

SFEIS Supplement and
Biological Assessment Summary
Table of Contents

Supplemental Final Environmental Impact Statement for the
Proposed Addition of Maneuver Training Land at Fort Irwin, Ca
(SFEIS) Supplement

Memorandum for Record

Biological Assessment Supplement

Addenda to the Supplemental Final Environmental Impact Statement Proposed Addition of Maneuver Training Land at Fort Irwin

Cover Letter

Enclosed please find the *Addendum to the Supplemental Final Environmental Impact Statement for the Proposed Addition of Maneuver Training Lands* (SFEIS Addendum) for your review. The Department of the Army, the lead Agency, has prepared the SFEIS in accordance with the National Environmental Policy Act (NEPA). The SFEIS includes three volumes and the Addendum. Volume I contains the main body of the SFEIS. Volume II contains the supplemental appendices. (Please note that the decision was made not to reprint the appendices that were released with the SDEIS, to save resources (both natural and monetary). This is supported by a directive by both the CEQ and NEPA to reduce paper consumption. Only the supplemental appendices are planned to be released with the SFEIS. Interested parties may refer back to their SDEIS copies or visit the Land Expansion website to view the appendices that were released with the SDEIS.) Volume III includes the public comments and responses to those comments. The Addendum provides additional materials that were completed after the SFEIS was printed. It includes the Biological Assessment Supplement (BA Supplement); the Memorandum For Record, SUBJECT: Fort Irwin Maneuver Land Expansion Biological Assessment Supplement; and edits to the Biological Resources section of the SFEIS.

The Addendum reviews key documents to consider effects of the proposed action on designated critical habitat (CH) for desert tortoise (*Gopherus agassizii*) (DT), focusing on the CH's ability to support conservation and recovery of the species after sustaining the impacts of the proposed maneuver land expansion. The Army based its consideration of such effects on the existing administrative record supporting the Biological Assessment, its Addenda, and the Biological Opinion (BO) issued by the US Fish and Wildlife Service (FWS) which concluded that the proposed expansion was not likely to jeopardize the existence of the DT or Lane Mountain Milk-vetch or result in destruction or adverse modification of DT CH, and on the BA Supplement and MFR .

The Army prepared the BA Supplement to determine whether the proposed action would adversely modify critical habitat of the desert tortoise such that the value of that habitat for the conservation and recovery of the desert tortoise would be appreciably diminished. The MFR summarized the Army's review and determined that the conclusions in the BO remained valid, particularly the conclusion regarding no adverse modification or destruction of DT CH. The MFR documents the ultimate determination that there were no new circumstances requiring the need for additional Section 7 consultation.

The Army has made some minor amendments to the biological resources section of the SFEIS, to provide additional information concerning the effects of the proposed expansion on DT CH and its ability to support conservation and recovery of the species. The edited sections are Section 3.5.5 and 4.5.1. The attached Addenda to the SFEIS is incorporated into, and now part of, the SFEIS. The Army invites your review.

The SFEIS is available for on the web at www.fortirwinlandexpansion.com or at the following libraries:

San Bernardino County Library - Barstow
San Bernardino County Library - Victorville
San Diego County Library
Torrance Library
San Bernardino County Library - Big Bear
San Bernardino County Library - Lucerne Valley
San Bernardino County Library - Rialto
San Bernardino County Library - Wrightwood
San Bernardino County Library - Yucca Valley

SFEIS Changes

3.5.5 Summary of the Biological Assessment and Opinion

3.5.5.1 *Biological Assessment*

As the complete findings of the Biological Assessment can be found in Volume II, Appendix B of the Supplemental Final Environmental Impact Statement, only a brief summary is provided here. The Biological Assessment (BA) estimated a take of approximately 1,000 desert tortoise (including translocated animals) and possible impacts to approximately 120,770 acres of potential desert tortoise habitat near the edge of the species range, of which approximately 84,000 acres are designated critical habitat. The BA estimated a take of approximately 6,660 acres of known habitat, to include habitat degradation and potential loss of Lane Mountain milk-vetch (LMMV) plants. Based on projected intensity of training in LMMV habitat areas, the expected loss is approximately 25 percent of the known habitat. The project was found likely to affect adversely the desert tortoise and LMMV and desert tortoise designated critical habitat. The measures proposed to avoid, reduce, and offset the impacts of the proposed action and to protect and conserve these species, however, would mitigate for impacts and contribute to the long-term survival and recovery of the species. The United States Fish and Wildlife Service (USFWS) did not designate any LMMV habitat on Fort Irwin as critical habitat.

The BA included proposed conservation measures to mitigate and off-set the adverse impacts of the proposed maneuver expansion. Proposed desert tortoise measures include: consolidating land ownership by purchasing private lands for protection of the species by focusing on lands in the Desert Wildlife Management Area (DWMA); avoiding direct impacts to approximately 16,900 acres of desert tortoise habitat on Fort Irwin by designating it as conservation or off-limits areas from training; eliminating direct impacts of cattle grazing on desert tortoise habitat and permitting its recovery by acquiring fee-owned ranch property, with associated relinquishment of grazing privileges; assisting toward closure and rehabilitation of dirt roads and trails to increase the habitat values associated with the adjacent DWMA and critical habitat; placing fencing in critical locations; implementing a translocation program for the desert tortoise; and providing education. Proposed LMMV measures include: preservation of areas of occupied habitat on Fort Irwin by designating them as conservation areas and acquisition of privately-owned LMMV habitat outside of the Fort Irwin boundaries, to place all known LMMV habitat into public ownership. Importantly, each conservation area also includes buffer zones where plants may occur but have not been detected. This is important because buffer zones not only address survival of the species, but also allow for recovery. In addition, closure and rehabilitation of dirt roads and trails on Bureau of Land Management (BLM) managed lands focused in the proposed LMMV Area of Critical Environmental Concern on Coolgardie Mesa will provide for the recovery of the species.

Clarification of the Biological Assessment

In addition to the BA, letters and correspondence were submitted to USFWS to supplement and/or clarify the data in the BA. In January 2004, a letter was sent to USFWS providing clarification of the BA. The BA “found that the proposed project is likely to adversely modify desert tortoise critical habitat” (Charis 2003). In the January

letter the BA statement was clarified that the Army had “not intended to draw a conclusion as to whether the proposed action would result in an adverse modification of designated critical habitat” of the desert tortoise (US Army 2004a). Errata pages were also included.

In February 2004, two letters were sent to USFWS. The first letter, dated 13 February 2004, addressed changes to the proposed action. In the letter, commitments were made, including creating a 3,366 acre “no-dig” zone in the Brinkman Wash-Montana Mine LMMV occurrence area; shifting the southwestern boundary of the UTM 90 conservation area for the desert tortoise, increasing it by approximately 1,600 acres; implementing measures to assist BLM in managing lands that will be acquired to benefit the desert tortoise and the LMMV; increasing the number of sweeps to capture desert tortoises in the Superior Valley and UTM 90 parcels; translocating these animals for research and conservation; providing funding for a desert tortoise management team for research and implementation of the management actions to promote recovery for the desert tortoise; providing funding for additional research and collection of data; controlling factors that limit recovery of the desert tortoise; and providing funding for future adaptive management measurements. It was also noted that these commitments are contingent on the limits of legislated funding (US Army 2004b).

The second letter, dated 25 February 2004, provided an addendum to the BA. The addendum provided additional detail on several of the measures mentioned in the previous letters and on infrastructure actions needed to prepare the lands for training. The “no-dig” zone was further clarified to cover approximately 3,700 acres, of which, 1,872 acres supported habitat for the LMMV(US Army 2004c).

Through Section 7 consultation with FWS, the Army committed to implementation of all proposed conservation measures, within the funding authorized by Congress.

3.5.5.2 Biological Opinion

The USFWS issued a Biological Opinion in March 2004 (1-8-03-F-48). The Biological Opinion estimated that approximately 1,147 to 1,197 adult desert tortoises occupy areas where new training activities would occur. The USFWS found that the Army’s proposal to search the Superior Valley and UTM 90 parcels may make approximately 909 adult desert tortoise available for translocation. The USFWS estimates that approximately 424 adult desert tortoise may be killed as a result of the proposed action. They do not expect the loss of those 424 desert tortoise to “... appreciably reduce the ability of the species to survive and recover in the Western Mojave Recovery Unit” (USFWS 2004). There may be an impact to approximately 5.15 percent of designated critical habitat in the Western Mojave Recovery Unit (USFWS 2004). To offset this loss of critical habitat, the Army proposes to acquire private lands within DWMA’s and fee-owned ranch lands with associated relinquishment of grazing privileges. In regard to LMMV, the USFWS found that the three occurrences [of what? Critical habitat?] on Fort Irwin (The NTC-Gemini, Brinkman Wash – Montana Mine, and the Paradise Valley occurrences) total approximately 11,390 acres on Fort Irwin. Of that, approximately 6,790 acres will be placed off-limits to Army training. Proposed training lands would result in the loss of approximately 4,600 acres, or approximately 21.5 percent, of the known habitat for the species (USFWS 2004). The USFWS, while noting that the impacts of training to LMMV and its habitat are substantial, found that the remaining populations support a “dense

aggregate of plants and is sufficiently large enough for the ecosystem to persist” (USFWS 2004).

The Biological Opinion found that “...the addition of training lands at Fort Irwin is not likely to jeopardize the continued existence of the desert tortoise and LMMV or to destroy or adversely modify critical habitat of the desert tortoise” (USFWS 2004). The USFWS decision was based on the following reasonable and prudent measures:

- ❖ The Army must ensure that only qualified personnel are allowed to handle desert tortoise.
- ❖ The Army must develop procedures to reduce the take of desert tortoise during the preparation of the new training lands for military exercises.
- ❖ The Army must ensure that all personnel using vehicles to mark boundaries within habitat of the desert tortoise receive instruction on their responsibilities with regard to protection of the species.
- ❖ The Army must provide specific information on the procedures that will be implemented to translocate desert tortoises.
- ❖ The Army must develop a set of procedures that would be followed if a desert tortoise is encountered during military exercises (USFWS 2004).

In addition to the obligatory reasonable and prudent measures, the USFWS suggested non-obligatory conservation measures which can be found on page 65 of the Biological Opinion in Appendix C. Fort Irwin has proposed most of the non-obligatory conservation measures as mitigation measures to offset impacts of the proposed action.

After the USFWS issued a Biological Opinion, and pursuant to the *Key Elements Report* to Congress, a Working Group, comprising staff from the Army, USFWS, California Department of Fish and Game, United States Geological Service, and the BLM, was formed to evaluate proposals for land acquisition and other conservation measures. This was done to ensure that appropriate criteria are met to provide for adequate conservation of species and reduce or offset the impacts of the proposed expansion. Conservation measures that are being evaluated by the group include; land acquisition, the translocation plan for the desert tortoise, fencing, route closures and rehabilitation, research and data collection, land management assistance, conservation set-asides, limiting factor control, adaptive management, and desert tortoise management group funding.

3.5.5.3 Current Situation after Key Court Decisions

After successful completion of formal consultation on the proposed action, court decisions in the United States Court of Appeals for the Ninth Circuit, Gifford Pinchot Task Force v. United States Fish and Wildlife Service, No. 03-35279 (9th Cir. 2004) and the Federal District Court for the northern district of California, Center for Biological Diversity v. US Fish and Wildlife Service, Civ No. 03-03807/ 03-02509 SI (N.D. CA 2004), have invalidated the Service's definition of “adverse modification” of critical habitat published at 50 CFR 402.02. Essentially, the courts found that the definition considered the loss of critical habitat required for the species' survival only, and should

also be independently considering species recovery. In both cases, the courts also invalidated the BOs at issue since they were presumably developed in reliance upon the invalid “adverse modification” standard.

