Environmental Assessment for the Translocation of Desert Tortoises onto Bureau of Land Management and Other Federal Lands in the Superior-Cronese Desert Wildlife Management Area, San Bernardino County, California

Bureau of Land Management Environmental Assessment CA-680-2009-0058

Prepared by the

U.S. Department of the Interior

Bureau of Land Management

Barstow Field Office

2601 Barstow Road

Barstow, CA 92311

July 31, 2009

TABLE OF CONTENTS

LIST OF FIGURES (see additional links on posting web site)

LIST OF TABLES

APPENDICIES (see additional links on posting web site)

Chapter 1: INTRODUCTION

The Department of Army (DA), Fort Irwin, has requested authorization from the Bureau of Land Management (BLM) to move desert tortoises from their expanded training facility located approximately 50 miles north of Barstow onto public lands managed by the BLM, Barstow and Ridgecrest Field Offices. Under the Proposed Action desert tortoises would be moved south and west of the current Fort Irwin boundary onto BLM managed lands and lands managed by the Army which would ultimately be turned over to BLM for long-term management in the Superior-Cronese Desert Wildlife Management Area (DWMA). BLM may authorize other federal agencies to use public lands through cooperative agreements under subsection 307(b) of the Federal Land Policy and Management Act of 1976 (NARA 1976) where the proposed use and development are similar or closely related to the programs of the Secretary of the Interior (FLPMA, subsection 302(b)).

At the same time, DA, Fort Irwin proposes to move desert tortoises off of their Fort Irwin facility onto DA lands acquired for tortoise mitigation purposes that are south and west of their facility within the DWMA boundaries and that are anticipated to be transferred to and managed by BLM in the future. These DA acquired lands are in the same general area as the public lands for which BLM authorization to move desert tortoises is requested. Transfer of the management of the DA lands to BLM would be analyzed in a separate document because of additional evaluations that must be completed prior to land transfer. For the purposes of impacts analysis, it is assumed that Army lands to which desert tortoise are moved would eventually be transferred to BLM for long-term management.

The BLM actions under consideration are 1) to receive translocated desert tortoises onto BLM managed lands, consistent with *BLM Manual 1745 – Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife and Plants* and 2) to oversee management of translocated , if any, that are placed on public lands. DA actions include 1) to survey areas within and outside of Fort Irwin to identify the numbers and health of desert tortoises in both locations, 2) to prepare healthy desert tortoises for translocation off of the expanded Fort Irwin training lands and 3) to move desert tortoises off of the Fort Irwin expansion lands that are proposed for military use to suitable habitat off of the base, in compliance with the terms and conditions of the Fort Irwin Expansion Biological Opinion. Both the BLM actions and the DA actions are evaluated in this NEPA document. This is because, aspects of survey, preparation and movement of desert tortoises onto BLM managed lands or onto other federally managed lands are similar actions that provide a basis for evaluating their consequences together (common timing and geography), per 40 CFR 1503.25.

Since the BLM and DA lands identified to receive desert tortoises are not all immediately adjacent to the Fort Irwin facility, movement of the tortoises is considered a "translocation" of the species, subject to specific management parameters. Translocation and management of listed species are specifically provided for in BLM manual guidance as found in *BLM Manual 1745 – Introduction, Transplant, Augmentation, and Reestablishment of Fish, Wildlife and Plants.*

BLM is the lead federal agency for this action, due to its jurisdiction by law on activities related to management of public lands and in particular over the translocation of listed species onto public lands, and due to the scope of the BLM decisions to be made. DA, Fort Irwin is a cooperating agency in this action due to its jurisdiction by law over the translocation of listed species from DA lands. Additional participating agencies and organizations in the development in the amended translocation plan that would

be adopted under the proposed action include USGS, UNLV-Reno and CDFG due to their special expertise and USFWS due to its expertise and its regulatory oversight of translocations which involve federally listed species.

This EA tiers to the *Final Environmental Impact Statement, Army National Training Center, Addition of Maneuver Training Land, Fort Irwin, San Bernardino County, California* and the associated Biological Opinion. Analysis of the impacts of the expansion on affected resources will not be repeated herein. The reader is referred to this EIS document for a discussion of expansion impacts.

This chapter summarizes the purpose and need for the action, provides additional relevant background information, and identifies major issues to be addressed based on project scoping.

1.1 Background

As a result of the expansion of Fort Irwin by legislation (December, 2001), the National Training Center (NTC) is converting approximately 24,000 acres known as the Southern Expansion Area (SEA) and approximately 70,000 acres known as the Western Expansion Area (WEA, also called the Superior Valley Parcel) into useable military training lands (Figure 1). The SEA and the WEA were designated as critical habitat by the USFWS in 1994 as a result of the desert tortoise listing as a threatened species under the Federal Endangered Species Act (FESA). The expansion also included approximately 24,000 acres of low-density tortoise land referred to as the East Gate Parcel. However, translocation would not take place from this parcel due to its low tortoise densities and the low impact nature of Army activities associated with this area (USFWS 2004), and therefore will not be discussed further in this EA.

In order to proceed with the conversion of lands for military purposes, the DA must comply with the conservation measures and terms and conditions identified in the Fort Irwin Expansion EIS and associated Biological Opinion. On March 15, 2004, the United States Fish and Wildlife Service (USFWS) issued a Biological Opinion to the U.S. Army, Fort Irwin titled: *Biological Opinion for the Proposed Addition of Maneuver Training Lands at Fort Irwin, California (1-8-03-F-48)* (USWFS 2004, referred hereinafter as the Original Biological Opinion). The Original Biological Opinion analyzed the addition of 118,674 acres of maneuver training lands at Fort Irwin and its effects on the federally endangered Lane Mountain milk-vetch (*Astragalus jeagerinus*), the state and federally threatened desert tortoise (*Gopherus agassizii*), and to critical habitat of the desert tortoises. The Original Biological Opinion concluded with a "no jeopardy" determination on the proposed action with the understanding that several avoidance and minimization measures would be implemented by the Department of the Army (DA) to offset impacts to the listed species. The Army re-initiated consultation in 2009 to address "new information [which] reveals effects of the action which may affect listed species or critical habitat in a manner or extent not previously considered" (i.e., the anticipated extent of take has been revised upward) and also to include the BLM as a co-lead federal agency such that the BLM action of accepting desert tortoise onto BLM managed lands can be addressed in the Re-initiated Biological Opinion.

One of the Reasonable and Prudent Measures in the Original Biological Opinion included the translocation of desert tortoise from the SEA and WEA expansion areas to an area outside the Fort Irwin boundary such that take from military use of the expansion area would be minimized. Under the Proposed Action, the DA would translocate the desert tortoises in the SEA and WEA onto federal lands managed by BLM for desert tortoise conservation and DA lands purchased from Catellus Corporation as mitigation for the Fort Irwin Expansion. It was and remains anticipated that former Catellus lands

recently purchased by the DA as DT mitigation lands would be transferred to the BLM for long-term management, and that prior to transfer to the BLM, those lands would likewise be receiving translocated desert tortoises. By allowing this translocation of tortoises onto BLM lands, the BLM would facilitate the Army in their fulfillment of their obligations under the Original Biological Opinion.

To effect the translocation of desert tortoises from the SEA, the Army, working with the United States Geological Survey (USGS) and other agencies, prepared an initial translocation plan for the SEA (*Desert Tortoise Translocation Plan*, hereinafter referred to as the Original Translocation Plan). Implementation of the Original Translocation Plan began in June 2005. Between June 2005 and mid-2008, approximately 569 tortoises had been translocated from the SEA (U.S. Army 2009). Over 430 residents and control animals (animals which are residents of the SEA translocation receptor site) have been monitored in various studies during this time (Roy Averill-Murray, desert tortoise Recovery Coordinator, personal communication). To analyze localized predation of tortoises within the translocation study area, researchers used data on tortoises that were tracked via radio-telemetry beginning in late March 2008 and continuing through December 2008, resulting in records foe 149 control, 140 resident and 357 translocated tortoises. Animals that were removed from the translocation study as a result of disease were not included in the analyses. Animals that were lost either due to transmitter failure, difficulty in tracking, or undetected predation events were also excluded from analyses. 147 tortoises of those enumerated above died of various causes in 2008. Statistical analyses indicate that translocated, resident, and control tortoises all suffered similar levels of predation (Roy Averill-Murray, desert tortoise Recovery Coordinator, personal communication).

Implementation of the Original Translocation Plan was subsequently put on hold in 2008, pending resolution of litigation. The litigation has since been dismissed. The Army estimates that 89 animals remain to be translocated out of the SEA (U.S. Army 2009). The Army proposes to translocate these remaining animals to BLM managed lands within the in the SEA translocation receptor area using the protocols established in the Original Translocation Plan (with the exception that new disease protocols will be applied, see discussion below) in order to maintain the integrity of the research component of the Original Plan.

A 2008 review of the Original Translocation Plan has resulted in the development of a revised plan. In 2009, scientists from the USGS and University of Nevada-Reno, working in consultation with wildlife agencies, developed an amendment to the Original Translocation Plan describing modifications in animal release (animals released over a larger area, thus reducing release density), disease and health screening (modified protocols), and monitoring in response to the preliminary results from the SEA translocation efforts. This plan, titled *Amendment to Desert Tortoise Translocation Plan for Fort Irwin's Land Expansion Program at the U.S. Army National Training Centers (NTC) & Fort Irwin* (hereinafter referred to as the Amended Translocation Plan, Appendix A) was finalized on May 1, 2009.

The Amended Translocation Plan took a somewhat different approach from the Original Translocation Plan because:

1) there is not a need to maintain discrete groups of animals for research purposes in the new translocation area (WEA),

2) tortoises that are released in less dense aggregations will be less prone to predation, and

3) reduced release densities is likely to reduce density dependent disease transmission.

The translocation of desert tortoise under the Amended Translocation Plan would involve the an estimated 516 to 1,143 desert tortoises in the WEA according to the Biological Assessment for the Re-initiated Biological Opinion (U.S. Army 2009).

1.2 Purpose and Need for Action

The DA, Fort Irwin proposes to translocate remaining healthy desert tortoises (approximately 89 desert tortoise in the SEA and up to 1,143 tortoises in the WEA) onto lands managed by the BLM and lands procured by DA (lands which would ultimately be transferred to BLM for management) as mitigation for the military use of Fort Irwin expansion lands.

The action that is analyzed in this Environmental Assessment is the request by the DA to transfer desert tortoise from its lands onto lands managed by the BLM and former Catellus lands managed by the Army which ultimately will be transferred to BLM for long-term management.

The purpose of an action is the goal or objective that the agency is trying to achieve, and the outcome that the agency desires. The purpose of this Action is to provide protection of tranlocated desert tortoise by relocating them on BLM managed lands and lands which will ultimately be placed under BLM management.

The need for an action is based upon an underlying problem or opportunity to which an agency is responding. The need for this action is driven by the analysis found in the Environmental Impact Statement, *Army National Training Center, Addition of Maneuver Training Land, Fort Irwin, San Bernardino County, California* and its associated Biological Opinion that identified conservation measures and terms and conditions to allow military units, including ground and air elements, to train on and over lands in the SEA and WEA lands. These expansion lands were withdrawn for military training purposes by the *Fort Irwin Military Lands Withdrawal Act of 2001* (P.L. 107-107, Title XXXIX Section 2907 et seq. December 28, 2001). To facilitate the fulfillment of these conservation measures and terms and conditions, the DA has requested that BLM authorize the translocation of desert tortoises onto public lands, consistent with the public interest and its agency guidance.

