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*Working to protect and restore Western Watersheds*

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November 14, 2007

Roy C. Averill-Murray  
Desert Tortoise Recovery Coordinator  
U.S. Fish and Wildlife Service  
Desert Tortoise Recovery Office  
1340 Financial Blvd, #234  
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Dear Roy:

On behalf of Western Watersheds Project and myself, here are my written comments on the October 16, 2007 Agency/Stakeholder Review Draft Revised Recovery Plan for the Mojave Population of the Desert Tortoise [hereafter referred to as Draft]. Some of these points I raised at the November 6, 2007 "Open House" that was held in Redlands, California.

Most desert tortoise biologists and agencies such as the California Department of Fish and Game recognize that the desert tortoise is a species in decline. In reclassifying from recovery priority number 8C down to 5C, the Service also appears to be recognizing that the desert tortoise is in a worse state than in was in 1994 [Draft at 1]. Clearly, then this is not the time to weaken agency management. To the contrary, this is the time to recommend tough, concerted action to recover the species. Unfortunately, the administrative draft does what many of us feared it would do when this process was begun and despite the decline of the species waters down the 1994 Plan's management recommendations. By dropping emphasis on reserve level "DWMA" management and failing to bolster the clear set of recommended and prohibited actions that were laid down in the 1994 plan, this draft document reduces agency accountability and in our opinion will set back desert tortoise recovery.

With respect to Recovery Plans, the Endangered Species Act states: "The Secretary, in development and implementing recovery plans, shall, to the maximum extent practicable—  
(B) incorporate in each plan  
(i) a description of such site-specific management actions as may be necessary to achieve the plan's goal for the conservation and survival of the species;  
(ii) objective, measurable criteria which, when met, would result in a determination, in accordance with the provisions of this section, that the species be removed from the list; and  
(iii) estimates of the time required and the cost to carry out those measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal." [ESA at Section 4 (f)(1)]

We are concerned that the draft plan fails to follow the ESA guidelines and relies almost entirely on what are in essence administrative remedies such as "adaptive management" or actions that are simply unproven research exercises such "augmentation". While a decision

support system/GIS database might satisfy the accounting needs identified by the GAO in its 2002 report, it is not a recovery action. The draft should be reworked to clearly identify the recovery strategy and to recommend specific management actions that are necessary to achieve the plan's goal for the conservation and survival of the species as required by the Endangered Species Act.

Below are specific comments that I have grouped loosely by topic and numbered for convenience.

1. **Recovery Objectives:** For the following reasons, we are concerned that the Recovery Objectives do not fulfill the ESA requirement that "Recovery Plans shall incorporate, to the maximum extent practicable... (ii) objective, measurable criteria which, when met, would result in a determination... that the species be removed from the list":

(a) The Recovery Objectives do not consider the population declines that have continued over the 18 years since the desert tortoise was listed. Given the declines portrayed in the Recovery Plan Assessment, even if the rate of population change ( $\lambda$ ) within each recovery unit were to exceed 1 over the next 25-years the population could still be significantly lower than in 1989 when the desert tortoise was listed. How could the species possibly be considered for removal from the Endangered Species list if it has not even recovered to the population density at its initial listing?

(b) The document argues that basing the criteria on trends has an important advantage over setting specific target numbers because "it accounts for ecological differences between geographic areas that may underlie different initial population levels in those areas. For example, historic natural population densities probably differed between the Upper Virgin River and Colorado Desert recovery units (USFWS 2006a), so a single target density would not apply to both areas." But following that logic, why does the Service not set targets for each recovery unit?

(c) Setting the population trend as the sole criterion and failing to take into account the degree of loss of the population biases the trend determination by starting at an unnaturally low density. Under this criterion, areas that have the capacity to support much higher densities could be delisted because they only have to show the same marginal trend as in areas with less capacity. Under the situation where a population is reduced to 10 tortoises per square mile, having 11 per square mile after 25 years could be enough to trigger delisting. The fact that the historic population in that area may have been 200 per square mile and thus the population has not recovered is simply ignored.

2. Page 36 states:

"Recovery Criterion 1. Rates of population change ( $\lambda$ ) for desert tortoises within each recovery unit are increasing over 25 years (a single tortoise generation).

Recovery Criterion 1a. The lower 90 percent confidence limit for each recovery unit estimate of  $\lambda$  based on data from range-wide monitoring efforts exceeds 1.

