

United States Department of the Interior

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EMS TRANSMISSION 06/14/2012
Instruction Memorandum No. AZ-2012-031
Expires: 9/30/2015

To: District Managers and Field Managers
From: State Director
Subject: Desert Tortoise Mitigation Policy

Program Area: Special Status Species Management

Purpose: The purpose of this Instruction Memorandum (IM) is to articulate mitigation policy, including off-site compensation for the desert tortoise and its habitat on public lands managed by the Bureau of Land Management (BLM) in Arizona, in a consistent manner between the District and Field Offices. The Sonoran desert tortoise south and east of the Colorado River is a candidate species, managed as a BLM-sensitive species as described in Manual Section 6840. Because the Mojave desert tortoise is a listed threatened species on the Arizona Strip and west of the Colorado River, the requirements of compliance with Section 7 of the Endangered Species Act (ESA) invoke policies specific to that listed species. The policy and procedures below may, nonetheless, be useful for those District and Field Offices with the Mojave desert tortoise.

Policy/Action: This document establishes policy to mitigate for impacts to desert tortoises and their habitats, including compensation for residual impacts that cannot otherwise be mitigated. Mitigation, including compensation, must be designed to meet the purposes of the Rangeland Plan, including maintaining viable populations as well as maintaining the quantity and quality of Category I and II desert tortoise habitat.

An effective program to mitigate impacts resulting from the wide variety of actions occurring on public lands is required to meet the viable populations and no net loss mandates. The Council for Environmental Quality (CEQ) guidelines (40 Code of Federal Regulations (CFR) 1508.20) define mitigation as:

- a) Avoiding the impact all together by not taking a certain action or parts of an action.
- b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
- c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
- d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- e) Compensating for the impact by replacing or providing substitute resources or environments.

The 1991 Compensation Report established a consistent means of determining the need and amount of compensation necessary to offset residual impacts that cannot otherwise be mitigated. The report also provided for greater consistency between BLM States and other cooperating agencies.

Some key points from the Compensation Report include the following:

- a) Compensation is to be used to offset residual impacts after all reasonable on-site mitigation measures are incorporated into an action.
- b) Procedures for determining compensation apply to both the Mojave and Sonoran desert tortoise populations. Actions that may impact the Mojave population, which is listed as threatened, must involve consultation with the U.S. Fish and Wildlife Service (USFWS).
- c) Mitigating measures, including compensation if necessary, are determined through the Environmental Assessment (EA) and the Biological Assessment (BA) evaluation process.
- d) As part of the EA and/or BA processes, the following steps will normally be used to determine the need for compensation:
 - Determine if the action may have an effect upon the desert tortoise. If the answer is no, then neither on-site mitigation nor compensation will be required for the tortoise.

- If the action may have an effect upon the tortoise, develop an appropriate on-site mitigation package. Determine whether implementation of the action with the on-site mitigation measures will result in residual impacts. If no residual impacts will remain, then compensation will not be required.
 - If the action with on-site mitigation measures will result in residual impacts, then compensation will be required.
 - If compensation is required, follow the process outlined in the compensation report. There may be instances where the proposed action includes measures that offset current impacts to tortoises. In those cases, the amount of compensation required may be reduced based on a formula negotiated with the proponent.
- e) Determining the need for compensation of residual impacts and compensation rates should be accomplished using an interdisciplinary process.
- f) A description of the basic requirements and authority to develop mitigation and compensation measures is found on pages one and two of the report.
- g) Four of the categories used to determine compensation rates (term of effect, existing disturbance on site, growth inducing effects, and impacts to adjacent habitat) are designed to allow for site-specific determinations, and should dovetail with NEPA analyses.
- h) Compensation rates can be used in two ways:
- To determine the amount of needed replacement habitats in terms of land, or
 - To determine funding amounts to compensate for other tortoise resource needs.

The wide range of activities and issues on public lands requires the BLM to interpret policy in a wide variety of situations (attachment 2). This often means the integration of other laws and policies when considering land use authorizations. We are generally concerned about two main issues when mitigating impacts to desert tortoise, especially on construction projects: avoiding, minimizing or eliminating loss or degradation of habitat and avoiding or minimizing take of tortoises.

Keep in mind that the intent of the mitigation policy is to maintain habitat in order to ensure the existence of viable populations and thus reduce the need for listing the species. Using this policy will enhance our overall management flexibility and also benefit the tortoise. Attachments 3, 4, and 5 contain suggested mitigation practices and survey and handling procedures to help achieve our goals. Every policy requires some flexibility in adapting to the wide range of situations we face. In order to assist in implementing the policy, consider the following points:

- a) Conduct an on-site inspection of the proposal to verify tortoise habitat category and assess impacts to tortoises or their habitat. Data collected in house or by a contractor will be collected or provided in a geospatial format consistent with BLM standards. This

includes species occurrence, transect location, point and polygon data collected. A copy of species occurrences will be provided to the Arizona Game and Fish Department's Heritage Data Management System.

- b) Identify alternative locations for the proposal and mitigating measures based on the on-site inspection.
- c) Work with the team lead and project proponents to develop alternatives which reduce or eliminate impacts to tortoises and their habitat.
- d) Consider the specific circumstances of the project when developing a compensation proposal. The proponent may have unique capabilities or resources which may benefit tortoises. Acquiring tortoise habitat is the primary means of compensating for residual impacts; however, consider a wide range of alternatives when that option cannot be accomplished.
- e) Emphasize avoidance to mitigate impacts. This can be done by not identifying tortoise habitats for disposal or selecting project sites out of tortoise habitat. The Rangewide Plan states: "Retain Category I and II tortoise Habitat Areas unless (a) it clearly is in the National public interest to dispose of them and (b) losses can be mitigated." Select project sites outside of tortoise habitat whenever possible.
- f) Be proactive by acquiring high quality tortoise habitat whenever the opportunity presents itself. Use innovative or creative approaches to acquiring or protecting key habitat areas.
- g) In fulfilling the compensation requirement, consider acquiring fewer acres of higher quality habitat (Category I or II) to compensate for anticipated residual impacts to lower quality habitat (Category III) if an overall benefit to desert tortoise can be justified. This approach can only be applied to acquiring higher quality habitat for lower quality, Category III habitats. The compensation rate for both parcels can be used as a general guide in establishing a ratio from which to work. This process must include a thorough on-site assessment of lands proposed for acquisition as well as impacted lands. Improving tortoise population viability and adequate manageability of the proposed parcel are critical considerations in assessing the feasibility of the acquisition. The benefits of acquiring fewer acres of better habitat must justify the loss in overall acreage of tortoise habitat, be well documented, and meet the intent of the Rangewide Plan.

It is important to document the thought process and rationale used in analyzing impacts to tortoise and their habitats, developing a mitigation plan, and determining compensation rates and the form of compensation. This involves development of mitigating measures and the process of determining compensation for residual impacts. Adequate documentation will assist in the decision making process and provide greater support for the proposed mitigation/compensation. It will also help project proponents to better understand why we are requiring them to take

various actions, and to more effectively implement proposed mitigating measures. Such documentation should be included in NEPA compliance documents or in other supporting documentation.

Flexibility in implementing the desert tortoise compensation policy comes from making an accurate assessment of the on-the-ground situation and developing effective alternatives that eliminate or reduce impacts to tortoise populations or habitats. Taking a proactive approach by identifying tortoise habitat for acquisition, avoiding disposal of habitat, and working with project proponents early in the process will greatly reduce difficulties in implementing the policy.

When compensation with dollars in lieu of land is required, the guidance contained in attachment 2 under *Guidelines for Accepting Compensation Land or Dollars* will apply.

Timeframe: This IM is effective immediately.

Budget Impact: None

Background: In 1988, the strategic plan, *Desert Tortoise Habitat Management on Public Lands: A Rangeland Plan*, was signed by the Director. The Rangeland Plan set the stage for BLM management priorities for the species to this day. Under this strategy, goals and criteria for habitat categories were used by BLM States to categorize all desert tortoise habitats on public lands. The BLM committed to maintaining viable tortoise populations in Category I and II habitats. The plan also established a policy as follows: "Where practicable, allow no net loss in quantity or quality of important [Category I and II] desert tortoise habitats." In order to achieve this "no net loss" mandate, adequate assessments of impacts of proposed actions were necessary in the NEPA process and adherence to all aspects of the definition of mitigation in the CEQ guidelines were needed (40 CFR 1508.20).

In 1991, the Desert Tortoise Management Oversight Group, consisting of BLM, USFWS, and State wildlife management agency representatives from Arizona, Nevada, Utah, and California, approved and signed the report, *Compensation For The Desert Tortoise*, (Attachment 1) a key component of the Rangeland Plan. IM No. AZ-91-16, *Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona* set the stage for Arizona BLM's implementation of the Rangeland Plan. On July 13, 1992, the *Strategy for Desert Tortoise Habitat Management on Public Lands in Arizona -- New Guidance on Compensation for the Desert Tortoise* (Compensation Report) was issued as IM No. AZ-92-46. This guidance was followed by IM No. AZ-96-007, *Desert Tortoise Mitigation Policy*, and IM No. AZ-99-008, *Supplemental Guidance for Desert Tortoise Compensation*. Since the time of the Implementation Strategy new information, development of suggested standard mitigation practices from the Arizona Interagency Desert Tortoise Team, and suggested survey and handling practices from the Arizona Game and Fish Department required policy update. Additionally, transitions between two-tiered and three-tiered agency structures required some procedural changes relative to the mitigation policy. IM No. 2008-204 was released in September, 2008, broadening earlier BLM guidance on off-site mitigation (compensation) including in-kind, out-of-kind, and in-lieu fee.

IM No. 2009-010 updated the land compensation values based on BLM linear right-of-way regulations published in the Federal Register on Friday, October 31, 2008 (73 FR 65040). This Arizona guidance updates the land compensation values based on the BLM linear right-of-way values prescribed by WO-350 on June 1, 2009 for calendar years 2011-2015 and revises the process for compensation funds administration (see Appendix 2).

Coordination: This IM affects Manual Section 6840.

Contact: If you have questions concerning this guidance, please contact Tim Hughes, Threatened and Endangered Specialist, at 602-417-9356.