1.3 Conformance with BLM Land Use Plan

The Proposed Action is in conformance with the Land Use Plan for the California Desert Conservation Area (CDCA) Plan, as amended, including the recent Western Mojave Bioregional Plan Amendment (WMP), adopted in 2006. While translocation of desert tortoises is not specifically addressed in the CDCA Plan, as amended, the Action identified in this document is not in conflict or inconsistent with the plan, and the translocation of listed desert tortoise into DWMA that had been adversely affected by multiple stress factors, including anthropogenic factors and disease and drought that swept through populations in the 1990's, promotes the goals and objectives of the WMP. The lands identified for potential translocation of desert tortoises were designated in the WMP as an Area of Critical Environmental Concern (the Superior-Cronese DWMA) for purposes of conservation and recovery of the listed desert tortoise. Goal 2 of the WMP is to establish an upward or stationary trend in tortoise population for at least 25 years, with a minimum average population density of 10 adult female tortoises per square mile within DWMA (WMP Final EIS, 2005, p. 2-4). The Army managed lands (i.e., the

former Catellus lands acquired for mitigation of the Fort Irwin expansion) that subsequently are transferred to BLM would be managed as DWMA, consistent with the WMP.

1.4 Relationship to Statutes, Regulations or Other Relevant Plans

The National Environmental Policy Act (NEPA) (42 United States Code 4321 *et seq.*), the Council on Environmental Quality regulations implementing NEPA (40 Code of Federal Regulations 1500-1508), and Department of Interior Regulations at 516 DM require consideration of environmental consequences of federal actions on public lands. The DA has requested that the BLM accept receipt of translocated desert tortoise on BLM managed lands. As such, BLM is analyzing the environmental consequences of the proposed action on its lands pursuant to NEPA and the Council on Environmental Quality regulations.

As part of the current proposal for translocation of tortoises outside of Fort Irwin, the Army has submitted a biological assessment to USFWS and BLM; in addition, the Army has reinitiated consultation with the USFWS. The BLM has initiated consultation regarding the transfer of tortoises onto BLM managed lands and this issue will be addressed in the Re-initiated Biological Opinion. This reinitiation addresses new information on the effects of the translocation of desert tortoises that may affect listed species or critical habitat in a manner or to an extent not considered in the Original Biological Opinion and addresses the transfer of tortoises onto BLM managed lands. Much of this information has been compiled from the preliminary results of the Original Translocation Plan. Any terms and conditions incorporated into this Re-initiated Biological Opinion will be incorporated into agency decisions.

The BLM Special Status Species/6840 Manual is a policy instrument detailing BLM management of special status species, which are comprised of those species listed or proposed for listing under the Federal Endangered Species Act together with species designated by BLM as BLM-sensitive species. The Manual identifies how Field Offices are to meet their responsibilities under the Federal Endangered Species Act and its implementing regulations, as well as how to go about designating and ensuring the conservation of BLM sensitive species on public lands. Also, BLM Manual 1745 outlines specific guidance on translocations which may take place on BLM lands. Specifically Manual 1745 outlines requirements for proposed Translocation Activity Plans and outlines NEPA requirements for proposed translocations. This EA is consistent with both the 6840 and 1745 manuals.

1.5 Major Issues Identified

The following potential major issues were identified during the preparation of this EA. These issues were identified through the analysis by USGS of the original translocation efforts from the SEA, through extensive review of the administrative draft Amended Translocation Plan (both by agency representatives and independent scientific review), and through the solicitation of public comments during the initial scoping of this EA.

- The potential of exposing healthy populations of tortoise in the translocation sites to disease by the translocation of disease infected tortoises from the expansion area.
- The potential of exposing healthy tortoise in the expansion area to disease by moving them to translocation sites with disease infected populations.
- The potential of exposing translocated tortoises to increased predation risk.

These issues will be discussed in detail below.

1.6 Decisions to be Made

The BLM Authorized Officer (AO) will make the following decision upon review of this Environmental Assessment (EA):

> Whether or not to authorize translocation of desert tortoises onto public lands managed by BLM, consistent with the Original and Amended Translocation Plans and associated Biological Opinions.

Chapter 2: PROPOSED ACTION AND ALTERNATIVES

This chapter discusses two alternatives, including the Proposed Action and the No Action Alternative. Under the No Action Alternative, it is assumed that conditions would not change from the current situation, that is, no tortoise translocation would occur to BLM managed public lands. The no-action alternative will serve as a baseline for impacts analysis. Several other alternatives have been considered and dismissed by BLM from further analysis. These are discussed at the end of the chapter.

2.1 Proposed Action – Translocation of Desert Tortoises onto BLM managed Lands and Army Owned Former Catellus Lands

The Proposed Action is to translocate all healthy desert tortoises from the Fort Irwin SEA and WEA to lands managed by BLM (or Army lands which would eventually be transferred to BLM management). Approximately 89 desert tortoises remaining in the SEA would be moved following the protocols in the Original Plan (except that new disease protocols would be implemented) whereas desert tortoises found in the WEA (approximately 516 to 1,143 tortoises) would be moved according to the Amended Translocation Plan protocols (US Army 2009). The translocated tortoises (and their habitat) would then be managed by the BLM consistent with current land management plans (i.e., the CDCA Plan, as amended by the West Mojave Plan).

2.1.1 Translocation Methodology

The Original Translocation Plan and the Amended Translocation Plan (Appendix A) outline in detail the protocols for the translocation of tortoises from the SEA and WEA. These protocols are briefly discussed in this section but the reader is directed to the plans in the appendices for details. All tortoises would be translocated using light vehicles or potentially by helicopter.

2.1.1.1 General Considerations

In developing the translocation methodology, several factors which may adversely affect tortoises were taken into consideration in terms of the timing of translocation efforts including: 1) drought and 2) predator prey base availability and food availability. The existing literature has documented similar survival/mortality levels for translocated and resident animals relative to drought/non-drought conditions (Roy Averill-Murray, desert tortoise Recovery Coordinator, personal communication). Also, the existing literature and data analysis from the initial SEA translocation document similar survival/mortality levels for translocated and residents relative to predation (Roy Averill-Murray, desert tortoise Recovery Coordinator, personal communication). Therefore, these two factors were considered as not being important when considering the timing of translocations by the developers of the translocation plan (Roy Averill-Murray, desert tortoise Recovery Coordinator, personal communication). Also, since there seems to be little connection between drought and non-drought conditions and mortality levels of translocated tortoises, the developers of the translocation plan considered food availability not a factor which needs be considered in the timing of translocation efforts (Roy Averill-Murray, desert tortoise Recovery Coordinator, personal communication).

2.1.1.2 SEA Protocol

The entire SEA has been surveyed for tortoise during previous translocation efforts. Approximately 89 animals are left in the SEA from the original translocation efforts (US Army 2009). They have been fitted with transmitters but have been left in place. All healthy animals would be moved in accordance to the protocols found in the Original Translocation Plan but diseased animals would be handled in accordance with the Amended Translocation Plan (see Section 2.1.4 below) protocols. These animals would be moved onto eight sections of BLM managed lands all of which are within the Superior-Cronese DWMA.

In particular, SEA animals would be translocated to the receptor sections identified in the Original Translocation Plan and distributed in accordance with the Original Plan protocols. Since the 89 remaining animals would be moved to eight sections, the result would be a translocation of about 11 animals per square mile (which is supplementary to the existing natural population densities). Recent density surveys for the Superior-Cronese DWMA estimate tortoise densities (U.S. Army 2009) to be 19 per square mile. Therefore, this translocation would result in the density increasing up to approximately 30 animals per square mile.

2.1.1.3 WEA Protocol

According to the Amended Translocation Plan, the WEA would be fenced with tortoise exclusion fencing prior to initiating the translocations to prevent tortoise from reentering the WEA after translocation. Then the WEA would be searched in its entirety (250 square kilometers or about 62,000 acres) using one-pass within one kilometer blocks by tortoise pedestrian survey teams. If more than four adult tortoises are found within any one square kilometer block, then the block would be surveyed a second time in its entirety. Upon locating each tortoise, basic biometric data would be taken – including blood samples for disease testing (see section 2.1.4 below). Each adult tortoise would be fitted with an external label and notched using the highly modified Honeggar System as outlined in the Amended Translocation Plan for individual identification and tracking.

All tortoises of sufficient size would be fitted with radio transmitters and all tortoises too small to receive transmitters would be transported to a temporary outdoor holding facility on the Fort Irwin base. Juvenile tortoises too small for transmitters would be kept in individual containers at an on-base holding facility while awaiting the results of blood tests (see Disease Management Section 2.1.4 below).

Apparently healthy adult animals (based on physical examination) would be released back to the point of capture (after being transmittered) and monitored at least monthly until blood tests confirm they are healthy and they are recaptured and moved to the translocation site. These animals would be monitored at least monthly. Apparently healthy juvenile animals (see Disease Management Section 2.1.4 below) from the on-base holding facility would also be moved to the translocation site after blood tests confirm they are likely disease free. Any animals showing clinical signs of disease would be removed from the field and held in a separate quarantine facility on Fort Irwin for further evaluation (see Disease Management Section 2.1.4 below). Only healthy tortoises would be translocated.

The Biological Assessment for the Re-initiated Biological Opinion (U.S. Army 2009) estimates there are from 516 to 1,143 tortoises present in the WEA. The Biological Assessment considers 240 one square

mile sections (198 sections on BLM managed lands, 42 sections on Army managed former Catellus lands) as potential receptor sites for the WEA animals. Of the 240 sections identified for potential translocation sites, only 205 have been determined suitable based on initial evaluations (see section 2.1.2 for a discussion on choosing acceptable translocation sites and limitations on receptor site suitability). Therefore, tortoises are anticipated to be transferred at a density of approximately 3-6 animals per square mile. Recent density surveys for the Superior-Cronese DWMA estimate tortoise densities (Phil Medica, personal communication) to be 19 per square mile. Therefore, this translocation would result in the density increasing to approximately 22 to 25 animals per square mile.

Measures would be implemented to reduce the potential of mortality during the translocation process. Translocation would only take place during the spring (i.e., March – early May) or fall (i.e., late September to early mid-October). Tortoises would not be released in the summer (i.e., June – August) or winter (i.e., late November through February) for any reason (USGS 2009). No desert tortoise would be captured, moved, transported, released, or purposefully caused to leave its burrow for whatever reason when ambient temperature is above 95 degrees Fahrenheit. No desert tortoise would be captured if the ambient air temperature is anticipated to exceed 95 degrees Fahrenheit before handling or processing can be completed.

Tortoises with radio transmitters that were attached during clearance surveys would be collected from the field site and transported in vehicles or helicopters to the translocation sites by biologists that have been approved by USFWS to handle tortoises, and released on the same day. Juvenile tortoises which were housed elsewhere after clearances would be translocated at this time as well. Other specific translocation protocols can be found in the Amended Translocation Plan. Also, the Amended Translocation Plan incorporates all Terms and Conditions associated with the Original Biological Opinion (and any future terms and conditions associated with the Re-initiated Biological Opinion) issued for this Proposed Action.

2.1.2 Locations for Translocation

The following sections discuss how the translocation sites were chosen.

2.1.2.1 Southern Expansion Area

Under the Original Plan 13 receptor sections were chosen for the animals being translocated from the SEA. However, all disease free animals in the SEA must now be moved to eight sections to maintain the integrity of the ongoing tortoise research project. Given that there are currently 89 healthy animals to be translocated from the SEA, it is anticipated that approximately 11 animals would be moved into each of the eight sections. All eight sections are on BLM managed lands within the Superior-Cronese DWMA.

2.1.2.2 Western Expansion Area

According to the Amended Translocation Plan, the area considered for prospective translocation covers 1,153.6 square kilometers southwest of the National Training Center at Fort Irwin (Figure 3), which is entirely within the Superior-Cronese DWMA. The potential translocation area was subdivided into approximately 240 one-square mile evaluation cells. Each cell was evaluated as to suitability to receive tortoises based on land ownership, habitat suitability, proximity to unfenced major roads and highways, proximity to urban areas, road density, tortoise die-off regions and presence of utility corridors. Specific rating criteria and methods can be found in the Amended Translocation Plan.

