management Areas under the following conditions. "Turnout of sheep will not occur until 350 pounds per acre of ephemeral forage are available. The lessee will be required to remove sheep from an area of the allotment if ephemeral forage production falls below 350 pounds per acre. The last day of sheep use will be June 1. Watering and loading and unloading will occur at established previously disturbed sites."

Sheep bands are unloaded along Highway 395. Unless the BLM proposes to fence those portions of the Cantil Commons allotments that abut Highway 395, there is nothing that will ensure that the habitat in the DWMA with the 350 lb turnout level will not be impacted as sheep bands are driven to the 220 lb turnout level areas to the west. There are also no provisions that will prevent trespass grazing if the ephemeral forage production falls below 350 pounds per acre. The EA would benefit greatly from including the turnout levels and monitoring data in table 1A so that the scope of the proposed action can be fully appreciated by the decision makers.

The EA fails to provide a site-specific analysis of impacts to Desert Tortoise. The EA relies on incorporating by reference the Final Environmental Impact Statement (FEIS) for the West Mojave (WEMO) Amendments to the CDCA Plan. The BLM appears therefore to be relying on the regional-scale FEIS for WEMO and the Biological Opinions from the U.S. Fish and Wildlife Service, as *de facto* compliance with NEPA and the Endangered Species Act (ESA). As BLM is well aware, the NEPA compliance and ESA compliance for the adoption of the WEMO plan amendments are currently

being challenged in Federal Court by the Center, Sierra Club, and other conservation groups. *Center for Biological Diversity, et al. v. U.S. Bureau of Land Management, et al.*, Case No. C 06-04884 SI (Northern District of California). That case challenges the inadequacies of the NEPA analysis of the impacts of BLM's grazing policies on the Desert Tortoise and the inadequacies in the Biological Opinion issued by the Fish and Wildlife Service with respect to the impacts of grazing on the threatened Desert Tortoise.

Moreover, BLM's reliance on those plan-level documents is misplaced, the proposed site specific action - issuing new grazing leases on allotments that will affect a federally listed species and its critical and non-critical habitat - requires detailed NEPA analysis as well as independent consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the ESA. The WEMO Amendment Biological Opinion for the Desert Tortoise only addresses grazing from a plan-level or regional perspective and does not suffice for consultation required at the allotment level.

The proposed action would authorize management activities that could adversely impact the Mohave Ground Squirrel before the interagency Mohave Ground Squirrel Conservation Strategy is complete, in conflict with the California Endangered Species Act. The interagency Mohave Ground Squirrel Conservation Strategy is still being formulated at this time. This strategy may very well provide ample justification for much more restrictive sheep grazing measures on Mohave Ground Squirrel habitat than BLM is currently considering.

Under the proposed West Mojave Plan HCP, the project area considered in this EA is supposed to provide compensation/mitigation habitat for Mohave Ground Squirrel habitat that will be destroyed elsewhere (Fort Irwin, Adelanto, off of highway 395 to the southeast). Despite this, the proposed action would authorize an activity that would only continue to degrade Mohave Ground Squirrel habitat over time.

The proposed action fails to provide adequate forage for the Mohave Ground Squirrel. The Mohave Ground Squirrel is an omnivorous short-term dietary specialist during its brief activity season. Leaves of spiny hopsage (*Grayia spinosa*) and winterfat (*Krascheninnikovia lanata*) form major components of the squirrels diet in its northern range i.e. in the area of the grazing allotments under consideration, and both plants are recognized as key indicators (Leitner and Leitner 1998). In Inyo County, in late March the diet was greater than 95% leaves of *Grayia spinosa*. In April, the diet was 68% forbs (Best 1995). According to the EA "MGS populations follow a "boom and bust" cycle; they expand into habitats when conditions are favorable and shrink back into core areas when conditions are less favorable, particularly when drought occurs over several years (BLM 2003)." (EA page 56).

The proposed action would allow sheep grazing during the crucial "boom" of the Mohave Ground Squirrel cycle. The EA should analyze the full impacts of the proposed action on the recovery of the species and should consider a range of grazing regimens that will fully minimize the impacts to the Mohave Ground Squirrel.

We note that the values quoted in Appendix 2, “Proper use factors for forage species in the Ridgecrest Field Office Area,” are at variance with the Biological Opinion.¹ The text of the EA (page 11) gives the correct values. The complete EIS should reconcile these inconsistencies.