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5 Attachments:

- 1 - [Compensation for the Desert Tortoise](#)
(21 pp)
- 2 - [Additional Guidance for Desert Tortoise Mitigation](#) (10 pp)
- 3 - [Recommended Standard Mitigation Measures for Projects in Sonoran Desert Tortoise Habitat](#) (7 pp)
- 4 - [Sonoran Desert Tortoise Survey Guidelines for Environmental Consultants](#) (1 p)
- 5 - [Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects](#) (1 p)

COMPENSATION FOR THE DESERT TORTOISE

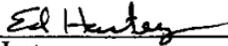
**A Report Prepared For the
Desert Tortoise Management Oversight Group**

**By the
Desert Tortoise Compensation Team**

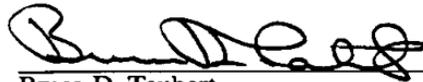
**Approved by the
Desert Tortoise Management Oversight Group**

November 1991

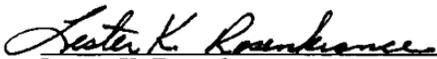
Final Report on "Compensation for the Desert Tortoise"
Approved by the Desert Tortoise Management Oversight Group
November 13, 1991



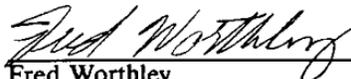
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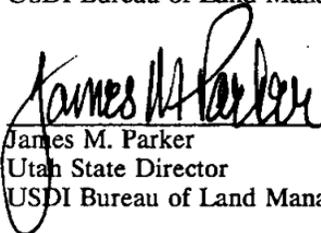
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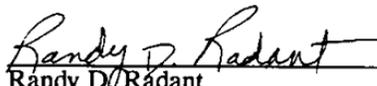
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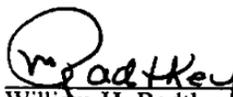
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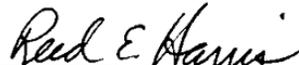
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COMPENSATION FOR THE DESERT TORTOISE

EXECUTIVE SUMMARY

The Bureau of Land Management (BLM) determined through its Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan that compensation was a valid method for mitigating residual impacts to tortoises after other mitigation measures were incorporated into proposed actions. The Desert Tortoise Management Oversight Group (MOG) established a Desert Tortoise Compensation Team to prepare a report describing a proposed set of standards and uses for compensation with respect to the desert tortoise. The report was prepared primarily for implementation by BLM, and the U.S. Fish and Wildlife Service and State wildlife agencies, when applicable.

This report is a recommendation to the MOG and describes the purpose and need for compensation, how to determine when compensation is needed, the factors used in determining compensation rates, the process for determining compensation rates, how to convert compensation rates to acreage or funding, compensation in special situations, and uses of compensation.

Key features of the report include:

1. A standard process, as defined in this report, is used by all BLM States, the Fish and Wildlife Service, and the State wildlife agencies, as appropriate, to determine tortoise compensation requirements.
2. The standard process includes determining values for five factors: Category of Habitat, Term of Effect, Existing Disturbance on Site, Growth Inducement, and Effect on Adjacent Lands. Values for the factors are added together to arrive at a Compensation Rate. Multiplying the Compensation Rate by the acreage affected results in the Compensation Amount (acres or funds).
3. Exceptions to use of the standard process are described, within certain defined parameters.
4. Compensation, when required, is provided in either of two ways, as determined by the agencies: 1) the direct purchase of privately owned desert tortoise habitat for transfer to conservation management, or 2) the direct payment of funds to an appropriate land management agency or entity for purchase of tortoise habitat or other tortoise management actions.

5. Appropriate use of compensation funds includes the following array of options: 1) tortoise habitat acquisition; 2) tortoise habitat enhancement; 3) tortoise population enhancement; 4) educational activities directly related to the enhancement of habitat or populations; and 5) research, studies, and monitoring.

It is incumbent upon managing agencies that potential compensation uses be for the best use toward desert tortoise recovery or habitat improvement.

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INTRODUCTION

Compensation is a mitigation technique used to make up for residual impacts of an action¹ that remain after other mitigation measures are incorporated. Compensation is implemented off-site from the action (i.e. project) area. Compensation has been used for species of special concern for many years. The Bureau of Land Management (BLM) and other agencies in the four desert tortoise States (Arizona, California, Nevada, and Utah) have used different methods to determine compensation needs and amounts. The Desert Tortoise Management Oversight Group (MOG) recognized the need for consistency of application among BLM, the Fish and Wildlife Service (FWS), and the State wildlife agencies. The MOG, on May 16, 1990, assigned its Technical Advisory Committee (TAC) the task of reviewing compensation methods used for the desert tortoise, determining what criteria, standards, and techniques were used, and recommending any needed changes. At the November 7, 1990 MOG meeting, the TAC reported on its findings and recommended improvements in determining amounts and uses of compensation for the desert tortoise. The MOG chairman assigned a team to develop recommended techniques and uses of compensation. Participants on the interagency team included Ted Cordery, BLM-Arizona; Dave Harlow replaced by Sherry Barrett, FWS-Reno; Frank Hoover, California Department of Fish and Game; Bill Lamb, BLM-Arizona; John Payne, BLM-Utah; Gary Ryan, BLM-Nevada; Alden Sievers, BLM-California; and Sid Slone, BLM-Nevada.

PURPOSE AND NEED

BLM's Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan (Rangewide Plan) identifies a policy of "no net loss in quantity or quality of important desert tortoise habitats." Since actions requiring compensation result in a net loss of habitat to the desert tortoise, the objective of compensation is to put additional tortoise habitat under conservation management, remove deterministic factors adversely affecting the viability of the populations, or improve habitat conditions to the benefit of the desert tortoise.

The Endangered Species Act of 1973 (ESA), as amended, and its implementing regulations, require Federal agencies to determine whether their actions may affect listed species. Prior to consulting with FWS on these actions, federal agencies routinely place measures into actions that eliminate or significantly lessen effects to threatened or endangered species. Compensation is one such measure. Compensation is applied after all other possible mitigating measures, particularly avoidance, are considered and

¹ "Action," in the context of this report, means an activity or program of any kind having surface disturbing characteristics that is authorized, funded, or carried out by an agency. In this document it is often used synonymously with "project."

integrated. Section 7(a)1 of the ESA also directs all Federal agencies to utilize their authorities in furtherance of the purposes of the Act. Requiring compensation as a mitigating measure defined by the Council on Environmental Quality (CEQ) is a way to achieve the purposes of the ESA. Compensation is a type of mitigation measure described in the CEQ regulations for implementing the National Environmental Policy Act (NEPA). The CEQ regulations allow "compensating for the impact by replacing or providing substitute resources or environments."

BLM's Manual Section 6840 covering special status species also identifies the need to use compensation to offset residual impacts to threatened or endangered species.

There is a need for consistent and objective processes and standards to use in determining the need and amount of compensation, and in determining how compensation can be used. The compensation procedures recommended in this report will fulfill this need.

The purpose of this report is to:

1. Apply these procedures to both the Mojave and Sonoran desert tortoise populations;
2. Apply these procedures by BLM for actions affecting the desert tortoise on public lands and by the FWS and State wildlife agencies (if applicable) for actions affecting the desert tortoise on other lands; and
3. Allow incorporation of these procedures into appropriate directives by the applicable agencies.

Implementing these procedures by all the agencies will result in consistency of approach and equity in application of desert tortoise compensation requirements.

DETERMINING THE NEED FOR COMPENSATION

Compensation is to be used to offset the residual impacts after all reasonable on-site mitigation measures are incorporated into an action. This is determined through the Environmental Analysis and Biological Assessment (or Evaluation) process. The goal of compensation is to make an action's net result neutral or positive to the desert tortoise. If an action can be fully mitigated (no net impact to the tortoise) without compensation, then no compensation need be required. Likewise, if a "no effect" determination is appropriate for an action in threatened desert tortoise habitat, then compensation for the tortoise is not necessary.

The following steps will normally be used, as a part of the environmental assessment and/or biological assessment (evaluation) processes, to determine the need for compensation:

1. Determine if the action may have an effect upon the desert tortoise. If the answer is no, then neither on-site mitigation nor compensation will be required for the tortoise.
2. If the action may have an effect upon the tortoise, develop an appropriate on-site mitigation package. Determine whether implementation of the action with the on-site mitigation measures will result in residual impacts. If no residual impacts will remain, then compensation will not be required.
3. If the action with the on-site mitigation measures will result in residual impacts, then compensation will be required.
4. If compensation is required, then the standard process, as explained below, will be followed.

In practice, most actions can not be fully mitigated through on-site mitigation measures. Some level of compensation will often be needed.

DETERMINING COMPENSATION RATES

As with determining the need for compensation, determining compensation rates must not be done in a vacuum. This should be accomplished through a group-interdisciplinary process to ensure interpretations are carefully evaluated.

DEFINITION OF FACTORS USED IN DETERMINING COMPENSATION RATES

Five factors-- Category of Habitat, Term of Effect, Existing Disturbance On Site, Growth Inducing Effects, and Impacts to Adjacent Habitat are used to determine the amount of compensation needed. Each of these factors is defined in the following discussion. All definitions, except Categories (after Spang et. al. 1988), are designed to allow for site-specific determination. A "best fit"² examination is required to resolve which characteristic listed under the factors applies.

CATEGORY OF HABITAT. The BLM document entitled Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan (Spang et. al. 1988) was released. This plan directed each BLM State with desert tortoise populations to categorize tortoise habitat based on the criteria outlined in the Rangewide Plan. Those criteria include: (1) importance of the habitat to maintaining viable populations, (2) resolvability of conflicts, (3) tortoise population density and (4) population status (stable, increasing or

² "Best Fit," as used in this section, implies that each determination must be examined on the merits of which characteristic best describes existing situations and/or anticipated impacts.

decreasing).

Three categories were identified and the criteria included within each category were ranked by importance to the categorization process, with Criterion 1 being the most important (Table 1). The intent of the Category goals is to have a protection gradient from Category I (the most valuable and protected habitat, to Category III the least valuable and protected). Category I habitats must be kept as inviolate as possible from deleterious impacts to the tortoise. The criteria definitions recognize that Category I habitats are not necessarily synonymous with high tortoise density areas. If they are not of high density, they have other characteristics that make them important to the long term viability of desert tortoise populations.