The Amended Plan used a Translocation Suitability model to evaluate each cell (a detailed discussion regarding the development of this model can be found in Appendix 4 of the Amended Translocation Plan). The areas selected for potential receptor sites included any cell with a weighted value of 0.5, which includes all green-shaded areas on Figure 2. Only lands managed by the Army or BLM would be used for translocation sites. According to discussions held between the Army and BLM, It is anticipated that Army lands used as receptor cites would ultimately be transferred to BLM management. Of the 240 evaluation cells, 205 have been evaluated as suitable using this modeling analysis.

In addition to evaluating the potential suitability of translocation sites using the model described above, the sites are being evaluated for the presence of disease in the local populations of tortoise. The detailed protocols for this disease evaluation are found in the Amended Translocation Plan. Preliminary tortoise health and disease surveys have been conducted in the proposed translocation area and additional work is ongoing. These data will be used in release site evaluation as they become available.

If sampling indicates that there are diseased tortoises within any potential translocation cell, this cell will be excluded from consideration for receiving any translocated tortoise. Additionally, a 5 kilometer buffer will be established around each of these diseased animals. Translocated tortoises would not be released within this 5 kilometer buffer. Tortoises from the WEA would only be translocated into cells which appear to be disease free based on these protocols. This may substantively reduce the number of cells available for translocation and require a commensurate increase in translocation densities to a smaller number of receptor cells.

2.1.3 Predator Management Issues

During the initial translocation efforts of tortoises from the Southern Expansion Area (SEA), predation on translocated tortoises was identified as a potential issue. Concern was raised when apparently high levels of predation were observed immediately prior to and subsequent to the initial translocation efforts from the SEA. However, analysis of the SEA data indicates that translocated tortoises were not preyed upon differently from resident tortoises or resident control animals that were at large in the area. According to the Amended Translocation Plan, additional data from more than ten sites representing sample populations of desert tortoise that were monitored in the same time period as the translocation illustrate that very high predation rates also occurred in wild populations of tortoise throughout the Mojave Desert. Therefore, it is generally concluded that the rates of predation associated with the initial SEA translocation was within natural levels (Esque *et al.*, unpublished data).

According to the Amended Translocation Plan, the literature indicates that predator control is unlikely to be successful for protection of desert tortoises in relation to this particular project. Additionally, the USFWS Desert Tortoise Recovery Office Science Advisory Committee recommended that large-scale predator control is not a valid management action, based on the lack of evidence of its effectiveness (USGS 2009). Therefore, no predator management is considered under this Proposed Action. Predation effects are a component of project monitoring, and additional strategies may be developed if unusual levels of predation occur in the future.

2.1.4 Disease Management

The goal of the translocation project is to translocate healthy tortoises that have a high potential to establish themselves at new sites. Tortoises that are debilitated from disease or previous traumas are considered unsuitable for translocation. The transmission of disease during the translocation efforts has been recognized as a potential problem. The Amended Translocation Plan addresses this issue in great detail. The measures designed to reduce the threat of disease transmission are only briefly outlined here but are discussed in detail in the Amended Translocation Plan Appendix 3. These measures would be applied to both the SEA and WEA animals.

Upon capture, tortoises will be inspected for clinical signs for Upper Respiratory Tract Disease (URTD), signs of herpesvirus infection (lesions in the mouth), and signs of other debilitating diseases. Animals observed with clinical signs of acute infection will be removed from the field and placed in a quarantine facility within the boundaries of Fort Irwin. Adults not showing clinical signs of infection shall be replaced into the field after a blood sample has been taken (and being transmittered for later retrieval). Juveniles (which cannot be transmittered) not showing clinical signs of infection shall be moved to a temporary holding facility pending translocation. If blood tests come back negative, the animal will be considered disease free and shall be translocated to the receptor site. If the blood tests come back positive, the animals be removed from the field (or the temporary holding facility in the case of juveniles) and placed in a quarantine facility. Animals in quarantine will be retested at 6-week intervals. If they still are seropositive, remain in quarantine, but if they are found seronegative, be released back into the WEA (not the translocation areas) after translocation efforts are completed. Tortoises may be maintained in quarantine up to six months, at which point a decision must be made to include them in a research program, incorporate them into a headstart or breeding program, or return them to the WEA after all healthy animals have been translocated.

The potential release locations for animals returned to the WEA would take into consideration their original home range, low-intensity military training zones, other appropriate habitat, as well as proximity to roads and property boundaries. Tortoises returned to the WEA may be important for future research. According to the Amended Translocation Plan, tortoises found in the WEA after translocation has been completed and during future Army training activities would be removed from immediate danger and remain in the WEA.

The Amended Protocols recognize there are limitations to this approach including: 1) a lack of tests for all identified diseases, 2) limited ability of tests to detect infected individuals, and 3) the possibility that an individual may be exposed to disease after collecting blood samples (since they are released back into the field pending translocation). However, these protocols would minimize the translocation of diseased individuals.

2.1.5 Monitoring Strategy

According to the Amended Translocation Plan, researchers plan to sample and monitor approximately 20% of the translocated tortoises over the next five years. These animals would be monitored bi-weekly for the first year and monthly thereafter. The monitoring program would include basic assessments of survival of the affected and control populations, fundamental measurements of tortoise movement and behavior, testing of basic and experimental health physiology profiles, and development of new tools for

tortoise conservation. Basic health profiles for known tortoise diseases would be collected from monitored animals annually, at a minimum.

The monitoring will encompass three populations: 1) translocatees, 2) residents, and 3) resident control animals. It is anticipated that approximately 660 tortoises would be in the monitoring program. Although monitoring the population with controls is costly, it has also proved to be one of the most important tools for understanding the potential effects of translocation versus other factors that can affect tortoise populations. With this in mind, additional hypothesis-driven monitoring in the translocation area would be pursued when logistically and fiscally feasible.

2.2 Alternative A – Translocate Tortoises to BLM Managed Lands, Army Owned Former Catellus Lands, and Wilderness Study Areas (WSA)

Under Alternative A, the translocation would take place as in the Proposed Action with the exception that Wilderness Study Areas would also be used as potential receptor sites for the SEA animals. Wilderness Study Areas are BLM managed lands which are being considered for wilderness designation. These lands are managed with stringent guidelines which are designed to maintain "wilderness qualities" of the lands while this deliberation is being carried out. The WEA translocation receptor site would remain the same as in the Proposed Action. There are approximately 65 square miles of WSA within the SEA translocation receptor site (there are no WSAs within the translocation receptor area for the WEA identified in the Proposed Action). For the purposes of the analysis in this EA, it is assumed that all of these lands would be available for receiving translocated animals, thought it is likely that some locations would be deemed unacceptable for translocation (see section 2.1.2 for a discussion on choosing acceptable translocation sites and limitations on receptor site suitability). The Biological Assessment for the Re-initiated Biological Opinion (U.S. Army 2009) estimates that there are 89 tortoises which remain in the SEA to be translocated. If the 89 remaining animals were translocated to these lands and the 8 square miles identified in the Proposed Action (for a total of 73 square miles), the animals would be moved at a density of about 1 animal per square mile. Recent density surveys for the Superior-Cronese DWMA estimate tortoise densities (U.S. Army 2009) to be 19 per square mile. Therefore, this translocation would result in the density increasing up to approximately 20 animals per square mile. This Alternative was fully analyzed as an option to reduce the density of translocations into the SEA receptor area and to provide an "expanded BLM" option.

2.3 Alternative B – Translocate Tortoises to Army Owned Former Catellus Lands and State Lands

Under Alternative B, the translocation would take place as in the Proposed Action with the exception that only Army Owned Former Catellus Lands and State Lands would be used for potential WEA translocation receptor sites. There are 42 square miles of Army owned former Catellus lands within the WEA translocation receptor area as delineated in the Proposed Action. There are also approximately 12 square miles of State managed lands within the WEA translocation receptor area as delineated in the Proposed Action. Therefore, there would be a total of 54 square miles of land available for receiving translocated animals under Alternative B. Some of this land may be considered unsuitable based on modeling and disease reduction protocols (see section 2.1.2 for a discussion on choosing acceptable translocation sites and limitations on receptor site suitability) but for the purposes of analysis in this EA it is assumed that all of these areas would be deemed suitable for translocation. The Biological Assessment

for the Re-initiated Biological Opinion (U.S. Army 2009) estimates there are from 516 to 1,143 tortoises present in the WEA and 89 animals left to be translocated from the SEA. Therefore, from 605 to 1,232 animals need to be translocated. If these animals were translocated evenly across the 54 square miles, the animals would be translocated at a density of approximately 11 to 23 animals per square mile. Recent density surveys for the Superior-Cronese DWMA estimate tortoise densities (U.S. Army 2009) to be 19 per square mile. Therefore, this translocation would result in the density increasing up to approximately 30 to 42 animals per square mile. This Alternative was fully analyzed as an option which would allow tortoises to be translocated without the need to utilize BLM managed lands (i.e., a "no BLM" alternative).

2.4 No Action Alternative - Do Not Move Tortoise onto BLM Managed Land

Under this alternative, the translocation effort would not take place on BLM managed lands and no military activities would take place. For the purposes of analysis, it is assumed that conditions on BLM managed lands would not change from the current baseline conditions. That is, densities of desert tortoise would not change on BLM managed lands and therefore, potential changes disease and predation levels would not change from current conditions.

2.5 Alternatives Considered and Dismissed

The following Alternatives were considered but dismissed for the reasons identified, and will not be further discussed in this EA:

1. Include an alternative that only implements the SEA translocations, but not the WEA translocations. Under this alternative only the 89 tortoises remaining in the SEA would be translocated to BLM managed lands within the SEA receptor area as defined in the Original Translocation Plan; animals in the WEA would not be translocated onto BLM managed lands. As such, the Army could not conduct enhanced training within the WEA under the Original (or Re-initiated) Biological Opinion. This was rejected for it does not substantially meet the objective of the purpose and need.

Chapter 3: AFFECTED ENVIRONMENT

3.1 General Setting

This chapter addresses, by affected resource, the potentially affected environment for 16 resource elements. If a resource value or use is not present or not affected, a statement is to that effect is included in the following section. The eliminated resource element will not be further addressed in this EA

3.1.1 Statutory Requirements

The following elements of the human environment are subject to requirements specified in statute, regulation, or executive order and must be considered in all EA's and EIS's. If the resource or value is not present or is not affected by the proposed action or alternatives, this may be documented in the EA or EIS as a negative statement.