The proposed action fails to allocate adequate forage for wildlife. The BLM should have considered an alternative in which the 1994 US Fish and Wildlife ephemeral forage/acre standard for all critical Desert Tortoise habitat is applied to all non-critical Desert Tortoise habitat on all of these allotments; that is, that livestock turn-out does not occur until 350 lbs/acre of ephemeral native forage is available, livestock removal must occur if production falls below that level, and utilization shall be set at 5 percent of the production above 350 lbs/acre). The forage consumption standard for any DWMA acres that the EA proposes would be grazed should likewise be increased to 500 lbs/acre in such an alternative.

The EA fails to disclose potential impacts of the proposed action on the Bendire Thrasher. The EA fails to identify the prospective Bendire Thrasher Conservation Area of the Jawbone-Butterbrecht ACEC, of which the Rudnick Common allotment is part (presented on p 109-110 of the WEMO FEIS, Volume 2, Section D.1.13). The final EA needs to analyze the impacts to this species and the associated proposed conservation area.

The proposed action fails to protect the special status plants of the allotment. Desert cymopterus is threatened by sheep grazing; Charlotte’s phacelia is threatened by grazing (CNPS 2007). Despite this, the EA asserts that since these species have co-existed with higher-levels of grazing, there will be no adverse impacts. This is illogical, these plants are clearly threatened by continued grazing and the EA should consider alternatives that would reduce such threats. The EA fails to indicate what kinds of monitoring have occurred on the allotments to support the EA’s assertion of no adversity and fails to ensure that monitoring will occur in the future.

The proposed action fails to adequately protect riparian areas on the allotment. The EA asserts that only one small seep or spring is affected by the proposed action. However, the EA fails to indicate what has happened as a result of livestock grazing and whether the absence of riparian vegetation around any of the existing springs is a result of livestock grazing and whether these riparian areas would recover in the absence of permitted grazing. The EA states that the No Grazing alternative would have no impact on the springs in the sheep allotments; this is contrary to the best available science which shows that riparian areas recover very quickly following the cessation of grazing.

The EA also fails to indicate whether specific riparian monitoring occurs on the allotment and, if so, what the long-term data show and what the trend has been. Riparian areas in the desert are precious to biological diversity, and the BLM should not underestimate the potential for the seeps and springs to develop into suitable habitat for numerous migratory and resident species.

¹ Biological Opinion for the California Desert Conservation Area Plan [West Mojave Plan] (6840(P) CA-063.50) (1 -8-03-F-58)

Information on springs, wetlands and riparian vegetation in the EA is minimal and inadequate to meet the requirements of NEPA and the Federal Land Policy and Management Act (FLPMA), and the CDCA Plan. Absent such important resource information and analysis, the EA does not provide the BLM with the basic information necessary to comply with the regulations for livestock grazing administration. All riparian areas, including those associated with small seeps and springs, are classified as Highly Sensitive Unusual Plant Assemblages in the CDCA Plan and require special protective management. BLM's failure to include detailed information on water resources and riparian areas in the draft EA and to analyze in likely effects of the proposed action on these critical resources renders the NEPA analysis inadequate at the outset.

The EA fails to address the current and ongoing drought. The southern California desert region is already in moderate to severe drought (<http://www.drought.unl.edu/dm/monitor.html>). Ephemeral permits are to be issued when annual forage production is sufficient but the "boom-and-bust" cycle of desert vegetation and the subsequent responses of wildlife depend upon 'boom' years, years wherein wildlife benefits from surplus forage and vegetation benefits from storage to the seedbank. If sheep are allowed to remove the 'surplus,' the natural desert cycle is interrupted.

Drought should be considered and addressed in long-term suitability analyses. The stress of drought conditions is extended to wildlife and their habitats, and any analysis of the impacts of this project should include a discussion of these climate conditions, as well as current climate predictions that indicate drought may persist or worsen during the life of the permit. The complete EIS must address this reality.