All size classes of tortoises must be well represented to ensure adequate recruitment.

Recovery Criterion 1b. The lower 90 percent confidence limit for each estimate of  $\lambda$  based on data from vital rates (recruitment, survival) from demographic study areas within each recovery unit exceeds 1.”

We are extremely concerned that the proposed statistical significance level would double the probability of making an incorrect call on recovery. The explanation given for DECREASING the confidence intervals to 90% in the Rationale on page 38 is woefully inadequate. If the Service is going to flaunt accepted scientific methodology it better have a scientific basis to explain why. It is precisely because natural variability in population densities is high (as is the case for most things biologists measure) that we use 95% confidence intervals so that we can reasonably draw sound conclusions from our data. Natural variability is not a reason to double the risk of reaching an incorrect conclusion. The document does not even explain how large a population increase or decrease is needed for the current methodologies to detect the trend at either the 95% or 90% confidence intervals.

3. The explanation of Recovery Objective/Criterion 1 in the rationale on page 38 is confusing and contains errors. If the Service is going to estimate  $\lambda$  from occupancy data it must explain how. The explanation given on page 38 is clearly incorrect. The paragraph states: “This objective and associated criteria emphasize increasing desert tortoise populations over 25 years (a tortoise generation). The approach taken by these criteria is to estimate population change ( $\lambda$ ) on a recovery-unit-wide scale through measures of population size, density, occupancy (probability that randomly sampled sites are occupied by the desert tortoise; MacKenzie et al. 2006).” It is axiomatic that the probability that a site is occupied must be less than or equal to 1. It can never be greater than 1. Presumably what was meant was some function of the rate of change in occupancy or  $\Psi$ ? The document is unclear as to which occupancy model would be used. The explanation should be corrected and the specific pages in MacKenzie’s book should be cited.
4. Page 36 states: “Recovery Objective 1 (Demography). All size classes of tortoises must be well represented to ensure adequate recruitment.”  
What does "well represented" mean? The plan should present hypothetical or actual demographic or size class data to establish an objective, measurable criterion.
5. Recovery Objective 2 (Distribution).
  - (a) The explanation given for DECREASING the confidence intervals to 90% in the Rationale on page 38 is woefully inadequate especially given the fact that the Service has not yet developed a formal occupancy model.
  - (b) While tortoises might occur throughout a recovery unit they are not distributed evenly and a recovery unit may include small to large “hot spots” such as the area in the West Mojave Recovery Unit where the DTNA is located. Occupancy may well increase throughout a Recovery unit as the tortoise recovers but the actual distribution across the

Recovery Unit may or may not change. I suggest rewording the first sentence of Recovery Criterion 2 from “Distribution of desert tortoises throughout each recovery unit is increasing over 25 years” to something like “Increases in tortoise populations are occurring throughout the recovery unit over 25 years”.

6. Recovery Objective 3 (Habitat) is to “Ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations.”
  - (a) Criterion 3a refers to “no net loss” of desert tortoise habitat within all existing desert tortoise conservation areas. Many of the conservation areas and critical habitats have significant inholdings of private land (good examples are the DTNA and the Red Cliffs Preserve). These inholdings threaten the integrity of conservation areas, and may have associated access issues that cause habitat fragmentation and other impacts. Land acquisitions for conservation purposes within these conservation areas should be considered a priority and should not be considered grounds for making other parts of the Recovery Unit available for disturbance. Without this assurance being added to 3(a), the objective to “Ensure that habitat within each recovery unit is protected and managed to support long-term viability of desert tortoise populations” cannot be achieved.

- (b) Habitat loss is the most significant threat faced by both the desert tortoise and most listed species. This is an ongoing threat witness the recent expansion of Fort Irwin into 100 square miles of the Superior-Cronese DWMA. Slogans such as “no net loss” do not encapsulate this threat unless specific objectives are added. I suggest deleting the slogan or amending it to “no net loss of habitat from 1989 levels”. The revised draft should also recognize that for purposes of determining “no net loss” tortoise habitat is tortoise habitat regardless of whether it is privately or publicly owned.

- (c) If route restoration is considered in “no net loss” calculations, then the Service must also debit all those thousands of miles of cross-country tracks across habitat that were identified for example in Heaton, 2007.