Table 1- Elements of the Human Environment

Element	Relevant Authority	Potentially Affected
Adverse Energy Impacts	E.O. 13211, as amended, 5/22/01 Energy Policy Act of 2005 (42 USC 13201)	No – not pertinent to non-energy projects.
Air and Atmospheric Values	The Clean Air Act as amended (42 USC 7401 et seq.); MS 7000 DOI Secretarial Order 3226 Amendment 1 (2009)	Yes
Areas of Critical Environmental Concern or other Special Areas	Federal Land Policy and Management Act of 1976 (43 USC 1701 *et seq.*): MS 1617	Yes - the entire project is located within the Superior-Cronese DWMA, an ACEC for Desert Tortoise, and portions are within two ACECs for the Lane Mountain milk-vetch. No other special areas would be affected by the proposed action.
Cultural Resources	National Historic Preservation Act as amended (16 USC 470): MS 8100	No – minor use of open routes with light vehicles will not adversely affect cultural resources. Areas used for other ground-disturbing activities such as the potential utilization off-road vehicle travel or landing of helicopters will be surveyed and

		all cultural resources will be avoided.
Environmental Justice	E.O. 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, 2/11/94	No – all access is on federal lands away from populated areas, no disproportionately high/adverse effects on minority or low-income populations.
Farm Lands (prime or unique)	Farmland Protection Policy Act (FPPA) (PL 97-98; 7 USC 4201 *et seq.*)	No – not present in the potentially affected area.
Floodplains	E.O. 11988, as amended, Floodplain Management, 5/24/77; MS 7260	No – not present in the potentially affected area.
Invasive, Nonnative Species	Federal Noxious Weed Act of 1974, as amended Endangered Species Act of 1973, as amended E.O. 13112, Invasive Species, 2/3/99; MS 1745 MS 6840 MS 9011 MS 9014 MS 9015	No –minor use of open routes with light vehicles will not result in increased potential for invasive species because of standard BMPs, listed in the mitigation section, and shall be applied.
Migratory Birds	Executive Order 13186, 1/10/01	No – not affected by the proposed action.
Native American Religious Concerns	American Indian Religious Freedom Act of 1978 (42 USC 1996); MS 8100	No – no resources associated with Native American Religious Concerns would be affected by the proposed action or alternatives.
Threatened or Endangered Species	Endangered Species Act of 1973, as amended; MS 6840	Yes
Wastes, Hazardous or Solid	Resource Conservation and Recovery Act of 1976 (42 USC 6901 et seq.) Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended (42 USC 9615); MS 9180 MS 9183	Yes

Water Quality Drinking/Ground	Clean Water Act of 1987 Safe Drinking Water Act Amendments of 1996 E.O. 12088, Federal Compliance with Pollution Control Standards (Amended by E.O. 12580, Superfund Implementation), 10/13/78, 2/23/87 E.O. 12372, Intergovernmental Review of Federal Programs, 7/14/82; MS 7240	No - not affected by the proposed action.
Wetlands/Riparian Zones	E.O. l1990, Protection of Wetlands, 5/24/77; MS 1737	No – not affected by the proposed action.
Wild and Scenic Rivers	Wild and Scenic Rivers Act as amended (16 USC 1271); MS 8351	No – not present in potentially affected area.
Wilderness	Federal Land Policy and Management Act of 1976 (43 USC 1701 *et seq.*) Wilderness Act of 1964 (16 USC 1131 *et seq.*); MS 8500	No – under the proposed action translocation would not take place in wilderness.

3.2 Affected Resources

The following four elements of the human environment have been identified as potentially affected by the proposed action or its alternatives: air and atmospheric values; areas of critical environmental concern; threatened, endangered, and special status species; and hazardous or solid wastes. Other resource values and uses, including recreational activities, public access, and public safety, would not be affected by translocation activities. Each of the four potentially affected resource values is described in the context of the proposed activities and area of potential effect, in the sections that follow.

3.2.1 Air and Atmospheric Values

The following section discusses the affected resources of air quality, climate and meteorology, and climate change.

3.2.1.1 Air Quality

The project area is part of the Mojave Desert Air Basin. On most days, air quality is good to fair. There are, however, times that the area does not meet air quality standards due to locally generated and/or wind transported pollutants. Windblown air pollutants from the South Coast Air Basin, which includes Orange County and non-desert portions of Los Angeles, Riverside, and San Bernardino counties, strongly influence the air quality of the Mojave Desert Air Basin. The vicinity in which the Proposed Action is

located is currently classified as a State Non-attainment Area for ozone and a Federal and State Non-attainment Area for PM-10 (particulate matter under 10 microns in size, a portion of which is comprised of fugitive dust) under national and state standards.

The pollutant emissions from sources, climatic conditions, and atmospheric interactions determine the quality of air. Under the Clean Air Act, the air quality in a given location is described by the concentration of various pollutants in the atmosphere. An area is designated by the Environmental Protection Agency as being in non-attainment for a pollutant if ambient concentrations of that pollutant are above the National Air Quality Standards (NAAQS).

Non-attainment areas are designated if repeated violations of the NAAQS occur, and the relative seriousness of the problem is determined at the time a basin is determined to be in non-attainment of national standards. The California Clean Air Act of 1988 also requires that areas of California be designated attainment, non-attainment, and unclassified for state ambient air quality standards.

Sources for ozone missions include exhaust from primary transportation vehicles (particularly diesel trucks) industrial sources, including secondary sources, and climatic sources. Casual driving activities do not contribute measurably to ozone emissions, but some military activities do.

Primary sources for emissions of particulate matter under 10 microns, PM^{10}, in the project area are military uses within the Fort Irwin National Training Center, wind erosion on unpaved surfaces including disturbed areas, construction activities, mining-related activities, use of unpaved routes, and dirt storage piles. During most days of the year, visibility exceeds 25 miles in the areas identified for desert tortoise translocations. Exceptions occur during strong westerly winds when dust is blowing and when smog filters up from the Los Angeles Basin.

The only major single source of pollutant emissions in the project area is Fort Irwin, during training exercises. If the expansion areas are opened to military use, it is reasonably foreseeable that emissions will be similar to elsewhere on the base when land-based training occurs. Generally, locally generated PM^{10} pollution is somewhat greater in disturbed areas and where densities route and increased unpaved route use is higher. Outside of the Fort Irwin boundary in the area of potential effect (the Superior-Cronese DWMA) disturbed areas are small and limited in number, route densities are not high, and the major unpaved routes in the area are limited in number. A few small to medium mining operations, a few dry lakebeds, a couple of major unpaved access roads, and a major power corridor are the primary sources of erosion of soils in this DWMA that may affect air quality, depending upon wind and other climatic conditions.

3.2.1.2 Climate and Meteorology

As mentioned above, the translocation receptor sites all are within the Superior-Cronese DWMA. This DWMA is within the Western Mojave Recovery Unit described in the *Draft Revised Recovery Plan for the Mojave Population of the Desert Tortoise (*Gopherus agassizii*)* (USFWS 2008). The Western Mojave Recovery Unit is exceptionally diverse and large with distinct climatic and vegetation characteristics in its western, central, and southern regions. The most pronounced difference between the Western Mojave Recovery Unit and the other recovery units is in the timing of rainfall and the resulting vegetation. Most

of the rainfall in the Western Mojave Recovery Unit occurs in fall and winter, and produces winter annuals (USFWS 2004) and strong perennial growth that is manifest in winter and early spring.

3.2.1.3 Climate Change

The temperature of the planet's atmosphere is regulated by a balance of radiation received from the sun and the amount of that radiation absorbed by the earth and atmosphere. Greenhouse gases (e.g., carbon dioxide, nitrous oxide, and methane) as well as water vapor and particulate matter in the atmosphere keep the planet's temperature warmer than it would be otherwise; allowing the planet to sustain life. While these gases and particles have occurred naturally for millennia, there has been a marked increase in their atmospheric concentration since the start of the industrial age, contributing to observed climatic variability beyond historic norm (BLM 2009).

There is substantial scientific evidence that increased atmospheric concentrations of greenhouse gases (GHG) as well as land-use changes are contributing to an increase in average global temperature (global warming). This warming is associated with climatic variability that exceeds the historic norm (climate change). Though the average global temperature has increased by 1.8 degrees F from 1890-2006, temperature change and climatic variability are not evenly distributed across the globe. Observed temperature increases in northern latitudes have been greater than those in other areas, and seasonal low temperatures are generally increasing faster than high temperatures. Other unevenly distributed effects of climate change include altered weather patterns, sea levels, precipitation rates, wildfire occurrences, seasonal timing, desert distribution, and plant and animal distribution.

Ongoing scientific research has identified the potential impacts of anthropogenic (man-made) GHG emissions and changes in biological carbon sequestration due to land management activities on global climate. Through complex interactions on a regional and global scale, GHG emissions and net losses of biological carbon sinks may cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused carbon dioxide equivalent concentrations to increase dramatically, and are likely to contribute to overall global climate changes. The Intergovernmental Panel on Climate Change recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to observed increase in anthropogenic greenhouse gas concentrations" (BLM 2009).

Global mean surface temperature have increased by nearly 1.8 degrees F from 1820 to 2009. Models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Northern latitudes (above 24 degrees north) have exhibited temperature increases of nearly 2.1 degrees F, with nearly a 1.8 degree F increase since 1970 alone. Without additional mineralogical monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHG are likely to accelerate the rate of climate change (BLM 2009).

In 2001, the IPCC indicated that by the year 2100, global average surface temperatures would increase 2.5 to 10.4°F above 1990 levels. The National Academy of Sciences has confirmed these findings, but also has indicated there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are

likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. Increases in temperatures would increase water vapor in the atmosphere, and reduce soil moisture, increasing generalized drought conditions, while at the same time enhancing heavy storm events.

Although large-scale spatial shifts in precipitation distribution may occur, these changes are more uncertain and difficult to predict. "As with any field of scientific study, there are uncertainties associated with the science of climate change. This does not imply that scientists do not have confidence in many aspects of climate change science. Some aspects of the science are known with virtual certainty, because they are based on well-known physical laws and documents trends. "Several activities contribute to the phenomena of climate change, including emissions of GHG (especially carbon dioxide and methane) from fossil fuel development, large wildfires and activities using combustion engines; changes to the natural carbon cycle; and changes to radiative forces and reflectivity. It is important to note that GHG will have a sustained climatic impact over different temporal scales. For example, recent emissions of carbon dioxide can influence climate for 100 years.

3.2.2 Areas of Critical Environmental Concern

The proposed translocation receptor sites all reside within the Superior-Cronese Desert Wildlife Management Area (DWMA), an Area of Critical Environmental Concern (ACEC) managed for the conservation and recovery of the federally- and State-listed desert tortoise. The management plan for this ACEC is set forth within Chapter Two of the West Mojave Plan (BLM 2005). This ACEC plan implements specific controls over uses such as OHV, grazing, commercial activities, and other ground disturbances in order to move towards achieving the following goals over the life of the plan:

Goal 1: sufficient habitat is provided to ensure long-term tortoise population viability.

Goal 2: an upward or stationary trend the tortoise population occurs for at least 25 years,

Goal 3: genetic connectivity among tortoise populations is obtained, both within the West Mojave Recovery Unit, and between this and other recovery units,

Goal 4: reduce tortoise mortality.

If progress towards these goals is being made, the importance and relevance criteria for this ACEC to conserve and recover the desert tortoise will be met. Activities that would adversely affect the ability of the BLM to pursue these goals would adversely affect its importance and relevance as an ACEC.

Two other ACECs overlap potential translocation sites - the West Paradise ACEC and the Coolgardie Mesa ACEC, both of which were designated in the West Mojave Plan (BLM 2005) for the protection of remaining populations of federally endangered Lane Mountain milk-vetch. These ACEC plans provide specific limitations to or avoidance of ground disturbances in order to move towards achieving the goal of protecting viable unfragmented habitat throughout the limited range of the species.

If progress towards this goal is being made, the importance and relevance criteria of these ACECs to conserve remaining populations of Lane Mountain milk-vetch will be met. Activities that would adversely affect the ability of the BLM to pursue this goal would adversely affect the importance and relevance as ACECs.

3.2.3 Threatened or Endangered Species

The Superior-Cronese Desert Wildlife Management Area (DWMA) serves as habitat for many species. This is an area known to be good habitat for the desert tortoise and contains a high population of this species. The Original Biological Opinion (USFWS 2004) for the original translocation efforts contains a detailed description of the status of this species (pages 16-21) and its habitat and is incorporated herein by reference.

While desert tortoise may be active at any time of the year, they are most active primarily in the spring so they can consume plants that germinate in response to winter rains (USFWS 2004). Translocation activities would be timed to occur when desert tortoises are most active.

The Lane Mountain milk-vetch was listed as endangered on October 6, 1998 (63 *Federal Register* 53596) because of threats related to habitat destruction from dry wash gold mining, other mining activities (materials lease mining), rock and mineral collecting, off-highway vehicle activity, and from a potential increase in fire frequency and associated fire suppression activities. The expansion of Fort Irwin was also identified as a potential threat. Plants of this species typically grow under and are entangled within the canopy of low shrubs. Few plants have been observed in the open. The Original Biological Opinion (USFWS 2004) contains a detailed description of the status of this species (pages 30-31) and this status is incorporated herein by reference.