While we remain confident that the BO accurately discloses the effects of the proposed action on the listed species and designated critical habitat and reaches well-supported conclusions, the Service does not clearly state whether it used its existing “destruction or adverse modification” standard or the more protective recovery-based standard in reaching its conclusions in the Ft. Irwin BO. Nevertheless, the BO makes the following conclusion about Desert Tortoise Critical Habitat:

the loss of areas supporting the constituent elements of critical habitat within the Superior-Cronese Critical Habitat Unit will not appreciably reduce the ability of this unit to provide for the conservation of the desert tortoise.

This indicates that the Service considered the value of the critical habitat for both the survival *and* the recovery of the Desert Tortoise.

Because of the ambiguity introduced by the court decisions discussed above, the Army has reviewed the BA with regard to the impacts of the proposed action on critical habitat, and, in particular, the value of the critical habitat for recovery. The Biological Assessment Supplement (BA Supplement) found that, although there will be impacts to 84,000 acres of DT CH, which is 11 percent of the Superior-Cronese Critical Habitat Unit, 5 percent of the West Mojave Recovery Unit, and 1 percent of the designated DT CH, the conservation and mitigation measures already enacted and proposed ensure that the proposed action will not appreciably diminish the value of the CH for either survival or recovery of the species.

In addition, the BA Supplement confirms that none of the conditions requiring re-initiation of formal Section 7 consultation for the proposed action set forth in the BO’s re-initiation notice have occurred. The BO, and the administrative record upon which it is based, including the Army’s Biological Assessment (Charis Professional Corporation 2003) (BA), and the 2005 BA Supplement continue to reflect the best available commercial and scientific information concerning the biological status of the DT and LMMV and the effects of the proposed action on both species and designated critical habitat for the DT. The Army has not amended the proposed action. It has not exceeded permitted incidental take of DT. No new species has been listed; neither has new critical habitat been designated.

4.5.1 Alternative I: East/West

NOTE: As there has been no change in planned training for Alternative I, there is no change to the impacts assessed to the critical habitat in Section 4.5.1 of the SFEIS. For information on the possible impacts and mitigation for those impacts please see Section 4.5.1.1.2 for impacts and Section 4.5.1.2.2 for mitigation.

The ROI for biological resources is the Mojave Desert, which encompasses the study area.

The proposed action and alternatives would have substantial impacts on vegetation and wildlife through the loss of individuals and viable communities, the loss of food sources, the loss of access to water resources, the disruption of travel corridors and nesting areas

for wildlife, and increased dust and erosion. These impacts are reviewed here and also in the *Biological Assessment for the Proposed Addition of Maneuver Training Land at Fort Irwin, CA*, (BA) completed in 2003 (Volume II, Appendix B). The contents of that document are incorporated herein by reference.

Much of the discussion of impacts to the desert tortoise is covered in greater depth by the BA. In addition a Biological Assessment Supplement (BA Supplement) has been prepared to review the impacts to desert tortoise critical habitat in relation to the recent court decisions¹ which declared FWS's definition of "adverse modification" of CH invalid (50 CFR 402.02). The courts determined that the regulatory definition was inconsistent with the ESA, as it failed to focus on the role of designated CH in conservation and recovery of listed species. To ensure that the Fort Irwin Maneuver Land Expansion project met the courts' more protective standards, the Army undertook a review of the administrative record underlying the BA, its Addenda, and the BO, and performed a supplemental assessment of the effects of the proposed land expansion to DT CH and the effects of mitigation taken to protect and conserve the DT.

The Army's *Biological Assessment Supplement for the Proposed Addition of Maneuver Training Land at Fort Irwin, CA* (BA Supplement) is an independent examination of whether the proposed action is likely to diminish appreciably the value of DT CH for "recovery" of the species, even if the value of CH remains sufficient to assure DT survival. The BA Supplement also provides an update on Army mitigation actions undertaken since the issuance of the BO, including completion of the *Fencing Plan, National Training Center, Fort Irwin, CA* (the Fencing Plan) and the *Desert Tortoise Translocation Plan*, the identification of sick DT pen locations, and other completed mitigation measures. The BA Supplement concludes that the loss of critical habitat will not appreciably diminish the value of CH for DT recovery.

4.5.1.1.2 Reptiles

Proposed mitigation measures to offset, lessen and avoid these impacts are detailed in 4.5.1.2.2, Wildlife Mitigation. The USFWS took these mitigation measures into account when rendering its biological opinion that "...the addition of training lands at Fort Irwin is not likely to jeopardize the continued existence of the desert tortoise and the Lane Mountain milk-vetch or adversely modify critical habitat of the desert tortoise. "

Army proposed mitigation includes avoidance of dry lakes, use of existing roads, land acquisition, route closure and rehabilitation, retirement of grazing allotments, land management assistance, desert tortoise monitoring, desert tortoise management team, adaptive management, limiting factor control environmental education. Army mitigation actions undertaken since the issuance of the BO, include completion of the *Fencing Plan, National Training Center, Fort Irwin, CA* (the Fencing Plan) and the *Desert Tortoise Translocation Plan*, the identification of sick DT pen locations, and other completed mitigation measures. The Army concludes that the loss of critical habitat will not appreciably diminish the value of CH for DT recovery.

¹ Gifford Pinchot Task Force v. United States Fish and Wildlife Service, No. 03-35279 (9th Cir. 2004) and Center for Biological Diversity v. US Fish and Wildlife Service, Civ No. 03-03807/ 03-02509 SI (N.D. CA 2004)

4.5.1.2.2 Mitigation Desert Tortoise

- ❖ Purchase of mitigation lands, as identified in the Biological Opinion from USFWS. This will include private lands within desert tortoise critical habitat and within LMMV habitat for permanent protection from private development.

There is a typo on the third line of page 4-33. The word wouldo should read would.

4.5.10 Summary of Impacts and Mitigation in the Biological Assessment Supplement

The BA Supplement found that training activities will directly degrade approximately 84,000 acres of DT CH. This acreage is approximately 11 percent of the Superior-Cronese CHU that could support the PCEs of CH and approximately 5 percent of the CH that has been designated in the Western Mojave Recovery Unit.

To offset the impacts of proposed training on CH, the Army has acquired more than 99,000 acres, which is of equal or greater value than the current land, to compensate for the loss of habitat to new training areas. Of the 99,000 acres acquired, more than 87,000 acres is in CH. The Army has set aside 16,900 acres of Army lands for conservation and management of DT. Also, acquisition of land will remove the checkerboard pattern of public ownership that exists in many areas. This will provide for better management opportunities and a decreased need for roads to provide access to private lands.

Cattle have been removed from approximately 323,526 acres of grazing allotments in the Western Mojave Recovery Unit, of which 57,059 acres are in designated CH.

The Army has begun funding of two BLM rangers and a two-person FWS DT Management Team. The increased level of management that will be possible on acquired lands should increase the likelihood that threats to the DT and its CH can be addressed on a more holistic level.

Although the proposed action may reduce the area within the Superior-Cronese CHU that would support the PCEs of CH, the purchase of additional lands that have the PCEs of CH and will become CH should effectively offset the loss of CH on Fort Irwin such that the amount of CH for the conservation of the DT will not be appreciably diminished. As noted in the Recovery Plan, smaller areas require more intensive management to ensure the conservation of the species. The acquisition proposed by the Army would help in making this CH unit more manageable.

Based on the above information and analysis, and that provided in the BA, its Addenda, the existing BO, and the underlying administrative record, the Army concludes that the overall effect of the proposed action will not appreciably diminish the value of the DT CH for either survival or recovery of the species. While the Army's proposed project to increase maneuver training lands will adversely affect DT CH, the Army, with FWS review and concurrence, has identified, and commenced implementation of, significant conservation and mitigation actions that will not only support survival of the species, but will also avoid appreciably diminishing the value of designated CH for species recovery.

After reviewing the existing administrative record, including the BA, its Addenda, the BO, and the additional information in the BA Supplement focusing on the effects of the

proposed land expansion on DT CH, its PCEs, and the overall effect on those elements in relations to species recovery, the Army concludes that the proposed action will not appreciably diminish the value of designated DT CH for either survival or recovery of the species. Overall, CH for the DT will remain functional to serve the intended conservation role for the species.

MEMORANDUM FOR RECORD

SUBJECT: Fort Irwin Maneuver Land Expansion Biological Assessment Supplement, and Review of Factors for Re-initiation of Formal Consultation

The Army has conducted a supplemental assessment of the effects of the proposed land expansion at Fort Irwin to desert tortoise (*Gopherus agassizii*) (DT) critical habitat (CH) and the effects of measures taken to avoid, reduce, and offset the impacts of the proposed action and to protect and conserve the DT.

The supplement focused on the effects of the action on DT CH and whether those effects amount to adverse modification or destruction of DT CH such that the value of CH for recovery of the DT is appreciably diminished. This is consistent with a standard suggested by recent court decisions, requiring an examination of the value of CH for the recovery of a listed species in addition to its survival.¹

The Army also determined whether there is new information or other conditions requiring re-initiation of formal Section 7 consultation under the Endangered Species Act (ESA). The determination was based on the factors in 50 CFR §402.16, which are also contained in Army Regulation 200-3, paragraph 11-7f.

The Army's determination is based on the best available scientific and commercial information. The Army considered whether there will be any taking beyond that identified in the incidental take statement in the *Biological Opinion for the Proposed Addition of Maneuver Training Lands at Fort Irwin, California (1-8-03-F-48)* (BO); whether there is any new information revealing effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; whether there has been any modification to the proposed action; and whether there are any new species listed or critical habitat designated that may be affected by the action.

Facts:

1. In May, 2003, the Army submitted to the U.S. Fish and Wildlife Service (FWS) its *Biological Assessment for the Proposed Additional of Maneuver Training Land at Fort Irwin, CA* (BA). The Army submitted additional information by BA Addenda dated January 2004 and February 2004. Formal consultation on the proposed action was completed on 15 March 2004, on which date the FWS, through the Ventura Fish and Wildlife Service Office, issued the BO. The BO concluded that the proposed action is not likely to jeopardize the continued existence of the DT or Lane Mountain milk-vetch (*Astragalus jeagerianus*) (LMMV) or to destroy or adversely modify designated CH of

¹ The BO also concluded that the proposed expansion was not likely to result in jeopardy to DT or LMMV. Those conclusions are not at issue and remain legally and biologically sufficient. The focus of the Army's supplemental review, therefore, is primarily on consideration of the BO's conclusion that the proposed action would not adversely modify or destroy designated DT CH.

the DT. In fact, the BO states that the conservation measures being implemented by the Army will have substantial beneficial effects on the DT and its CH.

2. Recent court decisions² have declared invalid FWS's definition of "adverse modification" of CH (50 CFR 402.02). The courts determined that the regulatory definition was inconsistent with the ESA, as it failed to focus on the role of designated CH in conservation and recovery of listed species. The courts found that a proper definition would be one that would allow an "adverse modification" determination if an agency action appreciably diminished the value of CH for either survival or recovery of the species, a more protective standard. In both referenced cases, the courts presumed that the FWS applied the invalidated regulatory standard. In the BO in this case, however, FWS applied the more protective standard. The BO states, "the loss of areas supporting the constituent elements of critical habitat within the Superior-Cronese Critical Habitat Unit will not appreciably reduce the ability of this unit to provide for the *conservation* of the desert tortoise." (Emphasis added.) Nevertheless, in order to ensure that the Fort Irwin Maneuver Land Expansion project met the courts' more protective standards, the Army undertook a review of the administrative record underlying the BA, its Addenda, and the BO, and performed a supplemental assessment of the effects of the proposed land expansion to DT CH and the effects of mitigation taken to protect and conserve the DT.

3. The Army's *Biological Assessment Supplement for the Proposed Addition of Maneuver Training Land at Fort Irwin, CA* (BA Supplement) is an independent examination of whether the proposed action is likely to diminish appreciably the value of DT CH for "recovery" of the species, even if the value of CH remains sufficient to assure DT survival. The BA Supplement also provides an update on Army mitigation actions undertaken since the issuance of the BO, including completion of the *Fencing Plan, National Training Center, Fort Irwin, CA* (the Fencing Plan) and the *Desert Tortoise Translocation Plan*, the identification of sick DT pen locations, and other completed mitigation measures. The BA Supplement concludes that the loss of critical habitat will not appreciably diminish the value of CH for DT recovery.