Table 1. Desert Tortoise Habitat Categories (after Spang et al. 1988).

Items	Category I Habitat Areas	Category II Habitat Areas	Category III Habitat Areas
Category Goals	Maintain stable, viable populations and protect existing tortoise habitat values; increase populations where possible	Maintain stable, viable populations and halt further declines in tortoise habitat values	Limit tortoise habitat and population declines to the extent possible by mitigating impacts
Criterion 1	Habitat area essential to maintenance of large, viable populations	Habitat area may be essential to maintenance of viable populations	Habitat area not essential to maintenance of viable populations
Criterion 2	Conflicts resolvable	Most conflicts resolvable	Most conflicts not resolvable
Criterion 3	Medium to high density or low density contiguous with medium or high density	Medium to high density, or low density contiguous with medium or high density	Low to medium density, not contiguous with medium or high density
Criterion 4	Increasing, stable or decreasing population	Stable or decreasing population	Stable or decreasing population

Category III habitats are less stringently protected through compensation. Categories of desert tortoise habitat on public lands may be changed with addition of new information through BLM's land use planning process.

Actions spanning more than one Category of habitat need to be evaluated based on the impact to each of the Categories. Actions located in one

Category but also affecting another Category may require evaluation based on the highest Category (eg. an action in Category III that affects adjacent Category II may require evaluation as Category II habitat).

TERM OF EFFECT. This factor evaluates the length of time required for the affected site to reach a condition substantially similar in tortoise habitat value (i.e. soil characteristics and vegetative cover, diversity, and productivity) as existed prior to the proposed action. Desert ecosystems are slow to recover from disturbance. A ten-year recovery is used as a gauge between "short-term effect" and "long-term effect."

A. SHORT-TERM EFFECT: The site disturbed will require less than 10 years to reach a condition substantially similar in tortoise habitat value to that which existed immediately prior to project initiation. Often this means there is little disturbance to shrubs or their root systems so that they can readily resprout, and that topsoil, litter and seed source remain in place.

B. LONG-TERM EFFECT: The site disturbed will require more than 10 years to return to a condition substantially similar (in terms of vegetative diversity, cover and productivity, and suitability to tortoises) to that which existed immediately prior to project initiation.

EXISTING DISTURBANCE ON SITE. The degree of existing surface disturbance on a proposed project site is a function of its land use history. Two characteristics are established to help define the previous land uses.

A. MODERATE TO HEAVY EXISTING DISTURBANCE: The existing habitat has been modified to such an extent that the proposed project would not significantly add to habitat degradation. Examples include gravel pits, high-use off-highway vehicle areas, utility corridors that have been disturbed by pipelines, and sites that have been cleared of vegetation.

B. LITTLE OR NO EXISTING DISTURBANCE: The existing habitat has not received significant degradation of habitat from previous activities. Examples include an area which has vehicle imprints from occasional off-highway vehicle use, a utility corridor which is restricted to overhead utilities with minimal tower disturbance, mining claims (but not mining operations) and other minor modifications to the vegetation and soils. No existing disturbance is defined as a site which appears relatively undisturbed.

GROWTH INDUCING EFFECTS. This terminology defines what effects the proposed project will have, both immediately and in the foreseeable future and includes cumulative impacts on the site in terms of human population increase or development. For example, if the construction of a domestic water pipeline adjacent to a community has the potential to cause growth (residential, business or industrial) because of water availability, then

the effect would be considered growth inducing. In contrast, if the same water pipeline is proposed in an area that is impractical to construct homes or other structures because of poor soils, then there would be no growth inducing effect. Two characteristics are established to define growth inducing effects.

A. GROWTH INDUCING: The proposed action will likely support human population growth, community expansion, development, or other related activities in the vicinity.

B. NOT GROWTH INDUCING: The proposed action is not anticipated to encourage human population growth, community expansion, development, or other related activities in the vicinity.

ADJACENT HABITAT IMPACTS: In addition to direct impacts on a site, a proposed project can indirectly affect adjacent tortoise habitat. For example, a major highway dissecting tortoise habitat may have the effect of fragmenting the population so severely that gene flow would likely result between the remaining population units causing a long-term (indirect), deleterious impact on population fitness. This effect would be additional to the direct traffic hazards to individual animals attempting to cross the highway. Additionally, a landfill may attract ravens, which could increase tortoise mortality on adjacent habitat. Conversely, the construction of a little used access track to a powerline structure would probably have little direct or indirect effect on adjacent habitat or populations. Two characteristics are used to define impacts to adjacent habitat.

A. ADJACENT HABITAT NOT AFFECTED: The proposed action is not anticipated to have either direct or indirect effects on adjacent desert tortoise habitat or populations.

B. ADJACENT HABITAT AFFECTED: The proposed action is anticipated to have either direct or indirect deleterious impacts on adjacent habitat or tortoise populations.

HOW COMPENSATION RATES ARE DETERMINED

The above section described the factors involved in determining a compensation rate. These factors are evaluated and documented in writing. In this evaluation, the factors are given number values reflecting the characteristic best matching each factor (Table 2). The values are added together resulting in the Compensation Rate. The Compensation Rate is multiplied against the amount of habitat to be impacted by the proposed action. As described in the next section, the result is the number of acres needed to compensate for the residual impacts of the action after on-site mitigating measures are applied.

Compensation Rates can range higher than 1 because of the differing values of lands as desert tortoise habitat. Additionally, impacts or factors

Table 2. Description of Factors Used to Compute Compensation Rates for Residual Impacts.

<u>Code</u>	<u>Factor</u>	<u>Value</u>
C	Category of habitat:	
	a) The lands are in Category III desert tortoise habitat	*
	b) The lands are in Category II desert tortoise habitat	2
	c) The lands are in Category I desert tortoise habitat	3
T	Term of effect:	
	a) The effects of the proposed action are expected to be short term (<10 years)	0
	b) The effects of the proposed action are expected to be long term (> 10 years)	1
E	Existing disturbance on site:	
	a) There is moderate to heavy existing habitat disturbance	0
	b) There is little or no existing habitat disturbance	1
G	Growth inducing effects:	
	a) The proposed action will have no growth inducing effects	0
	b) The proposed action will have growth inducing effects	0.5
A	Adjacent habitat impacts:	
	a) Adjacent habitat will not be affected	0
	b) Adjacent habitat will receive direct or indirect deleterious impacts	0.5

Compensation Rate = C + T + E + G + A

Range of Rates: Category I: 3 - 6
 Category II: 2 - 5
 Category III: 1

* Category III habitats receive a Compensation Rate of 1 only (see discussion in text).

described above (other than Category) reflect impacts that affect the surrounding habitat or population to a greater degree than just direct loss of a certain amount of acreage. It must be recognized that with any action requiring compensation, there is a net loss of habitat usable by the desert tortoise, and there may be no way to completely regain this habitat. Compensation allows for more habitat to be placed under active management or protection for the tortoise, however. Where compensation through habitat acquisition is not a viable or reasonable alternative, there are improvements to habitat or tortoise populations that can be made on managed areas. Experience with other species has shown that efforts to improve managed habitat to the extent that they replace individuals lost to an action can take 5 times or more effort (with deer, for example) to effectively compensate for the original loss, hence the need for compensation rates to vary above 1.

The Compensation Rates for Category I habitats (ranging from 3 to 6) and Category II habitats (ranging from 2 to 5) were established as ranges in recognition of the importance of the various factors. Thus, the Compensation Rate for the worst situation in Category II would be higher than the best situation in Category I, factors of 5 and 3, respectively. The high ranges in Category I reflect the extreme importance of Category I habitats to the perpetuation of the species. The moderate ranges in Category II also reflect the greater importance of Category I habitats. The low value in Category III habitats recognizes that they are not as valuable for the perpetuation of the species; but it also recognizes that, in fact, habitat as well as tortoises are being lost and those lost resources must be off-set. Actions in Category III habitats are given a Compensation Rate of one regardless of other factors, as BLM's Rangeland Plan identified a lesser degree of protection to these habitats.

Examples using this standard process are found in Appendix 1.

DETERMINING COMPENSATION AMOUNTS

Compensation Rates can be used two ways: 1) to determine the amount of needed replacement habitat in terms of land, or 2) to determine funding amounts to compensate for other tortoise resource needs. The assumption is that acquisition of habitat with appropriate management prescriptions beneficial to the desert tortoise, would result in overall improved habitat conditions. Habitat acquisition need not be the sole use of compensation, as there are other actions that can be taken to benefit the tortoise. The compensation amount is calculated differently for each of the two basic uses. Once the basic use is determined, the compensation amounts are determined as follows. Note that when compensation is required by both Federal and State agencies, a single compensation amount will be assessed as mutually agreed upon by the applicable agencies, and only applies to the desert tortoise. Possible compensation requirements for other species are not covered in the scope of this report.

DETERMINING COMPENSATION AMOUNT FOR HABITAT ACQUISITION

Acquired habitat must be of equal or greater value as tortoise habitat than that being lost, or must meet other recovery objectives for the tortoise. Habitat acquisition is to be in fee title (both surface and subsurface estate).

If compensation is to be used to acquire tortoise habitat and if the project proponent is to purchase the habitat and transfer it to a conservation agency, then the compensation amount (number of acres) will be, at a minimum, the number of acres affected multiplied by the compensation rate. For example, if the project will affect 40 acres and the compensation rate is 3, then the project proponent will be required to purchase 120 acres of habitat at a location determined (either generally or specifically) by the cooperating agencies.

If compensation is to be used to acquire habitat and if the action proponent is to provide compensation funds to an agency to purchase the habitat, then the compensation amount (number of dollars) will be the number of acres affected by the project multiplied by the estimated land value of the habitat to be acquired multiplied by the computed compensation rate, with that amount then added to the direct costs expected to be incurred by the agency in purchasing the land (such as appraisals, personnel time, title search, and deed recordation). The estimated land value of the habitat to be acquired will be determined using normal realty procedures.