There are four occurrences of Lane Mountain milk-vetch within the WEA translocation receptor area. The four occurrences of the Lane Mountain milk-vetch are arrayed more or less linearly along a 20-mile-long (32 km) axis that trends in a northeasterly-to-southwesterly direction. The southwestern end of the range lies on the northeastern slopes of the Mud Hills; from the Mud Hills, occurrences extend generally to the northeast, across the lower slopes of Lane Mountain and the northern portion of the Paradise Range, ending in unnamed hills in the southern portion of the Goldstone Deep Space Communications Complex. The NASA Goldstone occurrence is located on lands managed by the National Aeronautics and Space Administration and the Department of the Army within the boundaries of Fort Irwin; it is located to the east of the Superior Valley parcel. The Brinkman Wash-Montana Mine occurrence is located within the boundaries of Fort Irwin to the southwest of the NASA Goldstone occurrence. Most of the Paradise Valley occurrence is located within the boundaries of Fort Irwin to the west and southwest of the Brinkman Wash-Montana Mine occurrence; the remaining portions of the occurrence are located on lands managed by the BLM. The Coolgardie Mesa occurrence is located primarily on lands managed by the BLM to the southwest of the Paradise Valley occurrence. The habitat of this species that remains on public lands is managed by the BLM as Class L; most of this habitat is within the Coolgardie Mesa occurrence. Lands within Class L include areas that are managed to provide for lower density, carefully controlled multiple uses of resources while ensuring that sensitive values are not significantly diminished. The BLM and USFWS have completed consultation, under the authorities of section 7(a)(2) of the Endangered Species Act, on the West Mojave Plan. As part of this plan, the BLM has committed to

withdraw Lane Mountain milk-vetch habitat from mineral entry (subject to valid existing rights), minimize routes of travel for vehicles, and install fencing, if necessary, to protect the Lane Mountain milk-vetch; these areas are also included in the Superior-Cronese DWMA.

3.2.4 Wastes, Hazardous or Solid

No hazardous materials sites have been identified along the proposed routes of travel associated with the translocation project. The routes of travel (i.e., routes designated as Open by the BLM) within the Proposed Action area currently used by vehicle traffic, and therefore, may contain motor oil, hydraulic fluid, anti-freeze, battery acid, and other vehicle fluids that do not readily dissipate. These same fluids would be used by vehicles conducting survey and translocation activities. No refueling or maintenance areas are proposed for the translocation receptor areas. Existing designated areas on or off-base would be used to maintain and refuel equipment and vehicles.

Illegal dumping sites may potentially exist that contain solid waste, however, no sites are currently known. No solid waste would be generated on-site in conjunction with translocation activities. Any materials brought to translocation or fencing sites would be retrieved from those sites upon departing. No portable sanitary facilities are proposed in conjunction with these activities.

Chapter 4: ENVIRONMENTAL CONSEQUENCES

The following sections summarize the direct and indirect effects of the Proposed Action and the No Action Alternative on the four resource values potentially affected. Residual impacts (those remaining after mitigation, if identified) and cumulative effects are also discussed.

4.1 Air and Atmospheric Values

This section analyzes the potential effects of the Proposed Action and No Action alternative on air quality and atmospheric values.

4.1.1 Air Quality

This section analyzes the potential effects of the Proposed Action; Alternatives A and B; and the No Action alternative on air quality.

4.1.1.1 Impacts of the Proposed Action

The Mojave Desert Air Quality Management District (MDAQMD) has State air quality jurisdiction over San Bernardino County, and the MDAQMD has been delegated authority to implement the Clean Air Act from the EPA. MDAQMD has analyzed impacts from existing sources for PM^{10}, and prepared a state implementation plan (SIP) for the Mojave Desert planning area which identifies sources of emissions and control measures to manage existing emissions and reduce new emissions (MDAQMD 1995). In the SIP, Miscellaneous Area Sources were considered to be a minor category of PM^{10} emissions in the planning area, generating 1.3% of total emissions in 1990.

The Proposed Action involves travel on dirt roadways and cross-country pedestrian travel creating dust and vehicle emissions. The roads authorized for use (BLM Designated Open routes) are currently used by government agencies, private companies, and the public. The uses of these designated routes all create dust and result in vehicle emissions. The designated tortoise translocation biologists would be using an approximate ten to thirty vehicles a day. There would also be the potential for limited use of helicopters in the more remote areas. When the translocation is complete, biologists would continue to use the routes for research and monitoring activities, however, use of the routes for research and monitoring purposes is not anticipated to exceed once a day on any particular route.

Due to the current use of the roads and existing wind-related emissions, the small increase in vehicle-use proposed by this project is not expected to exceed *de minimus* levels or otherwise significantly increase dust or emissions. Conformity analyses (CA) on activities with a similar scope of disturbance in the West Mojave have resulted in PM10 emission of less than 1-5 tons per year (i.e., CA for route restoration activities in West Mojave subregions), and much smaller amounts generated in any 24-hour period.

Regional exceedances of PM^{10} standards have decreased approximately 10% (EPA 2003) due to voluntary and SIP measures to decrease emissions from substantial sources. Therefore, there would be no substantial affect to air quality from the proposed action. Therefore, this action is in conformance with existing applicable state implementation plans (SIP) for the maintenance and improvement of air quality and will not cause or contribute to any new or increased violations of any air quality standards in the area, and is not regionally significant. Activities associated with the Proposed Action are exempted from

reasonably available control measures (RACM) consistent with the SIP, due to their nominal (less than 15 tons/year) contributions to air quality in the Mojave Desert planning area (BLM 1997).

Indirect air quality impacts may result from the initiation of military use on the expansion lands, a reasonably foreseeable activity after translocation of desert tortoises from the SEA and WEA. These impacts were addressed in the EIS for expansion of the base, from which this EA tiers. Military use of expansion lands would be subject to separate analysis, consultation and coordination with MDAQMD, and appropriate RACM would be adopted, consistent with the EIS and agreements between the DA and the MDAQMD.

4.1.1.2 Impacts of Alternative A

Under Alternative A, the impacts to Air Quality would be similar to those of the Proposed Action. The translocation of tortoises from the WEA would take place as in the Proposed Action; therefore, the effects to Air Quality would be the same as in the Proposed Action. However, the SEA receptor area would increase from 8 square miles under the Proposed Action to approximately 73 square miles under Alternative A. Given that the area would be increased, it is anticipated that there would be more vehicle travel (in terms of miles traveled) under Alternative A relative to the Proposed Action. This would slightly increase the levels of impacts, as outlined in the Proposed Action. However, this would be a negligible increase. Due to the current use of the roads and existing wind-related emissions, the small increase in vehicle-use proposed by this project is not expected to exceed *de minimus* levels or otherwise significantly increase dust or emissions.

4.1.1.3 Impacts of Alternative B

Under Alternative B, the impacts to Air Quality would be reduced as compared to those of the Proposed Action. Translocation would not take place to receptor sites within the SEA receptor area as delineated in the Proposed Action. Also, the potential WEA receptor area would be reduced from the current 205 square miles which have been found as potentially suitable receptor sites under the Proposed Action to only 54 square miles. Given that the area would be greatly decreased, it is anticipated that there would be a reduction in the amount of vehicle travel necessary for the translocation effort and future monitoring. Therefore, there is anticipated to a decrease in the impacts to Air Quality under Alternative B.

4.1.1.4 Impacts of the No Action Alternative

The No Action Alternative would not change current levels of PM10 or other emissions that affect air quality on public lands. Continued dust emissions would occur because of casual use on open routes and wind-related emissions on all routes. As with the proposed action, regional exceedances of PM^{10} standards have decreased approximately 10% (EPA 2003) due to voluntary and SIP measures to decrease emissions from substantial sources. Therefore, no substantial affect to air quality is anticipated as a result of the No Action alternative.

4.1.2 Climate Change

This section analyzes the potential effects of the Proposed Action; Alternatives A and B; and the No Action alternative on climate change. As appropriate, this EA describes how reasonably foreseeable activities under each alternative may affect climate change. In most cases, there is more information

about potential or projected effects of global climate change on other resources and some of the likely causes, than on effects of other activities to climate change. The effects that a changing climate may have on the resources in the translocation area, and in particular on desert tortoises, are described under the Threatened and Endangered Species analysis.

4.1.2.1 Impacts of the Proposed Action

Climate change analyses are comprised of several factors, including greenhouse gases, land use management practices, the effect of changes to radiative forces and reflectivity, etc. The tools necessary to quantify climatic impacts are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined. Additionally, specific levels of significance have not yet been established. Therefore, climate change analysis for the purposes of this document is limited to accounting and disclosing of factors that contribute to climate change (BLM 2009).

The implementation of the translocation plan as outlined in the Proposed Action alternative would entail the use of a small number of vehicles and potentially the use of helicopters for the capture and transportation of tortoises and for the long-term monitoring of translocated animals. The burning of fossil fuels by these vehicles would produce greenhouse gases (GHG) such as carbon dioxide, but do not affect land-use management practices related to climate change or radiative forces and reflectivity.

Some of the GHG associated with translocation activities would be naturally sequestered, while the balance of those emissions would accumulate with GHG concentrations in the atmosphere. This in turn would contribute to further manifestations of climate change. Relative to regional, national and global emissions, the emissions associated with these activities would be infinitesimally small. Relative to other APE emissions, they are also small. Therefore, the direct contributions of GHG associated with the Proposed Action are not considered significant, either on a regional or national scale, and are also minor at the local level. Mitigation measures have not been proposed to address GHG beyond the BMP that federal agencies have adopted as standard business practices to minimize their carbon footprint.

Indirect GHG impacts may result from the initiation of military use on the expansion lands, a reasonably foreseeable activity after translocation of desert tortoise has occurred. Strategies to address GHG impacts, to the extent not covered in the EIS from which this document tiers, would be addressed consultation and coordination with MDAQMD, and any appropriate mitigation measures would be adopted at that time.

4.1.2.2 Impacts of Alternative A

Under Alternative A, the impacts to Climate Change would be similar to those of the Proposed Action. The translocation of tortoises from the WEA would take place as in the Proposed Action; therefore, the effects to Climate Change would be the same as in the Proposed Action. However, the SEA receptor area would increase from 8 square miles under the Proposed Action to approximately 73 square miles under Alternative A. Given that the area would be increased, it is anticipated that there would be more vehicle travel (in terms of miles traveled) under Alternative A relative to the Proposed Action. This would slightly increase the levels of impacts, as outlined in the Proposed Action. However, this would be a negligible increase when compared to regional and national levels of green house emissions.

4.1.2.3 Impacts of Alternative B

Under Alternative B, the impacts to Climate Change would be reduced as compared to those of the Proposed Action. Translocation would not take place to receptor sites within the SEA receptor area as delineated in the Proposed Action. Also, the potential WEA receptor area would be reduced from the current 205 square miles which have been found as potentially suitable receptor sites under the Proposed Action to only 54 square miles. Given that the area would be greatly decreased, it is anticipated that there would be a reduction in the amount of vehicle travel necessary for the translocation effort and future monitoring. Therefore, there is anticipated to a decrease in the impacts to Climate Change under Alternative B. However, this would be a negligible decrease when compared to regional and national levels of green house emissions.

4.1.2.4 Impacts of the No Action Alternative

Under the No Action Alternative, no translocation of desert tortoise would occur. Since the Original Biological Opinion and the Re-initiated Biological Opinion predicate expanded military training on having the tortoises in the WEA and SEA translocated off of these lands, the expanded military training is assumed not to be reasonably foreseeable at this time within the expansion areas. Therefore, no adverse affects to climate change, either direct or indirect, are anticipated if the no action alternative is adopted.

4.2 Areas of Critical Environmental Concern (ACEC)

This section analyzes the potential effects of the Proposed Action; Alternatives A and B; and the No Action alternative on ACECs. As appropriate, this EA describes how reasonably foreseeable activities under each alternative may affect ACECs.