4. This conclusion is based in part on the fact that the 84,000 acres of CH impacted by the proposed action represents only a small percentage of total DT CH (see table in the BA Supplement). Nearly 17,000 acres of Army land will be set aside for conservation and management of the DT, and some of the designated CH that will be adversely affected is not actually suitable for DTs. Finally, the Army is purchasing land from private owners, totaling over 87,000 acres of DT CH. This land will be better managed now and will be subject to the requirements of Section 7 of the ESA, as well as the prohibitions of Section 9. In addition, the Army has purchased private ranches that have enabled it to eliminate cattle grazing (which is harmful to the DT and its habitat) on over 57,000 acres of DT CH.

² Gifford Pinchot Task Force v. United States Fish and Wildlife Service, No. 03-35279 (9th Cir. 2004) and Center for Biological Diversity v. US Fish and Wildlife Service, Civ No. 03-03807/ 03-02509 SI (N.D. CA 2004)

5. Based in part on the BA Supplement, the Army has concluded that there is no new information revealing effects of the action that may affect the LMMV or the DT and its CH in a manner or to an extent not previously considered. There also will be no taking of endangered species beyond that identified in the incidental take statement. There has been no modification to the proposed action, and there are no new species listed or critical habitat designated that may be affected by the action.

Conclusion: The Army bears the ultimate responsibility under the ESA for determining effects on the species and determining the need to engage in formal Section 7 consultation. (See *Defenders of Wildlife v. Flowers*, 414 F.3d 1066 (9th Cir. 2005); *CBD v. Rumsfeld*, 109 F.Supp. 2nd 1139, 155 (D.AZ 2002).) Based on the foregoing analysis and review of the underlying administrative record, including this BA Supplement, the Army concludes that, even after applying the more stringent standard suggested by the courts, the BO's determination that the proposed land expansion action at Fort Irwin will not result in adverse modification or destruction of DT CH is valid. In particular, the Army has determined that the proposed land expansion will not appreciably diminish the Primary Constituent Elements (PCEs) of the designated DT CH such that its value for recovery of the DT is appreciably diminished. The Army has also determined that there will be no taking beyond that identified in the incidental take statement; there is no new information revealing effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; there has been no modification to the proposed action; and there are no new species listed or critical habitat designated that may be affected by the action. The only change since the BO was completed is that the Army has taken further steps to implement previously identified measures to avoid, reduce, and offset the impacts of the proposed action. Therefore, the Army concludes that re-initiation of formal consultation is not necessary.

Note: This Memorandum For Record will be appended to the Biological Assessment Supplement, which will be appended to the SFEIS. It will be provided to all interested parties.

**Biological Assessment Supplement for the Proposed
Addition of Maneuver Training Land at Fort Irwin, CA**

15 November 2005

Table of Contents

Introduction.....	1
Consultation History	1
Court Cases	3
Description of Proposed Action.....	4
Status of Desert Tortoise.....	4
Species Description.....	5
Status of Population	5
Recovery Plan for the Desert Tortoise.....	5
Assessment of the Recovery Plan.....	5
Status of Critical Habitat.....	6
Environmental Baseline (50 CFR 402.02).....	15
Effects of Action	16
Effects of Human Activities on Desert Tortoise.....	16
Effects of Human Activities on Critical Habitat.....	16
Conservation and Mitigation Measures	21
Cumulative Impacts (Section 7 (a)(2))	25
Summary	25
Acronyms	27
Works Cited	28

Introduction

Information contained within this BA Supplement is based on actions/analyses undertaken by the Army as part of section 7 consultation with the FWS as part of the Biological Assessment/Biological Opinion (BA/BO) process, and on additional on-the-ground analyses of Primary Constituent Elements (PCEs) of Critical Habitat (CH) performed by Army biologists (Lynn, 2005). Note: While this summary provides additional information to clarify issues as a result of court judgments regarding the regulatory definition of adverse modification of CH, it does not result in any material changes to the overall BA. We believe the original BA addresses all the effects potentially caused by the use of additional maneuver lands at Fort Irwin, including survival and recovery of the federally listed desert tortoise (*Gopherus agassizii*) (DT), and we are writing this Supplement to the BA in order to focus clearly our analyses on the impacts to CH, in terms of both survival and recovery of the species.

As there are no significant new data sources to supplement the population data found in the BA, it is hereafter incorporated by reference, and will not be pursued further in this assessment. Accordingly, as zero acres of Lane Mountain milk-vetch (*Astragalus jeagerianus*) (LMMV) critical habitat were designated, LMMV will not be discussed in this BA Supplement.

Consultation History

In May, 2003, the U.S. Army National Training Center and Fort Irwin provided to the U.S. Fish and Wildlife Service (FWS) a BA for the Proposed Addition of Maneuver Training Lands at Fort Irwin, CA.

In addition to the BA, letters and correspondence were submitted to FWS to supplement and/or clarify the data in the BA. In January 2004, a letter was sent to FWS providing clarification of the BA. The BA “found that the proposed project is likely to adversely modify desert tortoise critical habitat” (Charis 2003). In the January letter, the BA statement was clarified that the Army had “not intended to draw a conclusion as to whether the proposed action would result in an adverse modification of designated critical habitat” of the desert tortoise (US Army 2004a). Errata pages were also included.

In February 2004, two letters were sent to FWS. The first letter, dated 13 February 2004, addressed changes to the proposed action. In the letter, additional conservation/mitigation commitments were made, contingent on the limits of legislated funding (US Army 2004b). These include: creating a 3,798 acre “no-dig” zone in the Brinkman Wash-Montana Mine LMMV occurrence area; shifting the southwestern boundary of the UTM 90 conservation area for the DT, increasing it to approximately 1,600 acres; implementing measures to assist the Bureau of Land Management (BLM) in managing lands that will be acquired to benefit the desert tortoise and the LMMV; increasing the number of sweeps to capture desert tortoises in the Superior Valley and UTM 90 parcels; translocating these animals for research and conservation; providing funding for a DT management team for research and implementation of the management

actions to promote recovery for the DT; and providing funding for additional research and collection of data; controlling factors that limit recovery of the DT; and providing funding for future adaptive management measures.

The second letter, dated 25 February 2004, provided an Addendum to the BA. The Addendum provided additional detail on several of the measures mentioned in the previous letters and on infrastructure actions needed to prepare the lands for training. The “no-dig” zone was further clarified to cover approximately 3,798 acres, of which, 1,872 acres supported habitat for the LMMV (US Army 2004c).

On March 15, 2004, the FWS issues a No Jeopardy/No Adverse Modification *Biological Opinion for the Proposed Addition of Maneuver Training Lands at Fort Irwin, California* (BO) (1-8-03-F-48) (FWS 2004). The BO considered the loss or degradation of approximately 75,000 acres of DT habitat within the Superior-Cronese Critical Habitat Unit (CHU), the loss or degradation of additional areas of lower quality habitat outside of CH, the translocation of several hundred DT from areas that will be regularly used for training to locations off-base, and possible loss of DT that are not found during the translocation effort.

The FWS has stated that, although there may be an impact to approximately 5 percent of designated CH in the Western Mojave Recovery Unit, “...the conservation measures being implemented by the Army are likely to have substantial beneficial effects in the desert tortoise and its critical habitat within the action area” (FWS 2005). To offset this loss of critical habitat, the Army proposed to acquire private lands within DWMAs and fee owned ranch lands with associated relinquishment of grazing privileges.

The BO found that “...the addition of training lands at Fort Irwin is not likely to jeopardize the continued existence of the desert tortoise and Lane Mountain milk-vetch or to destroy or adversely modify critical habitat of the desert tortoise” (FWS 2004). The FWS decision was based on the following reasonable and prudent measures:

- ❖ The Army must ensure that only qualified personnel are allowed to handle desert tortoise.
- ❖ The Army must develop procedures to reduce the take of desert tortoise during the preparation of the new training lands for military exercises.
- ❖ The Army must ensure that all personnel using vehicles to mark boundaries within habitat of the desert tortoise receive instruction on their responsibilities with regard to protection of the species.
- ❖ The Army must provide specific information on the procedures that will be implemented to translocate desert tortoises.
- ❖ The Army must develop a set of procedures that would be followed is a desert tortoise is encountered during military exercises (FWS 2004).

In addition to the obligatory reasonable and prudent measures, the FWS suggested non-obligatory conservation measures. Fort Irwin has proposed most of the non-obligatory conservation measures as mitigation measures to offset impacts of the proposed action.

After the FWS issued a BO, and pursuant to the *Key Elements Report* to Congress, a Conservation/Mitigation Working Group (WG), comprising staff from the Army, FWS, California Department of Fish and Game (CDFG), U.S. Geologic Survey (USGS), and the BLM, was formed to evaluate proposals for land acquisition and other conservation measures. This was done to ensure that appropriate criteria are met to provide for adequate conservation of species and reduce or offset the impacts of the proposed expansion. In order to implement conservation, Congress authorized to be appropriated \$75 million. While Congress did not immediately appropriate the funds, Army personnel have worked diligently to ensure that sufficient funds are budgeted yearly to execute the proposed conservation/mitigation measures. To date, the Army has performed numerous DT studies, has purchased approximately 99,000 acres of lands from the Catellus Corporation and the private interests in 3 cattle allotments in the western Mojave Desert, with voluntary relinquishment of associated grazing privileges, as part of the conservation measures for the expanded training areas. The Army has also begun multi-year funding for two FWS DT management personnel and two land management positions for the BLM. The Army's Fencing Plan has been completed and approved by the FWS, and its DT Translocation Plan has been completed, approved by the WG, and forwarded to the FWS for final approval.

Court Cases

On May 27, 2003, the Center for Biological Diversity, the Sierra Club, and the Public Employees for Environmental Responsibility, joined by the Desert Survivors (plaintiffs), filed a lawsuit in U.S. District court, Northern District of California against the BLM and the FWS, challenging issuance of the June 17, 2002 BO for the BLM's CDCA Plan and implementation of the CDCA Plan (as amended).

In an August 3, 2004 order, the District Court held the FWS had relied on an invalid regulatory definition of "adverse modification" while analyzing effects to designated critical habitat in the June 17, 2002, BO (Civ. No. 03-03807/03-02509 SI (N.D. CA 2004)). The BO was vacated and remanded to the FWS with instructions to reissue the BO after applying the appropriate definition of adverse modification, which the District court defined as "a direct or indirect alteration of critical habitat which appreciably diminished the value of that habitat for either survival or recovery of a listed species."

The District Court responded to the defendants' and plaintiffs' subsequent motions to alter or amend the judgment and for injunctive relief, respectively, in a December 30, 2004, order that, among other things, no longer prescribes a specific definition for adverse modification but adopts the following language amending the August 3, 2004 Order to provide an example of a proper definition of adverse modification:

The Court finds, for example, that a proper definition of "destruction or adverse modification" would be "a direct or indirect alteration of critical habitat which

appreciably diminishes the value of that habitat for either the survival or recovery of a listed species (FWS 2005).”

On August 6, 2004, the United States Court of Appeals for the Ninth Circuit rendered a decision that the FWS’s CH analysis was “fatally flawed because it relied on an unlawful regulatory definition of “adverse modification” and it impermissibly substituted [late successional reserves] for critical habitat (*Gifford Pinchot Task Force v. United States Fish and Wildlife Service* (No. 03-35279 (9th Cir. 2004))).

The courts also invalidated the BOs at issue since they were developed in reliance upon the invalid “adverse modification” standard, and such reliance did not amount to “harmless error.” Thus, the proper standard to employ for determining whether there will be “destruction or adverse modification” of CH, according to the courts, is whether a proposed action will appreciably diminish the value of CH for either survival or recovery of the species.