DETERMINING COMPENSATION AMOUNTS FOR PURPOSES OTHER THAN ACQUISITION

If compensation is required for purposes other than habitat acquisition and if the project proponent is to provide compensation funding to an agency for these purposes, then the compensation amount (number of dollars) will be derived as follows: The number of acres affected by the project will be multiplied by the estimated land value of the habitat within the geographic unit nearest the project multiplied by the Compensation Rate. The estimated land value of the nearest geographic unit will be determined as described above.

COMPENSATION FUND ACCOUNTS

When it is determined that compensation requirements will be met through provision of funds (rather than land) from a project proponent, care must be taken as to where the funds will be deposited. Three basic options exist: deposition into special escrow accounts the project applicant and BLM (or other conservation agency), deposition into escrow accounts in the name of a third party (local government or conservation group) and BLM (or other conservation agency), or deposition into the BLM's 7100 -- Land and Resource

Management Trust Fund Account.

Individual accounts can be established for individual projects, or master accounts can be established where compensation funds resulting from many actions can be deposited cumulatively for implementing a variety of management activities beneficial to the tortoise.

Establishing accounts and determining use of the compensation funds are normally described in Biological Opinions and should be mutually agreed upon by BLM, the FWS, and the State wildlife agency (when appropriate) during the consultation process.

COMPENSATION IN SPECIAL SITUATIONS

Although all BLM offices that manage tortoise habitat will normally use the standard compensation process as described above, there will be instances when it need not be used. Deviation from the standard may be appropriate:

1. When unusual circumstances -- such as the size of project area or a cooperative relationship with a local government -- warrant determination of compensation amounts through some other means. Examples of unusual circumstances include the proposed Fort Irwin expansion (potential transfer of 250,000 acres) and the Las Vegas Valley land developments (development of land within an exploding metropolitan area); or
2. When a tortoise management plan (such as a Habitat Management Plan, Recovery Plan, or a Habitat Conservation Plan) has been prepared for an area and the plan includes a determination of compensation amounts through some means other than the standard process. An example of an appropriate alternative approach is a compensation amount derived from the total expected implementation costs of the plan prorated against the total acres of habitat expected to be lost. This process may also include an endowment for operation and maintenance of the management area for the desert tortoise.

Under these circumstances when the standard process will not be used, the compensation amount must be determined cooperatively between BLM, FWS, and the State wildlife agency, if applicable, through informal consultation.

USES OF COMPENSATION

Compensation funds will be used for management actions expected to provide a benefit to the desert tortoise over time. Actions may involve habitat acquisition, population or habitat enhancement, increasing knowledge of the species' biological requirements, reducing loss of individual animals, documenting the species' current status and trend, and preserving distinct

population attributes.

Although securing tortoise habitat is ultimately the cornerstone of any long-term management program, all the major category of actions listed below have significant merit and therefore should be a part of any long-term management effort:

- Habitat Acquisition
- Habitat Enhancement
- Population Enhancement
- Education
- Research, Studies, and Monitoring

The above actions are not all inclusive, but lay a foundation for the effective use of compensation funding. Each desert tortoise habitat area has management issues, concerns, and strategies specific to its situation that should enter into the decision-making process when determining how to use compensation funds. Each agency should have the flexibility to use compensation funds according to the particular priority needs of specific habitat areas so long as those actions chosen are consistent within the broad framework described below.

HABITAT ACQUISITION

Replacing lost resources through habitat acquisition is the most obvious and direct means of compensation because it results in replacing lost habitat under management. Under this strategy, the recovery of the species could be assisted if the gain in habitat more than offsets the loss of habitat under management. This would be most evident if the tortoise habitat lost is of lesser quality than that gained, and improved management on the gained habitat can improve habitat conditions and increase tortoise populations. Habitat acquisition can be accomplished through purchase by an action proponent or management agency, exchange, donation, or easement. Habitat to be acquired should be identified in a land use plan, habitat conservation plan, or meet recovery objectives.

In acquiring land, a variety of factors must be considered, including:

1. Land acquisition will result in additional habitat requiring management. The management may require higher intensity to facilitate recovery of tortoise populations. In order to accommodate these increases, endowment fees for operations and maintenance activities may need to accompany land acquisitions.
2. Land uses that will or may conflict with tortoise habitat management must be evaluated. Land uses may need to be changed to meet tortoise management objectives.

3. Land proposed for acquisition must meet the objectives of protecting habitat and of recovering or improving the status of the desert tortoise.

When habitat is acquired with, or dedicated in lieu of, compensation funds, there must be assurances that the requirements of the endangered species acts (both Federal and State) are met and that such acquired or dedicated habitat is managed for the tortoise. Potential conflicting uses will be determined prior to acquisition of land for off-site mitigation. Such conflicts will be reduced to acceptable levels for the desert tortoise, or eliminated on the compensation lands pursuant to case-by-case or office-by-office agreements among BLM, FWS and appropriate State agencies or pursuant to an approved management plan. On all compensation lands, the purpose for which the land was acquired and managed must be considered the dominant use. It is not intended that "islands" of acquired or dedicated habitat be created having management inconsistent with surrounding public lands. An interim management strategy would be developed among applicable agencies for such lands lying within existing BLM management units in which potentially conflicting uses exist.

HABITAT ENHANCEMENT

Habitat enhancement includes a broad spectrum of potential actions ranging from rehabilitation of degraded habitats to restricting uses that may have detrimental effects on habitat quality. Indirect actions such as increased law enforcement within particular tortoise habitat areas may sometimes be a habitat enhancement action if the increased law enforcement stops or reduces unauthorized activities detrimental to tortoise habitat quality or tortoise populations. The most obvious habitat enhancement actions include re-vegetation of disturbed areas, closure and rehabilitation of travel routes, reclamation of mining disturbances, signing of special management areas, roadway fencing, and changing management prescriptions.

POPULATION ENHANCEMENT

Like habitat enhancement, population enhancement also covers a broad spectrum of actions. Population enhancement can be directly affected by habitat enhancement actions. However, population enhancement can extend beyond the direct habitat/population relationships and include any activity that will ultimately have a positive effect on tortoise populations. This may include predator control programs where the goal is to reduce mortality, particularly of juvenile tortoises. Ultimately, captive breeding and relocation programs identified under a recovery plan or other tortoise management plan may also have a positive benefit to tortoise populations and consequently are appropriate activities for compensation funding.

PUBLIC INFORMATION AND EDUCATION

Developing and implementing education programs have a less direct but important effect benefiting the desert tortoise. Education programs can be geared toward specific target audiences such as school-aged children, community leaders, special interest groups, or the community at large. An education program may be purely informational or instructional in nature and may include the development of facilities, materials, programs, (i.e. kiosks, interpretive actions, videos, pamphlets, brochures, slide shows, displays, etc.). An education may include other activities associated with increasing the public's knowledge and understanding of the desert tortoise and its environment, of legal and policy issues and requirements, and of overall management of the tortoise. An enlightened public will ultimately result in reduced unintentional or intentional "take" (see definition in Federal Endangered Species Act) and habitat degradation.

RESEARCH, STUDIES, AND MONITORING

Research, studies, and monitoring are important components of any program for the recovery of a species. Research enhances our basic knowledge of tortoise biology and increases our understanding of inter-relationships between population viability and applied management of tortoise populations and their habitats. The MOG's Technical Advisory Committee has identified a host of research topics that will eventually provide answers benefiting tortoise management. Research concerning Upper Respiratory Tract Disease (URTD) and other diseases that affect desert tortoise populations are compatible with the long-term objectives of managing for viable tortoise populations and are therefore legitimate uses of compensation funds. Physiological, anatomical, and behavioral studies also have legitimate uses in understanding how best to meet the needs of the desert tortoise. Research implemented to evaluate the compatibility of other multiple uses with desert tortoise management are also important. In short, almost any research that increases our knowledge of desert tortoise biology or the affect of human activities on the desert tortoise qualifies for compensation funding.

Monitoring is essential to determine the success of management prescriptions or other pro-active tortoise efforts implemented to benefit the desert tortoise. Once many of the other compensation uses mentioned above have been implemented in an area, monitoring desert tortoise trends is another related activity that off-site compensation could benefit. Monitoring may include short and long-term studies that are used to evaluate current conditions or trends as it relates to the desert tortoise and its habitat. These studies may include monitoring vegetation, tortoise populations, predator populations, various multiple uses within key tortoise habitat areas, and other related attributes or activities.

It is incumbent upon managing agencies to use compensation lands or funds for their highest value toward desert tortoise recovery or improvement.

APPENDIX 1

EXAMPLES OF STANDARD COMPENSATION PROCESS

EXAMPLE 1.

A major gas pipeline alternative would be routed through 3 miles of Category II habitat and 4 miles of Category III habitat. The Category II habitat is relatively undisturbed, while the Category III habitat is not. A nearby Category II area contains some inholdings of private land identified for acquisition.

The area within the right-of-way that would be disturbed after other mitigation is 18 acres in Category II and 24 acres in Category III.

For Category II habitat:

Category is II, $C = 2$
Term of effect is long-term, $T = 1$
Existing disturbance is nonexistent, $E = 1$
Growth inducement is negligible, $G = 0$
Adjacent lands are not affected, $A = 0$
Compensation Rate = $C+T+E+G+A = 2+1+1+0+0 = 4$

$4 \times 18 \text{ acres} = 72 \text{ acres}$

For Category III habitat:

Category is III, Compensation Rate is 1

$1 \times 24 \text{ acres} = 24 \text{ acres}$

Total compensation amount is 72 acres + 24 acres = 96 acres to be acquired

BLM would require acquisition of 96 acres in adjacent Category II desert tortoise habitat identified for acquisition to compensate for the residual effects of this action above and beyond other on-site mitigating measures.

EXAMPLE 2.

A landfill is proposed in an area of Category III habitat immediately adjacent to Category II habitat, rather than an area of Category I habitat which was originally the preferred site. The 100 acre landfill would be fenced to exclude tortoises, and other mitigation measures have been defined. However, desert tortoise predators such as common ravens and coyotes would be attracted to the landfill and their use of the area would increase, despite mitigation such as constant coverage of refuse. Refuse is expected to remain accessible to these scavenging animals. Illegal dumping when the landfill is closed is anticipated along the new access road that would run through 1/2 mile of Category III habitat. The area has experienced significant off-highway vehicle use.

There is no habitat in need of acquisition identified within a reasonable distance. Other improvements to desert tortoise habitat requiring funding have been identified.

The landfill is in Category is III, but since the project is affecting adjacent Category II habitat, it is treated as Category II. C = 2
Term of effect is long-term, T = 1
Existing disturbance on site is substantial, E = 0
Growth inducement to adjacent areas is nonexistent, G = 0
Adjacent lands will be affected, A = 0.5

Compensation Rate = 2 + 1 + 0 + 0 + 0.5 = 3.5

Landfill is 100 acres. Road and adjacent illegal dumping is 1/2 mile X 200 feet wide, or 12 acres.

3.5 X 112 acres = 352 acres of compensation

Land values identified in adjacent Category II habitat has been identified at \$200/acre. 352 acres worth of compensation X \$200/acre = \$70,400 in compensation funds would be required to improve off-site habitat.

EXAMPLE 3.

A mining plan of operation is submitted in an area of Category I habitat. There is no alternative to using this site. The proposal is for an open-pit gold operation covering 25 acres, 5 acres of which was already lost to previous activity. Living quarters would be on-site. A two-mile road would be upgraded into the site running through Category I habitat. Several mitigating measures would be instituted, but, 20 acres of habitat would still be lost, and an additional 20 foot width of disturbance along the two-mile road would occur. Active life of the mine is estimated at 15 years. The habitat is pristine. There will be open water on site. Despite stipulations that state no pets or other potential non-native predators will be allowed on the site, native predators are expected to increase in the vicinity because of the water and refuse, even though contained. There is no other Category I habitat nearby requiring acquisition, but several improvement measures requiring funding have been identified through a management plan.

Category is I, C = 3

Term of effect is long, T = 1

Existing disturbance on site is substantially lacking, E = 1

Growth inducement is nonexistent, G = 0

Adjacent lands are affected, A = 0.5

Compensation Rate = $3 + 1 + 1 + 0 + 0.5 = 5.5$

20 acres of mine and 5 acres of road would be lost to the tortoise

5.5×25 acres = 137.5 acres of compensation are needed to mitigate for the residual impacts of the action.

Nearby Category I lands would have an estimated land value of \$150/acre.

137.5 acres \times \$150/acre = \$20,625 in compensation funds would be required to improve off-site habitat.

ADDITIONAL GUIDANCE

SUMMARY OF MITIGATION AUTHORITIES AND REQUIREMENTS IN VARIOUS SITUATIONS

Locatable Mineral Development

1. The Bureau of Land Management (BLM) has regulatory authority under 43 Code of Federal Regulations (CFR) 3809 regulations to mitigate impacts to desert tortoise on public lands.
2. Split estates (Federal minerals and private/State surface)

Listed species: The 6840 Manual indicates that "the provisions of the Endangered Species Act (ESA) apply regardless of surface ownership. The important point is that if the BLM is authorizing the action we must ensure that the action will not jeopardize the continued existence of a Threatened or Endangered (T/E) species or adversely modify or destroy critical habitat."

Other species: The 43 CFR 3809 provide for reclamation and development of mitigating measures on Federal lands. However, when Federal mineral estates with private or State surfaces occur, the BLM normally does not exercise regulatory authority over locatable mineral activities with the following exceptions:

For lands patented under the Stockraising Homestead Act, as amended (Public Law 103-23, April 16, 1993), claimants must submit a Plan of Operations for all activities other than casual use unless the surface owner consents in writing to the mining activities.

If the claimant does not obtain the surface owner's consent, the BLM must approve the Plan of Operation, which follows the existing rules and administrative guidance provided under 43 CFR 3809. In that context, reclamation and mitigating measures can be incorporated into the plan to protect the surface owner (see Section I(f) Plan of Operations).

The BLM does not have regulatory authority over surface activities on non-Federal land that were not patented under the Stockraising Homestead Act. In this situation, the BLM does not have authority to require mitigation of negative impacts to Sonoran desert tortoise populations or habitat.

The BLM often processes mining proposals that involve a combination of Federal lands and private lands with Federal mineral estates. In this situation, an Environmental Assessment (EA) will include an analysis of impacts for the entire proposal regardless of surface ownership. Mitigating measures should also be prepared for the entire proposal. The BLM may recommend mitigating measures to the surface owner during this stage of the Environmental Analysis (Environmental Impact Statement (EIS)/EA). These discussions should highlight the benefits of mitigation to the species and the long-term advantages to the land owner. If the land owner commits to mitigation/compensation, the EA can address impacts as if mitigation/compensation will be carried out. If the land owner cannot or will not commit to mitigation/compensation, the analysis should address both scenarios: (1) the impacts if mitigation/compensation occurs on private land and; (2) impacts when mitigation/compensation does not occur on private lands.

The decision document (Record of Decision (ROD)/Decision Record (DR)) will reflect the selected alternative, thus referencing the mitigation that will be done. The decision document should identify how the mitigation/compensation will be carried out, time frames, and any other important criteria to implementing mitigation/compensation. If the private land owner did not commit to mitigation/compensation during the EA process, the BLM can recommend appropriate mitigating measures on private or State lands in a cover letter to the decision document. It's important to encourage the surface owner and mining operator to carry out the recommended mitigation measures, but they cannot be required to do so.

The preferred means of incorporating mitigating measures (including compensation, if appropriate) is to make them part of the Plan of Operations. The plan should include mitigation and compensation on Federal lands and private or State lands if the landowner agrees to mitigation/compensation measures.

Leasable Mineral Development

The 43 CFR 3162.5-1 identifies the following legal responsibilities of the BLM for oil and gas leasing and operations, including split estate lands.

- a. Endangered Species Act (ESA) Responsibilities: Oil and gas leasing and operations on split estate lands constitute Federal actions under the ESA. As such, the requirements and procedures of the ESA apply to split estate lands just as they do to Federal lands including, as appropriate, preparation of biological assessments and conduct of consultations.
- b. National Environmental Policy Act (NEPA) Responsibilities: The BLM's NEPA responsibilities on split estate lands are basically the same as for Federal surface. The fact that impacts will occur on private surface does not diminish our responsibility to consider alternatives or our authority to impose mitigation measures because the impacts will be caused as a direct consequence of activity approved by the BLM and conducted

pursuant to a Federal oil and gas lease. Once consideration is given, however, there is a good deal of flexibility.

- c. The BLM should carefully consider the views of the surface owner and the effect on the owner's use of the surface from carrying out possible mitigation measures. The effect such measures have on attaining other program goals should be considered.

Land Exchanges

43 CFR 2200.0-6(b) Policy:

Determination of Public Interest. The authorized officer may complete an exchange only after a determination is made that the public interest will be well served. When considering the public interest, the authorized officer shall give full consideration to the opportunity to achieve better management of Federal lands, to meet the needs of State and local residents and their economies, and to secure important objectives, including but not limited to: protection of fish and wildlife habitats, cultural resources, watersheds, wilderness and aesthetic values, enhancement of recreation opportunities and public access; consolidation of lands and/or interests in lands, such as mineral and timber interests, for more logical and efficient management and development; consolidation of split estates; expansion of communities; accommodation of land use authorizations; promotion of multiple-use values; and fulfillment of public needs.

Desert tortoise populations and habitat will be a consideration in the public interest determination required under land exchanges (43 CFR 2220.0-6(b)).

Acquiring lands with equal or better quality and quantity tortoise habitat can serve as mitigation for tortoise habitat transferred or impacted as a result of an exchange. Category I and Category II desert tortoise habitat should be one of the priority criteria in identifying lands to be acquired through exchange.

Avoid identifying desert tortoise habitat for disposal in the Land Use Plan (LUP) process. The Desert Tortoise Rangeland Plan (page 21) states: "Retain Category I and II tortoise Habitat Areas unless (a) it clearly is in the National public interest to dispose of them and (b) losses can be mitigated."

Exchange regulations require lands to be exchanged value for value based on accepted appraisal techniques. In this situation, the normal compensation formula cannot be applied in the traditional sense. However, it should be used as a guide in:

- Avoiding or minimizing desert tortoise habitat selected for disposal;
- Identifying lands which may have approximately equal economic value, but meet the compensation policy in quality and/or quantity of tortoise habitat.

After these considerations are made, any deficits in the desired ratio may become part of the project costs rather than part of the land value (i.e. in order to exchange a parcel of land, certain mitigation must occur and that becomes part of the operating cost of the project).

Exchanges of split mineral estates (Federal minerals and private/State surface) basically follow a scenario similar to locatable minerals.

The BLM will normally prepare an EA/EIS to address impacts of an exchange. However, if the lands have low mineral potential, there would be little or no impact to the surface estate. If the lands do have mineral potential, the Federal action could result in impacts to the surface estate. Therefore:

- Prepare an analysis of impacts to tortoise populations and habitat for the proposed exchange. Develop recommended mitigating measures for the proposed exchange.
- Because we do not have regulatory authority over surface activities on private lands with Federal minerals, mitigating/compensation measures for tortoise populations and habitat on these lands should be discussed with the surface owner. If the owner agrees to implement the mitigating/compensation measures, the EIS/EA should reflect the impacts as such. If the owner cannot or will not incorporate the mitigating/compensation measures, the EA should identify alternatives describing: (1) a partial mitigation scenario which reflects no mitigation on private or State lands and (2) a scenario which reflects mitigation on the entire project area.
- The ROD/DR will reflect the selected alternative, thus referencing the level of mitigation that will occur. The ROD/DR should identify how the mitigation/compensation will be carried out, time frames, and any other important criteria to implementing mitigation/compensation.
- The BLM may decide to recommend appropriate mitigating measures on private or State lands in a cover letter to the land owner. We should encourage the surface owner and mining operator to implement the recommended mitigation measures, but we cannot require them to do so.
- Compensating residual impacts to desert tortoise habitat resulting from exchange of

split estate Federal minerals (private surface/Federal minerals) is not specifically required in the Desert Tortoise Compensation Report. However, the exchange action will generally impact tortoises and result in the loss of habitat. Therefore, acquiring high-quality desert tortoise habitat in exchange for the mineral estate should be given a high priority in the selection of offered lands. The BLM's selection of lands should mitigate the loss generated from the exchange.

Habitat gains made in one exchange should not be used as banked mitigation for a subsequent exchange. A repeat exchange proponent should not be allowed to use habitat gains from an earlier exchange as compensation or mitigation for a proposed exchange. Each exchange should simply be evaluated and analyzed on its own merits for potential positive or negative effects to all natural resources, including desert tortoises.

It is important to follow through and do what is necessary to protect tortoise habitat that the BLM acquires through exchange or compensation. If the habitat was important enough to acquire for the tortoise, then the BLM needs to take the appropriate steps to ensure the habitat is not threatened in the future. Consider designating the habitat as an Area of Critical Environmental Concern (ACEC), withdrawing it from mineral entry or any other suitable action.

Recreation and Public Purposes Applications

The Recreation and Public Purposes Act (R&PP) of 1926, as amended, was enacted to make public lands available for recreation or public purposes to governmental and non-profit entities at little or no cost. Lands needed for public purposes may include the placement of improvements resulting in the loss of tortoise habitat (i.e., landfills, schools, fire stations, and municipal buildings). Lands needed for recreational purposes may or may not include uses that destroy habitat (i.e., parks, trails, and open space).

BLM Manual H-2740-1 states:

- a. That proposals must be consistent with applicable BLM policy, management objectives, and LUP decisions.
- b. In order to be leased or conveyed under the R&PP Act, the lands involved must first be classified and opened for such purpose. To be determined suitable, the following must be met:
 - Any criteria for R&PP use established in the LUP.
 - Criteria for land classifications set forth in 43 CFR 2400.
 - Specific criteria established under the regulations contained in 43 CFR 2740 and/or 2912.
- c. Based on information contained in the application and needs identified in the

environmental analysis, additional terms and conditions may need to be incorporated in the lease.

These terms could contain tortoise mitigation requirements if lands containing tortoise habitat have not been excluded through applying the criteria. Important habitat should not be considered unless the proposed use is compatible or beneficial to tortoise populations.

The challenge in dealing with compensation and R&PP applications revolves around the intent of the R&PP Act. It was established as a mechanism to provide local governments and other organizations an opportunity to acquire public land at little or no cost. A compensation ratio of even 1:1 may be prohibitive to the R&PP applicant. That is why it is important to seek alternative sites outside of tortoise habitat whenever possible. When that is not possible: (1) mitigate impacts on site as much as possible; and (2) negotiate a mitigation strategy with the applicant and utilize innovative approaches to resolve issues. For instance, the Littlefield School District will develop a desert tortoise education program addressing the conservation of tortoises as a compensation measure.

GUIDELINES FOR ACCEPTING COMPENSATION LAND OR DOLLARS

The overall objective of compensation is to maintain our Category I and II desert tortoise habitat base. As a matter of practicality, however, Arizona BLM will not normally accept land in parcels less than 80 acres due to the high overhead cost, time required to process, and small return for our effort.

When BLM Arizona accepts land from a party for compensation of unmitigated residual impacts, we will also collect a 25 percent of Operations Cost (OC) to cover the cost of bringing the land into Federal ownership. When the BLM accepts dollars in lieu of land, we will collect (1) a value for the land based on established Land Compensation Rates (LCR), or in unusual circumstances, actual appraisal; (2) Administrative Overhead Surcharge (AOS) based on the BLM standard rate, currently 18.4 percent (this percent varies by year); and (3) an OC fee to cover costs associated with titling the land and/or managing the dollars collected, 25 percent of the LCR up to a maximum of \$11,000, which is the estimated average cost of transferring a title.

The BLM will only collect AOS when funds are collected in lieu of land, and normally we will not request any reductions or waivers of this fee. The OC will be collected in all cases, regardless of whether the BLM accepts land or dollars.

Land Compensation Rates for Desert Tortoise Habitat

In Arizona, the BLM will use the Land and Building value established by WO-350 as the LCR for desert tortoise habitat in Arizona. The BLM updated its linear right-of-way regulations by final rule published in the Federal Register on Friday, October 31, 2008 (73 FR 65040). The BLM used a new formula based on land values by County throughout the United States as determined by the United States Department of Agricultural (USDA) National Agricultural

Statistical Service (NASS) for base land values. The above regulations go into detail on determining rental fees, but their root is 80 percent of the land values by County. The BLM, in the final rule, pointed out various reasons for the 80 percent figure, but for consistency, and the fact that rarely is the entire value of a tract of land completely lost as habitat, the BLM will use this column in the table below as the dollar value of lands by County for desert tortoise compensation in Arizona. Although the desert tortoise does not occur in all the Arizona Counties, the table below shows all Counties for both completeness and comparison.

Excerpt from Adjusted 2007 NASS Census Per Acre Land and Building (L/B) Value WO-350, June 1, 2009, for Calendar Years 2011-2015.

State	County	80% - 2007 L/B values
Arizona	Apache	\$ 155
Arizona	Cochise	\$1,526
Arizona	Coconino	\$158
Arizona	Gila	\$304
Arizona	Graham	\$441
Arizona	Greenlee	\$1,874
Arizona	La Paz	\$868
Arizona	Maricopa	\$6,798
Arizona	Mohave	\$451
Arizona	Navajo	\$221
Arizona	Pima	\$357
Arizona	Pinal	\$2,910
Arizona	Santa Cruz	\$1,833
Arizona	Yavapai	\$1,423
Arizona	Yuma	\$6,689

The L/B values are updated every 5 years. When the above table is revised by WO-350, the new values will be adopted for our compensation land values. Thus, land values for compensation purposes will be updated every 5 years.

Lands in California, administered by the Colorado River District, will use the LCR established for California. The California LCR for Fiscal Year (FY) 2012 is \$500 per acre. Any subsequent changes to the LCR in California will be adopted.

When the authorized officer decides to accept funds in lieu of land for compensation of residual impacts, the dollar compensation rate may be based on the L/B values table, above. It is expected that the above method will be sufficient in the vast majority of cases. This method may not apply in determining every land compensation rate. The authorized officer, after considering the time and dollar cost involved, may use appraisals to determine land values if it is deemed appropriate.

Administrative Overhead Surcharges (AOS)

Arizona BLM will collect AOS in all situations where the authorized officer decides to accept

funds in lieu of land for compensation of unmitigated residual impacts. Collection of the AOS is to be handled in accordance with BLM policy and manual direction, as adjusted to the current annual rate (see BLM Manual Section 1681, and Handbook H-1681-1). For FY 2012, the AOS is 18.4 percent (this percent varies by year). In those rare instances where a reduction or waiver of the indirect administrative cost rate may be warranted, the State Director may request, in writing, such reduction or waiver from the Headquarters Office.

Operating Costs (OC)

When the authorized officer determines that there is a residual unmitigated loss of desert tortoise habitat that requires compensation with land or money, he/she will collect an OC fee of 25 percent of the LCR. These funds will be used to cover the cost of labor, escrow fees, title insurance, etc., associated with the purchase of lands or labor and operations dollars for the development and obligations related to contracts, cooperative agreements, or interagency agreements for research, monitoring or habitat improvement projects. The 25 percent figure was derived based on the BLM collecting the "normal" cost of a land acquisition transaction. That cost is estimated to be approximately \$11,000 dollars. When calculating the OC fee, if the total for any given situation exceeds \$11,000, the maximum OC fee collected will be \$11,000, i.e. the BLM will collect no more than \$11,000 in operating costs for any given acquisition of land or money. For example, if 100 acres of land were required for compensation in Mohave County at a LCR of \$451, the OC would be \$11,000 even though the 25 percent OC formula would equal \$11,275.

Calculating Compensation

Once the Acreage of Compensation Required for residual unmitigated impacts has been calculated using the compensation rate calculations described in Table 2 of Attachment 1, the acreage figure is applied to one of the following formulas to determine the land and/or dollar requirements for compensation.

$$\text{LAND} = \text{Land Title} + [0.25 \times \text{LCR} \times \text{Acres of compensation required}] = \text{Total Deposit}$$

$$\text{DOLLARS} = [\text{LCR} + (\text{LCR} \times 0.25 \text{ (OC)}) + (\text{LCR} \times 0.184 \text{ (AOS)})] \times \text{Acres of Compensation Required} = \text{Total Deposit}$$

Example #1: Proponent has a compensation requirement of 20 Acres in Mohave County and will compensate with Land Title:

Mohave County (LCR \$451), use the LAND formula

$$\text{LAND} = \text{Land Title} + [0.25 \times \text{LCR} \times \text{Acres of compensation required}] = \text{Total Deposit}$$

Land title to 20 Acres plus $[0.25 \times \$451 \times 20 \text{ Acres}]$ equals a total deposit of \$2,255

Proponent would provide land title to 20 Acres of tortoise habitat plus \$2,255 in compensation

Example #2: Proponent has a compensation requirement of 20 Acres in Mohave County and will compensate with dollars:

Mohave County (LCR \$451), use the DOLLARS formula:

$$\text{DOLLARS} = [\text{LCR} + (\text{LCR} \times 0.25 (\text{OC})) + (\text{LCR} \times 0.184 (\text{AOS}))] \times \text{Acres of Compensation Required} = \text{Total Deposit}$$

$$\text{Dollars} = [\$451 + \$112.75 + \$82.984] \times 20 \text{ Acres} = \$12,934.68 \text{ Total Deposit}$$

Proponent would provide \$12,934.68 in compensation or to itemize costs:

$$\$9,020 (20 \text{ acres at LCR}) + \$2,255 (\text{OC for 20 acres}) + \$1,659.68 (\text{AOS for 20 acres}) = \$12,934.68$$

Example #3: Proponent has a compensation requirement of 20 Acres in Maricopa County and will compensate with dollars:

Maricopa County (LCR \$6,798), use the DOLLARS formula itemizing the costs to isolate the OC to ensure the \$11,000 maximum OC fee is not exceeded

$$(\text{LCR} \times 20) + ((\text{LCR} \times \text{OC of 25\%} \times 20) + ((\text{LCR} \times \text{AOS of 18.4\%}) \times 20) = \text{Total Deposit}$$

$$(\$6,798 \times 20) + ((\$6,798 \times .20) \times 20) + ((\$6,798 \times 0.184) \times 20) = \text{Total Deposit}$$

$$\$135,960 (20 \text{ acres at LCR}) + \$33,990 (\text{OC for 20 Acres}) + \$25,016.64 (\text{AOS for 20 Acres}) = \text{Total Deposit}$$

Because the OC exceeds the average land acquisition cost of \$11,000, the \$11,000 figure would be used instead of the calculated 25 percent. The total compensation would be calculated as:

$$\$135,960 (\text{LCR} \times 20) + \mathbf{\$11,000 (\text{OC})} + \$25,016.64 (\text{AOS} \times 20) = \$171,976.64 \text{ Total Deposit}$$

Financial Accounting

All funds previously collected for tortoise compensation as well as new funds collected will be transferred/deposited into one of two statewide accounts. Form 4120-9, Proffer of Monetary Contributions, should be used when collecting compensation dollars and the AOS and OC fees. Funds collected for Mojave desert tortoise habitat in the Arizona Strip and Colorado River Districts will be placed in one 7122 account. Funds collected for Sonoran desert tortoise habitat will be placed in a second 7122 account. All deposits to these accounts will be nonrefundable.