4.2.1 Impacts of the Proposed Action

The proposed translocation action may have both beneficial and adverse impacts on the Superior-Cronese DWMA. This project is unlikely to affect habitat quality and availability or genetic connectivity with other populations. The translocations may have impacts to desert tortoise mortality from take of the translocated tortoises, which would not adversely affect existing populations, and which therefore would not adversely affect the overall goal of the ACEC. The impact of take on existing populations from disease has been minimized by implementation of the protocols in the Amended Translocation Plan. These protocols will be applied to all translocated tortoises. These impacts are discussed under Threatened and Endangered Species. The translocation project may have a positive long-term effect on the upward or stationary trend of desert tortoise within the DWMA by increasing the available pool of healthy adult females of reproductive age. Overall, the proposed project would not adversely affect the importance and relevance of the Superior-Cronese DWMA as an ACEC.

The proposed translocation action may have adverse impacts on the West Paradise ACEC and the Coolgardie Mesa ACEC. These ACEC plans specifically propose to avoid ground disturbances that may impact plant populations within the ACEC towards achieving the goal of protecting viable unfragmented habitat throughout the limited range of the species. Pedestrian use of these ACECs for translocation of animals may adversely affect these very limited populations. A mitigation measure for botanical survey prior to translocation within these ACECs is proposed to avoid take, consistent with the West Mojave

Plan. With implementation of this measure, the proposed project would not adversely affect the importance and relevance of either of these two Lane Mountain milk-vetch ACECs.

4.2.2 Impacts of Alternative A

Under Alternative A, the impacts to ACECs would be the same as those of the Proposed Action. The translocation of tortoises from the WEA would take place as in the Proposed Action; therefore, the effects to ACECs in the WEA receptor area would be the same as in the Proposed Action. Inclusion of WSAs in the SEA receptor area would not lead to the addition of any ACECs; therefore, the impacts to ACECs would remain unchanged relative to the Proposed Action.

4.2.3 Impacts of Alternative B

The potential impacts associated with the translocation efforts to ACECs under Alternative B would be eliminated. If BLM managed lands were excluded from being considered translocation receptor sites, no tortoise would be moved onto ACECs. The ACECs would be managed as they are currently managed. There would be no take of Lane Mountain milk-vetch or other impact associated with translocation because translocation would not occur within the ACEC.

4.2.4 Impacts of the No Action Alternative

Under the No Action Alternative, no translocation would take place; therefore, no impacts to the importance or relevance of ACECs are anticipated. The ACECs would be managed as they are currently managed. There would be no take of Lane Mountain milk-vetch or other impact associated with translocation because translocation would not occur within the ACEC.

4.3 Threatened or Endangered Species

The following section analyzes the potential effects of the Proposed Action; the Alternatives; and the No Action Alternative on biological resources.

4.3.1 Impacts of the Proposed Action

4.3.1.1 Translocation Effects

Desert tortoises, and their habitat, occur throughout the translocation receptor site area and expansion areas. Also, tortoises may occasionally transverse roads throughout the area. As such, there is a possibility that tortoises could be injured or killed if encountered during road travel by the researchers during the translocation process and/or during the monitoring program. These potential impacts are anticipated to be small since all travel speeds on unpaved roads would be below 35 miles per hour and due to the fact that all members of the translocation and research crew are USFWS certified desert tortoise biologists and are therefore alert to the potential presence of tortoises on the roadways.

When handling tortoises and maintaining animals in captivity there is always the possibility that animal will be injured (including physical injury and exposure to disease) or killed during the process. To avoid these impacts, all tortoise handlers would be approved by the USFWS. Also, all handling would be conducted using the most up to date protocols such as those found in *Guidelines for Handling Desert Tortoises During Construction Projects* (Desert Tortoise Council, 1994 [revised 1999]). The holding facility would be maintained according to all legal and ethical requirements for treatment of captive

animals (e.g., *Animal Care and Use Guidelines* from an official university ACUC program, ASIH 2004). By implementing these measures, it is anticipated that handling and holding impacts would remain low.

While the expansion itself and ultimate military use of those expansion lands may affect the Lane Mountain milk-vetch, the desert tortoise translocation effort is expected to have no direct affect on the Lane-mountain milk-vetch. Typically, only existing (BLM Designated Open) routes of travel would be used during the translocation of animals and any travel off designated open routes would be on foot. The only exception would be the possible use of helicopters to facilitate transport of tortoises. In this case, all potential landing sites must be surveyed by a biologist who is familiar with this species, and all populations of Lane Mountain milk-vetch would be avoided.

4.3.1.2 Disease and Predation Effects

Another potentially significant adverse affect which could result from the implementation of the translocation plan is the spread of disease amongst the tortoise population. The Amended Translocation Plan recognizes this potential threat and so discusses this issue and avoidance and minimization measures, at length. There is a potential that healthy animals from the SEA and WEA could be exposed to disease if these animals were to be moved into translocation receptor sites where the resident population has prevalence for disease. Alternatively, a healthy receptor site could be exposed to disease by translocating diseased individuals onto the site. The Amended Translocation Plan provides detailed protocols, including health evaluations (both physical exams and blood testing) of individuals and receptor sites, which are designed to limit these potential impacts. These protocols are briefly outlined in sections 2.1.2 and 2.1.4 and provided in detail in the Amended Translocation Plan. The intended result of these protocols is to the extent feasible, ensure that only healthy animals are translocated and that animals are only moved into disease free receptor sites.

Apparently high levels of predation were observed immediately prior to and subsequent to the initial translocation from the SEA. Newly translocated tortoises tend to wander around the translocation site during the first two to three years after release and some individuals attempt to return to their original home range (USFWS 2004). Given this propensity to roam, and given that these translocated animals are moved to unfamiliar surroundings, it was thought that translocated individuals likely were suffering unusually high levels of predation. However, further analysis of the SEA data has indicated that translocated tortoises were not preyed upon differently from resident tortoises or resident control animals that were at large in the area (Esque *et al.*, unpublished data). Moreover, additional data from more than 10 sites representing sample populations of desert tortoises that were monitored throughout the Mojave Desert in the same time period as the translocation illustrate that very high predation rates were a Mojave Desert-wide phenomenon at the time (Esque *et al.*, unpublished data). Based on this information, it was generally concluded that while the predation rates experienced during the initial SEA translocation efforts were very high, they were not above background "natural" levels.

Both impacts from disease exposure and predation mentioned above are likely density dependent (USGS 2009). Therefore, the Amended Translocation Plan calls for the distribution of translocated animals over a large area. Animals from the WEA would be translocated at a low density of 2-5 animals per square mile, resulting in a final density of 21-24 animals (up from a "background" density of 19 animals per square mile) (USGS 2009). This low-density increase would help reduce the disease and predation issues raised above to a level of insignificance.

The approximately 89 animals remaining in the SEA would be translocated at the densities prescribed in the Original Plan. In particular these 89 animals would be translocated to approximately eight square miles of receptor site. Therefore, these animals would be translocated at a density of approximately 11

animals per square mile. This would result in the "background" density of 19 animals per square mile being raised to 30 animals per square mile. The animals which were previously moved from the SEA are a part of a multimillion dollar research program being executed by the United States Geological Survey. In order to conduct scientific research on desert tortoise translocation, a research design was implemented within the SEA that includes monitoring plots where cohorts of tortoises were translocated. Based on the SEA translocations to date, three integrated research teams have developed studies to address several research areas including: 1) stress, 2) disease, 3) hard and soft release techniques, 4) movements, and 5) long and short distance releases. All of this research is designed to help gain a basic understanding of the species and to ultimately refine future translocation methodology. To maintain the integrity of this substantial research effort, the healthy animals remaining in the SEA must be moved according to the Original Plan protocols. If these animals were moved according to the new Amended Translocation Plan protocols (i.e., translocated in a more diffuse pattern over the 240 receptor sections identified in the Amended Translocation Plan, the integrity of these research efforts would likely be compromised (Todd Esque, USGS, personal communication). While this increased translocation density (relative to the Amended Translocation Plan) may exasperate the issues of disease transmission and predation, the USGS/University of Nevada-Reno team (and independent reviewers) have concluded that this increased density would not significantly raise the threat of disease or predation above background levels and that the conservation benefits gained by the on-going research would outweigh these potential drawbacks (Todd Esque, USGS, personal communication).

4.3.1.3 Climate Change Effects on Tortoise

Given the observed and anticipated long-term dynamic of climate change, the alternatives considered in this EA analyze climate change-related impacts on the resources within the Proposed Action area, to the degree practicable and reasonably foreseeable. It may be difficult to discern whether global climate change is already affecting resources in the Translocation area let alone whether activities associated with the Proposed Action in the APE may exacerbate climate change. Existing and anticipated effects of climate change on resources and resource use in the vicinity of the Proposed Action area are incorporated below. The desert tortoise has been or is anticipated to be affected by climate change. Climate change and drought were not regarded as threats to the desert tortoise in the 1994 Recovery plan, however, since that time, it has become apparent that the combined effects of global climate change (*i.e.*, increased ambient temperatures and altered precipitation patterns) and drought may become significant factors in the long-term persistence of the species (USFWS 2008). While little is known regarding the direct effects of climate change on the desert tortoise and its habitat, predictions can be made about how global and regional precipitation regimes may be altered and the consequences of these changes (USFWS 2008). The Intergovernmental Panel on Climate Change has suggested that increasingly reliable change projections are now available as a result of improved modeling capabilities and advanced understanding of climate systems. Generally, predications for the geographic range of the desert tortoise's listed population suggest more frequent or prolonged droughts would result from increased annual mean temperature increases, especially during the summer months, and decreased winter precipitation (predictions regarding changes in summer precipitation are more speculative) (USFWS 2008).

While the reasonably foreseeable activities under the Proposed Action would have negligible affects on climate change, the effects climate change may have on resources in the Proposed Action area need to be addressed. Because germination of the tortoise's food plants is highly dependent on cool seasonal rains,

increased temperatures and decreasing precipitation in winter could reduce the forage base (USFWS 2008). Drought is a normal phenomenon in the Mojave Desert, however, extended droughts have the potential to affect desert tortoises and their habitats through physiological effects to individuals (*i.e.*, stress) and limited forage availability (USFWS 2008). Also, such changes could favor the colonization and spread of non-native annual grasses, and a resultant increase in the frequency and intensity of fires which in turn have detrimental effects on tortoises and their habitat (USFWS 2008). Furthermore, since desert tortoises have temperature-dependent sex determination (*i.e.*, the sex of hatchlings is determined by temperatures in the nest), it has been speculated that global temperature increases may skew sex ratios (USFWS 2008). Drought, even short term drought, has been implicated in causing adverse effects on tortoise including dehydration, malnutrition, starvation, recued reproductive output of females, altered behavior such as failure to seek shelter, reduced movement, reduced surface activity, and increased susceptibility to predation and disease (USFWS 2008). However, these adverse effects could be offset by a shifting of the distribution of tortoises northward and/or to higher elevations (USFWS 2008). Also, some evidence suggests that desert tortoises may be capable of adapting changes in the environment through modification of their behavior, periods of activity, and diet (USFWS 2008). Models demonstrate that large shifts in plant distribution that may over a long period of time allow for opportunities for migration and adaptation. However, under the current scenario of climate change, changes in temperature and/or precipitation may be too rapid to allow for this adaptation to take place (USFWS 2008).