Description of Proposed Action

The description of proposed action has been defined in the BA. As there is no change to the proposed action, it will not be discussed further in this document. The BA is incorporated by reference.

Although the proposed action has not changed, the status of proposed mitigation and conservation measures has changed. The Army proposed, in its original BA and follow-on Addenda (Charis 2003, U.S. Army 2004a,b,c,d), numerous actions to minimize impacts to threatened and endangered species within training areas. It also proposed and is currently implementing numerous measures to ensure that CH of the DT in the western Mojave Desert continues to serve the role for which it was intended and to enhance its conservation function, where possible. These measures are described below:

As part of the minimization plan for the project, a Fencing Plan and Desert Tortoise Translocation Plan were completed and forwarded to FWS for review. The Fencing Plan was approved by FWS on 15 September 2005. Other conservation measures already completed include the purchase of 99,000 acres, of which 89,014 acres are within a Desert Wildlife Management Area (DWMA); purchase of three ranches, with voluntary relinquishment of 323,526 acres of grazing allotments: Harper Dry Lake, Cronese Dry Lake, and Cady Mountain; and the creation of additional conservation areas.

Status of Desert Tortoise

The status of the DT has been defined in the BA (Section 4.1.1.1 Desert Tortoise (*Gopherus agassizii*). As there is no significant change to the status of the DT, it will not be discussed further in this document.

Species Description

The species description of the DT has been defined in the BA (Section 4.1.1.1.2 Species Description). As there is no significant change to the species description of the DT, it will not be discussed further in this document.

Status of Population

The population status of the DT has been defined in the BA (Section 4.1.1.1 Desert Tortoise (*Gopherus agassizii*). As there is no significant new data on the population status of the DT, it will not be discussed further in this document.

Recovery Plan for the Desert Tortoise

On June 28, 1994, the FWS released the Recovery Plan for the Mojave population of the DT (FWS 1994b), which identified 6 evolutionarily significant recovery units and recommended the establishment of 14 reserves or DWMA. DWMA act as reserves in which recovery actions will be concentrated. The project area lies partially within the Western Mojave Recovery Unit. The Superior-Cronese Lakes DWMA, as proposed in the Recovery Plan, included the Superior Valley Parcel of the withdrawal area. Presently, however, due to the military land withdrawal, the area has been removed from inclusion in the proposed DWMA and is no longer represented as being included within the proposed boundaries on Department of Interior (DOI) maps (BLM 2003).

The Recovery Plan for the DT is the basis and key strategy for recovery and delisting of the DT. The Recovery Plan divides the range of the desert tortoise into 6 distinct population segments or recovery units and recommends the establishment of 14 DWMA throughout the recovery units. Within each DWMA, the recovery plan recommends implementation of reserve level protection of desert tortoise populations and habitat, while maintaining and protecting other sensitive species and ecosystem functions. The recovery plan also recommends that DWMA be designed to follow the accepted concepts of reserve design and be managed to restrict human activities that negatively affect desert tortoises (FWS 1994c).

The Recovery Plan based its descriptions of the six recovery units on differences in genetics, morphology, behavior, ecology, and habitat use over the range of the Mojave population of the desert tortoise. The Recovery Plan contains generalized descriptions of the variations in habitat parameters of the recovery units and the behavior and ecology of the DT that reside in these areas (FWS 1994c).

Assessment of the Recovery Plan

In 2003, the FWS appointed a group of researchers to conduct a scientific assessment of the Recovery Plan for the DT, which was completed in 1994. This group, called the Desert Tortoise Recovery Plan Assessment Committee, completed its assessment in 2004. The group found that the recovery plan was “fundamentally sound, but some modifications for contemporary management will likely make recovery more successful (Tracy et al. 2004). The group also found that analyses showed DT populations were declining in some portions of the range, assessing the density of DT is difficult, and “the

original paradigm of desert tortoises being recovered in large populations relieved of intense threats may be flawed...”(Tracy et al. 2004). Finally, the group reviewed the distinct population segments (or recovery units) described in the Recovery Plan and concluded they should be modified; briefly, the Desert Tortoise Recovery Plan Assessment Committee recommends leaving the Western Mojave and Upper Virgin River units intact and recombining the remaining four into three distinct population segments.

Status of Critical Habitat

Habitat

The action area, as defined in the BA, contains a diverse habitat, some of which has been consolidated in the last 10 years by the acquisition of more than 500,000 acres of private lands being acquired in DT CH and wilderness areas (FWS 2005). These lands are within the designated recovery units in the CDCA and will allow for improved management of CH. When the mitigation lands that the Army has committed to purchasing are added to the tally, a more interconnected, undisturbed area, with a greater core area will allow for a more likely recovery of the species.

Critical Habitat

Critical habitat is designated by the FWS to identify the key biological and physical needs of the species and key areas for recovery, and focuses conservation actions on those areas. Designated CH for the DT in portions of California, Nevada, Arizona, and Utah in a final rule, published June 28, 1994, encompassed approximately 6,446,200 acres (FWS 1994a [59 FR 5820]) . The following table describes the recovery units in which critical habitat units (CHUs) are found.

Recovery Unit	Critical Habitat Unit	Acreage
Western Mojave		
	Fremont-Kramer	518,000
	Superior-Cronese	766,900
	Ord-Rodman	253,200
	Pinto Mountain	171,700
Northern Colorado		
	Chemehuevi	937,400
Eastern Colorado		
	Chuckwalla	1,020,600
Eastern Mojave		
	Ivanpah	632,400
	Piute-Eldorado	970,600
Recovery Unit	Critical Habitat Unit	Acreage
Northeastern Mojave		
	Beaver Dam	204,600
	Gold Butte-Pakoon	488,300
	Mormon Mesa	427,900

Upper Virgin River		
	Upper Virgin River	54,600
Total Critical Habitat		6,446,200

The eight critical habitat units within the California Desert Conservation Area contain numerous types of habitats, cover the full range of the elevations used by DT, and are subject to varying degrees of human use. Historically, the degree of functionality of the PCEs of CH has been measured by evaluating the amount of ground disturbance. The CHUs within the Western Mojave Recovery Unit experience the most visitation by recreational users and economic interests, primarily because of their proximity to the Los Angeles Basin. Despite this level of use, large areas of CH in the western Mojave Desert remain undisturbed, according to information in the BLM’s West Mojave Plan. Using aerial photographs from 1994 of the proposed DWMA’s in the planning area for the western Mojave Desert region, BLM used numerous conservative calculations and concluded that approximately 1.3 percent of the proposed DWMA’s have been disturbed to date (LaPre 2005). Given that the CHUs throughout the remainder of the California Desert Conservation Area have been disturbed to a lesser degree than those in the western Mojave Desert planning area, FWS concluded that all of the CHUs within the action area are capable of supporting their conservation role and function. While the CHUs and DWMA’s do not overlap completely, the information comprises the best available data with regard to surface disturbance in the planning area. At this level of disturbance, FWS anticipates that the CHUs should function fully to support the conservation of the DT (FWS 2005).

Superior-Cronese Critical Habitat Unit. One CHU, the Superior-Cronese Lakes CHU, comprising 766,900 acres of designated CH, intersects the project area. Designated CH in the project area is approximately 96,000 acres, of which, approximately 84,000 acres falls within proposed high-, medium-, and low-use areas.

The following information is from LaPre (2005). The Superior-Cronese CHU includes approximately 766,900 acres. Within this area, BLM Multiple Use Class C (controlled use) lands cover 55,481 acres; Class L (limited use) lands cover 354,526 acres; and Class M (moderate use) lands cover 139,400 acres; this CHU does not include any lands within Class I (intensive use). Unclassified lands comprise small parcels at the edge of the CHU that total 1,013 acres.

The CHU is contiguous with CH on the Mojave B Range of the Naval Air Weapons Station and the Fort Irwin National Training Center; however, these areas, which include 201,914 acres, are outside of the action area of this biological opinion. The Air Force Cuddeback Gunnery Range, which is no longer in use, is entirely contained within CH.

A small portion of utility corridor BB is within the southeast portion of the Superior-Cronese CHU. Corridor BB is an east-west corridor, 3 miles wide, which follows Interstate 15. Major utilities located in this corridor include one 131- kilovolt transmission line, two gas pipelines, and two fiber optic cables. This corridor also

includes Interstate 15. The 2-mile wide Boulder Corridor (Corridor D) also traverses this CHU. The 5-mile wide corridor Q also runs east-west through the CHU.

Several popular off-highway vehicle routes are found within the Superior-Cronese CHU. Cultural sites include the 61,805-acre Black Mountain Cultural Area and the 898-acre Calico Early Man Site. The Rainbow Basin/Owl Canyon area contains a campground and highly eroded geological formations; this 4,087-acre site is popular with visitors.

The Black Mountain Wilderness overlaps 20,929 acres of the CHU. The Grass Valley Wilderness consists of 32,835 acres. Both of these wilderness areas are entirely within the CHU. Approximately 1,715 acres of the Golden Valley Wilderness are within the Superior-Cronese CHU; the remainder of the 37,700 acres adjoins the CHU on its northern edge.

Critical Habitat within the Fort Irwin Maneuver Land Expansion

The following description provides a brief summary of the characteristics of the area to be affected by the Fort Irwin Maneuver Land Expansion.

The western portion of the Superior Valley Parcel contains saltbrush scrub communities surrounding two playas at an elevation of approximately 3,000 feet; the terrain is generally flat. The land trends generally upward to the east and transitions into Joshua tree woodland and creosote bush scrub communities. The terrain also becomes more varied with small, steep hills, the northern flank of the Lane Mountain range, and rolling hills adding diversity. In the northern portion of the parcel, creosote bush scrub and saltbush scrub communities intermingle. To the south a large wash flows from the center of the parcel through Paradise Valley to the outside boundaries of Fort Irwin. Steep, rugged ranges line the eastern border of the parcel, ending with the northern portion of the Paradise Range in the south. These ranges support Mojave mixed woody scrub communities, which are probably the most botanically diverse plant assemblages within this parcel.

The western portion of the UTM 90 Parcel includes the eastern edge of the Paradise Range and supports a Mojave mixed woody scrub community. In the vicinity of Fort Irwin Road and the Manix Trail, the terrain consists of a series of rolling hills and undulating terrain. This area is characterized by creosote bush scrub community. The northern slope of the Alvord Mountains lies to the east. This broad alluvial fan primarily supports a creosote bush scrub community; portions of this area contain high quality perennial grasslands with robust stands of galleta grass. The eastern end of the parcel supports sandy areas and a few large canyons that drain to the south.

Primary Constituent Elements

Critical habitat is composed of specific geographic areas that contain the biological and physical attributes that are essential to the species' conservation within those areas, such as space, food, water, nutrition, cover, shelter, reproductive sites, and special habitats. These features are called the primary constituent elements of critical habitat.

There are six PCEs of DT CH. These are: sufficient space to support viable populations within each of the six recovery units and to provide for movements, dispersal, and gene flow; sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species; suitable substrates for burrowing, nesting, and over-wintering; 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 (59 Federal Register 5820). The status of the PCEs is described below.

1. Sufficient space to support viable populations . . . and provide for movements, dispersal and gene flow.

The expansion of the National Training Center (NTC) to the south and west of its current location takes place within the Superior-Cronese CHU. The Superior-Cronese CHU is one of the largest CHUs, with approximately 766,900 acres. The total size of the UTM 90 Parcel and Superior Valley Parcel is approximately 93,495 acres. There will be several areas within the expansion that will be set aside for DT and LMMV conservation. The off-limits areas total 9,332 acres, and there are 3,798 acres that will be classified as no-dig. This allows for foot traffic throughout and restricts vehicle traffic to existing roads. This reduces the total acreage in the expansion area that will support military training activities to approximately 84,000. Before training activities begin within these expansion areas, the boundaries near areas that support high densities of DT will be fenced with desert tortoise-proof fencing to prevent DT from wandering onto the NTC. After the fence has been installed and before training begins, the expansion areas will be surveyed and all DT found in training areas will be translocated outside of military lands. (More information can be found in the Fort Irwin Translocation Plan.) This has been done to protect DT from direct mortality and injury from military activities. Additionally, fencing and berm will be designed to prevent military vehicles from straying off-installation, thus protecting PCEs outside of the training area. The total amount of land that will be impacted, therefore, is approximately 11 percent of the Superior-Cronese CHU. The remaining 89 percent of the Superior-Cronese CHU will allow for adequate movement, dispersal, and gene flow.

2. Sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species.

The peak of the DT spring activity coincides with the bloom of winter annuals. Desert tortoises have been known to forage on a wide variety of plants. Some common species are *Erodium cicutarium*, *Amsinkia tessellata*, *Chaenactis fremontii*, *Astragalus lentiginosus*, and *Phacelia* sp. There have been many studies focusing on the foraging habits of DT. Many of these studies show that DT will select one species of plant over another, even if the preferred species is less abundant than others. In addition to annual forbs, DT may also eat grasses, cacti, and some perennial shrubs.

Previous vegetation studies within the expansion areas have focused primarily on delineating the vegetation communities and not listing where individual plant species were found. Various DT surveys in these areas have noted plants species, however. Karl, surveyed two 1 kilometer² plots in the southwestern portion of the UTM 90 Parcel (1999). One plot had 41 plant species listed (17 forbs, 12 shrubs, 12 other), and the other had 38 species (17 forbs, 11 shrubs, 10 other).

Communities which have creosote associations, Mojave mixed woody scrub, and washes have a higher value for this PCE; playas do not support this PCE; and the value of this PCE in saltbush scrub communities surrounding dry lakes is low to none.

The western portion of the Superior Valley Parcel comprises saltbush scrub communities surrounding two playas. The land to the east transitions into Joshua tree woodand and creosote bush scrub communities. In the northern portion of the parcel, creosote bush scrub and saltbush scrub communities intermingle. The ranges lining the eastern border of the parcel support Mojave mixed wood scrub communities, which are probably the most botanically diverse plant assemblages with the parcel. The western portion of the UTM 90 Parcel supports a Mojave mixed woody scrub community. The area around Fort Irwin Road and Manix Trail is characterized as a creosote bush scrub community, but supports a slightly greater diversity of plants. The northern slope of the Alvord Mountains on the east supports a creosote bush scrub community; portions of this area contain high quality perennial grasslands with robust stands of galleta grass (*Hilaria rigida*).

No surveys have been found that detail which species of forbs are present throughout the areas south of the expansion areas. It is assumed that, as most of these areas are creosote scrub, the same annuals would occur here as in the expansion areas.

Average rainfall in the action area is approximately three inches. The last two years have seen an increase in the amount of precipitation in the area, with yearly totals of 4.3 inches in 2003-2004 and 9.6 inches in 2004-2005, respectively. Prior to that time, the area was in a drought period, experiencing less than average rainfall for a period of five years, with an exceptionally dry period in 2001-2002. The natural fluctuation of rainfall has a significant effect on the quantity and quality of available forage for desert tortoises.

3. Suitable substrates for burrowing, nesting and overwintering.

Desert tortoises can occur on a wide variety of soils though they reach their highest densities on deep sandy-loam soils (Krzysik 1994). No one soil survey has been completed that covers the entire action area.

The Natural Resources Conservation Service (NRCS) completed a comprehensive soil survey for the existing NTC in 2000. Within the UTM 90 Parcel, the NRCS identified 19 soil types. Of these 19 soil types one type was classified as well suited for DT. This type accounts for 3,871 acres, or 17percent of the UTM 90 Parcel. Eight soil types were classified as suited for DT. This accounts for 12,789 acres (55percent) of the UTM 90

Parcel. Finally, ten soil types were classified as poorly suited for DT. This category accounts for 6,391 acres (28percent) of the UTM 90 Parcel. The interpretation for DT evaluates the following soil properties at variable depths in the soil: flooding, ponding, wetness, slope, clay and sand textures, organic matter content, fragments greater than 3 inches, depth to bedrock, depth to cemented pan, soil bulk density, gypsum content and fragments 0.2 to 3 inches.

Within the Superior Valley Parcel, the Integrated Training Area Management (ITAM) program has established 47 study plots. A portion of the data gathered within these plots includes the percentage of sand, clay, gravel, and silt as well as the overall soil texture. Nineteen of the plots have a soil texture classified as loamy sand, twenty-four plots are sandy loam, and four plots are classified as sand (Hamilton, pers. comm.). As mentioned above, the highest densities of DT are found on sandy-loam soils, to which they are well suited.

The areas directly south of the UTM 90 Parcel and Superior Valley Parcel have not had soil surveys performed. A GIS data layer from the Mojave Data Ecosystem Project (MDEP) shows the geomorphology of these areas. These areas are predominately classified as bajada and erosional highland landform types. These areas correspond with areas in the UTM 90 Parcel that are classified as suited or well-suited for DT.

4. Burrows, caliche caves, and other shelter sites

Burrows, caliche caves, and other shelter sites play an important role in the biology of the DT. Desert tortoises use cover sites primarily for regulation of body temperatures, protection from predators, and hibernation. Soil burrows are dug by the tortoises and are generally 2.5 to 10 feet in length (Berry and Duck, 1999). Caliche caves are naturally occurring caves in the caliche layers of soil. Caliche caves are almost always found in washes. Other cover sites include pallets which are shallow depressions dug out under the shade of a shrub used for resting during the day, and naturally occurring rock shelters.

The ability of an area to support burrows and shelter sites is highly dependent on soils, which are discussed above. Areas with soils that are more conducive to burrowing support more burrows than areas with poor soils. The UTM 90 Parcel is the most surveyed area on the NTC for DT. Chambers Group conducted a DT survey throughout most of the UTM 90 Parcel and the area immediately below it (1994). Using four 1.8 kilometer long triangular transects per square mile, they noted 150 DT burrows. No mention as to the class of these burrows was made in the report. In 2001 Alice Karl conducted 33 2.4 kilometer transects in the UTM 90 Parcel. She observed 364 burrows of varying class and size. Karl lists 125 DT burrows over 180 mm wide found during her 2002 surveys in the UTM 90 Parcel (2002a,b). Fourteen transects, each 2.4 kilometers long, were conducted in the UTM 90 Parcel between UTM Easting 525000 and 540000. All of the above data is for the entire UTM 90 Parcel, and the surveys that took place in the conservation areas were not removed from the totals.

Karl conducted 110 2.4 kilometer transects in the Superior Valley Parcel (2001). During those transects, 271 burrows of varying class and size were found. In 2002, Karl conducted 15 transects, each 2.4 kilometers long and noted 40 burrows over 180 mm in width. All of the above data is for the entire Superior Valley Parcel, and the surveys that took place in the conservation areas were not removed from the totals.

Data for burrows, caliche caves, and other shelter sites in the areas south of the expansion areas is not readily available. The 1994 Chambers Group survey of the UTM 90 Parcel also covered a portion of land immediately south the NTC. Those surveys found 257 DT burrows. As before, no mention of size or class of these burrows was made. A Sierra Delta DT survey was performed in 1990 in a 1 mile² area off-post directly south of the Brinkman Wash Restricted Area conservation area. In this study plot, 124 “inactive” burrows and 48 “active” were located.

Analysis of the geomorphology layer from MDEP, as described above, shows several significant areas of washes in and south of the expansion areas. Caliche caves, which are most often associated with wash habitat, provide excellent natural cover sites for DT. No estimate for caliche caves south of the expansion areas is available at this time.

5. Sufficient vegetation for shelter from temperature extremes and predators.

During the 1994 Chambers Group survey for DT, information was gathered to determine the perennial vegetation density. Several large areas of densities of greater than 250 plants per hectare existed in 1994. The rest of the UTM 90 Parcel varies from less than 50 plants per hectare to 201-250 plants per hectare. Karl (1999) performed two DT surveys in the southwestern portion of the UTM 90 Parcel. The northern of the two (NL-1) is approximately half in the proposed conservation area, and the southern plot (MT-1) is almost entirely in a conservation area. Plot NL-1 was estimated to have 15 percent cover dominated by creosote and burro bush. Plot MT-1 was also estimated to have 15percent cover with a similar vegetation association. Karl also noted a 15 percent perennial vegetation cover in the UTM 90 Parcel during surveys conducted in 2001-2002 (2002a, b).

ITAM surveys in the Superior Valley Parcel have shown a perennial shrub covers vary between 0.47 percent and 28.77 percent. It should be noted that the ITAM plots in the Superior Valley Parcel were not random and that the data here may not be representative of the entire area. Within the Superior Valley Parcel, there are two playas (dry lake beds) that are completely devoid of vegetation. These areas total approximately 1,880 acres in size, or 2.7 percent of the Superior Valley Parcel.

Vegetation cover data for the areas south of the expansion areas and the Catellus parcels could not be found, though anecdotal evidence from Army environmental personnel who have visited the areas show that vegetation cover there is similar to the Superior Valley Parcel and UTM 90 Parcel.

6. Habitat protected from disturbance and human-caused mortality.

The UTM 90 Parcel, while belonging to the Army, has been off-limits to military training activities since 1991. The northern portion of the UTM 90 Parcel currently has a two-strand barbed wire fence, with Siber stakes to prevent military units from straying into this area. Before 1991, this area was part of the active training area and still shows signs of that use. Occasionally, military units will stray into the UTM 90 Parcel. Generally, the damage caused by these incursions is minimal. The southern boundary of the UTM 90 Parcel is not currently fenced off, though US Government signs are posted along the property line. Public incursions into the UTM 90 Parcel have not been a concern in the past. Access into this area is limited to military maintenance operations and biologists working on the DT.

The Superior Valley Parcel, which was given to the Army through the *Fort Irwin Military Lands Withdrawal Act of 2001* (P.L. 107-107, Title XXXIX Section 2901 et seq. December 28, 2001), has been a historically low-use area. Several historic mining sites are throughout the area. Most are single, small test pits but a few larger scale operations have taken place. No current mining activity is taking place within the Superior Valley Parcel. The public still access the area, as no fencing or signage has been placed along the boundary. Public use is generally limited to OHV (dirt bike) use, recreational shooting, rock hounding, and camping activities. One active homestead is located within the Superior Valley Parcel.

As discussed earlier, large areas of CH in the western Mojave Desert remain undisturbed, and over the past ten years, more than 500,000 acres of private lands have been acquired in critical habitat of the DT and wilderness areas. Additional protection from disturbance and human-caused mortality is being provided through federal land management and through fencing. Currently, DT-proof fencing is being installed along Fort Irwin Road; this was listed as the primary fencing goal in the Recovery Plan. Additionally, the Army and FWS are working with Cal-Trans to get the north side of I-15 fenced, from Afton Canyon Road to Hodge Road; and the Army plans to fence both sides of Old Irwin Road, from the intersection with Fort Irwin Road to the cemetery in Barstow.

Current Condition of Critical Habitat in the UTM 90 Area

The UTM 90 Parcel, which is located at the southern portion of Fort Irwin, comprises 23,214 acres. This area is owned by the Army, though training has not occurred on it since the DT was listed as threatened, and the Army removed it from use prior to designation of CH. It was subsequently designated as part of the Superior-Cronese CHU by the FWS in 1994. The Superior-Cronese CHU is approximately 766,900 acres. Therefore, the UTM 90 Parcel is approximately 3 percent of the total Superior-Cronese CHU. The Army has set aside three conservation/"off-limits" areas within the UTM 90 Parcel, for protection of the desert tortoise. These areas total 5,030 acres. This is approximately 22 percent of the UTM 90 Parcel that will remain off-limits to military activities.

Since there has been no training within the UTM 90 Parcel in over ten years, and as the public has not had regular, open access to this area since Fort Irwin was re-commissioned in 1981, the forage is of high quality and quantity to DT to provide food and shelter from temperature extremes and predators. The vast majority of the UTM 90 Parcel is composed of creosote scrub habitat. There is also a small percentage containing desert wash scrub and Mojave mixed wood scrub. There is a relatively high abundance of big galleta grass, a preferred tortoise forage item. Creosote bush scrub often contains the highest amount of forage items for tortoises.

The substrates found within the UTM 90 Parcel are loam, sand, and a mixture thereof. These are the preferred soils for DT burrows. They remain friable enough for DT to dig in, and stable enough to prevent burrow collapses.

Currently, the UTM 90 Parcel is relatively free of disturbance and human-caused mortality. Fort Irwin Road and Manix Trail are the only major roads in this action area. The military uses Manix Trail to transport rotational vehicles to and from the railhead in Yermo. Fort Irwin Road is used for Fort Irwin and NTC ingress and egress.

The Army has managed this land for approximately 24 years; during this time, public access has been prohibited. This area has also been off-limits to force-on-force training for approximately 15 years. Overall, the PCEs in this area are all in moderate to good shape, including forage plants and soils.

Current Condition of Critical Habitat Unit in the Superior Valley Area

The Superior Valley Parcel is located on the western portion of Fort Irwin and just south of the Goldstone complex, completely within the Superior-Cronese CHU. The total size of the Superior Valley Parcel is 70,281 acres, and the size of the Superior-Cronese CHU is approximately 766,900 acres. Therefore, the Superior Valley Parcel is approximately 9 percent of the total Superior-Cronese CHU. There will be one “off-limits” area, totaling 4,302 acres within the Superior Valley Parcel, set aside for protection of the DT and LMMV. This is approximately 6 percent of the total Superior Valley Parcel. In addition to the off-limits area, there will be a “no-dig” area, in which military units are allowed, though no ground disturbing activities will be permitted, and vehicles will be restricted to established roads. This area comprises 3,798 acres, 5 percent of the Superior Valley Parcel.

Within the Superior Valley Parcel, the dominant vegetation community is creosote scrub (53 percent), the most common type of vegetation community in which the DT is found. Approximately 22 percent of the Superior Valley Parcel is classified as a saltbush scrub vegetation community. Shrubs in this association are generally smaller in size and provide less protection than those in a creosote community. Various annuals that are commonly consumed by the DT are associated with creosote scrub.

Substrates within the Superior Valley Parcel action area are predominately loams, sands, and a mixture thereof. These types of soils are friable enough for desert tortoises to dig in, while not collapsing in on them. Previous surveys within the Superior Valley Parcel,

by various researchers, have found a varying number of DT burrows and caliche caves throughout.

The Superior Valley Parcel is home to several recreation types, including OHV activities, camping, shooting, etc. Since 1994, with the designation of this area as DT CH, there has been no livestock grazing. In addition to the recreation aspect, there are several old mines within the area, though none of them are currently active.

Only a portion of the Superior Valley Parcel is considered to be good habitat for the DT. Twenty-two percent of the vegetation is classified as saltbush scrub. Due to soil conditions (high salinity), both forage opportunities and protection provided by vegetation is considerably low. Previous surveys have shown low to nonexistent DT numbers in these areas (Karl 2002b). Another 21.5 percent would only be classified as marginal DT habitat. This includes smaller areas of Joshua tree, a saltbush/creosote transitional, and desert wash vegetation communities. Only 53 percent of the area is classified as creosote scrub.

Within the Superior Valley Parcel, the Army has created one off-limits area and one no-dig area. These areas total 11 percent of the Superior Valley Parcel.

Summary of the Status of Critical Habitat

The CHUs within the Western Mojave Recovery Unit clearly experience the most visitation by recreational users and economic interests, primarily because of their proximity to the Los Angeles Basin. Despite this level of use, large areas of CH in the western Mojave Desert remain undisturbed. This statement is based on information provided by the BLM that was gathered in support of the West Mojave Plan. Using aerial photographs from 1994 of the proposed DWMA in the planning area for the western Mojave Desert region, the BLM used numerous conservative calculations (i.e., it erred on the side of overestimating the amount of disturbance) and concluded that approximately 1.3 percent of the proposed DWMA have been disturbed to date (LaPre 2005). Given that the CHUs throughout the remainder of the CDCA have been disturbed to a lesser degree than those in the western Mojave Desert planning area, we conclude that all of the CHUs within the action area are capable of supporting their conservation role and function. The CHUs and DWMA do not overlap completely; however, this information comprises the best available data with regard to surface disturbance in the planning area. At this level of disturbance, the CHUs should function fully to support the conservation of the desert tortoise.

Environmental Baseline (50 CFR 402.02)

The environmental baseline has been defined in the BA (Section 4.1.1.1 Desert Tortoise (*Gopherus agassizii*)). As there is no significant change to the environmental baseline, it will not be discussed further in this document.

Effects of Action

Effects of Human Activities on Desert Tortoise

The effect of human activities on desert tortoise has been defined in the BA. As there is no significant change, it will not be discussed further in this document.

Effects of Human Activities on Critical Habitat

An estimated 96,000 acres of CH overlaps the Proposed Project (including conservation areas), of which approximately 84,000 acres of CH overlap high-, medium-, and low-intensity training areas. This is approximately 11 percent of the Superior Cronese CHU and approximately 5 percent of the CH in the west Mojave region. The CH designation includes some areas estimated to contain the PCEs necessary to support stable, self-sustaining, and well-distributed populations of DT. These elements include the biological and physical habitat characteristics necessary to support nesting, foraging, sheltering, dispersal, gene flow, movement, and predator escape, as well as protection from human-associated DT mortality and disturbance.

A breakdown of potential habitat impacted within the use areas is represented by the following percentages of each designation:

- ❖ 1 percent of total designated Critical Habitat for the Mojave Population (6,446,200 acres)
- ❖ 5 percent of the West Mojave Recovery Unit (1,709,800 acres)
- ❖ 11 percent of the Superior-Cronese Lakes CHU (766,900 acres)

Effects of the Proposed Action on the Primary Constituent Elements

The BO found that, “The proposed use of the 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” (FWS 2004). As long as the NTC is an active training facility, 84,000 acres of currently useable CH will be impacted, as DT will be removed and fenced out of maneuver training areas. However, over the long term, the Army will only impact the CH based on high-, medium-, low-intensity, and no-dig status. Should the NTC ever cease to perform its training mission, the impacts for future use of the lands as CH will not total 84,000 acres. High-intensity maneuvers would impact 43,880 acres; medium-intensity maneuvers would impact 34,452 acres; low-intensity maneuvers would impact 2,033 acres; and the no-dig zone would affect 3,793 acres. There would be no impact to 9,332 acres, which has been designated off-limits to training. The following paragraphs outline the impact from training on the PCEs. Due to the similarity of some of the PCEs, those that are similar have been combined.

- 1. Sufficient space to support viable populations . . . and provide for movements, dispersal and gene flow.**

Prior to the beginning of training in the UTM 90 Parcel, the southern boundary, excluding that of the conservation areas, will be fenced with desert tortoise-proof fencing. Desert tortoise-proof fencing will be placed to the north of the conservation areas, thus allowing DT movement into and out of these areas, but not into the maneuver areas. After the fencing is in place, large scale sweeps of the area will be made to remove all DT. This will remove the UTM 90 Parcel, minus the conservation areas, from DT CH. The UTM 90 Parcel acreage which will be open to military training activity totals approximately 18,184. This accounts for 2.6 percent of the Superior-Cronese CHU. Previous surveys of this area show that highest concentrations of DT occur on the southeastern and southwestern portions of the UTM 90 Parcel. These areas are going to be designated as off-limits conservation areas. As mentioned above, the DT outside these areas will be translocated to areas south of Fort Irwin and north of Interstate 15, as described in the Fort Irwin Desert Tortoise Translocation Plan.

Pursuant to the Fencing Plan, fencing will also occur along the boundaries of the Superior Valley Parcel. Before training begins, DT in this area will be moved outside of the maneuver area. The portion of the Superior Valley Parcel that will be open to military training activities totals approximately 65,897 acres. While this number represents 8.6percent of the Superior-Cronese CHU, it does not take into account the areas of the Superior Valley Parcel that are currently unsuitable DT habitat. The two playas, the areas that are above 1200 meters and/or areas with a 30percent slope are unsuitable DT habitat. These areas comprise 5,300 acres, or 8percent, of the Superior Valley Parcel that will host training.

While the size of the CH outside the Fort Irwin boundaries will not be changed by the proposed action, purchase of private lands and active federal management within the CHU will benefit the species, as they will prevent free and unrestricted use of the habitat. This will help offset the loss of habitat in the expansion areas.

2. Sufficient quantity and quality of forage species and the proper soil conditions to provide for the growth of such species.

Once training commences in the UTM 90 Parcel and Superior Valley Parcel, it can be expected that the quantity and quality of the forage species for DT will decrease in these areas. Figure 2-2 of the BA (Charis 2003) shows a significant portion of these areas host high to medium levels of military maneuver intensity. This level of training will, over time, destroy or damage most of the shrubs in an area. Shrubs that are not killed are often substantially reduced in height and width; thus, they would provide little or no shelter for any DT that may remain. Impacts include the direct removal of annual plants that the DT uses for food. The disturbance or removal of annual plants and shrubs reduces the ability of the DT to find food and shelter. Without a diverse assemblage of plant species upon which to forage, DT cannot maintain an appropriate nutritive balance (Ofstedal 2005); without the cover of shrubs, DT are more vulnerable to predators and the temperature extremes that are common in the desert.

The training will also impact soil conditions through compaction and disturbance, thereby reducing their ability to host vegetation. Disturbance of soils can accelerate the spread of invasive non-native species, which, in turn, can compete with the native plants that the DT requires for nutrients.

Based on ground inspections of the areas currently used for low-intensity training, it is likely that the quality and quantity of forage species and the soil conditions will not be significantly impacted. Additionally, there will be positive effects in areas set aside for conservation, as they will be restricted from general public and military access.

Forage and soils in CH outside of Fort Irwin may experience minor effects in areas where DT are to be translocated. Effects will be monitored, and negative effects will be corrected through adaptive management.

**3. Suitable substrates for burrowing, nesting and overwintering; and
4. Burrows, caliche caves, and other shelter sites**

As training begins in the expansion areas, the soils in these areas will likely become less suitable for DT. Compaction and disturbance will occur throughout most of the expansion areas. If not removed through translocation, DT could be killed in their burrows during training. Vehicle use can compact certain sediments to a degree that DT could no longer construct burrows or nests; sediments, such as sandy loams, provide good burrowing substrates for DT and are susceptible to compaction by vehicles. Rain cannot infiltrate compacted sediments; this lack of penetration by rainfall increases runoff and erosion from nearby areas. Additionally, native plants are slow to colonize areas where compaction has occurred, because their roots cannot penetrate the denser sediments.

Cross-country travel can also result in the destruction of burrows; DT could either be trapped inside the burrows or find them unavailable when they are needed to escape predation or extreme weather conditions. Cross-country travel can cause substantial impacts because of the presence of burrows and the greater difficulty in detecting and avoiding desert tortoises. As in virtually every instance, hatchling desert tortoises are the most difficult individuals to detect.

The actual level of injury or mortality that would occur along a specific route or trail will be influenced by many variables and is difficult to predict; the level and type of use of the road by vehicles and the number of DT present during periods of heavy use are two of the primary factors that are difficult to predict. As with the current NTC training area, any DT that are left in the expansion areas will likely move to the more protected washes and hills. The soils and substrates in these areas will not be as affected by military maneuvers since vehicles cannot often access them.

Vehicle use or other ground disturbance, such as construction activities, in areas where caliche caves are present can result in the destruction of these shelter sites. Caliche caves are an important resource for desert tortoises; individuals often use the same caves for

extended periods of time. Additionally, DT cannot construct caliche caves as they do burrows; instead, they are dependent upon finding appropriate sites. Consequently, their loss may have a longer term effect on a DT than the loss of a burrow.

Additionally, if DT spend time constructing new burrows, they are likely less able to seek mates or spend appropriate amounts of time foraging. Potentially, if DT are frequently forced to construct new burrows, their energy budgets may be adversely affected.

Effects of the proposed action on suitable substrates and shelter sites in CH outside of Fort Irwin will be minor and will be primarily in areas where DT are translocated. Effects will be monitored, and, if necessary, corrective actions will be taken through adaptive management.

5. Sufficient vegetation for shelter from temperature extremes and predators

Once training begins in the expansion areas, habitat will be disturbed. The dominant vegetation species in the area is creosote scrub, which provides good opportunities for cover. High- and medium-intensity training will, over time, destroy or damage most of the shrubs in an area. Shrubs that are not killed are often substantially reduced in height and width; thus, they would provide little or no shelter for any DT that may remain.

In general, the loss of shelter sites renders DT more vulnerable to predation and exposure to the temperature extremes that are common in the desert.

Shelter vegetation will likely survive in areas of low-intensity maneuver and will be protected on conservation areas.

Effects of the proposed action on shelter vegetation in CH outside of Fort Irwin will be minor and will be primarily in areas where DT are translocated. Effects will be monitored, and, if necessary, corrective actions will be taken through adaptive management.

6. Habitat protected from disturbance and human-caused mortality

The habitat within the proposed training areas will be disturbed. The two areas within the expansion that are within CH are the Superior Valley Parcel and the UTM 90 Parcel. Impacts to each are described below (6.a. and 6.b.).

Desert tortoises have died as a result of other factors associated with human activities. They have fallen into trenches or adits that were excavated for various types of projects.

Because of their small size, hatchlings and slightly larger DT could be trampled by foot traffic of people working or recreating in the desert. Nests are also vulnerable, but their typical location, near the mouth of a burrow, likely protects them to some degree.

Through legitimate and authorized use of desert lands, people make contact with DT. This contact can lead to uninformed or malicious interactions that result in injury or mortality of desert tortoises. Some mortality associated with gunshots may be accidental; however, Fort Irwin will not be conducting live-fire in the proposed training area. Proposed training may increase the number of adverse interactions between DT and people; however all soldiers are briefed, before going to the field, on the proper procedures upon encountering a DT.

The presence of people in the desert has provided subsidies that allow at least some species, including some predators of the DT, to be present in greater numbers than they were prior to the development of cities, towns, agriculture, and other human features. Perhaps most importantly, the number of common ravens in the Mojave Desert increased ten-fold between 1968 and 1992 (Boarman and Berry 1995). Although alterations to habitat have increased the number of common ravens, the increased number of predators is one of the factors that influenced the listing of the species as threatened.

6a. Effects of the Proposed Action in the UTM 90 Parcel

The direct effects on DT habitat are related to military maneuvers. High intensity training would result in most or all of the PCEs being removed from the habitat. Medium-intensity training would result in some of the PCEs being degraded, making recovery of the species in this habitat questionable. Low-intensity training would result in a few of the PCEs being degraded. Off-limits areas will be areas where no PCE degradation will occur. The UTM 90 Parcel consists of a total of 23,214 acres. The Army plans on using this area as a movement corridor through the southern portion of the NTC. Within this area, 5,030 acres, or 22 percent, of the UTM 90 Parcel, will be placed off-limits, for the purpose of DT conservation. This leaves approximately 18,184 acres in the UTM 90 Parcel that will be used for training. The breakdown for training intensity within the entire UTM 90 Parcel is as follows:

High Intensity = 15,768 acres
Medium Intensity = 1,309 acres
Low Intensity = 1,107 acres
Off-Limits = 5,030 acres

Within the UTM 90 Parcel, there will be three off-limits areas in areas of higher tortoise densities. These conservation areas will be fenced with desert tortoise-proof fence on all sides that connect with training areas. The entire perimeter will also be fenced with barbed wire, to prevent any unauthorized access by military units or civilians. These areas total approximately 5,030 acres, or 22 percent, of the UTM 90 Parcel.

6b. Effects of the Proposed Action in the Superior Valley Parcel

The Superior Valley Parcel action area consists of 70,281 acres. The entire parcel is included in the Superior-Cronese CHU. The Army plans on using this area as a staging area and a force-on-force battle area. Figure 2-2 of the BA depicts the projected intensity levels of this area. Within this area, there are two conservation areas. One is an off-

limits area, and the other is a no-dig area. The combined size of these conservation areas is 8,100 acres. The breakdown for training intensity within the entire Superior Valley Parcel is as follows:

High Intensity = 28,112 acres
 Medium Intensity = 33,143 acres
 Low Intensity = 926 acres
 No-Dig = 3,793
 Off-Limits = 4,302 acres

By subtracting the acres in conservation, approximately 65,974 acres of critical habitat of the desert tortoise would be affected by training activities.

The conservation areas in the Superior Valley Parcel are specifically set aside for protection of the LMMV, but will also be aid in protection of the DT.

In summary, the following table shows the acreage and percent of CH that would be affected by the proposed training.

Critical Habitat	Acreage	Acreage Impacted (SVP and UTM 90)	Percent
Superior-Cronese	766,900	84,000	11
West Mojave	1,709,800	84,000	5
Desert Tortoise CH	6,446,200	84,000	1

Conservation and Mitigation Measures

The following conservation/mitigation actions will help to reduce the impacts to critical habitat.

Avoidance of Dry Lakes

Although DT are generally uncommon around dry lake beds, the fact that the dry lake beds are off-limits may have a positive effect. “If dust generated by training alters the quality of habitat, reducing the area from which dust is generated would be beneficial (FWS 2004).”

Use of Existing Roads

To the greatest extent possible, vehicles will use existing roads. Using existing roads will lessen vegetation and DT losses. Because the use of the roads would be restricted to authorized personnel accessing communications sites and observer-controllers who would be briefed on the conservation objectives within the conservation areas, the level of impact resulting from use of the roads would be low.

Land Acquisition

The Recovery Plan for the DT notes that acquisition of lands is important for its conservation. Of the 99,000 plus acres of land that the Army acquired from the Catellus

Corporation, 89,014 acres is within a DWMA, allowing for consolidation to achieve Recovery Plan recommendations for DWMAAs:

- ❖ Well-distributed across the species' range;
- ❖ Large blocks of habitat containing large populations of the species;
- ❖ Blocks of habitat that are close together;
- ❖ Habitat that occurs in less fragmented, contiguous block;
- ❖ Interconnected blocks of habitat;
- ❖ Blocks of habitat that are roadless or otherwise inaccessible to humans;
- ❖ Priority for land acquisition within DWMAAs.

Because of the high quality and quantity of the Catellus habitat, it was the FWS's position at a meeting on February 6, 2004, and in the BO, that, "...acquisition of the lands from the Catellus Corporation was the highest priority...."

Acquisition of non-federal land that supports DT provides a net benefit to the species because of the conservation mandates placed on federal agencies and the more protective requirements of sections 7(a)(1) and 7(a)(2) of the Endangered Species Act, respectively. It is anticipated that, not only will federally managed lands receive more protection from outside threats, but that it will, over time, through active management, experience improved substrates. In addition, critical habitat designation does not affect activities on private land, nor require evaluation of activities on those lands so long as the activity does not require a federal license, funding, or permit. With the continual increase of population in this area, many of these private lands could, and most likely would, be converted to other uses, e.g., housing developments, industrial uses, etc. Currently, they augment DT CH since they are not being heavily used, but if not purchased by the government and given full critical habitat protection, this will likely change. The Army's purchase of these mitigation lands will convert them to full critical habitat status in perpetuity, preventing them from being converted to uses incompatible with DT CH.

Route Closure and Rehabilitation

Many of the activities that threaten the DT and DT CH are associated with roads within CH areas. Unpaved roads that are used infrequently likely do not pose a threat of fragmentation. However, ongoing road maintenance can lower the bed of the road and raise berms to a degree that DT which enter the roadway cannot exit. This creates fragmentation and impacts the DT movements within an area of CH. These animals are subsequently threatened with predation, exposure to extreme temperatures, collection, and collision with vehicles, which impacts PCE 6. Roads also destroy vegetation and compact soils, thus destroying the PCEs of CH.

We are unaware of any research that conclusively shows the density at which roads would be likely to extirpate DT from a region; intuitively, however, fewer DT are likely

to be killed if fewer roads are available for travel. Factors other than density also likely enter into the effects of roads; for example, few DT are likely killed on a lightly used road, but this number may rise if the road becomes more heavily used as a result of closures elsewhere.

The Recovery Plan for the DT identifies takes associated with roads as detrimental to its conservation. Therefore, the closure and rehabilitation of approximately 1,625 miles of roads in DWMAAs, which the Army has proposed to fund (within Congressional limits), is integral to the conservation of the DT in the Western Mojave Recovery Unit. Reducing the density of unpaved roads will protect DT from poaching, vandalism, and crushing by vehicles. Additionally, by closing roads in areas prime desert tortoise habitat, it can be expected that fewer soil disruptions will occur in those areas.

Retirement of Grazing Allotments

Cattle primarily affect PCEs of CH by consuming the vegetation in the CH. Cattle can also trample DT, both above ground and in their burrows, and can cave in the burrows. In years of average and below-average availability of annual plants, cattle can cause DT to spend more time foraging to obtain sufficient food; DT are at risk of predation whenever they are outside their burrows. Cattle also trample unoccupied burrows and alter the composition of plant communities. The removal of cattle from areas that are important to the recovery of the T has been identified as a key conservation action.

The removal of livestock grazing from grazing allotments will eliminate any direct adverse effects of cattle and their management on the PCEs of CH of the DT. The Army completed acquisition of ranch fee lands, which included provisions for voluntary relinquishment of all associated grazing allotments. The allotments which have been relinquished include the Harper Dry Lake (26,315 acres, of which, 16,584 acres are within CH of the DT), Cronese Dry Lake (65,306 acres, of which, 40,475 acres are in DT CH), and Cady Mountain (231,905 acres, none of which is in DT CH, but which was included since the same rancher held the permits for the Cronese Dry Lake and Cady Mountain allotments and would not sell either base property individually, and since reduction of cattle-grazing in the desert was deemed environmentally desirable by the WG).

Removal of cattle grazing will help protect the forage of DT in the Superior-Cronese CHU. Retirement of grazing allotments will prevent competition between cattle and DT, as well as preventing the crushing of forage plants and soil compaction.

Land Management Assistance

Currently committed and proposed future funding for land management assistance will aid in securing and redeeming the conservation lands for the recovery of the DT, as well as for other species.

DT Monitoring

The Desert Tortoise Translocation Plan includes plans for monitoring translocated DT and their habitat. Funds have been budgeted for multi-year monitoring, which will

follow the Recovery Plan for the DT. The Recovery Plan lists a number of monitoring improvements for the DT. The Army's Translocation Plan, and future DT monitoring conducted by the Army, will comply with monitoring recommendations.

Monitoring the translocated DT and their habitat will provide data necessary for decisions to be made for adaptive management of the species and its CH.

Desert Tortoise Management Team

As part of the mitigation, a Desert Tortoise Management Team has been established and funded to monitor and direct actions. As part of their duties, the DT management team will determine if previously described measures should be modified or if different measures would be more effective.

Adaptive Management

The Army will plan and program funds, within congressional limits, for future adaptive measures. Adaptive management is crucial for a species, such as the DT, which faces multiple stressors. The ability to shift focus when needed will be a great advantage to the survival and recovery of the species.

Limiting Factor Control

Limiting factor control includes the management of predators and reduction of poaching; assistance with public education programs and information about DT disease. As predation of juveniles by ravens is a primary cause of mortality, and as ravens are encouraged by trash and debris left by humans, controlling the raven and other predators is a beneficial impact to PCE number 6.

Environmental Education

As addressed in the BA and BO, any person who enters the maneuver areas on Fort Irwin will be required to undergo a briefing on safety and environmental considerations. The briefing will include rules and regulations regarding the off-limits areas, conservation areas, use of the Goldstone Transit Route, identification of the DT and LMMV, and the importance of minimizing disturbance in their habitats. This briefing will be provided to military personnel, civilian employees, and contractors.

Research to Monitor and Guide Recovery Efforts

Funding levels for research necessary to monitor and guide recovery efforts was evaluated by the WG and has been included in the Army's budgeting process. Additionally, the Translocation Plan will include research criteria similar to that in the Recovery Plan, which are:

- ❖ Baseline data on DT densities;
- ❖ A model of DT demography;
- ❖ Research on impacts of translocation;
- ❖ Assessment of effectiveness of protective measures;

- ❖ Data on spatial variability of climate and productivity of vegetation;
- ❖ Data on nutritional and physiological ecology of various age-size classes; and
- ❖ Data on reproductive behavior and physiology, focusing on requisites for successful reproduction.

Mineral Exploration and Development

Foot traffic of operators or equipment during exploration may disturb habitat and subsequently lead to an invasion of non-native plants. Under most mining activities that could be conducted under the casual use provisions, the PCEs of CH could be removed from a small area.

Through the acquisition of privately owned lands, the Army will be removing those lands from mineral exploration. Since mineral exploration is likely to be fairly common in areas that may have potential to contain geothermal, oil, gas, or mineral resources, and such areas have a substantial degree of overlap with CH of the DT, the removal of lands from potential extraction is a positive impact for DT CH.

The Army has budgeted for all of these proposed measures, within the \$75 million Congressionally-authorized ceiling for conservation measures associated with this project. As part of its mission, the WG will evaluate the proposed conservation measures and will determine how to utilize the funding effectively, to ensure that funds will be spent in a manner that best contributes to both the survival and recovery of the species.

Cumulative Impacts (Section 7 (a)(2))

Because both lands within the boundaries of Fort Irwin and those acquired by the Army for conservation of the DT are managed by federal agencies, any actions occurring in these areas will most likely be subject to the consultation requirements of section 7(a)(2) of the Endangered Species Act. Therefore, we are unaware of any cumulative effects to the proposed action.

Any future federal actions that are unrelated to the Proposed Project are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

Summary

Training activities will directly degrade approximately 84,000 acres of DT CH. This acreage is approximately 11 percent of the Superior-Cronese CHU that could support the PCEs of CH and approximately 5 percent of the CH that has been designated in the Western Mojave Recovery Unit.

To offset the impacts of proposed training on CH, the Army has acquired more than 99,000 acres, which is of equal or greater value than the current land, to compensate for the loss of habitat to new training areas. Of the 99,000 acres acquired, more than 87,000 acres is in CH. The Army has set aside 16,900 acres of Army lands for conservation and management of DT. Also, acquisition of land will remove the checkerboard pattern of

public ownership that exists in many areas. This will provide for better management opportunities and a decreased need for roads to provide access to private lands.

Cattle have been removed from approximately 323,526 acres of grazing allotments in the Western Mojave Recovery Unit, of which 57,059 acres are in designated CH.

The Army has begun funding of two BLM rangers and a two-person FWS DT Management Team. The increased level of management that will be possible on acquired lands should increase the likelihood that threats to the DT and its CH can be addressed on a more holistic level.

Although the proposed action may reduce the area within the Superior-Cronese CHU that would support the PCEs of CH, the purchase of additional lands that have the PCEs of CH and will become CH should effectively offset the loss of CH on Fort Irwin such that the amount of CH for the conservation of the DT will not be appreciably diminished. As noted in the Recovery Plan, smaller areas require more intensive management to ensure the conservation of the species. The acquisition proposed by the Army would help in making this CH unit more manageable.

Based on the above information and analysis, and that provided in the BA, its Addenda, the existing BO, and the underlying administrative record, the Army concludes that the overall effect of the proposed action will not appreciably diminish the value of the DT CH for either survival or recovery of the species. While the Army's proposed project to increase maneuver training lands will adversely affect DT CH, the Army, with FWS review and concurrence, has identified, and commenced implementation of, significant conservation and mitigation actions that will not only support survival of the species, but will also avoid appreciably diminishing the value of designated CH for species recovery.

After reviewing the existing administrative record, including the BA, its Addenda, the BO, and the additional information in the BA Supplement focusing on the effects of the proposed land expansion on DT CH, its PCEs, and the overall effect on those elements in relations to species recovery, the Army concludes that the proposed action will not appreciably diminish the value of designated DT CH for either survival or recovery of the species. Overall, CH for the DT will remain functional to serve the intended conservation role for the species.

Based on our analysis, it has been determined that no new information or circumstances uncovered in our supplemental review trigger the need to re-initiate formal consultation with the FWS.

NTC did not draw on the regulatory definition of destruction or adverse modification of critical habitat at 50 CFR 402.02 with respect to the conclusions and analyses made in this biological assessment. Instead, NTC has incorporated into the critical habitat effects analysis the conservation of species principles found in the statutory provisions of the ESA.

Acronyms

BA	Biological Assessment
BLM	Bureau of Land Management
BO	Biological Opinion
CDCA	California Desert Conservation Act
CDFG	California Department of Fish and Game
CH	Critical Habitat
CHU	Critical Habitat Unit
DOI	Department of Interior
DT	Desert Tortoise
DWMA	Desert Wildlife Management Area
ESA	Endangered Species Act
FWS	United States Fish and Wildlife Services
ITAM	Integrated Training Area Management
LMMV	Lane Mountain milk-vetch
MDEP	Mojave Desert Environmental Program
NRCS	Natural Resources Conservation Service
NTC	National Training Center
PCEs	Primary Constituent Elements
USGS	United States Geologic Service
UTM 90	Universal Trans Mercator 90
WG	Working Group

Works Cited

- 59 Federal Register 5820. 1994. Final Ruling Desert Tortoise Critical Habitat. Published 8 February 1994. U.S. Fish and Wildlife Service.
- 50 Code of Federal Regulations 402.02. Chapter IV Joint Regulations. Part 402 Interagency Cooperation – Endangered Species Act of 1973, As Amended. Section 402.02 Definitions.
- Berry, Kristin and Timothy Duck. 1999. Answering questions on desert tortoise. A guide for people working with the public.
- Boarman, W.I., and K.H. Berry. 1995. Common Ravens in the Southwestern United States, 1968-92. Pp.73-75 in *Our living resources: A report to the nation on the distribution, abundance, and health of U.S. plants, animals, and ecosystems* (E. T. Larue, ed.). U.S. Department of the Interior--National Biological Service, Washington D.C.
- Bureau of Land Management (BLM). 2003. West Mojave Plan Environmental Impact Statement. U.S.D.I., Bureau of Land Management, Riverside, CA. In prep.
- Chambers Group, Inc. 1994. Final report survey for desert tortoise (*Gopherus agassizii*) on the North Alvord Slope, San Bernardino County, California. Unpublished report to the U.S. Army Corps of Engineers, Los Angeles District. 71 pp. plus appendices.
- Charis Professional Services Corporation. 2003. Biological assessment for the proposed addition of maneuver training land at Fort Irwin, California. Prepared for the U.S. Army National Training Center, Fort Irwin, California. Temecula, California.
- Federal District Court for the Northern District of California. 2004. Center for Biological Diversity versus US Fish and Wildlife Service Civ No. 03-03807/03-02509 SI (N.D. CA 2004).
- Karl, A.E. 2002a. Desert tortoise abundance in the Fort Irwin National Training Center expansion area. Unpubl. rept. to Charis Corporation, Temecula, CA. 57 pp. plus appendices.
- Karl, A.E. 2002b. Desert tortoise abundance in the Fort Irwin National Training Center expansion area: second-year studies. 45 pp. plus appendices.
- Karl, A.E. 2001. Desert tortoise abundance in the Fort Irwin National Training Center expansion area: a review. Unpublished report to Chambers Group, Inc. Irvine, CA. 44 pp. plus appendices.

- Karl, A.E. 1999. Fort Irwin Military Reservation desert tortoise studies; densities at two sites along the southern border. Unpublished report to Chambers Group, Inc. Irvine, CA. 28 pp. plus appendices.
- Krzysik 1994. The desert tortoise at Fort Irwin. US CERL Technical Report EN-94/10.
- LaPre, L. 2005. General characterization of critical habitat in the Superior-Cronese Critical Habitat Unit. Summary of information from the West Mojave Plan. District Wildlife Biologist, California Desert District, Bureau of Land Management, Moreno Valley California.
- Lynn, Neil. 2005. Unpublished Report on Status of PCEs. Fort Irwin, CA.
- Oftedal, O., S. Hillard, L. Hazard, T. Christopher, and D. Morafka. 2002. Can juvenile tortoises obtain high PEP forage throughout the spring. Paper presented at the 2002 Desert Tortoise Council Symposium, Palm Springs, CA.
- Public Law 107-107 Fort Irwin Military Lands Withdrawal Act of 2001(P.L. 107-107, Title XXXIX Section 2901 et seq. December 28, 2001.
- Tracy, C.R., R. Averill-Murray, W.I. Boarman, D. Delehanty, J. Heaton, E. McCoy, D. Morafka, K. Nussear, B. Hagerty, and P. Medica. 2004. Desert Tortoise Recovery Plan Assessment. Prepared for the U.S. Fish and Wildlife Service. Reno, Nevada.
- U.S. Army. 2004a. Letter to U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office regarding changes to the proposed action. Dated February 13. From Colonel Edward L. Flinn, Deputy Commander and Chief of Staff, National Training Center. Fort Irwin, CA.
- U.S. Army. 2004b. Letter to U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office regarding clarification of the biological assessment. Dated January 29. From Colonel Edward L. Flinn, Deputy Commander and Chief of Staff, National Training Center. Fort Irwin, CA.
- U.S. Army. 2004c. Letter to U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office an addendum to the biological assessment. Dated February 25. From Colonel Edward L. Flinn, Deputy Commander and Chief of Staff, National Training Center. Fort Irwin, CA.
- U.S. Army. 2004d. Letter to U.S. Fish and Wildlife Service, Ventura Fish and Wildlife Office an addendum to the biological assessment executive summary. Dated May 2004. National Training Center. Fort Irwin, CA.
- U.S. Fish and Wildlife Service (FWS). 2005. Biological Opinion for the California Desert Conservation Area Plan (1-8-04-F-43R). Dated March 31, 2005. From Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.

- U.S. Fish and Wildlife Service (FWS). 2004. Biological Opinion for the Proposed Addition of Maneuver Training Lands at Fort Irwin, San Bernardino County, California (1-8-03-F-48). Dated March 15,2004. From Field Supervisor, Ventura Fish and Wildlife Office. Ventura, California.
- U.S. Fish and Wildlife Service (FWS). 1994a. Final rule: determination of critical habitat for the Mojave population of the desert tortoise. Federal Register 59 (26):5820-5866.
- U.S. Fish and Wildlife Service (FWS). 1994b. Desert tortoise (Mojave Population) Recovery Plan. U. S. Fish and Wildlife Service, Portland, Oregon.
- U.S. Fish and Wildlife Service (FWS). 1994c. Desert tortoise (Mojave population) recovery plan. Portland, Oregon.
- U.S. Fish and Wildlife Service (FWS). 1988. Biological resource inventory for the expansion of Fort Irwin National Training Center, San Bernardino County, California. Prepared for the U. S. Army Corps of Engineers, Los Angeles District, Los Angeles California. Laguna Niguel, California.
- U. S. Court of Appeals for the Ninth Circuit. 2004. Gifford Pinchot Task Force v. United States Fish and Wildlife Service (No. 03-35279).