The proposed action is fiscally irresponsible, and the socio-economic analysis contained in the EA is inadequate. The total potential economic benefit to the agency of this activity is \$14,260.00 (9141 AUMs x \$1.56 per AUM, the federal fee for 2005). The total potential economic cost must certainly exceed this; the total potential ecological cost is almost incalculably huge in comparison. The socio-economic analysis included in the EA is incomplete and provides no actual figures pertaining to revenue or the cost-benefit of proposed action. (See GAO 2005)

These lands are owned by the American public- a public which is spending millions of dollars to recover the Desert Tortoise- and the BLM is losing money (not to mention ecological integrity) providing livestock grazing authorizations which imperil the species. It makes no sense. The permits should be retired, permanently, and the BLM should dedicated itself to restoring and protecting these lands, providing for recreation, open space, and ecosystem services that are ultimately more profitable and more sustainable than livestock grazing. The Taylor Grazing Act's goal of stabilizing the livestock industry is "secondary" to the goals of safeguarding the rangeland and providing for its orderly use. *Public Lands Council v. Babbitt*, 167 F.3d 1287, 1298n.5 (10th Cir. 1999), aff'd, 120 S.Ct. 1815 (2000)

The EA contains unsupported conclusions about recreational use of these lands. On page 40, the BLM asserts that the "sighting of livestock grazing on the open range is often very intriguing and of interest to visitors and enhances one's recreational experience." The No Grazing alternative would "eliminate the experience of seeing livestock on the open range of the 'Wild West.'" We would very much disagree with these statements and request that the BLM provide supporting documentation

for such assertions. Our members include recreational users of public lands who are dismayed and often disgusted by the presence of livestock in backcountry areas. The EA admits that the Ridgecrest area has been experiencing a change in values and a change in recreational pursuits and attitudes but fails to disclose what those changes have been or where they have been documented.

The proposed action does not sufficiently protect biological soil crusts. The proposed action admits that “the watering down of handling facilities would expedite the recovery of both the biological crusts and physical crusts on (corrals and shipping facilities),” but the proposed action contains no such stipulated mitigation measures.

Further, the EA does not contain sufficient information to understand the extent or integrity of the biological crusts of these allotments. There is a hint on page 27 that the BLM has completed health assessments for the Rudnick and Walker Pass allotments, but there is no date or data associated with this intimation. It is unclear whether soil health has ever been measured and/or monitored. Without this information the impacts of the proposed action are unknown and any determination of the significance of impacts is unsupported.

The Desert Crust Manual quotes recovery times of desert soil crusts following disturbance of 25 to 800 years for early colonizers in the High Mojave and Great Basin (BLM 2001). The document appears to recognize this by quoting “The large, filamentous cyanobacteria can move 5mm per day if it is wet” (EA page 27). To migrate a 1 meter distance would therefore require 200 wet days. Wet days are a rare event in the Mojave Desert. With 4,046 square meters per acre (requiring over 12,000 wet days), this would help explain why the sheep watering sites east of highway 395 which have not been grazed since the 1991 jeopardy biological opinion have not yet recovered their crusts. According to the EA, “No species specific allotment mapping has been conducted for biological crusts” (EA page 27). Elsewhere, the EA notes “No current soil surveys exist for most of the allotment areas.” (EA page 43). It would seem highly unlikely that the allotments would all consist of fairly unstable, coarse textured soils (Belnap 2007). The conclusion reached in the EA that “Because the crusts are simple to nonexistent, site recovery should be such that the impact would be nonsignificant” (*sic*) is simply unsupported and unwarranted and any determinations of significance would be arbitrary and capricious. The complete EIS should rely on accurate and comprehensive field studies.

The proposed action fails to protect important cultural resources. On the Jawbone-Butterbredt ACEC within the Rudnick allotment, a “primary management requirement for sheep grazing is that the herders will avoid and stay away from [locations important to the Kawaiisu Indians]. As long as this requirement is maintained, effect to heritage resources should not occur.” It is not stated whether compliance has been obtained and whether there is any monitoring of this. The management plan for this allotment is from 1982 – 25 years old- and it has not been reevaluated to see if these vague instructions have been mitigating damage to the resources.

It is disturbing that the Walker Pass Common allotment is sustaining livestock damage to five archeological sites. The BLM attributes this to cattle, but authorized sheep grazing on the allotments may also cause damage. The cumulative impact of all livestock authorizations should be evaluated as

required by NEPA. The BLM reassures the reader that the “probability of additional disturbance is low,” but does not explain whether this conclusion derives from monitoring or speculation.

We note that the previous draft EA analyses included the statement “Additionally, anecdotal observation by BLM archeologists and researchers over the last 2 or 3 years appears to indicate an increase in observed impacts from sheep.” (March 2006, draft EA, page 31). Now, the BLM asserts that no records of damage from sheep grazing exist and therefore, no damage will be incurred by the proposed action. This circular logic is dangerous; the intentional omission of expert observations is illegal.

We also must note that there may be many reasons why records do not document damage: perhaps the observers did not know how to assess or recognize sheep-related damage; or, the observers simply did not think to look for sheep-related damage. It is also possible that the site record forms discouraged the input of information concerning sheep damage. In any case, simply because the site records do not note any evidence of sheep grazing damage does not mean that damage has not occurred. The statement at the bottom on page 31 of the March 6, 2006 draft EA is much more likely to be an accurate summary of past, current, and future sheep-related impacts on cultural resources on these allotments: "At 5 sheep per AUM, the 3680 AUMs allowed in the Cantil Common Allotment amounts to 18,400 sheep. That many sheep passing over archaeological resources lying on the ground surface are likely to have significant impacts."

We urge the BLM to release an EIS with complete and accurate information regarding the known and reasonably projected impacts to the cultural resources of these allotments. As part of the preparation of such an EIS, we urge BLM to consult extensively with local Kawaiisu representatives in the Kern River Valley and Tehachapi areas concerning cultural resource issues. Recent discussion with these representatives indicates that the El Paso Mountains retain considerable cultural importance to the Kawaiisu community -- a fact that is not sufficiently acknowledged and addressed in the EA. In any case, the continuing BLM failure to consult and the failure to analyze probable impacts amounts to serious non-compliance with the California state laws regarding cultural resources.

The proposed action fails to mitigate noxious weed invasions. The proposed action to use previously used corral and bedding sites as a means of limiting weed invasions is inadequate. These sheep are trailing throughout the allotments, taking weed seeds with them on their coats and in their guts, and it is impossible to predict which species will be the next invader in the context of climate change and constant influx of non-native species. The EA fails to provide any real mitigation measures for invasive/alien/or noxious weeds.

This is particularly important in Desert Tortoise habitat, since weed composition and the subsequent diminished forage for wildlife is serious threat to the recovery of the species. When weeds dominate biomass production in both wet and dry years, it can be assumed that weeds will more successfully colonize new areas over time (Brooks and Berry 2006). This dominance during even exceptionally dry years indicates that drought disproportionately increase competition between wildlife and livestock for native annuals in these seasons. Weeds are also linked to the incidence of fire

intensity which, in the West Mojave, is generally disadvantageous to the survival of native plant communities upon which the Desert Tortoise and Mohave Ground Squirrel depend.

The proposed action will likely exacerbate this negative cycle, and yet the EA contains no analysis, data, or literature review to support its claims that sheep grazing would have non-significant impacts on the desert vegetation and wildlife. Indeed, the proposed action will continue to promote adverse competition to native flora via sheep-induced weed colonization and sheep-induced suppression of native flora vigor and cover which will make it increasingly more difficult for Desert Tortoise and Mohave Ground Squirrel populations to find sufficient food, which will increase long-term mortality and reduce long-term fecundity.

Further, in Appendix 10 of the EA, Russian thistle is correctly rated as a noxious weed. As is recognized in the BLM's DTNA ACEC Management Plan, this noxious weed is present in the Fremont Valley (BLM 1988). However, the body of the EA ("H. INVASIVE, NON-NATIVE SPECIES – 1) Affected Environment") fails to document the presence of Russian thistle in the affected areas or analyze the impact of sheep trailing on the distribution of Russian thistle.

The document should also note that California designates "noxious weeds" based on their status as agricultural pests not on their impact to natural resources. However, other non-native plants such as invasive exotic mustards are spreading throughout the resource area as noted in the FWS biological opinion,. This is creating a serious risk of wildfire. The EA must recognize and analyze the impacts of additional non-native plant species on resources and on fire risk.

The proposed action does not address the impacts of livestock grazing on fuel loads and wildfires on public lands. There is sufficient evidence that the presence of livestock grazing increases the risk of catastrophic wildfires. Livestock promote the spread and colonization of alien plants, which can increase fire frequencies (Billings 1990, Billings 1994, Rosentreter 1994, Belsky and Gelbard 2000). Livestock alter vegetation communities by changing the composition and structure of upland forests. Livestock grazing reduces the biomass and density of understory grasses which otherwise out-compete conifer seedlings and prevent dense stands, and reduces the abundance of fine fuels, which formerly carried low-intensity fires (Belsky and Blumenthal 1997). The EA does not discuss fire intervals at all, a serious oversight.

The cumulative impacts analysis in this EA is grossly inadequate. This EA has failed to provide quantified or detailed information, and the cumulative impacts section amounts to general statements about *possible* effects and risk. This does not constitute a hard look at possible impacts, and it rarely presents a justification as to why more definitive information could not be provided. The EA does not provide a useful analysis of the cumulative impacts of past, present, and future projects.

The cumulative impacts analysis is more substantial than that of the March 7, 2006 draft EA, but it is still not adequate: the EA does not disclose an assessment of the condition and relative importance of non-critical Desert Tortoise habitat (and subpopulations of Desert Tortoise and of Mohave Ground Squirrel that reside in this habitat) for both species' meta-populations in the West Mojave. The new EA does not provide relevant, detailed information concerning relatively recent

sheep-related cumulative impacts. It also does not provide relevant information concerning the possible or probable cumulative impact of continued, sheep-induced impairment of native ecosystem function on long-term survival and recovery of these meta-populations in Western Mojave.

One egregious example of a failure to assess or mitigate cumulative effects is the concurrent proposal to increase cattle grazing on the upland areas of the Rudnick Common allotment. These upland areas are habitat for Desert Tortoise and Mohave Ground Squirrel and the plan to ‘improve’ livestock distribution away from riparian areas into the uplands is likely to impact these species. The cumulative impacts of that proposal and others should have been considered in this EA.

The NEPA implementing regulations require that the document review and analyze the relationships to other planning activities. The document needs to address its potential impacts to the proposed West Mojave Plan HCP and other planning efforts. The West Mojave Plan final environmental impact report and statement for which the Bureau was the lead agency, described both the Bureau’s proposed amendment to the California Desert Conservation Area Plan and a habitat conservation plan in support of an incidental take permit, pursuant to section 10(a)(1)(B) of the Act, that nonfederal entities in the western Mojave Desert planning area are in the process of preparing. The proposed habitat conservation plan would tier into the Bureau’s management actions and relies heavily on conservation measures implemented on Bureau managed public lands. The proposed action as presented would fail to implement DWMA-based management in the affected area and given the 10 year life-time of the allotment leases may reduce conservation options required to complete the HCP. In addition, the Desert Managers Group established a multi-agency Mohave ground squirrel conservation strategy group in 2005 to address steps that may be required to avoid listing of this species under the Federal ESA. This may require changes in the Mohave Ground Squirrel habitat conservation area boundaries and changes in management prescriptions.

In sum, a full EIS is necessary before BLM can renew these sheep grazing allotments. In the interim, BLM should ensure that no grazing takes place on the 127,000-143,000 acres of critical Desert Tortoise habitat (primarily on the Cantil Commons Allotment) that BLM plans to formally withdraw or on the 38,000 acres of non-critical habitat (on the Walker Pass Commons Allotment). The BLM should also ensure that no grazing is allowed on the 8,000 remaining acres of Desert Tortoise critical habitat in the grazing allotments. In the EIS, the BLM should provide a reasonable range of alternatives including at least one alternative that would withdraw all Desert Tortoise Critical Habitat from grazing and consider additional protections for non-critical Desert Tortoise habitat that is likely to harbor meta-populations and suitability of any area for grazing should be defined as “not generating adverse impacts to the survival and recovery processes of threatened and endangered wildlife and native flora.”

The BLM proposed action should incorporate enhanced protection for areas that are important habitat for multiple species. For example, Robbers Roost, in the Jawbone-Butterbredt ACEC is occupied by Desert Tortoise, Mohave Ground Squirrel, Prairie Falcon, and Bendire Thrasher.

Concerning endangered wildlife species habitat on all of these grazing allotments, we request that the BLM develop and consider an alternative that permanently excludes livestock grazing from all non-critical Desert Tortoise habitat, as well as any suitable Western Mohave Ground Squirrel habitat.

Again, the BLM needs to analyze an alternative in which the sheep grazing allotments are redefined to permanently exclude all critical habitat for the Desert Tortoise from livestock grazing, as well as important non-critical habitat for the Desert Tortoise and habitat important to the Mohave Ground Squirrel. While such an alternative would exclude substantial amounts of acreage from some of these allotments, such an alternative would still leave substantial acreage available for restricted livestock grazing in less sensitive habitat areas of some of these allotments. While such an alternative, for instance, would exclude approximately 320,000 acres from the Cantil Common Allotment, it would still leave over 230,000 acres for ephemeral sheep grazing, which is a very large area. Such an alternative would exclude from the Rudnick Common Allotment 60,000-70,000 acres, leaving 170,000-190,000 acres available for livestock grazing, again a very large area. This alternative would probably necessitate the elimination of the Spangler Hills and Lava Mountain Allotments, and perhaps the Monolith-Cantil Allotment as well. Such an alternative would also require a significant reduction in allowable stock numbers for an allotment such as the Cantil Common Allotment.

The BLM should also have considered an alternative that requires a stocking rate reduction of at least 33% for non-critical Desert Tortoise and Mohave Ground Squirrel habitat areas that are in "fair" condition or where use has frequently exceeded forty percent. Such a measure would promote improvement in condition or reduction in excessive livestock utilization.

We support federally or privately sponsored voluntary permit buy-out, and permanent permit relinquishments for these allotments. We support federal efforts to reimburse the ranchers who currently use these allotments and privately-funded buyout efforts if the areas are to be permanently retired from livestock grazing.

As part of these comments, we request that our previous protests be incorporated by reference. We submitted protests of the Sept 29, 2004 BLM Ridgecrest FO decisions concerning the Cantil Commons Allotment (as well as the other allotments reviewed in the Sept 29, 2004 EA # CA-650-2004-36). Most of our concerns expressed in those protests remain relevant, as the BLM Ridgecrest FO has chosen to reissue this EA with relatively few significant modifications.

The impact and extent of the proposed action merits the completion of a complete Environmental Impact Statement. As outlined above, the current EA is entirely inadequate to fully analyze the impacts of the proposed action on the myriad resources which will be affected. It is reasonable to anticipate cumulatively significant impacts based upon the six factors analysis enumerated below. These six factors satisfy the relevant legal standard (the "anticipation test") concerning the "significance" of a proposed action(s), NEPA "intensity" criteria, and mandated EIS preparation by a federal agency. As a result, we believe that the BLM Ridgecrest FO is required to prepare an environmental impact statement (EIS) concerning these allotments.

The complete EIS is needed to provide for the rigorous collection of data to prevent any uncertainty and speculation concerning the potential effects of the continuing livestock grazing on these eleven allotments at current levels. Because no Rangeland Health Assessments have been conducted on the sheep-only allotments, it is clear that much uncertainty remains regarding the potential effects of the proposed action. Substantial uncertainty also exists concerning the Rudnick Commons Allotment and the Walker Pass Commons Allotment (where minimal compliance with the Fundamentals of Rangeland Health on similar allotments in this area has been documented); the BLM has acknowledged that substantial range acreage on these allotments remains degraded and sub-optimal for native wildlife.

The six factors we have identified as creating significance and the need for a complete EIS are:

1.) The scale of the proposed actions.

The proposed action continues grazing 371,131 BLM-managed acres of Desert Tortoise habitat (formerly, Category 2 and Category 3 DT habitat) and 325,214 BLM-managed acres of Mohave Ground Squirrel Conservation Area habitat.

2.) The imperiled species impacted by the proposed action. .

The Desert Tortoise is a State and Federal Threatened animal protected by both the Federal Endangered Species Act and the California Endangered Species Act with designated critical habitat in the project area. Densities of Desert Tortoise across the West Mojave are down by 90%; a consequence this action fails to remedy. The Mohave Ground Squirrel is a California State Listed Species protected under the California Endangered Species Act

3.) The ongoing degradation of this habitat type due to livestock grazing.

The BLM itself admits historical overgrazing has caused a deterioration of Desert Tortoise habitat; the BLM itself summarizes short term studies and observations that identify conflicts and human uses which generate impacts to soil, vegetation, small tortoises, and burrows -- that is, conflicts and uses that adversely modify tortoise habitat. The BLM itself summarizes the Desert Tortoise Recovery Plan about the cumulative impacts of predation, habitat loss, and habitat degradation. The BLM itself discusses the adverse impacts that current livestock can have on Desert Tortoises and their habitat. The BLM itself has provided information documenting the adverse impacts that relatively recent livestock grazing has generated in parts of the project area (earlier, publicly-released draft EAs on the Rudnick Commons and Walker Pass Commons Allotments). The BLM can not deny knowledge of the adverse consequence it is inflicting on these lands and this species by authorizing the proposed action.

4.) A lack of information regarding the health of the lands involved.

While the upland areas currently meet RHS standards in assessed areas of the Rudnick Commons Allotment, these lands are, in fact, in a degraded, "fair" condition. Many assessed upland areas had lower plant vigor and cover on the key species. The EA, on page 45, states, "Reduced ground cover on the uplands . . . was observed on the Rudnick Common Allotment." Vegetation production in these areas is at 25-50% of potential; erosion is evident; increasers/invasers are on the march; and plants that do not withstand grazing pressure are on the decline. Moreover, these

indicators of plant community degradation would likely expand in range if the proposed action is implemented in the future, as continued adverse sheep impact on the uplands of this allotment will likely result.

As for the remaining sheep-only allotments, it is difficult to project precise and comprehensive future impacts based on current stocking rates, as Rangeland Health Evaluations have not been conducted for the sheep-only allotments. Inexplicably, BLM continues to postpone initiation and completion of the assessments for these allotments. As a result, there is no specific condition or trend data presented in EA # CA-650-2004-36. However, these sheep-only allotments are the core Desert Tortoise habitat allotments in the Ridgecrest Field Office area, located in the West Mojave, where 90 percent tortoise density decline has occurred. It is reasonable to assume that sheep grazing has contributed substantially to the decline of wildlife and tortoise habitat in the past and will continue doing so in the future if stocking rates are not substantially reduced).

5.) The impacts of the proposed action are highly controversial.

The BLM Ridgecrest Field Office has largely ignored the environmental community's previous comments and protests in preparing this EA. This EA is similar to the draft EA released in March 2006, revealing minimal effort to incorporate our concerns, critiques, and suggested alternatives. Permitting grazing in Desert Tortoise critical habitat in the Mojave desert is controversial not just to the public but to the scientific community as well and without more information, it is impossible to demonstrate non-controversial data and predicted results.

6.) The cumulative impacts of off-road vehicles and other grazing on these lands.

Off-road vehicle impacts are significant and likely to remain significant on these allotments, adding to the habitat degradation assumed to be a consequence of various livestock grazing operations. The BLM fails to thoroughly and additively assess the cumulative effects of this land use and the EA provides no discussion of mitigation measures for the resource damage that off-road vehicles *plus* cattle and sheep grazing will cause.

There is a substantial question regarding the linkage between livestock grazing, degraded vegetation and wildlife habitat conditions, and the decline of a listed, threatened species. Moreover, each is widespread – the livestock grazing, the degraded habitat conditions, and the Desert Tortoise decline are not limited to isolated pockets of the BLM Ridgecrest Field Office area but are rather spread throughout its southern and middle reaches.

CONCLUSION

In conclusion, we reiterate that the proposed action will fail to remove or sufficiently mitigate the threats to Desert Tortoise and its critical habitat in the West Mojave, thereby violating a key management principle recently articulated:

"Although removal of a single known threat does not guarantee recovery, it is most conservative to assume that a population cannot recover until all known threats are removed. Short of removing all threats, as many known threats as possible should be eliminated. In this sense, removal of each known threat is supported as a necessary condition for recovery, although removing single threats may prove to be insufficient." (Boarman and Kristan 2006)

We ask again that BLM seriously reconsider other alternatives before taking a step that will undoubtedly fuel further litigation concerning the project area.

We respectfully remind the BLM of its legal obligation to comply with the National Environmental Policy Act, the National Historic Preservation Act, the Endangered Species Act, the Clean Air Act, the Clean Water Act, and all other pertinent state and federal regulations to which these lands are subject.

Sincerely,



Greta Anderson, Range Restoration Coordinator
Center for Biological Diversity
PO Box 710
Tucson, AZ 85702

Todd Shuman, California Director
Western Watersheds Project
203 Peach Tree Court
Tehachapi, CA 93561

Michael J. Connor, Ph.D., Chair
California Turtle and Tortoise Club
P.O. Box 7300
Van Nuys, CA 91409-7300

Johanna H. Wald, Senior Attorney
Natural Resources Defense Council
111 Sutter, 20th floor
San Francisco, CA 94104

Kim Floyd, Conservation Chair
Mojave Group/ San Gorgonio Chapter, Sierra Club
PO Box 422
Wrightwood, California 92397

REFERENCES

- Belnap, 2007. Personal communication with Michael J. Connor, PhD. Via email. 25 Jan 2007.
- Belsky, J. and D. Blumenthal. 1997. Effects of livestock grazing on stand dynamics and soils in upland forests of the interior west. *Cons. Biol.* 11 (3).
- Belsky, A. J. and J. L. Gelbard. 2000. Livestock grazing and weed invasions in the arid West. Oregon Natural Desert Association. Portland, OR.
- Best, T. L. 1995. *Spermophilus mohavensis*. American Society of Mammalogists, Mammalian Species Number 509: 1–7.
- Billings, W. D. 1990. *Bromus tectorum*, a biotic cause of ecosystem impoverishment in the Great Basin. Pages 301-322 in G. M. Woodwell, editor. *The earth in transition: patterns and processes of biotic impoverishment*. Cambridge University Press New York.
- Billings, W. D. 1994. Ecological impacts of cheatgrass and resultant fire on ecosystems in the western Great Basin. Pp. 170-175 in Monsen, S. B. and S. G. Kitchen (compilers), *Proceedings – Ecology and Management of Annual Rangelands*. General Technical Report INT-GTR-313. US Department of Agriculture, Forest Services, Intermountain Research Station, Ogden, UT.
- Boarman, W.I. and W.B. Kristan. 2006. Scientific Investigations Report 2006-5143: Evaluation of evidence supporting the effectiveness of desert tortoise recovery actions. USGS series. Western Ecological Research Center, USGS vii, p. 27
- Brooks, M.L. and K.H. Berry. 2006 Dominance and environmental correlates of alien annual plants in the Mojave Desert, USA. *Journal of Arid Environments* 67(2006): 100-124
- Burkett, Douglas W. and Bruce C. Thompson. 1994. Wildlife association with human-altered watersources in semi-arid vegetation communities. *Conservation Biology* 8(3): 682-690.
- California Native Plant Society, 2007. Online inventory of rare and endangered plants. <http://cnps.web.aplus.net> (Accessed 5 January 2007).
- LaRue, E., 2000. Results of the Fort Irwin Tortoise Panel Meeting of 18-19 January and 18 February 2000. United States Department of the Interior, Bureau of Land Management, West Mojave Habitat Conservation Plan.
- Leitner, P. and Leitner, B. M. 1998. Coso grazing exclosure monitoring study, Mohave ground squirrel study Coso Known Geothermal Resource Area, Major Findings 1988-1996. Final Report.
- Rosentreter, R. 1994. Displacement of rare plants by exotic grasses. Pp. 170-175 in Monsen, S. B. and S. G. Kitchen (compilers), *Proceedings – Ecology and Management of Annual Rangelands*. General Technical Report INT-GTR-313. US Department of Agriculture, Forest Services, Intermountain Research Station, Ogden, UT.
- Tracy, C.R., R. Averill-Murray, W.I. Boarman, D. Delehanty, J. Heaton, E. McCoy, D. Morafka, K. Nussear, B. Hagerty, and P. Medica. 2004. Desert Tortoise Recovery Plan Assessment. Report to U.S. Fish and Wildlife Service. 217 pp.
- U.S. Bureau of Land Management. 2001. *Biological Soil Crusts: Ecology and Management*, Technical reference 1730-2. USDI Bureau of Land Management, Printed Materials Distribution Center, Denver, CO (that one is in the EA's list of citations)
- US Bureau of Land Management and California Department of Fish and Game. 1988. *Sikes Act Management Plan For The Desert Tortoise Research Natural Area And Area Of Critical Environmental Concern*. 43 pp. plus appendices.
- US Government Accountability Office. 2005. *Livestock grazing: Federal expenditures and receipts vary, depending on the agency and the fee charged*. Report to congressional requesters. (GAO-05-869).