One of the best management strategies for addressing potential adverse effects of climate change on biological resources is to maintain large blocks of habitat with intact migration corridors which would facilitate the migration of animals in response to changing climatic conditions. The Army would construct a barrier to vehicles along the boundaries of Fort Irwin expansion areas where the installation is assessable because of terrain. This barrier has the potential to disrupt movement of desert tortoises along large washes (USFWS 2004). Both the Original and the Amended Translocation Plans call for the establishment of tortoise exclusion fencing which would keep tortoises from re-entering the WEA and SEA after translocation efforts are completed. This fencing and loss of habitat would lead to fragmentation of populations in the expansion areas and serve as a block to northward migration over time which could otherwise offset the adverse impacts of climate change for the desert tortoise population in the area. The fragmentation of populations is generally viewed negatively in terms of climate change because it reduces genetic diversity and a lack of genetic diversity may reduce the ability of a species to adapt to changing environmental conditions (USFWS 2004). As outlined in the Original and Amended Translocation Plans, not all animals would be removed from the expansion areas. That is, animals which are not determined to be disease free would remain within the expansion areas. However, the USFWS concludes animals remaining in the expansion areas "do not have value for the conservation of the species because their isolation from large aggregations of desert tortoises" (USFWS 2004). Although the expansion would substantially reduce the area within the Superior-Cronese Critical Habitat Unit (which roughly corresponds with the Superior-Cronese DWMA), the value of the critical habitat for the conservation of the desert tortoise would not be appreciably diminished because the Army would acquire conservation lands which would offset these impacts through consolidation of lands within the Superior-Cronese Critical Habit Unit (USFWS 2004). These lands would be transferred to BLM and lead to more efficient management of the Superior-Cronese DWMA due to the consolidation of the lands (USFWS 2004).

The translocation receptor sites covers an area of over 240 square miles of BLM managed properties. These parcels are intermingled with other state and private lands as well as wilderness areas (though tortoise would not be actively translocated onto these lands under the Proposed Action). These lands are within the Superior-Cronese DWMA and therefore are relatively intact in terms of connectivity. One management prescription which BLM implements through the West Mojave Plan is a limitation of development to only 1% of lands within any given DWMA. This prescription would limit development within the DWMA and help maintain connectivity in the future. Further, any development which is proposed within the DWMA is subject to detailed environmental review and the analysis of connectivity and migration corridors is one of the key components of this project review process. With the implementation of these design features and management prescriptions, the potential impact of climate change associated with the Proposed Action is not considered significant.

4.3.1.4 Effects on Animals Left Within the Expansion Areas

As outlined in the description of the Proposed Action in Chapter 2, it is anticipated that tortoises which show clinical signs of disease shall be transmittered but left in place within the WEA. Also, animals which are shown to be seropositive for disease are also likely to be placed and or left in place within the WEA. Therefore, these animals have the potential to be placed in harm's way when military activities commence within the WEA after translocation efforts are completed. The original Biological Opinion concludes that some tortoises would likely be killed or injured during cross-country travel. The levels of impact would depend on numerous factors, such as the density of animals, the type and level of training activity, and the nature and frequency of the use (USFWS 2004).

According to the Original Biological Opinion, the desert tortoises remaining within the expansion area face numerous threats. These threats include the potential of direct harm from crushing of individuals and burrows from vehicle and foot traffic. The Original Biological Opinion also note that the excavation of trenches during military training activities have the potential to collapse burrows and threaten tortoises. Also, the training activities have the potential of attracting predators by providing food and water resources which could supplement predator populations. In addition to these direct adverse effects, the training activities would likely result in indirect adverse affects to the tortoises remaining in the expansion area. The Original Biological Opinion notes the constituent elements of critical habitat of desert tortoises include sufficient space to support viable populations within each recovery unit and provide movement, dispersal, and gene flow; sufficient quality and quantity of forage species and the proper soil conditions to provide for the growth of these species; suitable substrates for burrowing , nesting , and overwintering; burrows , caliche caves, and other shelter sites; sufficient vegetation for shelter from temperature extremes and predators and habitat protected from disturbance and human-caused mortality (USFWS 2004). The proposed use of additional training lands would decrease the quality and quantity of forage species, remove proper soil conditions for required plant species, and decrease the amount of vegetation available for shelter from temperature extremes and predators in areas where training with vehicles occurs on a regular basis (USFWS 2004). Cross country travel, particularly during training exercises that involve large numbers of vehicles, will, over time, destroy or damage most of the shrubs in an area (USFWS 2004). Shrubs that are not killed are often substantially reduced in height and width; consequently, they would provide little or no shelter for any desert tortoises which remain in the WEA (USFWS 2004). Training activities also have the potential to enhance opportunities for non-native weed invasions and will compact soils to the point where they are unusable by tortoises (USFWS 2004).

There are numerous factors which will offset the potential adverse effects outlined above. According to the Original Biological Opinion, in some areas of Fort Irwin, rugged and steep terrain would restrict the amount of cross country travel during training exercises and that tortoises may persist for years in such locations (USFWS 2004). Also, the Army has designated certain "no-dig" zones which would further protect tortoises in these areas. According to the Original Biological Opinion, the Army has proposed to provide environmental education programs to all civilians and soldiers that enter areas where desert tortoises could occur and conclude that such programs can effectively reduce the level of mortality of desert tortoises by carelessness. However, the Original Biological Opinion concludes that tortoises are likely to be extirpated from areas where vehicles regularly travel cross country, such as during training exercises (USFWS 2004). However, it needs to be recognized that the animals lost in the training areas after translocation will consist primarily of diseased individuals whose viability is already severely compromised. Since some individuals will likely persist over time and only otherwise compromised individuals will be lost, the BLM concludes that the potential impacts to the populations remaining on the expansion areas when military activities commence would not reach the level of significance.

4.3.2 Impacts of Alternative A

Under Alternative A, the impacts on Threatened and Endangered Species would be similar to those of the Proposed Action. The translocation of tortoises from the WEA would take place as in the Proposed Action; therefore, the effects to Threatened and Endangered species would be the same as in the Proposed Action. However, the SEA receptor area would increase from 8 square miles under the Proposed Action to approximately 73 square miles under Alternative A. The final densities of tortoise in the SEA would increase from the existing 19 animals per square miles to 20 animals per square mile as opposed to increasing to 30 animals per square mile under the Proposed Action.

In terms of the Lane Mountain milk-vetch, Alternative A would have the same potential for impacts as the Proposed Action. The addition of WSAs to the potential receptor sites for the SEA tortoises would not change the amount of Lane Mountain milk-vetch habitat which may be impacted by the translocation of tortoises and the WEA receptor area would remain the same as in the Proposed Action.

Given that disease and predation are likely density dependent, the addition of 65 acres of potential SEA receptor sites (and the resultant reduction of final densities of 30 animals per square mile under the Proposed Action to 20 animals per square mile under Alternative A) under Alternative A would likely reduce the potential adverse affects of disease and predation. However, it is likely that this reduction would be relatively small given that there is only a slight decrease in final density associated with Alternative A relative to the Proposed Action. The effects on desert tortoise associated with animals left in the expanded training area after translocation would remain unchanged under Alternative A compared to the Proposed Action. In terms of the effects of Climate Change on desert tortoise, Alternative A would be the same as the Proposed Action since it is anticipated that the Army would still acquire mitigation lands and these lands would be managed for the protection of desert tortoise.

4.3.3 Impacts of Alternative B

Under Alternative B, the impacts on Threatened and Endangered Species would be higher than those of the Proposed Action. Under Alternative B, there would be a total of 54 square miles of land available for receiving translocated animals. In terms of the Lane Mountain milk-vetch, Alternative B could

potentially benefit the species by precluding translocation efforts in the four ACECs established for this species on BLM managed lands. Also, Lane Mountain milk-vetch could occur on some of the Army managed former Catellus lands. These populations would not be subject to the stipulations which BLM imposes as avoidance and minimization measures for this species under the Proposed Action, therefore these populations may be at more risk under Alternative B.

Given that disease and predation are likely density dependent, Alternative B may increase the impacts associated with these factors. The Biological Assessment for the Re-initiated Biological Opinion (U.S. Army 2009) estimates there are from 516 to 1,143 tortoises present in the WEA and 89 animals left to be translocated from the SEA. Therefore, from 605 to 1,232 animals need to be translocated. If these animals were translocated evenly across the 54 square miles, the animals would be translocated at a density of approximately 11 to 23 animals per square mile. Recent density surveys for the Superior-Cronese DWMA estimate tortoise densities (U.S. Army 2009) to be 19 per square mile. Therefore, this translocation would result in the density increasing up to approximately 30 to 42 animals per square mile. This is opposed to the density increasing to approximately 22 to 25 animals per square mile in the WEA under the Proposed Action. It is not possible to quantify specifically what the result of this higher density of animals associated with Alternative B would be, but it is anticipated that it could potentially increase the risk of predation and disease.

Under the Proposed Action, the tortoises would be moved to properties which are managed by BLM, but under the No Action Alternative, the land would be retained by the military and be subject to limited management. Under the Proposed action, the tortoise translocated to BLM lands would be managed consistent with the West Mojave Plan. While this management would not preclude development on the translocation lands, these lands would be subject to the most stringent constraints given that these lands are within the Superior-Cronese DWMA. The lack of management under the No Action Alternative would likely result in negative impacts to tortoise relative to the population being managed on BLM land. Alternative B would be the same as the Proposed Action since it is anticipated that the Army would still acquire mitigation lands and these lands would be managed for the protection of desert tortoise.

4.3.4 Impacts of the No Action Alternative

There would be no effect to biological resources on public lands from the No Action alternative, as all animals would be left in place and no military activities would take place. All potential adverse effects associated with translocation would be eliminated and the tortoise population would experience only background levels of predation and disease exposure. Under the Proposed Action, the tortoises would be moved to properties which are managed by BLM, but under the No Action Alternative, the land would be retained by the military and be subject to limited management. Under the Proposed action, the tortoise translocated to BLM lands would be managed consistent with the West Mojave Plan. While this management would not preclude development on the translocation lands, these lands would be subject to the most stringent constraints given that these lands are within the Superior-Cronese DWMA. The lack of management under the No Action Alternative would likely result in negative impacts to tortoise relative to the population being managed on BLM land. Also, the benefits associated with the consolidation of lands within the DWMA and the more efficient management of the lands would not be achieved as outlined in the Proposed Action.

4.4 Wastes, Hazardous or Solid

The following section analyzes the effects of the Proposed Action; the Alternatives; and the No Action Alternative on hazardous or solid wastes.

4.4.1 Impacts of the Proposed Action

Hazardous materials that may be produced on-site as a result of implementing the translocation plan include very minimal releases of motor oil, hydraulic fluid, antifreeze, battery acid, and other vehicle fluids on designated open routes. Vehicle operation and potential field maintenance could generate soils contaminated with petroleum, oil, and lubricants (POL's) if spills occur. All vehicles (cars, trucks, and potentially helicopters) would be well maintained to prevent leaks of POL's. All regular maintenance and fueling would be conducted at established facilities and not in the field. Therefore, no substantial effects are expected from hazardous materials and soil waste.

No solid wastes will be generated onsite as a result of translocation activities. Any discovered hazardous or solid waste sites would be avoided. The location of any newly discovered dump sites would be recorded and reported to BLM for appropriate follow-up actions.

Indirect hazardous and solid waste impacts may result from the initiation of military use on the expansion lands, a reasonably foreseeable activity after translocation of desert tortoises from the SEA and WEA. These impacts were addressed in the EIS for expansion of base, from which this EA tiers. Military use of expansion lands would be subject to appropriate strategies and mitigation to prevent and manage these wastes, consistent with the EIS and Fort Irwin general operational procedures.

4.4.2 Impacts of Alternative A

Under Alternative A, the impacts to Hazardous or Solid Wastes would be similar to those of the Proposed Action. The translocation of tortoises from the WEA would take place as in the Proposed Action; therefore, the effects to Hazardous or Solid Wastes would be the same as in the Proposed Action. However, the SEA receptor area would increase from 8 square miles under the Proposed Action to approximately 73 square miles under Alternative A. Given that the area would be increased, it is anticipated that there would be more vehicle travel (in terms of miles traveled) under Alternative A relative to the Proposed Action. This would slightly increase the levels of impacts, as outlined in the Proposed Action. However, this would be a negligible increase.

4.4.3 Impacts of Alternative B

Under Alternative B, the impacts to Hazardous or Solid Wastes would be reduced as compared to those of the Proposed Action. Translocation would not take place to receptor sites within the SEA receptor area as delineated in the Proposed Action. Also, the potential WEA receptor area would be reduced from the current 205 square miles which have been found as potentially suitable receptor sites under the Proposed Action to only 54 square miles. Given that the area would be greatly decreased, it is anticipated that there would be a reduction in the amount of vehicle travel necessary for the translocation effort and future monitoring. Therefore, there is anticipated to a decrease in the impacts to Hazardous or Solid Wastes under Alternative B.