The District/Field Offices will deposit funds collected for desert tortoise compensation into one of the two tortoise accounts. The State Endangered Species Coordinator will be provided: 1) the acreages of habitat lost or impacted; 2) a description of the project for which compensation was required, and 3) the compensation amount deposited.

Compensation Account Administration

Compensation funds shall be used for the sole purpose of implementing the highest priority actions that benefit desert tortoise conservation, management, and recovery in Arizona.

A BLM Arizona Desert Tortoise Technical Team comprised of the State Endangered Species Coordinator, State Wildlife Program Lead, and one Wildlife Biologist from each Field Office will meet annually or via teleconference to nominate, discuss, prioritize, and propose conservation projects that could be implemented for both desert tortoise populations using available compensation funds. Funding does not need to be fully expended each year and can be accumulated to fund high-priority projects.

The Technical Team will forward a prioritized list of projects to a Tortoise Management Team comprised of the Branch Chief for Renewable Resources and Planning (AZ-9320) and the Associate District Managers from each District. This Tortoise Management Team will review and propose statewide tortoise conservation project priorities to the BLM Arizona Deputy State Director for Resources (AZ-9300) for approval.

RECOMMENDED STANDARD MITIGATION MEASURES FOR PROJECTS IN SONORAN DESERT TORTOISE HABITAT

***Arizona Interagency Desert Tortoise Team
June 2008***

The following mitigation process and measures are recommended by the Arizona Interagency Desert Tortoise Team (AIDTT) for proposed surface-disturbing projects located in the habitat of the Sonoran population of the desert tortoise, *Gopherus agassizii*.

Mitigation for projects in the habitat of the Mojave population, located north and west of the Colorado River, will be addressed by project proponents, land management agencies, Arizona Game and Fish Department, and the Fish and Wildlife Service through consultations between the Service and Federal agencies in accordance with section 7 of the Endangered Species Act and in the habitat conservation planning process for private actions. This document is a supplement to the **AIDTT Management Plan (AIDTT 1996)**.

Determining the Need for Mitigation

Project proponents, in coordination with local land managers, Arizona Game and Fish Department, and Fish and Wildlife Service, must determine whether desert tortoises are present or may occur in areas that would be disturbed by proposed projects. Presence can often be confirmed by contacting biologists with the Bureau of Land Management, Arizona Game and Fish Department, or other local biologists that have knowledge of specific areas or access to the Arizona Game and Fish Department Heritage Data Management System or other data bases that list locality data for desert tortoises. Tortoises can be expected to occur in desert mountains, rocky areas, washes cut through caliche, and bajadas in desert scrub vegetation communities. Tortoises are typically absent above 4,500 feet elevation. Mitigation will generally not be needed above 4,500 feet.

If tortoises have been found in the project area or nearby areas of similar habitat, the species can be presumed present and appropriate mitigation must be included in the proposed project. If presence is questionable, surveys by qualified biologists should be conducted. Often, casual surveys by qualified biologists that focus on microsites with the greatest potential for supporting tortoises can confirm the presence of the species. More intensive work is needed to suggest absence of tortoises. We recommend that these intensive surveys generally follow Fish and Wildlife Service survey protocol for the Mojave population (Fish and Wildlife Service 1992), except that areas with little or no potential for desert tortoises, such as dry lake beds and riparian areas need not be surveyed. Tortoise biologists conducting surveys should be familiar with the habitats and survey methods for Sonoran tortoises, which are in many ways different from those of the Mojave population. If the species is present in the project area (including the zone of influence - Fish and Wildlife Service 1992), mitigation should be included as a component of the project design.

Mitigation Plan

Mitigation should be tailored to the nature of the proposed action, its anticipated effects, and the density and expected response of desert tortoises to the action. The following mitigation actions are grouped to assist in selection of appropriate actions for specific projects. Nevertheless, each project is different and development of an appropriate mitigation plan will require the input of a desert tortoise biologist and authorizing agencies, such as the Arizona Game and Fish Department and, for actions on Federal lands, the Bureau of Land Management, Forest Service, Bureau of Reclamation, and Department of Defense. Approval of a mitigation plan will typically be by an authorizing or permitting/authorizing land management agency, but only Arizona Game and Fish Department can authorize handling or moving tortoises. Mitigation measures suggested herein are recommendations to be used in developing mitigation plans for specific projects. Required mitigation will be developed by permitting agencies and project proponents in accordance with land management plans, the Desert Tortoise Rangeland Plan (Spang et al. 1988), the National Environmental Policy Act (NEPA), and other applicable guidance and regulations. In general, more rigorous mitigation should be sought in areas supporting moderate to high density tortoise populations (>20 tortoises/mi²), in category 1 and 2 habitats (Spang et al. 1988), and in Sonoran Desert Management Areas (AIDTT 1996).

The first set of mitigation measures are presented as a generic mitigation outline. Within the outline, measures are listed in the general order and priority in which they should be applied to project proposals. This step-down process is in accordance with NEPA regulations and Fish and Wildlife Service mitigation policy. A second set of measures follow the outline and consist of project-specific mitigation recommendations. These and/or other measures developed during project planning should be added to the generic mitigation outline as appropriate. A good source of ideas for mitigation measures is the biological analysis for the proposed Eagle Mountain Landfill (Circle Mountain Biological Consultants 1996), in which the author summarizes mitigation measures used as terms and conditions in biological opinions for the Mojave population of the desert tortoise.

Some of the following recommended measures are defined fairly specifically; others provide more general guidance to be considered in the process of developing a project mitigation plan. As these measures are adapted for inclusion into a mitigation plan, replace "should" with "shall" to indicate that they are mandatory stipulations.

Generic Mitigation Plan For Projects in Desert Tortoise Habitat:

Priority 1: Avoid the Impacts

To the extent possible, project features should be located in previously disturbed areas or outside of desert tortoise habitat.

If impacts to desert tortoises or their habitat cannot be avoided, then:

Priority 2: Minimize the Impacts

A. Scheduling Activities to Reduce Potential Adverse Effects:

To the extent possible, project activities should be scheduled when tortoises are inactive (typically November 1 to March 1).

B. Information and Education of Project Personnel:

A desert tortoise protection education program should be presented to all employees, inspectors, supervisors, contractors, and subcontractors who carry out proposed activities at the project site. The education program should include discussions of the following:

1. The legal and sensitive status of the tortoise;
2. a brief discussion of tortoise life history and ecology;
3. mitigation measures designed to reduce adverse effects to tortoises;
4. and protocols to follow if a tortoise is encountered, including appropriate contact points.

C. Designation of a Desert Tortoise Coordinator:

The project proponent should designate a desert tortoise coordinator (DTC) who should be responsible for overseeing compliance with the mitigation program, coordination with permitting agencies, land managers, and Arizona Game and Fish Department; and as a contact point for personnel that encounter desert tortoises. The DTC should be on site during project activities and should be familiar with and have a copy of the desert tortoise mitigation plan.

D. Removal of Harm to Desert Tortoises on Project Sites:

If a tortoise is found in a project area, activities should be modified to avoid injuring or harming it. If activities cannot be modified, tortoises in harm's way should be moved in accordance with Arizona Game and Fish Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects", revised October 23, 2007 (or the latest revision). Take, possession, or harassment of a desert tortoise is prohibited by State law, unless specifically authorized by Arizona Game and Fish Department.

E. Minimization of Project Footprint:

1. Vehicle use should be limited to existing or designated routes to the extent possible.

2. Areas of new construction or disturbance should be flagged or marked on the ground prior to construction. All construction workers should strictly limit their activities and vehicles to areas that have been marked. Construction personnel should be trained to recognize markers and understand the equipment movement restrictions involved.

F. Limitation of Habitat Disturbance within the Project Footprint:

1. Blading of new access or work areas should be minimized to the extent possible. Disturbance to shrubs should be avoided if possible. If shrubs cannot be avoided during equipment operation or vehicle use, wherever possible they should be crushed rather excavated or bladed and removed.

2. Project features that might trap or entangle desert tortoises, such as open trenches, pits, open pipes, etc should be covered or modified to prevent entrapment. [This may only be necessary during the tortoise active season and may be unnecessary if an on-site biologist is monitoring activities - see "Suggested Mitigation Measures for Projects Conducted During the Tortoise Activity Period... "below.]

G. Preventing Attraction of Predators or Enhancement of Predator Populations:

Construction sites should be maintained in a sanitary condition at all times. The project proponent should be responsible for controlling and limiting litter, trash, and garbage by immediately placing refuse in predator-proof, sealable receptacles. Trash and debris should be removed when construction is complete.

Priority 3: Rectify the Impacts

A. Removal of Hazards:

After completion of the project, trenches, pits, and other features in which tortoises could be entrapped or entangled, should be filled in, covered, or otherwise modified so they are no longer a hazard to desert tortoises.

B. Habitat Restoration:

After project completion, measures should be taken to facilitate restoration. Restoration techniques should be tailored to the characteristics of the site and the nature of project impacts identified in the mitigation plan as developed by project biologists, Arizona Game and Fish Department, and permitting State and Federal agencies. Techniques may include removal of equipment and debris, recontouring, replacing boulders that were moved during construction; and seeding, planting, transplanting of cacti and yuccas, etc. Only native plant species, preferably from a source on or near the project area, should be used in restoration.

Priority 4: Reduce or Eliminate the Impacts over Time, and Provide Guidance and Information for Improving Future Mitigation Plans

Monitoring and Reporting Requirements:

The project proponent should submit a monitoring report to the Arizona Game and Fish Department and any permitting State or Federal agency within 90 days of project completion. For long-term or ongoing projects that may result in continuing impacts to tortoises and habitat, annual monitoring reports should be prepared. Monitoring reports should briefly document the effectiveness of the desert tortoise mitigation measures, actual acreage of desert tortoise habitat disturbed, the number of desert tortoises excavated from burrows, the number of desert tortoises moved from construction sites, and other applicable information on individual desert tortoise encounters. The report should make recommendations for modifying or refining the mitigation program to enhance desert tortoise protection and reduce needless hardship on the project proponents.

Priority 5: Compensate for Residual Impacts

In accordance with "Compensation for the Desert Tortoise" (Desert Tortoise Compensation Team 1991), signed by Desert Tortoise Management Oversight Group, authorizing agencies should require compensation for residual impacts to desert tortoise habitat.

The following mitigation measures are designed for specific project types or conditions. Most act to minimize project impacts (priority 2 measures):

For Projects Involving Hazardous Materials

Oil, fuel, pesticides, and other hazardous material spills should be cleaned up and properly disposed of as soon as they occur in accordance with applicable State and Federal regulations. All hazardous material spills must be reported promptly to the appropriate surface management agencies and hazardous materials management authorities.

For Projects Conducted During the Tortoise Activity Period (typically March 1 to November 1)

1. Construction and operation activities should be monitored by a qualified desert tortoise biologist. The biologist should be present during all activities in which encounters with tortoises may occur. The biologist should watch for tortoises wandering into construction areas, check under vehicles, check at least three times per day any excavations that might

trap tortoises, and conduct other activities necessary to ensure that death and injury of tortoises is minimized. This measure may only be warranted in areas of moderate to high tortoise density, category 1 or 2 habitat, or in Sonoran Desert Management Areas.

2. Unleashed dogs should be prohibited in project areas.

3. Temporary fencing, such as chicken wire, snow fencing, chain link, and other suitable materials should be used in designated areas to reduce encounters with tortoises on short-term projects, such as construction of power lines, burial of fiber optic cables, etc, where encounters with tortoises are likely.

For Long-term or Permanent Projects in Which Continued Encounters with Desert Tortoises Are Expected

Construction of schools, factories, power plants, office buildings, and other permanent or long-term projects in moderate to high density desert tortoise habitat should be enclosed with desert tortoise barrier fencing to prevent tortoises from wandering onto the project site where they may be subject to collection, death, or injury. Barrier fencing should consist of wire mesh with a maximum mesh size of 1 inch (horizontal) by 2-inch (vertical) fastened securely to posts. The wire mesh should extend at least 18 inches above the ground and preferably 12 inches below the surface of the ground. Where burial is not possible, the lower 12 inches should be folded outward, away from the enclosed site, and fastened to the ground so as to prevent tortoise entry. Any gates or gaps in the fence should be constructed and operated to prevent desert tortoise entry (such as installing "tortoise guards" similar to cattle guards, and/or keeping gates closed). Specific measures for tortoise-proofing gates and gaps should be addressed project by project. Fencing is a relatively expensive mitigation measure and may only be appropriate in areas of moderate to high tortoise density, category 1 or 2 habitats, or in Sonoran Desert Management Areas.

For Projects in Which Encounters Between Vehicles and Tortoises are Likely

In desert tortoise habitat, project-related vehicles should not exceed 25 miles per hour on unpaved roads.

For Road and Railroad Construction or Improvements in Desert Tortoise Habitat

1. New paved roads and highways or major modifications of existing roads through desert tortoise habitat should be fenced with desert tortoise barrier fencing (described above). Culverts, to allow safe passage of tortoises, should be constructed approximately every mile of new paved roads and railroads (culverts can also serve the more typical purpose of conducting water under roads and railroads). The culvert diameter needed to encourage tortoise use is correlated with culvert length, but generally short culverts of large diameter are most likely to be used. Culvert design should be coordinated with

Arizona Game and Fish Department and authorizing State and Federal agencies. The floor of the culvert should be covered with dirt and maintenance should be performed as necessary to maintain an open corridor for tortoise movement. Fencing and culverts may only be warranted in areas of moderate to high tortoise densities, category 1 or 2 habitats, or in Sonoran Desert Management Areas.

2. Use of roads constructed for specific non-public purposes, such as access routes to microwave towers, should be limited to administrative use only.

3. Temporary access routes created during project construction should be modified as necessary to prevent further use. Closure of access routes could be achieved by ripping, barricading, posting the route as closed, and/or seeding and planting with native plants.

References Cited

Arizona Interagency Desert Tortoise Team. 1996. Arizona Interagency Desert Tortoise Team Management Plan.

Circle Mountain Biological Consultants. 1996. Federal biological opinion analysis for the proposed Eagle Mountain Landfill Project. Prepared for CH2MHILL, Santa Ana, California.

Desert Tortoise Compensation Team. 1991. Compensation for the desert tortoise. Report to the Desert Tortoise Management Oversight Group.

Fish and Wildlife Service. 1992. Procedures for endangered species act compliance for the Mojave population of the desert tortoise. Fish and Wildlife Service, Region 1 - Portland, Region 2 - Albuquerque, and Region 6 - Salt Lake City.

Spang, E.F., G.W. Lamb, F. Rowley, W.H. Radtkey, R.R. Olendorff, E.A. Dahlem, and S. Slone. 1988. Desert tortoise habitat management on the public lands: A rangewide plan. Report prepared for Bureau of Land Management, Division of Wildlife and Fisheries, 903 Premier Building, 18th and C Streets, N. W., Washington, D.C. 20240. 23 pp.

Desert Tortoise Survey Guidelines for Environmental Consultants October 2007

The following informal guidelines are intended to aid private consultants surveying for presence of tortoises on development projects in the Sonoran Desert. Following these guidelines will not provide quantified abundance estimates.

- 1) Surveys will be most productive during tortoise activity periods, primarily during the summer monsoon season (July - September), but also in the spring (April) and fall (October). Tortoises are most active in the morning and evening during summer, late morning to afternoon in spring and fall. Results from summer/fall monitoring plots indicate that tortoises are active at temperatures from 20 to 45°C (1cm above ground).
- 2) In the Sonoran Desert, tortoises usually occur on rocky slopes in desertscrub to semidesert grassland, as well as along washes, and extending into creosotebush flats. Burrows typically occur below rocks and boulders and may be irregularly shaped. Soil burrows and those in wash banks may have a 1/2-moon appearance.
- 3) Presence-absence surveys (3 km hectare plots) or Clearance surveys (100 percent coverage), depending on project type, are recommended to survey a discrete parcel of land. The number of hectare plots per unit area depends on the desired intensity of the survey.
- 4) Surveyors should record all live tortoises, carcasses, scat, verified burrows (with scat or tortoise inside), and otherwise suitable/potential burrows (empty) and report to the Department.
- 5) Refer to the Department's "Guidelines for Handling Sonoran Desert Tortoises Encountered on Development Projects" if handling will be necessary.

GUIDELINES FOR HANDLING SONORAN DESERT TORTOISES ENCOUNTERED ON DEVELOPMENT PROJECTS

Arizona Game and Fish Department

Revised October 23, 2007

The Arizona Game and Fish Department (Department) has developed the following guidelines to reduce potential impacts to desert tortoises, and to promote the continued existence of tortoises throughout the State. These guidelines apply to short-term and/or small-scale projects, depending on the number of affected tortoises and specific type of project.

The Sonoran population of desert tortoises occurs south and east of the Colorado River. Tortoises encountered in the open should be moved out of harm's way to adjacent appropriate habitat. If an occupied burrow is determined to be in jeopardy of destruction, the tortoise should be relocated to the nearest appropriate alternate burrow or other appropriate shelter, as determined by a qualified biologist. Tortoises should be moved less than 48 hours in advance of the habitat disturbance so they do not return to the area in the interim. Tortoises should be moved quickly, kept in an upright position parallel to the ground at all times, and placed in the shade. Separate disposable gloves should be worn for each tortoise handled to avoid potential transfer of disease between tortoises. Tortoises must not be moved if the ambient air temperature exceeds 40° Celsius (105° Fahrenheit) unless an alternate burrow is available or the tortoise is in imminent danger.

A tortoise may be moved up to one-half mile, but no further than necessary from its original location. If a release site, or alternate burrow, is unavailable within this distance, and ambient air temperature exceeds 40° Celsius (105° Fahrenheit), the Department should be contacted to place the tortoise into a Department-regulated desert tortoise adoption program. Tortoises salvaged from projects which result in substantial permanent habitat loss (e.g. housing and highway projects), or those requiring removal during long-term (longer than one week) construction projects, will also be placed in desert tortoise adoption programs. *Managers of projects likely to affect desert tortoises should obtain a scientific collecting permit from the Department to facilitate temporary possession of tortoises.* Likewise, if large numbers of tortoises (>5) are expected to be displaced by a project, the project manager should contact the Department for guidance and/or assistance.

Please keep in mind the following points:

These guidelines do not apply to the Mojave population of desert tortoises (north and west of the Colorado River). Mojave desert tortoises are specifically protected under the Endangered Species Act, as administered by the U.S. Fish and Wildlife Service.

These guidelines are subject to revision at the discretion of the Department. We recommend that the Department be contacted during the planning stages of any project that may affect desert tortoises.

Take, possession, or harassment of wild desert tortoises is prohibited by state law. Unless specifically authorized by the Department, or as noted above, project personnel should avoid disturbing any tortoise.