7. Recovery Objective 4 (Threats).

- (a) Criterion 4 states that “Each plan or agreement must contain: a) explicit management actions to address threats to the persistence of desert tortoise populations within that recovery unit”. This criterion should be modified to take into account current USFWS practice. In so far as the Service now ignores recovery units for purposes of determining jeopardy and adverse modification during consultation, land use plans are reviewed by the Service based on impacts to the species and its habitat on a rangewide basis. The language in the draft needs to be strengthened to include specific recommendations for each Recovery Unit that can be reiterated by the Service during consultation.

- (b) The rationale section on page 41 is vague and ignores the fact that land managers can reduce (such as off road vehicle impacts) or eliminate entirely (such as livestock grazing) threats to the species. Instead it places a woolly emphasis on the need for more research. The objective and rationale should be rewritten and focused on reducing impacts from known threats.

## 8. Adaptive Management

(a) Adaptive management is an administrative tool to allow adjustments to be made to existing management actions and strategies as knowledge allows. It is not a recovery action in of itself.

(b) The proposal by the DTRO to collect and collate data on outcomes of recovery actions is commendable. Using this data to update recommended actions may also be useful. However, as the Draft points out on page 30, improvements in understanding and management will only occur over extended learning cycles. Given this, it is difficult for this reader (and I am sure for the general public) to understand why “Implement an Adaptive Management Program” is listed as a recovery action let alone Recovery Action number 1. There is also an accountability issue. The strategy provides no mechanism to obligate Federal agencies to implement these management improvements.

(c) The “decision support system” referenced on page 42 and throughout the document is clearly in the developmental stages. The output of the current version lacks objectivity. For example, the sample made available at the open house had threats ranked by stakeholder voting and is subjectively based. The “decision support system” is clearly a research exercise and should be recognized as such.

9. **Recovery Strategy:** The 1994 Recovery Plan described a strategy for the recovery and delisting of the Mojave population of the desert tortoise based on (1) identification of six recovery units within the Mojave region. (2) establishment of a system of DWMA's within recovery units, and (3) development and implementation of specific recovery actions within DWMA's. As with the current draft, it included adaptive management and pledged that the “recovery strategy will be revised as recovery actions are implemented and new information becomes available from research and monitoring.” [1994 Recovery Plan at 36]. The specific recovery actions were recommendations to minimize specific threats identified to the species and its habitat.

What is the recovery strategy in the revised plan? The Endangered Species Act requires that Recovery Plans incorporate “a description of such site-specific management actions as may be necessary to achieve the plan’s goal for the conservation and survival of the species”. The current draft revised plan takes the tack of either using a very general range-wide approach or proposes delegating planning for site-specific management actions to other entities such as implementation teams. Although ostensibly recognizing that there are distinct desert tortoise recovery units, the plan has apparently been devised without actual knowledge of how many recovery units there are - let alone what the differences are between them. How can this situation square with the ESA requirement for “a description of such site-specific management actions as may be necessary to achieve the plan’s goal for the conservation and survival of the species”?

10. The recovery strategy mentions 6 strategic elements: 1: Implement a Formal Adaptive Management Program; 2: Protect and Manage Existing Populations and Habitat; 3: Augment Depleted Populations through a Strategic Program; 4: Monitor Progress toward Recovery; 5:

Conduct Applied Research and Modeling in Support of Recovery Efforts within a Strategic Framework; 6: Develop, Support, and Build Partnerships to Facilitate Recovery. However, elements 1 and 6 are administrative actions and elements 3 and 5 are research items. Elements 2 and 4 are the key components that need to be emphasized in the plan.

11. In truth, the document doesn't just ignore the need for site-specific recommendations but tends to avoid making management recommendations. The livestock grazing section is a typical example of this. Section 2.17 states

“Grazing by livestock (cattle and sheep) affects desert tortoises through crushing of their burrows, destroying or altering vegetation (which may introduce weeds and change the fire regime), altering soil, and competition for food (Boarman 2002). Many cattle and sheep allotments have already been retired within desert tortoise habitat, but this action entails continued exclusion of livestock grazing by fencing, removing trespass cattle, retiring allotments, and prohibiting supplemental feeding, especially where it still occurs within tortoise conservation areas. More flexible grazing practices, such as allowing or reducing grazing during specific times of the year (e.g., after ephemeral forage is gone or winter only) or under certain environmental conditions (e.g., following a specified minimum amount of winter rain) would be most appropriate outside conservation areas, but should be used experimentally to investigate the compatibility of grazing with desert tortoise populations.”

The vague language in the draft is in stark contrast to the 1994 plan that specified that livestock grazing should be prohibited in the DWMA because it is incompatible with desert tortoise recovery and conservation. The draft revised plan avoids mentioning how much of the so called conservation areas are still grazed and it fails to explain why it is not recommending prohibiting the livestock grazing that is continuing on millions of acres of tortoise habitat in the conservation areas. The draft revised plan provides no science to indicate that things have changed (but it couldn't do so anyway since recent data lends more credence to the 1994 recommendations) so what is the basis for the 1994 management recommendation being watered down? The ESA requires the Service to use best scientific data available in making its decisions. The desert tortoise is clearly in a worse state today. This is not the time to relax management or make ambiguous recommendations.

12. “Action 2.11 Restrict competitive off-highway vehicle events within desert tortoise habitat” is another example of the watering down of management actions. Races are not allowed in the DWMA although some competitive events (poker rides) still occur in tortoise habitats in BLM administered land in California. However, the 1994 Plan proscribed noncompetitive as well as competitive motorized events in DWMA. Noncompetitive events such as “dual sport” rides may involve five hundred vehicles or more. Impacts from these events are similar to those described in the draft for competitive events - widening of routes, creation of new routes, camping and staging by race participants and observers in unauthorized areas, littering, and inability of event monitors to prevent unauthorized activities. I suggest the DTRO ask the Barstow Field Office for copies of their dual sport ride monitoring reports. Again, there is no explanation given in the draft as to why the 1994 recommendation has been watered down.

13. The Draft should be revised to emulate the 1994 Recovery Plan and list those activities that should and should not be allowed to occur in desert tortoise habitat and in the desert tortoise conservation areas. Specific recovery actions can always be changed later through adaptive management. In addition, a table with a side-by-side comparison of the 1994 and 2007 recommendations would be helpful.
14. The document needs to separate monitoring, recovery actions and research. Monitoring and recovery actions are required components of recovery plans [ESA at Section 4 (f)(1)]. Research activities are potentially very valuable but the outcomes of research projects are unknowns that may or may not be useful in recovery. The fact that the Service has still not, after all these years, resolved significant monitoring issues does not absolve it of its obligation to monitor recovery.
15. Figure 2. "Conservation areas within the range of the Mojave population of the desert tortoise." The tortoise habitat layer cuts off 10 miles east of the western range. This area includes the BLM's Mohave Ground Squirrel Conservation Area which in so far as it protects the ground squirrels should offer some protection to the tortoises there and should be included. The Mojave Monkeyflower ACEC in the Brisbane Valley is occupied tortoise habitat and also should be included.
- 16. Livestock Grazing in the National Parks:**
  - (a) As explained in the draft (page 23), grazing still occurs on Mojave National Preserve. The National Park Service (NPS) intends to buy out the remaining allottees, however until this happens the NPS needs to manage grazing to avoid impairing recovery. Recovery Action 2.17 needs to recognize this and NPS should be added to the responsible party entry.
  - (b) Similarly, according to "Appendix C-1. Threat Layers Used in the DTRO Decision Support System" the NPS grazing allotments were omitted from the threat layers. This needs to be corrected. A simple table showing acreages grazed in DWMA, other conservation areas, and tortoise habitat could have clarified these issues.
17. Throughout the draft, reference is made to retired BLM grazing allotments. The BLM has not officially retired any of the grazing allotments in California identified in the NECO, NEMO and WEMO Planning efforts and my understanding from CDD staff is that this may not happen for years. I suggest the DTRO consult with the California Desert District Office over the appropriate language to use in the document.
18. A number of times in the draft document reference is made to augmentation of depleted populations using headstarting and translocation. This emphasis is both inappropriate and highly misleading to the public. There is no paradigm for augmentation of desert tortoise populations. There is no evidence that headstarting can be used to augment desert tortoise populations. There is no data relating to the fitness of head-started tortoise hatchlings. There is no long-term data on the ability of translocation to augment populations either. Augmentation is simply another interesting area of research. It is not a recovery action and cannot be considered as a 'strategic element'.

19. The draft needs to take a more constructive approach in its review of the effects of prior management/recovery actions and acknowledge the slow response of desert habitat to disturbance. In addition to desert tortoise life history issues (as mentioned on page 5 of the draft) there is much evidence that should be mustered that relates to desert habitat recovery rates from disturbance. For example, 65 years after agricultural fields in the Lanfair Valley were abandoned, the creosote canopy is now nearly re-established, however, other species such as yucca are still absent (Carpenter et al., 1986). The point is, elimination or reduction of a threat such as livestock grazing or off-road vehicle use may remove direct impacts but indirect impacts may persist for many, many decades. Combining this information with the desert tortoise life history issues reinforces public understanding that the population may take many decades to respond to management changes.
20. If the Science Advisory Committee (SAC) is to advise the DTRO objectively (Draft page 43) it should be independent of the DTRO. Why then is it to be chaired by the DTRO (Draft page 30/31) and not independent?
21. It is already illegal to breed captive tortoises in California and the adoption and registration programs are administered by nonprofits organizations such as the California Turtle and Tortoise Club at nominal costs. It is not clear what additional measures are intended in section 2.4.3 (Draft page 46) but the draft should be very cautious in the language it uses with respect to captives. There is a large captive population of desert tortoises in California and Nevada. Any indication that tortoise ownership will be restricted may decrease registration rates and paradoxically could increase deliberate release of captives into the wild by owners concerned that animals may be confiscated at some future point.
22. The draft proposes regional Recovery Implementation Teams. Given the distinctive nature of the recovery units, why are these teams not recovery unit specific?
23. The desert tortoise was listed in 1989 in part because of a disease epidemic. A number of infectious and noninfectious diseases and pathogens have been identified since then. Despite the clear threat of disease to recovery there is no proposal for disease monitoring as a specific recovery action in the draft. The draft also fails to discuss quarantine measures that may be needed to keep outbreaks localized. There are a number of proactive and administrative measures that could be instituted such as temporary quarantine fencing and a moratorium on translocation.
24. **Global Climate Change:** The draft pays lip service to global climate change. Given the lengthy generation time of the desert tortoise this is a major shortcoming of this draft. There are a number of specific impacts that should be addressed. The recent Intergovernmental Panel on Climate Change Report documented changes and likely trends in precipitation and temperature in the desert southwest and identified a drying trend. The draft should review desert tortoise recovery in the light of this. Will all the Recovery Units be impacted in similar ways? How does climate change relate to achieving objective 3 (habitat)? How will climate change impact the constituent elements of desert tortoise critical habitat. Do we need to rethink critical habitat/DWMA boundaries? How does climate change relate to achieving

objective 1? Desert tortoises have environmental sex determination (Spotila et al, 1994). Will climate change influence desert tortoise demographics? How does climate change relate to the environmental stressor hypothesis; are desert tortoise populations likely to be more susceptible to disease outbreaks?

25. **Best Scientific Data Available:** The ESA requires that the Service utilize the best scientific data available in making its determinations. The current draft document lacks such fundamental data as the number and location of Desert Tortoise Recovery Units. Until that data is incorporated there is no basis for making site-specific recommendations that take into the account the genetic, ecological, and behavioral characteristics of the desert tortoises in the different the Recovery Units and the degree of impact posed by various threats therein. As is mentioned in the draft, the first rangewide genetic study of the desert tortoise since 1989 is in press and should be published in the next few weeks. That data has been presented to the scientific community on a number of occasions including at the Annual Desert Tortoise Council Symposium in 2006 (See Edwards et al, 2006). We expect, and the ESA requires, the Service to make full use of that data in developing the revised recovery plan.

Western Watersheds Project thanks you for the opportunity to present comments on this administrative draft. We hope that you will consider all our comments and work to revise the draft document accordingly. At the November 6, 2007 open house you mentioned that you expected to complete the “public draft” by the end of November. We do not believe the end of November deadline is realistic in view of both the incompleteness of the draft and our comments and concerns outlined above. Science not calendar considerations should determine the release date for the public draft.

If you would like more information or have any follow up questions on these comments I am happy to help. Please feel free to contact me by telephone at (818) 345 0425 or by e-mail at <mjconnor@westernwatersheds.org>.

Sincerely,

A handwritten signature in black ink that reads "Michael J. Connor". The signature is written in a cursive style and is underlined with a single horizontal line.

Michael J. Connor, Ph.D.  
California Science Director  
Western Watersheds Project

cc. USFWS: Steve Thompson, Paul Henson, Bob Williams  
CDFG: Becky Jones, Denyse Racine

## References

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