4.4.4 Impacts of the No Action Alternative

Under the No Action Alternative, no translocation would take place; therefore, no additional impacts associated with hazardous or solid wastes are anticipated. Some potential for a hazardous material spill or dumping of solid waste still exists from casual use and other permitted and unpermitted activities on public lands.

4.5 Mitigation Measures and Residual Impacts (if appropriate)

The following section outlines the Mitigation measures which shall be implemented during the translocation project, both the Proposed Action and the Alternative.

1. All Terms and Conditions in the Original Biological Opinion shall be implemented as modified by the Re-initiated Biological Opinion.

2. All mitigation measures outlined in the discussion above in this section shall be implemented.

3. All vehicle travel shall be limited to BLM Designated Open routes of travel.

4. All vehicles used in the translocation project shall be well maintained to prevent the discharge of hazardous materials from leaks. All fueling shall take place at established fueling facilities and no fueling or maintenance shall take place in the field.

5. No cross country vehicular traffic is authorized. All off-road travel (travel off of BLM Designated Open routes) shall be on foot to the extent possible. If off-road travel is required, all proposed routes shall be surveyed for sensitive biological, cultural and Native American religious resources. The BLM shall be notified of such activity and provided copies of the survey reports. All such sensitive resources (in particular desert tortoise and Lane Mountain milk-vetch) shall be avoided. All proposed off-road routes must be approved by BLM prior to use.

6. If helicopters are to be used during translocation, all landing sites shall be surveyed for sensitive biological, cultural and Native American religious resources. The BLM shall be notified of such activity and provided copies of the survey reports. All such sensitive (in particular desert tortoise and Lane Mountain Milk-vetch) resources shall be avoided. All helicopter landing sites must be approved by BLM prior to use.

7. The Army shall submit annual reports to the BLM. These reports shall be provided starting with the translocation process and shall continue through the entire monitoring period (five years). These quarterly reports are due on the following dates: March 30, June 30, September 30, and December 30 of each year. These reports shall summarize any activities which took place during the quarter, any issues which have arisen, and any proposed remedies for resolving those issues.

4.6 Cumulative Impacts of the Proposed Action

The USFWS has consulted with the Army on two projects within the translocation receptor site for the WEA tortoises as outlined in the Proposed Action. On April 19, 2002, we issued a biological opinion to the Army regarding a survey of the revised boundary of Fort Irwin. The USFWS found that the proposed action was not likely to jeopardize the continued existence of the desert tortoise or adversely modify its critical habitat because the Army included measures in its project description to avoid desert tortoises, few individuals were likely to be killed or injured by the surveys, and disturbance of habitat would be temporary (USFWS 2009). The proposed action involved placement of markers along the new boundaries of the installation; access was by pick-up truck and all-terrain vehicles, and on foot. The Army committed to attempting to avoid desert tortoises when traveling through the project area. The survey was completed in 2004; no desert tortoises were encountered during the work (USFWS 2009).

On June 9, 2003, the USFWS issued a biological opinion to the Army regarding the installation of a fiber optic cable between Fort Irwin and the Naval Air Weapons Station, China Lake. The USFWS found that the proposed action was not likely to jeopardize the continued existence of the desert tortoise or adversely modify its critical habitat because the Army included measures in its project description to avoid killing or injuring animals and only a small area of habitat would be temporarily disturbed (Service 2009). The cable was installed in a 12-inch wide trench along a 32-mile long route; most of the installation was either within roads or their shoulders. The cable was installed in 2006. Only one desert tortoise was observed and moved from harm's way during installation; installation of the cable disturbed approximately 114 acres of critical habitat within the Superior-Cronese Critical Habitat Unit (USFWS 2009).

Because direct and indirect impacts are negligible, no cumulative impacts from the Proposed Action or any of the Alternatives are anticipated with the exception of impacts related to biology. Land development projects continue to be a major threat within the Proposed Action area. Given the current state and federal government mandates to develop renewable energy to reduce the nation's dependence of foreign oil and to address climate change, solar and wind energy development pressure would be increasing in the Proposed Action vicinity. Under the Proposed Action, tortoises would be moved to lands managed by BLM (or to Army lands which would ultimately be transferred to BLM management). The translocation sites would continue to be managed consistent with the West Mojave Plan. While this management would not preclude development on the receptor sites, such development would be subject to heightened scrutiny since the receptor sites are all within the Superior-Cronese DWMA which has the highest protection standards under the West Mojave Plan. No specific development projects are currently proposed on any of the translocation site parcels. However, many of the development projects which could be approved under the West Mojave Plan within the vicinity of the receptor sites have the potential to affect local tortoise populations through loss of individuals from direct mortality during construction and implementation phases. Additionally, many of the commercial projects could include associated operation and maintenance features that may have long-term effects including prolonged subsidy of predator species and disturbance of individual tortoises (US Army 2009). These potential impacts would be reduced by the implementation of specific construction and operation guidelines provided in the West Mojave Plan. Further, development within the DWMA is limited to 1% as prescribed in the West Mojave Plan. Also, any such development which may affect the desert tortoise would be subject to further consultation with the USFWS.

Under Alternative A, the only change would be that Wilderness Study Areas (managed by BLM) would be added to the SEA translocation receptor area. Therefore, the management considerations, as outlined for the Proposed Action in the previous discussion would remain the same. Under Alternative B, no BLM managed lands would be considered for translocation receptor sites and tortoises would be translocated onto Army managed former Catellus lands and State managed lands, so the lands would not be subject to BLM prescriptions. However, since the Army managed former Catellus lands are being acquired as mitigation for the expansion of training lands, it is assumed that these lands would be managed for the protection of desert tortoise. Therefore, the Cumulative Effects associated with Alternative B are anticipated to be the same as those of the Proposed Action.

Chapter 5: CONSULTATION AND COORDINATION

5.1 Persons, Groups or Agencies Consulted

The following discussion summarizes the persons, groups or agencies consulted during the preparation of this EA.

5.1.1 Native American Consultation

No effects to Native American Religious of Cultural resources are anticipated, therefore, no Native American Consultation was required.

5.1.2 Public/Agency Consultation

The BLM is currently consulting with the USFWS regarding the Proposed Action as a Federal Agency on the Army's re-initiated consultation on the Fort Irwin Expansion Biological Opinion. BLM is also a Federal Agency on the Army's consultation with CDFG on the Proposed Action since the desert tortoise is also on the State Endangered Species list.

5.1.3 Scoping Comments

A 15-day (extended to 30-day) public scoping period for this EA was conducted from February 4 to March 5, 2009. This section summarizes the substantive comments received and notes where the EA the comments are addressed.

Table 2 - Scoping Comments

Issue	Where/How Addressed
Need for summary of original translocation efforts (number of individuals harmed, cause of harm, number moved, demographic of animals harmed, etc.)	Discussed in section 1.1
Concern regarding predation (coyote and raven) on translocated tortoises – need for baseline information and studies.	Discussed in 1.1 and section 4.3
Concern regarding potential to spread disease through the translocation activities – need for baseline information and studies.	Discussed in section 4.3
Concern regarding adverse affects associated with translocated tortoises attempting to return to original capture site.	Discussed in section 4.3.1.2
Need for development of protocols to address gravid females.	Discussed in section 4.3.1.1
Need for analysis of carrying capacity of receptor sites.	Addressed in sections 2.1.1.1 and 2.1.1.2
Need for analysis of receptor site viability in the face of climate change.	Addressed in sections 4.3.1.3

Need for analysis of environmental conditions (drought, food availability, predator prey base availability, etc.) as a potential restraint on timing of translocation.	Addressed in section 2.1.1.1
Need for evaluation of leaving tortoises within the expansion area and conducting expanded military training activities.	This is discussed section 4.3.1.4
Need for evaluation of leaving tortoises within the expansion area and excluding/limiting expanded military training activity.	This is discussed as the No Action Alternative
Request for extending Scoping Period from 15 to 30 days.	This request was accommodated.
Request to extend the comment period on draft NEPA document to 60 days.	Currently proposing a 15-day comment period.
Need for development of full Environmental Impact Statement instead of EA due to the "controversial" and "complex" nature of proposed action.	Will be addressed in the FONSI. A draft FONSI based on this EA appears in Appendix B
Concerns regarding establishment of tortoise fencing and its effect public access.	Beyond the scope of this EA.
Need to evaluate "head starting program" to date.	Beyond the scope of this EA.

5.2 List of Preparers

EA Lead Preparer:

Chris Otahal, Wildlife Biologist, BLM Barstow Field Office

Participating Staff:

Mickey Quillman, Resources Branch Chief, BLM Barstow Field Office

Edy Sheehafer, Environmental Coordinator, BLM Barstow Field Office

Roxie Trost, Field Manager, BLM Barstow Field Office

Reviewers:

John Baker, NEPA Specialist, Fort Irwin

Clarence Everly, Natural Resources Program Manager, Fort Irwin

Amy L. Fesnock, Threatened and Endangered Species Lead,
BLM California State Office

Dr. Larry LaPre, District Wildlife Biologist, BLM District Office

Sandra McGinnis, BLM California Planning and Environmental Coordinator, BLM California State Office

Erica L.B. Niebauer, Assistant Regional Solicitor, BLM California State Office

Chapter 6: REFERENCES AND ACRONYMS

6.1 References Cited

BLM. 1997. Fugitive Dust/PM10 Emissions Control Strategy for the Mojave Desert Planning Area, BLM, Barstow Field Office.

BLM. 2005. Final Einvironmental Impact Report and Statement for the West Mojave Plan, A Habitat Conservation Plan and California Desert Conservation Area Plan Amendment, Vol. 1A, BLM, California Desert District.

BLM. 2009. H-1601-1 – Land Use Planning Handbook – Guidance on Addressing Climate Change in the Planning Process. Bureau of Land Management.

EPA. 2003. National Air Quality and Emissions Trend Report, 2003, Fig. 2-40: Trend in PM10 annual mean concentration by EPA Region, 1992–2001.

MDAQMD. 1996. Final Mojave Desert Planning Area Federal Particulate Matter (PM10) Attainment Plan, Mojave Desert Air Quality Management District, 31 July 1995, approved by MDAQMD in July, 1996.

NARA. 1976. Federal Land Policy and Management Act of 1976 (FLPMA), PL 94-579, 90 STAT. 2743-2794, Oct 21, 1976.

USGS. 2009. Amendment to Desert Tortoise Translocation Plan for Fort Irwin's Land Expansion Program at the U.S. Army National Training Centers (NTC) & Fort Irwin. United States Geological Survey Western Ecological Research Center, Henderson, Nevada and Moreno Valley California and University of Nevada-Reno, Reno, Nevada.

U.S. Army. 2009. Re-Initiation of Consultation, USFWS Biological Opinion 1-8-03-F-48, Proposed Addition of Maneuver Training Lands at Fort Irwin, California. Fort Irwin, California.

USFWS. 2004. Biological Opinion for the Proposed Addition of Maneuver Training Lands at Fort Irwin, California #1-8-03-F-4. Ventura Fish and Wildlife Office, Ventura, California.

USFWS. 2008. Draft revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California.

6.2 List of Acronyms Used in this EA

BLM	Bureau of Land Management
CDCA	California Desert Conservation Area
CDFG	California Department of Fish and Game
DA	Department of the Army
DWMA	Desert Wildlife Management Area
EA	Environmental Assessment
EPA	Environmental Protection Agency
EIS	Environmental Impact Statement
FONSI	Finding of no Significant Impacts
MDAQMD	Mojave Desert Air Quality Management District
NARA	National Archives and Records Service, Office of the Federal Register
NAQS	National Air Quality Standards
NEPA	National Environmental Policy Act
NTC	National Training Center
WSA	Wilderness Study Area
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey