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March 24, 2008

File No. 039610-0001

DOCKET
07-AFC-1
DATE MAR 24 2008
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VIA FEDEX

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 07-AFC-1
1516 Ninth Street, MS-4
Sacramento, California 95814-5512

Re: Victorville 2 Hybrid Power Project: Docket No. 07-AFC-1

Dear Sir/Madam:

Pursuant to California Code of Regulations, title 20, sections 1209, 1209.5, and 1210, enclosed herewith for filing please find a copy of additional attachments to a document entitled, "Habitat Compensation in the West Mojave Urban Interface: Surety and Equitable Precepts," previously docketed with the CEC on March 21, 2008.

Please note that the enclosed submittal was filed today via electronic mail to your attention and to all parties on the CEC's current electronic proof of service list.

Very truly yours,

Paul E. Kihm
Senior Paralegal

Enclosure

cc: CEC 07-AFC-1 Proof of Service List (w/encl. via e-mail)
Michael J. Carroll, Esq. (w/encl.)

OC\944214.1

CALIFORNIA STATEWIDE DESERT TORTOISE MANAGEMENT POLICY

OCTOBER 1992

Prepared by

BUREAU OF LAND MANAGEMENT
CALIFORNIA DEPARTMENT OF FISH AND GAME

CALIFORNIA STATEWIDE

DESERT TORTOISE

MANAGEMENT POLICY

Recommended by

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Bureau of Land Management

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Approved by

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TABLE OF CONTENTS

Section	Page
Title Page	i
Approval Page	ii
Table of Contents	iii
List of Tables and Maps	iv
I. INTRODUCTION	1
II. STATUS OF THE DESERT TORTOISE	3
A. Population and Trend	3
B. Official Status of Desert Tortoise in California	3
III. MANAGEMENT FRAMEWORK	5
A. Major Laws which Affect the Tortoise	5
B. California Desert Conservation Area (CDCA) Plan	7
C. Land Ownership	7
D. Management and Technical Committees	9
E. Desert Tortoise Recovery Team	10
F. Management Costs	10
IV. SUMMARY OF IMPACTS AND ISSUES	11
A. Population Issues	11
B. Habitat Issues	17
C. Interagency issues	22
V. MANAGEMENT GOALS	23
VI. GUIDELINES FOR ATTAINING MANAGEMENT GOALS	24
VII. COORDINATION WITH OTHER BUREAU PROGRAMS	41
VIII. PUBLIC EDUCATION PROGRAM	42
IX. SUMMARY OF RESEARCH NEEDS	49
X. LITERATURE CITED	50
APPENDIX A. INDIVIDUALS AND GROUPS CONTACTED	A-1
APPENDIX B. INDIVIDUALS AND GROUPS RESPONDING TO DRAFT	B-1

LIST OF TABLES AND MAPS

Number	*Title*	*Page*
Table 1.	Land Ownership and administration in the California Desert Conservation Area.	8
Table 2.	List of issues with level of concern in the four major tortoise habitat areas (West Mojave, Ivanpah-Shadow-Kelso, Fenner-Chemehuevi, and Chuckwalla.	12
Table 3.	Description of factors used to compute compensation rate.	35
Table 4.	List of fifteen permanent trend plots which currently are used to assess trends in tortoise population attributes.	39
Map 1.	Map of California Desert Conservation Area showing Interim Category I, II, and III desert tortoise habitat areas.	57

I. INTRODUCTION

In December 1986, the District Manager of the California Desert District, Bureau of Land Management (Bureau), and the Regional Manager of Region 5, California Department of Fish and Game (Department), formed the California Desert Tortoise Workgroup with the charge of developing recommendations for definitive actions that should be taken to improve protection and enhancement to desert tortoise populations and habitat. Five Bureau employees were assigned to the Workgroup - the Barstow Resource Area Manager, the District Biologist, the District Tortoise Specialist, the Ridgecrest Resource Area Wildlife Biologist, and the Barstow Resource Area Wildlife Biologist (who resigned from the Bureau prior to the first meeting of the Workgroup). In addition, a representative of the Department was assigned, and representatives of the Desert Tortoise Council and the Desert Tortoise Preserve Committee were obtained. The Barstow Resource Area Manager was designated chairman of the Workgroup by the District Manager and Regional Manager.

During several meetings and field evaluations, the Workgroup 1) defined management goals, 2) identified major issues, 3) developed alternative methods for addressing the issues in the context of meeting the goals, 4) reviewed current management practices and their effects, and 5) selected recommended actions to improve management of the desert tortoise and its habitat.

The resulting document entitled "Recommendations for Management of the Desert Tortoise in California" (Sievers *et al.* 1988) was delivered to the District Manager and Regional Manager on July 25, 1988. On November 2, 1988, the District Manager and Regional Manager of Region 5 of the Department issued a joint letter announcing their intent to implement most of the recommendations in the Workgroup report. The Workgroup report provides the basis for this document.

On February 23, 1989, the District Manager issued instructions (Instruction Memorandum CDD-89-52) to Area Managers in the California Desert District implementing many of the measures in the Workgroup report. These measures were adopted by directive on an interim basis pending development of these policies and the accompanying public review. A few measures requiring amendment to the California Desert Conservation Area Plan were not implemented through these interim directives.

Prior to the California Desert District initiatives described above, the Bureau formed a Bureauwide Task Force in 1986 to establish a framework for the management of the desert tortoise and its habitat throughout its range and for the cooperation of Federal and State agencies. In its report, entitled "Management of Desert Tortoise Habitat" (Kennedy *et al.* 1987), the Task Force recommended that 1) an interagency desert tortoise oversight group and state technical coordinating committees be established, 2) data analysis and interpretation be standardized, 3) desert tortoise habitat be categorized, 4) tortoise management and research be funded, and 5) a public education program be developed.

Based on the Task Force report, a team was assembled to compile a tortoise rangewide plan. The resulting plan, entitled "Desert Tortoise Habitat Management on the Public Lands: a Rangewide

Plan" (Spang *et al.* 1988) was signed by the Bureau Director on November 14, 1988. The Rangewide Plan provides goals, objectives, and management actions to be used by Bureau managers throughout the range of the tortoise to improve the status of the desert tortoise. The Rangewide Plan directed managers to develop management strategies based upon three categories with the following overall management goals:

Category I: Maintain stable, viable populations and protect existing tortoise habitat values; increase populations, where possible.

Category II: Maintain stable, viable populations and halt further declines in tortoise habitat values.

Category III: Limit tortoise habitat and population declines to the extent possible by mitigating impacts.

The Bureau categorization applies only to Bureau administered lands. In order to more fully delineate habitat, including private lands, essential to the long term survival of desert tortoises, the Department developed a map of Desert Tortoise Crucial Habitat Areas. The boundaries of these areas closely coincide with the Bureau's Category I and II tortoise habitat areas. The Department's designation of Crucial Habitat includes all private lands, State lands, and Federal lands (including Federal lands not administered by the Bureau).

The goals, objectives, and management actions set forth in "Desert Tortoise Management on the Public Lands: A Rangewide Plan" (Spang *et al.* 1988) constitute policy and direction for the Bureau throughout the range of the tortoise. The California Statewide Policy, which specifies how the management actions in the Rangewide Plan will be applied in California, is intended to supplement the Rangewide Plan. Management actions in the Rangewide Plan not requiring elaboration are not repeated in this document. The policies stated herein are not intended to countermand any management actions in the Rangewide Plan.

The goals and guidelines set forth in this document constitute policy for the administration of public lands by the Bureau and for the management of the desert tortoise and its habitat on non-Federal lands by the Department.

II. STATUS OF THE DESERT TORTOISE

A. Population and Trend

In California, desert tortoise populations have experienced reductions in distribution and abundance since the late 1880's. In the mid-1970's, the Bureau established a series of study plots to determine population condition and rates of change. Study plots were established in areas of relatively high population densities which were representative of major vegetative communities. Since then, most plots have been surveyed two or more times, and trend data have been generated. Since most study plots are in areas with relatively little disturbance, populations may be lower overall than indicated by the study plots.

Trends vary substantially from one region of the California Desert to another. For example, most populations on study plots in the western Mojave Desert have experienced downward trends, ranging from 10 to 65 percent decline in a six to seven year period (Berry 1990). Significant changes have also occurred in the age distribution, with declines in relative numbers of juveniles. The western Mojave subpopulation is experiencing the most extensive and rapid population decline. Populations there are becoming increasingly fragmented, and habitat loss is significant. (Berry 1990)

In contrast, subpopulations in the eastern Mojave and northeastern Colorado Desert show stability in some areas and low rates of decline in others. In southern Ivanpah Valley and Chemehuevi Valley, study plot data show few significant changes; whereas populations on study plots in upper Ward Valley appear to be declining significantly. Habitat losses in these areas are substantially lower than in the western Mojave. (Berry 1990)

In the southern Colorado Desert, the once widespread population has become highly fragmented and restricted to a limited area. Two plots to measure trends were established between 1977 and 1980. One shows a decline of more than 70 percent since 1982, while the other appears stable.

B. Official Status of Desert Tortoise in California

The desert tortoise was designated a "sensitive species" in California in 1979 by the Bureau's State Director, who is authorized to designate species on Public Lands as "sensitive" after consultation with the Department. The purpose of the designation is to provide increased management attention to prevent population and habitat declines which might result in Federal or State listing as endangered or threatened. The designation raises the level of concern for desert tortoises in the environmental review process. No particular habitat or population management action is required or prohibited by the sensitive species designation.

In 1981 the U. S. Fish and Wildlife Service (Service) contracted with the Desert Tortoise Council to analyze and report on the status of the desert tortoise throughout its range

(California, Nevada, Arizona, and Utah). On the basis of the resulting "status report" (Berry 1984), the Defenders of Wildlife, Natural Resources Defense Council, and Environmental Defense Fund petitioned the Service in 1984 to list the tortoise as an endangered species. In response to this petition, the Service published a notice of review of the status of the tortoise. Based on the "status report" (Berry 1984) and other materials submitted in the review, the Service made a finding in September 1985 that "the listing of the tortoise is warranted, but precluded by other pending proposals of higher priority" (USFWS 1985).

In May 1989 the previous petitioners provided substantial new information and requested an emergency listing of the tortoise. On August 4, 1989, the Service published an emergency rule designating the tortoise populations north and west of the Colorado River as "endangered" on a temporary, emergency basis (USFWS 1989). During the following months, the Service collected public comments. On April 2, 1990, the Service listed the same populations as "threatened" on a permanent basis (USFWS 1990). Reasons given for the listing included road construction, housing developments, energy developments, conversion of native habitats to agriculture, habitat degradation due to off-highway vehicle use and livestock grazing, unlawful collecting, disease, excessive predation by common ravens, and other factors.

The desert tortoise is the official California State reptile and is protected by special State legislation which prohibits the taking or harming of tortoises. In 1983, the Desert Tortoise Council petitioned the Department to list the desert tortoise as a threatened species. The petition was withdrawn later pending the Federal review of status by the Service. In August 1987, the Desert Tortoise Council resubmitted the petition to the Commission. In November of that year, the petition was accepted for review by the Fish and Game Commission. On June 22, 1989, the desert tortoise was designated a threatened species by the Fish and Game Commission.

III. MANAGEMENT FRAMEWORK

In general, the Department of Fish and Game is responsible for the management of wild animal populations on all public (except for National Park Service administered lands) and private lands within the State of California. As a land management agency, the Bureau is primarily responsible for management of habitat, but only on Public Lands. In practice, the distinction between animal and habitat management is not precise. Private landowners have a direct effect on habitat on their lands, but may not take, harm, or harass tortoises without a permit or other specific exemption due to the Federal and State threatened status. For federally listed species, such as the desert tortoise, the Bureau must also ensure that projects authorized, funded, or carried out by the Bureau do not jeopardize the continued existence of the species. Guidance concerning the management actions recommended to achieve recovery of the tortoise in California will be provided through the Service's recovery plan for the Mojave tortoise population, which is now in preparation.

A. Major Laws Which Affect the Tortoise

1. Federal Land Policy and Management Act (FLPMA)

FLPMA (Public Law 94-579) established the California Desert Conservation Area and directed the Bureau to prepare a plan for the management of the Conservation Area. FLPMA mandated the Bureau to manage the Public Lands under a concept of multiple use and sustained yield, placing wildlife resource management on an equal footing with the management of other resources.

2. Endangered Species Act

The Endangered Species Act of 1973 (Public Law 97-304, as amended) charges all Federal agencies to seek the conservation of endangered and threatened species and to utilize their full authority to further the purposes of the Act, which include among other things ". . . to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved." For terrestrial and freshwater species, the U.S. Fish and Wildlife Service (Service) is responsible for designating species as threatened or endangered. The determinations are to be based solely on the best scientific and commercial data available. Critical habitat is sometimes designated for species that are listed as threatened or endangered. The Service also maintains a list of "candidate" plants and animals whose status is under review.

On August 4, 1989, the Service published a temporary, emergency rule designating the Mojave population of the desert tortoise as an endangered species throughout its range north and west of the Colorado River. On April 2, 1990, the Service listed the same population as threatened through the regular rulemaking process. Critical habitat was not designated at the time the Mojave tortoise population was added to the

List of Endangered and Threatened Wildlife. The Service is required to prepare recovery plans for all listed species that will benefit from the preparation of such plans. In September 1990, the Service appointed a recovery team to prepare a draft recovery plan for the Mojave tortoise population. Completion of the draft plan is anticipated by June 1992.

Once a species is listed as threatened or endangered, Federal agencies must consult with the Service on any action which may negatively affect the species. The Service then renders a biological opinion on whether the proposed action will jeopardize the continued existence of the species. If a jeopardy opinion is rendered, the Service is required to provide reasonable and prudent alternatives to the proposed action, if possible, that may be implemented in lieu of the proposed action without jeopardizing the continued existence of the species.

It is unlawful to take, possess, harass, sell, or transport any listed species without a permit or other specific exemption. Individual animals held in captivity on the date of official listing are not included in these prohibitions. Permits may be issued for taking of individual animals for scientific purposes or for the incidental taking of individuals of a listed species during the course of an otherwise legal activity.

3. California Endangered Species Act

In 1984, the State Legislature passed the California Endangered Species Act. This law is patterned after the Federal Endangered Species Act; it has similar provisions for consultations by State agencies, listing of species and designation of critical habitat, and regulating the taking of tortoises.

On June 22, 1989, the Fish and Game Commission listed the desert tortoise as a threatened species. As agreed in the Master Memorandum of Understanding between the Department and the Bureau's California State Office, the Bureau confers with the Department on projects that may significantly impact State-listed species or their habitats. The procedures for conducting such conferences are elaborated in Bureau Manual Supplement 6840.2.

4. Sikes Act

The Sikes Act (Public Law 93-452 and 95-420) authorizes the Bureau to develop and implement plans in cooperation with state fish and game departments for the development and protection of wildlife habitat. It authorizes the preparation of memoranda of understanding for the transfer of funds between agencies for the completion of projects, inventories, studies, and other programs. It is Bureau policy (Bureau Manual 6780.06) that whenever possible, habitat management plans are developed in full cooperation with state agencies under Sikes Act authority. The Master Memorandum of Understanding between the Department and the Bureau's California State Office affirms that to the maximum extent possible, wildlife activity plans will be cooperatively developed as Sikes Act plans.

5. Other Laws

There are a multitude of other laws which are significant to tortoise management by providing authorities and mechanisms for regulating conflicting land uses. Among these are the Taylor Grazing Act, the Mineral Leasing Act, the Material Sales Act, the Multiple Surface Use Act, the Wild Free-Roaming Horse and Burro Act, and the Public Rangelands Improvement Act. In addition, the National Environmental Policy Act (NEPA), together with its State counterpart, the California Environmental Quality Act (CEQA), provide mechanisms for public disclosure and review of the effects of proposed projects and activities upon wildlife.

B. California Desert Conservation Area (CDCA) Plan

The CDCA Plan, which was signed in 1980 by the Secretary of the Interior, provides general management guidelines for the use and protection of resources in the California Desert. The CDCA Plan, as amended, provides for four major land use classes with various degrees of resource protection and consumptive use. The four classes are Controlled Use (C) (16% of Public Lands), Limited Use (L) (49%), Moderate Use (M) (28%), and Intensive Use (I) (4%). Unclassified lands total 3 percent of Public Lands. Guidelines restricting uses within the various classes were also established. See Table I for the acreages in each class.

The Wildlife Element of the CDCA Plan specified that habitat management plans were to be developed to prescribe management for tortoise habitat in five areas--West Mojave, Fenner/Chemehuevi Valleys, Ivanpah Valley, Shadow Valley, and Chuckwalla Bench. Under Bureau policy, all such habitat management plans are to be prepared cooperatively with the Department under the authority of the Sikes Act.

The CDCA Plan designated eight tortoise crucial habitat areas within the California Desert Conservation Area. It also called for the designation of highly crucial habitat within which sheep grazing is not allowed until 1) tortoise "emergence" has occurred in the spring and 2) 350 pounds of forage per acre is available. Within highly crucial habitat, sheep are to be restricted to one pass only through an area and specific bedding and watering sites are to be designated.

C. Land Ownership

The CDCA encompasses about 25.5 million acres. Table 1 shows the approximate distribution of land ownership. The largest land manager is the Bureau which has management responsibility for 12.1 million acres (about 48% of the CDCA).

The Bureau manages lands under its jurisdiction based on the principles of multiple use and sustained yield. The uses allowed, and their distribution, are prescribed by the CDCA Plan. However, even within the guidelines of the CDCA Plan, permitted actions must be approved

Table 1. Land ownership and administration in the California Desert Conservation Area.

Owner/Administrator	*Acres*	*Percent*
PRIVATE	6,096,000	23.9
FEDERAL	(18,366,000)	(72.0)
Bureau of Land Management	12,120,000	47.5
Class C (Controlled Use)	(1,900,000)	(15.7)
Class L (Limited Use)	(5,900,000)	(48.7)
Class M (Moderate Use)	(3,400,000)	(28.1)
Class I (Intensive Use)	(520,000)	(4.3)
Unclassified	(250,000)	(2.1)
National Park Service	2,497,000	9.8
Death Valley National Monument	(1,933,000)	(7.6)
Joshua Tree National Monument	(564,000)	(2.2)
Military Reservations	2,998,000	11.6
Fort Irwin and Goldstone	(635,000)	(2.5)
Naval Weapons Center (China Lake)	(610,000)	(2.4)
Twenty-nine Palms Marine Base	(568,000)	(2.2)
Mojave B Range and Randsburg Wash	(559,000)	(2.2)
Chocolate Mountains Gunnery Range	(457,000)	(1.8)
Edwards Air Force Base	(127,000)	(0.5)
Carrizo Impact Area	(31,000)	(0.1)
Marine Corps Logistics Depots	(6,000)	(T)
George Air Force Base	(5,000)	(T)
Other (including Bureau of Indian Affairs, Bureau of Reclamation, Fish and Wildlife Service, and other small withdrawals)	751,000	2.9
STATE	(885,000)	(3.5)
Anza-Borrego State Park	494,000	1.9
Other (including other small state parks, lands administered by the State Lands Commission, and Fish and Game refuges)	391,000	1.5
LOCAL		
City of Los Angeles (Dept. of Water and Power)	152,000	0.6
TOTAL	25,499,000	100.0

T = Trace

generally through the Federal environmental assessment process prescribed by the National Environmental Policy Act (NEPA).

About 24 percent (6.1 million acres) of the CDCA is privately owned. These lands are mostly vacant with little use or development. However, some lands, especially those in the western portion of the desert, are being used for residential and commercial development. Agricultural development occupies large acreages in the Imperial and Coachella Valleys and smaller areas near the Los Angeles Basin. The largest private landholder is Santa Fe Pacific Properties, Inc., which controls lands acquired in the 1800's during railroad construction. Railroad lands often are intermingled with Bureau lands in a checkerboard pattern.

Lands administered by the State Lands Commission total about 0.2 million acres; these lands are generally managed under multiple use principles, with the emphasis placed on revenue generation. Other State and Federal agencies administer lands with a primary mission other than multiple use. Among these are the National Park Service (Death Valley National Monument and Joshua Tree National Monument), the Department of Parks and Recreation (Anza-Borrego Desert State Park, Mitchell Caverns State Park, Saddleback Buttes State Park, Red Rock Canyon State Park), and the Department of Defense (Edwards Air Force Base, George Air Force Base, China Lake Naval Weapons Center, Mojave B Range, Fort Irwin Military Reservation, Twentynine Palms Air/Ground Combat Training Center, Chocolate Mountains Aerial Gunnery Range, and Carrizo Impact Area).

D. Management and Technical Committees

The Bureau Director has established a Desert Tortoise Management Oversight Group (MOG). The MOG is made up of management level representatives from the Bureau's Washington Office, from each of the four Bureau state offices within the range of the tortoise (California, Nevada, Arizona, and Utah), from each of the four state wildlife agencies, and from Fish and Wildlife Service Regions 1, 2, and 6. The MOG was established to coordinate activities among the agencies, to establish funding priorities for research, and to set forth rangewide tortoise management policies. In 1990, a Technical Advisory Committee for the MOG was established. The MOG Technical Advisory Committee is comprised of 10 representatives of cooperating agencies in the four States that have desert tortoise habitat.

As directed by the Rangewide Plan, the Bureau's California State Director has established a California State Tortoise Coordinating Committee. Because of its broad public representation and involvement in desert issues, the State Director designated the California Desert District Advisory Council to serve as the Coordinating Committee. The function of the Coordinating Committee is to provide public overview of and advice on efforts to maintain viable tortoise populations in the California Desert. Subcommittees are established as needed to address specific items.

In 1989, the State Director established a California State Tortoise Technical Committee to facilitate interagency cooperation within the state and to advise managers on technical issues involving the desert tortoise. The Technical Committee serves to exchange information, identify funding sources, promote cooperation, eliminate duplication of effort, share successes and

failures, recommend actions to be taken, and help develop priorities for agency managers. Participants include representatives with technical expertise from the Bureau, the Department, the Service, and academia. Representatives from other agencies and interest groups are invited to contribute to the Committee. Technical issues include such items as the following:

Current status and trends in population,
Results and application of recent research and studies,
Status of research in progress,
Priorities for future tortoise research,
Guidelines for peer review of agency reports,
Status of tortoise mapping projects,
Criteria for tortoise relocations,
Funding sources and needs,
Effectiveness of mitigation measures,
Application of compensation requirements,
Consistency among agencies in the application of compensation, and
Priorities for specific management actions.

E. Desert Tortoise Recovery Team

In 1990, the Service appointed a recovery team to develop a draft recovery plan for the Mojave tortoise population. The recovery team has been asked to devise a recommended recovery strategy and provide suggestions on specific management actions needed to recover the Mojave tortoise population. The recovery team is scheduled to complete its draft plan by June 1992. Public and agency review of the draft plan will occur after the Service reviews and accepts, or modifies as appropriate, the recovery team's draft plan. After the recovery plan for the Mojave tortoise population is final and accepted, the Bureau will work toward implementing the recovery measures prescribed in the plan. In California, implementation will occur through the development of habitat management or coordinated resource management plans for the four distinct California subpopulations and amendments, as necessary, to the California Desert Conservation Area Plan.

F. Management Costs

Management costs for implementing the goals and guidelines set forth in this document are for the most part not currently available. In many cases these costs will be substantial. Except for the costs associated with public education, which are shown in Section VIII, no attempt has been made to estimate these management costs. The time frame in which some of the goals and guidelines will be implemented is therefore contingent upon agency appropriations, personnel ceilings, and other budgetary constraints.

IV. SUMMARY OF IMPACTS AND ISSUES

Impacts have been identified which are adversely affecting the viability and stability of tortoise populations in the California Desert. In general, these issues can be divided into three basic categories: those affecting tortoise populations directly, those affecting primarily tortoise habitat, and those involving agency coordination. Collectively, these issues represent the negative factors which, if not properly addressed, will result in further declines and perhaps the eventual extinction of the desert tortoise in the California Desert.

A brief description of each issue follows. Table 2 lists the issues and identifies, in a general way, the relative importance of each issue for the four major habitat areas.

A. Population Issues

1. Unlawful Collecting

Collecting of tortoises for pets, food, scientific purposes, and commercial sale is reducing the number of tortoises in their natural habitat. Although the sale and purchase of tortoises was legally banned in 1939, problems with collecting continue (St. Amant 1984). In 1961, 1972, and 1973, the Fish and Game Codes were strengthened to prohibit collecting of wild tortoises. Both the Federal Endangered Species Act and the California Endangered Species Act prohibit the collection of any tortoise from the wild without a permit or other specific exemption. Although the tortoise populations in closest proximity to urban areas are presumably the most likely to be collected, the actual numbers of tortoises lost through collecting and the specific locations from which they are being collected are not known.

2. Permits for Possession of Captive Tortoises

Tortoises acquired prior to 1961 can be legally possessed only if the owner obtains a permit from the Department, as prescribed in Fish and Game Codes 674, 5001, and 5002 (St. Amant 1984). However, although the legislation has been in effect since 1961, only a small percentage of people with captive tortoises are aware of the regulations. The Department generally does not confiscate captive tortoises and seldom issues citations.

3. Roadkills

The killing of tortoises by vehicles on paved and dirt roads and trails is reducing the numbers of tortoises in their natural habitats. Nicholson (1978a, 1978b) demonstrated that paved roads with regular vehicle use can deplete tortoise populations up to a distance of one mile from the road, with the greatest impact in the first half-mile.

Table 2. List of issues with level of concern in the four major tortoise habitat areas (West Mojave, Ivanpah-Shadow-Kelso, Fenner-Chemehuevi, and Chuckwalla). The level of concern is indicated as high (H), medium (M), low (L), rangewide (+), or not applicable in the area (-).

Issue	*Level of concern/Priority within habitat area*			
	West Mojave	*Ivanpah-Shadow-Kelso*	*Fenner-Chemehuevi*	*Chuckwalla*
Population Issues				
Unlawful collecting	H	L	L	L
Permits for possession of captives	+	+	+	+
Roadkills	H	M	M	M
Off-highway vehicle kills	H	L	L	L
Vandalism and shooting	H	L	L	L
Direct kills by large surface disturbances	M	L	L	L
Excessive predation by ravens	H	M	M	L
Survival of reintroduced tortoises	+	+	+	+
Introduction of diseases from captive reintroductions	+	+	+	+
Location of relocation and reintroduction sites	+	+	+	+
Population monitoring techniques and schedules	+	+	+	+
Genetically distinct populations of tortoises	+	+	+	+
Genetic pollution	+	+	+	+
Habitat Issues				
Effectiveness of mitigation measures and stipulations	H	M	L	L
OHV free-play	H	M	L	M
OHV competitive events	H	L	M	L
Proliferation of roads and routes	H	M	L	M
Impacts from cattle grazing	L	H	M	-
Impacts from sheep grazing	H	-	-	-
Wild horse and burro impacts	-	L	L	L
Cumulative effects of small surface disturbances	H	L	L	L
Effects of large surface disturbances	H	L	L	L
Visitor concentrations	H	L	L	L
Loss of habitat through exchanges	L	L	L	L
Compensation for loss or degradation of habitat	+	+	+	+
Preserve size and effectiveness	+	+	+	+
Interagency Issues				
Coordination of agencies	+	+	+	+
Management of tortoises on private lands	H	M	M	M

Berry and Turner (1984) confirmed these findings in an analysis of tortoise distribution on three Bureau study plots adjacent to roads. Similar losses can be expected on dirt roads with regular use. Surveys from the Desert Tortoise Natural Area in 1979 and 1985 revealed that tortoises are killed even with very low levels of vehicle traffic on dirt roads in the fenced portions of the Desert Tortoise Natural Area (Berry and Shields *et al.* 1986).

4. Off-highway Vehicle (OHV) Kills

Vehicle travel off-highway is resulting in deaths to tortoises on the surface and in burrows. Berry and Nicholson (1984a:3-31 to 3-33) reported observing tortoises directly killed or injured by OHV's and indirectly killed by crushing or injured by compression fractures while in burrows.

5. Vandalism and Shooting

Vandalism, including shooting, is reducing the number of tortoises in their natural habitat. Berry and Nicholson (1984b:3-11 to 3-12) summarized the literature on vandalism and shooting of tortoises in California using published material dating back to 1939. The issue is over 50 years old, and events are not rare or infrequent. Many reports are available on deliberate killing with vehicles and firearms. Other types of vandalism include beheading, overturning, and severing in half with blunt instruments.

Berry (1986b) analyzed data from 11 permanent study plots and reported that 14.3 percent of carcasses showed evidence of gunshot. Study plots in the western Mojave Desert showed the highest incidence of gunshot. In that area, the lowest frequency was on the Kramer Hills plot (14.6%), and the highest was on the Fremont Valley plot (28.9%). In contrast, plots in the eastern Mojave and Colorado deserts showed frequencies of 0 to 3.1 percent. Data from the Desert Tortoise Natural Area indicate that the incidence of gunshot is as high in the interior of the area as at the interpretive center and outside the fence (Berry and Shields *et al.* 1986). The higher rates of gunshot deaths in the western Mojave probably are attributable to higher numbers of human visitors because of greater vehicular access and closer proximity to urban centers.

6. Visitor Concentrations

Visitor concentrations typically involve use of vehicles and result in increased tortoise mortality through crushing, collection, shooting, and vandalism. For example, despite the exclusion of vehicles, tortoise populations have declined significantly at the Desert Tortoise Natural Area interpretive center, possibly due to collection, vandalism, and release of diseased captives.

7. Direct Losses from Large Surface Disturbances

Large surface disturbances are causing direct losses of tortoises both on and below the ground surface. Direct losses generally occur when there is a rapid encroachment of a surface disturbing activity into habitat supporting tortoises. Examples are land development for residential and commercial purposes, road or pipeline construction, and agricultural development.

8. Excessive Predation by Ravens

Excessive predation of tortoises by ravens is reducing the number of tortoises in their natural habitat. In 1980 and 1981, Campbell (1983) found that ravens were killing juvenile tortoises at the Desert Tortoise Natural Area. Since that time, Berry (1985) evaluated avian predation in California desert tortoise populations and found that raven predation is more common and at higher levels in the western Mojave Desert than elsewhere. Data gathered in 1986 and 1987 at permanent study plots indicate that raven predation levels have grown considerably since the late 1970's. For example, at the Kramer Hills plot in 1987, shells of 156 juveniles were found underneath a raven nest and perch. Excessive raven predation has resulted in significant shifts in age-class composition at the Natural Area and other sites in the western Mojave Desert (Berry and Shields *et al.* 1986).

In the western Mojave Desert, raven populations have grown substantially since the 1940's and 1950's, according to Eugene Cardiff, Curator of Natural History, San Bernardino County Museum. In the eastern Mojave Desert, ravens were rare between the 1920's and 1940's but have increased substantially (Berry 1985). Increases are suspected to be due to human influences - increases in food supplies (e.g., garbage dumps, agricultural developments, and roadkills) and perches and roosts (e.g., telephone poles, transmission lines, and cultivated trees).

Since 1987 the Bureau has been conducting surveys along specific routes and at landfills to assess the distribution and relative abundance of ravens in various parts of the tortoise range. The results will be used to focus raven control efforts at specific areas or sites where raven populations are large or artificially enhanced.

In 1988 and 1989, the Bureau, in conjunction with the Animal Damage Control Office of the Department of Agriculture, the Department of Fish and Game, and the U. S. Fish and Wildlife Service and the Marine Corps Air Ground Combat Center (MCAGCC) at Twentynine Palms, developed a pilot program to selectively reduce common raven populations in the CDCA. The program focused on the Desert Tortoise Natural Area (DTNA) in the western Mojave, nesting and perching sites in the vicinity of Needles in the East Mojave, and at a landfill on the MCAGCC. An estimated 100-110 ravens were killed at the MCAGCC landfill, and about 6 ravens were killed at the DTNA. Ravens were killed using a poisoned bait. Populations were significantly reduced by program efforts at the MCAGCC landfill.

In 1992, the Bureau will be completing a Raven Management Plan for the California Desert Conservation Area and a related Environmental Impact Statement (EIS). A Draft Plan (1990b) and Draft EIS (1990a) were distributed for public review in the summer of 1990. The Draft Plan proposes a variety of techniques, including direct removal of ravens, to reduce raven predation.

9. Survival of Reintroduced Tortoises

Reintroduced and relocated tortoises have a low survival rate. Berry and Nicholson (1984b) reviewed reports on survival of reintroduced captives in programs authorized by the Department. Between 1971 and 1980, over 200 captives were part of official rehabilitation and/or reintroduction programs. Overall, survival rates were low, but methodology was developed that significantly decreased mortality. By 1980, the Department had declared a moratorium on captive reintroductions because of concerns about poor survival, potential contamination of genetic strains, introduction of diseases, disturbance of social systems of recipient populations, and exceeding the habitat carrying capacity of recipient populations.

Berry (1986a) summarized relocation efforts in wild tortoises. Some died, some settled at the release site, and many traveled distances of several miles. Relocation efforts have suffered from many of the same problems associated with captive reintroductions. Despite the limited success demonstrated, some project proponents may propose relocating wild tortoises from project sites.

10. Introduction of Diseases from Captive Reintroductions

Reintroduced captive tortoises can spread diseases and parasites to wild tortoise populations. The literature on diseases of captive reptiles is extensive (e.g., Cooper and Jackson 1981; Hoff *et al.* 1984). Captive tortoises contract numerous diseases and parasites rarely observed in the wild animals. Unfortunately, some owners of sick or injured captives return the animals to the desert, perhaps in the belief that a sick or injured animal will be able to recover in a "natural" setting. Sick tortoises have been discovered at the Desert Tortoise Natural Area between 1972 and 1986 (U. S. Bureau of Land Management 1986). In some areas in the DTNA, populations have been reduced by 50 percent in the last five years due to disease. Tortoises with diseases have been found in large numbers at Chuckwalla Bench and in small numbers at scattered sites throughout much of the desert. Each year, many pet owners call government agencies for information on the location of the Natural Area so they can release their captives in a protected area.

Because captives with contagious diseases and parasites can contaminate wild populations, captive tortoises should not be reintroduced into the wild except as a last resort. Diseases and injuries can only be detected by a veterinarian experienced with tortoises.

The Bureau and Department, in conjunction with contributions of time from researchers and veterinarians, have sponsored extensive studies to assess the physiology of healthy tortoises, to determine the distribution and extent of disease infestations, and to determine the pathogens.

11. Location of Relocation and Reintroduction Sites

No sites have been identified for tortoise relocations. County, State, and Federal agencies frequently receive requests to relocate wild tortoises from areas experiencing surface disturbing activities. To date, no appropriate release sites have been identified. Most sites from which tortoises have been recently eliminated have inadequate habitat due to severe surface disturbances. Carrying capacity is unknown in most areas, but populations may be below carrying capacity in some places due to factors such as collecting, vandalism, vehicle kills, disease, and excessive raven predation. The Desert Tortoise Recovery Team has developed preliminary criteria for tortoise relocation projects, as has the MOG Technical Advisory Committee.

12. Population Monitoring Techniques and Schedules

Although yielding highly significant data, the current monitoring system has had lapses and may not be representative of tortoise populations desertwide.

Between 1977 and 1979, survey techniques were developed to monitor the status of populations in California (Berry 1984b). The standard survey technique consists of a 60-day spring survey on a site which is about one square mile in size. Tortoises are permanently marked, shell-skeletal remains are collected, and data are recorded on individual tortoises. Data analysis yields information on population density, distribution, mortality, size and age structure, and sex ratios.

Initially, 27 study sites were surveyed. Of the 27, 15 were selected for a permanent monitoring program. Originally, the Bureau planned to monitor each plot every three or four years. However, due to budget limitations, no plots were surveyed for two years in the early 1980's. As a result, some plots were not resurveyed for six or seven years. This extended interval can compromise the survey method as tortoise marks disappear and carcasses deteriorate.

Most of the 15 plots in the monitoring program are in relatively undisturbed locations, and most are in moderate to high density areas. Therefore, the plots should not be considered as representative of the entire desert, but, rather, as representative of the best conditions and populations. As some populations decline, it may be necessary to shift or add plots.

13. Maintenance of Genetically Distinct Populations

Because of genetic distinctions between tortoises from different regions, it is important to maintain the major population centers as viable units. The geographic

range of the desert tortoise extends from southeastern California through southern Nevada into extreme southwestern Utah and from there south through western Arizona to Sinaloa, Mexico (Stebbins 1985). However, desert tortoise populations are not one homogeneous genetic unit.

Recent work by Lamb (1986, 1987) and Weinstein and Berry (1987) indicate substantial differences in populations. Using mitochondrial DNA analysis, Lamb described three major genetic units separated by the Colorado and Yaqui rivers. In addition, Lamb found that the unit north and west of the Colorado River (including California) has three distinct "clones". Weinstein and Berry (1987) have delineated three separate populations in the U.S. based on shell shape. The findings of Lamb and Weinstein/Berry correspond to some degree with each other and also with observed differences in habitat preference, seasonal activity patterns, and other behaviors. For example, tortoises west and north of the Colorado River (including California) are generally found in valleys and bajadas and are uncommon in rocky areas. In contrast, tortoises in the Sonoran Desert of Arizona occupy only rocky outcrops and steep, rocky slopes with large boulders.

14. Genetic Pollution

Tortoises have been taken captive and reintroduced usually without regard to their areas of origin. Releases have crossed state boundaries and major genetic units. Berry and Nicholson (1984b: 3-8 to 3-12) summarized some records of captive releases in California. Some releases were supervised by the Department, but probably many more releases occurred.

To preserve the genetic groups, it is essential that major releases do not mix either major genetic units or "clones". The major tortoise groups evolved in response to their environments and are probably adapted to live in a particular region. It is unknown whether individuals from different major units can hybridize or produce fertile, functional offspring with normal behaviors or survivorship.

B. Habitat issues

15. Effectiveness of Mitigation Measures and Stipulations

Mitigation measures, which are project modifications designed to reduce adverse impacts, vary greatly in their effectiveness. Mitigation measures may or may not be sufficient to eliminate the adverse impacts entirely. Mitigation measures are developed in the environmental assessment process and can become stipulations in land use authorizations or permits.

Most mitigation designed to reduce impacts to the desert tortoise involve seasonal restrictions on access, slight changes in the project location to avoid direct loss or disturbance to tortoise burrows, and relocation of tortoises which would be killed by the project. Mitigation measures vary greatly in their effectiveness. For example,

the requirement that vehicle speeds be reduced during project construction will reduce but not eliminate the number of tortoises being crushed by vehicles on roads.

The Bureau and most other agencies do not have adequate funding to either monitor the compliance with required stipulations or to assess the effectiveness of mitigation measures developed for various land use permits. In addition, casual land uses, such as general recreation involving motorized vehicles, do not require land use permits. In these cases, there is no opportunity for the direct application of mitigation measures, field compliance, or monitoring.

16. Off-highway Vehicle Play

Vehicle play in tortoise habitat results in cumulative adverse impacts to tortoise habitat. Impacts vary from minor habitat alteration and vehicle route proliferation to total denudation of areas resulting from intensive vehicle play, parking, and camping. Concentrated vehicle play areas may eliminate all but the most hardy shrubs, such as creosotebush. Other impacts include soil compaction and erosion. Tortoises suffer from loss of forage, loss of vegetative cover, and loss of burrow sites and are subject to increased mortality from crushing, collection, and vandalism.

17. Off-highway Vehicle Competitive Events

Competitive events adversely impact tortoise habitat. They usually involve several hundred race participants and sometimes a significant number of spectators. In addition to street vehicles, trailers, campers, and motorhomes are usually involved. The camping and race start and finish areas receive intensive vehicle use and become devoid of vegetation. Tortoises are eliminated from these areas entirely due to the loss of food and cover and burrow sites. The adverse effects decrease with increasing distance from these concentration zones.

The effects of vehicle competitive events vary according to type of event, speed of vehicles, number of participants, frequency of event, etc. Some habitat is lost directly and is a function of route length and width. Routes usually widen with continued use. Events with mass starts at high speed result in large denuded start "cones" and greater course widening due to passing. Spectators commonly participate in off-highway vehicle play, especially near camping and pitting areas.

18. Proliferation of Roads and Routes

Human access increases the incidence of tortoise mortality from collection, gunshot, and crushing by vehicles, and soil compaction results in loss of vegetation and increases in erosion. Vehicle roads and routes allow for human access into tortoise habitat, especially in the western Mojave Desert where vehicle route density is high. Vehicle route proliferation has occurred in many areas and can result in a significant cumulative loss of habitat. Many routes are generated by casual cutting of corners and repeated cross-country travel between routes.

19. Impacts from Cattle Grazing

Cattle grazing has the potential to adversely affect tortoise habitat, but the extent of actual effect has not been determined. Berry (1978) has suggested that cattle can eat and remove annual and perennial plants essential for tortoise food and cover, damage shrubs used for shelter, crush burrows and nests, and trample young tortoises. In addition to these potential adverse effects, two long term effects of cattle grazing have been the conversion of some desert areas from grassland to shrubland and the replacement of perennial bunch grasses with introduced annual grasses, such as cheatgrass. Long term impacts to vegetation and soil are most pronounced along trails, at watering troughs and corrals, and at other concentration areas.

The degree and nature of impacts from cattle grazing is dependent on habitat, grazing history, seasons of use, stocking rates, and density of the tortoise population. In California, cattle grazing in tortoise habitat occurs primarily in the East Mojave.

20. Impacts from Sheep Grazing

Impacts of sheep grazing are similar to those described for cattle. The principal differences are in season of use and in trampling. Sheep are grazed in late winter and spring, whereas cattle grazing is generally year-round.

Webb and Stielstra (1979) found that a flock of sheep could consume 60 percent of the biomass of annuals with one pass. They also found that under heavy sheep grazing, perennial shrubs were reduced by 65 to 68 percent volume and by 16 to 20 percent cover. Nicholson and Humphreys (1981) documented impacts of sheep grazing on the Kramer study plot. They found that 73 percent of the plot was grazed. About 4.4 percent of the plot received heavy impacts from bedding and watering. About 10 percent of tortoise burrows were damaged, and 4 percent of burrows were destroyed. At least one juvenile was buried alive in its burrow. In 1987, Craig Knowles reported that at least 10 juveniles were killed by trampling on the Stoddard Valley study plot.

The Bureau has taken several actions to reduce the impacts of sheep grazing. The Desert Tortoise Natural Area has been closed to sheep grazing. Turnout in tortoise habitat must meet forage thresholds and in some areas must wait until tortoises have emerged from over-winter burrows.

21. Wild Horse and Burro Impacts

Five wild horse and burro herd management areas occur within tortoise habitat areas in the California Desert District. The Woods/Hackberry herd management area for wild horses partially overlaps Category I habitat in the Fenner-Chemehuevi tortoise habitat area. This 10,000-acre herd management area has an estimated wild horse population of 6 animals. Portions of the burro herd management areas for Clark Mountain, Lava Beds, and Cima Dome overlap with Category I and II tortoise

habitats in the Ivanpah-Shadow-Kelso area. The estimated burro populations in these herd management areas are 132 animals, 72 animals, and 123 animals, respectively. The burro herd management area for the Chocolate/Mules partially overlaps Category I habitat in the Chuckwalla tortoise habitat area. This 250,000-acre herd management area has an estimated burro population of 305 animals.

Remnant herds of wild horses and burros on Bureau lands are managed pursuant to the Wild Free-Roaming Horse and Burro Act. Management Objective 11 in the Bureau's desert tortoise rangewide plan calls for herd management of wild horses and burros which is consistent with Category Goals, Objectives, and Management Actions for the tortoise. Specific management actions prescribed to achieve this objective include maintaining appropriate population levels of wild horses and burros consistent with existing land-use and activity plans; monitoring wild horse and burro herds, and using such monitoring data to develop management prescriptions for desert tortoise habitats; managing grazing by wild horses and burros, where site potential exists, to increase native perennial grasses, forbs, and shrubs required by tortoises as food and cover; and allowing only those new range improvements for wild horses and burros in Category I and II habitat areas which will not create conflicts with tortoise populations. Wild horse and burro impacts on tortoise populations in California are believed to be less significant than other grazing impacts because of the limited overlap that occurs between wild horse and burro herd management areas and Category I and Category II tortoise habitats and because burros tend to seek out the higher, rockier portions of the tortoise habitats they do occupy.

22. Cumulative Effects of Small Surface Disturbances

Land use actions which disturb 5 to 10 acres or less cause significant indirect effects and cumulative impacts, even though when taken individually, such small disturbances appear trivial when compared with the distribution of the tortoise. For example, an exploratory drilling pad can lead to establishment of a new camping site or off-highway vehicle staging area and result in increased habitat loss, collection of tortoises, vandalism, and vehicle kills. The presence of surface disturbances may contribute to further human activity within the same area. Uptain and Karl (1987) provided substantial circumstantial evidence that the cumulative impacts of many small surface disturbances at one site in the western Mojave reduced tortoise populations over an area of 320 to 640 acres..

23. Effects of Large Surface Disturbances

Large surface disturbances (e.g., power plants, agricultural developments, urbanization, off-highway vehicle pitting and starting areas) cause long-term and often permanent loss of tortoise habitat. The loss in habitat results directly in a reduced tortoise population. In addition, the activities often induce further surface disturbing activities with resulting habitat loss and population reduction. Large surface disturbances usually result in increased human activity with associated losses in tortoises due to vehicle kills, vandalism, and collecting.

24. Loss of Habitat through Land Exchange

Where land exchanges are used to accommodate the needs of project proponents, they can result in habitat loss and increased fragmentation of populations. The Bureau may undertake land exchanges to meet various other land use objectives (e.g., blocking up wilderness areas or off-highway vehicle open areas) or to accommodate a land use development (e.g., agriculture, power plant siting).

However, many recent land exchanges past have been carried out for the expressed purpose of acquiring high priority tortoise habitat. For example, exchanges have been undertaken to acquire inholdings in the Desert Tortoise Natural Area and the Chuckwalla Bench Area of Critical Environmental Concern. The proposed "Land Tenure Adjustment (LTA) Project" in the western Mojave Desert will make significant strides in the acquisition through exchange of vast private holdings in high priority tortoise habitat by consolidating public ownership of large blocks of contiguous tortoise habitat.

25. Compensation for Loss or Degradation of Habitat

Projects proponents can reduce the overall effects of a project through compensation, which is the process of offsetting the loss of habitat by enhancing habitat or management capability somewhere else. Compensation may involve land acquisition or habitat and population enhancement. In the last 10 years, Federal and state agencies in California have worked together with The Nature Conservancy to develop compensation packages to protect and improve management capability of species of special concern. The Department of Fish and Game, the California Energy Commission, the U. S. Fish and Wildlife Service, and The Nature Conservancy have played key roles.

The agencies involved have developed ratios for compensation involving land acquisition for some species and some habitats in California (e.g., deer, San Joaquin kit fox, Central Valley habitat). The California Desert District has applied a formula based on various factors to arrive at an equitable land acquisition ratio. Factors considered were the size of the disturbance, type of disturbance, tortoise habitat category, time for recovery of the habitat, existing disturbance on the site, and other direct and indirect impacts. Even with compensation, it must be recognized that there is a net loss in habitat.

26. Preserve Size and Effectiveness

As more and more species have had their distributions restricted to refuges and parks, biologists working worldwide have recognized that these preserves are often too small to preserve the resources for which they were designed (Diamond 1975, 1976; Frankel and Soule 1981; Soule 1986; Soule and Wilcox 1980, Whitcomb *et al.* 1976). Key problems are that 1) small reserves generally have fewer species and higher extinction rates than large preserves; 2) some animals require large areas to survive;

3) large preserves are better buffered against human activities and natural disasters; 4) large areas are essential to minimize pressures of predation, parasitism, and competition exerted by species from nearby disturbed areas; and 5) the ratio of perimeter to area is less with larger areas.

The basic questions for the tortoise are: 1) how many breeding males contribute to the gene pool in a given population, 2) how much land is required to protect a viable population into perpetuity given the existing and future levels of human use, 3) how many different natural areas are needed, 4) can tortoise requirements be combined with general ecosystem requirements to avoid a "zoo" situation?

C. Interagency Issues

27. Coordination of Agencies

Although the listing of the desert tortoise has increased communication greatly, policies regarding tortoises are not consistent among the various agencies. Management of the tortoise can be enhanced further with increased cooperation and agreement on certain policies.

Several levels of government influence land use policy and, thereby, affect the well-being of the tortoise and its habitat in the California Desert. Major agencies at the Federal level are the Bureau of Land Management, the Fish and Wildlife Service, the National Park Service, and the Department of Defense; on the State level, the major agencies involved are the Department of Fish and Game, the California Energy Commission, the Department of Transportation, the State Lands Commission, and the Department of Agriculture. Counties and cities control activities on private lands.

28. Management of Tortoises on Private Lands

Because individual tortoises move around considerably and because a viable population requires an extensive area, the mixture of public and private lands offers a tremendous challenge to agencies charged with maintaining viable, stable populations of tortoises. Private land occupies from 4 percent (Ivanpah Crucial Habitat) to 46 percent (Fremont-Stoddard Crucial Habitat) of each crucial habitat. In some areas, private sections may have as many as 200 individual landowners. Development on these private lands is generally controlled by city and county ordinances and general plans, but will be influenced by the Department and the Fish and Wildlife Service to the extent permits are required authorizing the incidental take of desert tortoises.

V. MANAGEMENT GOALS

In recognition of its uniqueness in the desert fauna and its ecological and recreational importance, the desert tortoise is to be managed in a manner which will preserve it for the enjoyment of future generations and maintain it as an important ecological entity in the California Desert. Long-range goals for the management of the desert tortoise, in a nonhierarchial order, are to:

A. Restore and maintain stable, viable tortoise populations within designated Category I and Category II habitats in the species' existing natural range in the California Desert.

B. Minimize impacts to tortoises in Category III habitat through humane, low-level mitigation and compensation requirements.

C. Reduce non-natural mortality to the extent possible.

D. Prevent deterioration and promote restoration of Category I and Category II habitats.

E. Acquire private lands within Category I and Category II habitats through purchase or exchange and through compensation for habitat losses in Category I, II, and III habitats.

F. Maintain and increase populations through translocation of wild tortoises into suitable unoccupied or depleted habitats within the historic range.

G. Achieve interagency coordination and demonstrate commitment necessary to maintain viable tortoise populations in the California Desert.

H. Develop and implement a monitoring program to determine progress toward meeting the overall management goal of maintaining viable tortoise populations in the California Desert.

VI. GUIDELINES FOR ATTAINING MANAGEMENT GOALS

Management Goal A. Restore and Maintain Stable, Viable Tortoise Populations Within Designated Category I and Category II Habitats in the Species' Existing Natural Range in the California Desert.

GUIDELINE 1: Category I, II, and III habitats will be defined on Public Lands. The use of the concept of crucial and highly crucial habitat will be discontinued.
IMPLEMENTATION: On February 22, 1989, the District Manager of the California Desert District issued instructions to all Resource Area Managers to implement a "Tortoise Habitat Category Interim Map", which was attached to the instructions (Instruction Memorandum CDD-89-51). Map 1 (see page 57) shows the Interim Tortoise Category Map as adopted. (Note that the category designations only apply to Public Lands; intermingled private lands shown on the map do not carry a category designation. Note also that the depiction of Category III habitat is only an approximation; Category III habitat includes all other Public Lands where tortoises occur.) The interim map will serve until formal acceptance of a category map through amendment to the CDCA Plan, which is a public process. An amendment to the CDCA Plan was proposed in 1989 to designate three categories of habitat and to change provisions of the CDCA Plan which reference crucial and highly crucial habitat. The four major areas of tortoise habitat will be known as West Mojave, Ivanpah-Shadow-Kelso, Fenner-Chemehuevi, and Chuckwalla Habitat Areas. The interim category boundaries will be refined through the CDCA plan amendment process and during development and review of habitat management plans. (See Guideline 33.)
DISCUSSION: Currently, eight areas are defined as tortoise crucial habitat on Map 3 in the CDCA Plan. The Rangewide Plan (Spang *et al.* 1988) directed Bureau offices to adopt a three-category habitat designation system to replace the designation of "crucial" habitat. The Department has designated crucial habitat on private and non-Bureau administered Federal lands within Interim Category I and II habitat areas.

The goals for the categories are given in Section I (Introduction); the criteria for the categories presented in the Rangewide Plan are the following:

	CATEGORY I HABITAT	CATEGORY II HABITAT	CATEGORY III HABITAT
Criterion 1	Habitat Area essential to maintenance of large, viable populations	Habitat Area may be essential to maintenance of viable populations.	Habitat Area not essential to maintenance of viable populations.
Criterion 2	Conflicts resolvable.	Most conflicts resolvable.	Most conflicts not resolvable
Criterion 3	Medium to high density or low density contiguous with medium or high density.	Medium to high density or low density contiguous with medium or high density.	Low to medium density not contiguous with medium or high density.
Criterion 4	Increasing, stable, or decreasing population.	Stable or decreasing population.	Stable or decreasing population.

Management Goal B. Minimize Impacts to Tortoises in Category III Habitat Through Humane, Low Level Mitigation and Compensation Requirements.

GUIDELINE 2: Humane and low level mitigation measures will be applied to Category III habitat areas. Compensation will also be applied as specified in Guideline 23.
IMPLEMENTATION: The direct and indirect effects of proposed projects and activities will be limited by the use of effective mitigation measures in all permits, licenses, grants, and other land use authorizations. The California Desert District will maintain a list of practical mitigation measures targeted for Category III habitat areas that can be applied to projects in the State. Although application of the list will require judgment, its use will promote consistency and efficiency.
DISCUSSION: Measures in the past have been applied inconsistently and have been unduly varied in their content.

GUIDELINE 3: Category III habitats may be exchanged or otherwise disposed when such exchanges or disposals are consistent with the CDCA Plan.
IMPLEMENTATION: Land exchanges or disposals will require compensation.
DISCUSSION: It is not a goal to maintain in perpetuity the quantity or quality of Category III habitat in public ownership. Consequently, Category III habitat targeted for disposal will be used to the maximum extent possible to consolidate management of Category I and II habitats. (See Management Goal E.)

Management Goal C. Reduce Non-Natural Tortoise Mortality to the Extent Possible.

GUIDELINE 4: An aggressive public education program will be implemented to promote compliance with State and Federal laws and to reduce unnecessary tortoise mortality. The public education program will focus on six issues: 1) possession of tortoises (i.e., permitting system), 2) unlawful take, 3) prohibition on returning captives to the desert, 4) reduction in roadkills, 5) vandalism, and 6) protection of habitat.
IMPLEMENTATION: Target audiences will include the following: 1) the general public, with an emphasis on elementary students; 2) special interest groups (e.g., off-highway vehicle users, shooters); 3) Bureau and Department employees, with an emphasis on managers, rangers and wardens, biologists, and others having contact with the public; and 4) planning agencies, with an emphasis on city and county planners. See Section VIII (Public Education Program) for details of the program.
DISCUSSION: Unnatural sources of mortality and population loss can be markedly reduced through an aggressive education program. With proper education, many more people will voluntarily assist in efforts to protect the desert tortoise.

GUIDELINE 5: The return of recent captive tortoises to the point of capture will be promoted.
IMPLEMENTATION: Wild tortoises which are delivered to Bureau or Department offices immediately after taking from the wild will be returned to the point of capture and released pursuant to protocol developed by the Bureau, the Department, and the Fish and Wildlife Service.
DISCUSSION: It is presumed that tortoises which have been living free and which can be returned to or near their former homes quickly have a high likelihood of survival. They should not be carrying diseases from domestic animals, and they should not unduly disrupt other wild tortoises. Immediate return to the place of capture will give the best possible chance of survival in the wild for that individual.

GUIDELINE 6: Domestic tortoises will be adopted out to selected individuals through Turtle and Tortoise Clubs or other organizations approved by the Department.
IMPLEMENTATION: As established by criteria to be determined through consultations among various interested agencies and organizations, Turtle and Tortoise Clubs will be commissioned by the Department to adopt captive tortoises to qualified individuals.
DISCUSSION: Captive tortoises usually are not appropriate candidates for release into the wild because of injuries and the potential for introducing disease.

GUIDELINE 7: Vehicle route designations in tortoise habitat areas will be reexamined to minimize conflicts with the tortoise. (See Guideline 31.)

IMPLEMENTATION: Vehicle route designations will be reviewed during the development of tortoise habitat management plans. Route designation changes may also be considered during the route designation amendment process, along with the need to reclaim closed routes.
DISCUSSION: Routes result in direct impacts (e.g., mortality, loss of habitat) as well as indirect impacts (e.g., proliferation of off-highway vehicle play, unlawful collecting). A reexamination of routes during development of habitat management plans will further identify route closures beneficial to the tortoise.

GUIDELINE 8: Tortoise-proof fences will be constructed along highways and dirt roads in Category I and II habitats where tortoise mortality is known or expected to be high. Culvert underpasses will be considered for tortoises where the free passage of tortoises is important.
IMPLEMENTATION: Highways and roadways requiring fencing will be identified in the habitat management plans or through specific highway projects. Culverts and fences also will be considered for construction along new highways in Category I and II habitats. The initial installations will be given additional study to determine use and effectiveness of the installed fences.
DISCUSSION: Fusari (1981) has shown that tortoises will use culvert underpasses. Fencing will reduce roadkills and collecting on highways and restore large tracts of habitat along highways to habitability. The underpasses will allow movement of tortoises under the highways and will reduce the highway's impact as a genetic barrier. In the short term, fencing without culverts may impede the spread of diseases and would not constitute a significant barrier to gene flow.

GUIDELINE 9: Tortoise-proof fences will be constructed along canals and aqueducts in Category I and II habitats where tortoise losses are expected to occur.
IMPLEMENTATION: Canals and aqueducts in Category I and II habitats that pose a potential drowning problem for tortoises will be identified in habitat management plans or in specific canal projects. Tortoise crossings at siphons will be maintained so that populations are not fragmented completely. Where siphons are widely spaced, additional wildlife crossing bridges will be considered.
DISCUSSION: Canals and aqueducts are sources of direct mortality and population fragmentation. Tortoises are nonswimmers, and escape from canals and aqueducts is virtually impossible for them. Losses due to drowning could significantly affect nearby populations.

GUIDELINE 10. Manmade pitfalls, such as mining shafts or exploration holes will be fenced, filled, or otherwise modified to prevent tortoise losses in Category I and II habitats.
IMPLEMENTATION: Open pits or shafts which can trap tortoises will 1) be fenced to exclude tortoises, 2) will have one or more sides sloped to allow for tortoises (and other wildlife) to walk out, or 3) will be filled. The option selected will be based on various factors including cost, the presence of bats or other wildlife, and legal constraints.
DISCUSSION: Tortoises are frequently found dead in pits and shafts. Elimination of pitfall mortality will increase tortoise survivorship.

GUIDELINE 11: Fencing to reduce tortoise mortality will be considered for projects in Category I and II habitat areas that constitute a hazard to tortoises.
IMPLEMENTATION: For projects where there is a danger of tortoises being killed by the activity itself (e.g., runover by vehicles) or of being trapped (e.g., falling into a pit), a tortoise-proof fence of welded wire will be placed around the hazard. Need for the fencing will be determined in the environmental analysis process. If necessary, tortoises within the project area will be captured and relocated. All costs will be borne by the project proponent. When the project is terminated, the fence will be removed as a part of reclamation after the hazard has been removed. (See Guideline 22.)
DISCUSSION: Although habitat will be lost at least temporarily, it is mandatory to minimize direct mortality.

GUIDELINE 12: Competitive vehicle events in tortoise habitat areas will be allowed only within existing off-highway vehicle open (play) areas or on specific race courses identified in the CDCA Plan.
IMPLEMENTATION: A 1991 Desert Plan amendment regarding the Recreation Element of the CDCA Plan focuses on management of off-highway vehicle events outside of designated off-highway vehicle areas. Activity plans are being prepared for managing activities within off-highway vehicle play areas.
DISCUSSION: Unlike use on other roads, participants in competitive events frequently depart from previously traveled roadways and often travel at speeds which preclude avoidance of tortoises. Competitive events also attract spectators and support personnel which spend time in OHV free-play, collecting, and other activities harmful to tortoise populations. Pits, start cones, and parking areas are extremely deleterious to tortoises because of the vegetation denudation and soil compaction. For these purposes, "competitive events" are those where speed, passing, and finishing first are important elements. Examples include hare-and-hound, scrambles, and enduros.

GUIDELINE 13: No new off-highway vehicle open areas will be established in Category I and II habitats.
IMPLEMENTATION: Any proposed CDCA Plan amendments to establish new off-highway vehicle open areas in Category I or II habitats will be rejected.
DISCUSSION: Off-highway vehicle open areas are considered to be conflicts which are incompatible with the goals for Category I and II habitat.

GUIDELINE 14: No new off-highway vehicle open areas will be established adjacent to Category I or II habitats without a functional barrier.
IMPLEMENTATION: Proposals for new off-highway vehicle areas will not be accepted for consideration unless a barrier is part of the proposal. Barriers include mountain ranges, other landforms, or freeways. Dirt or paved roads do not constitute barriers. Fences will constitute a barrier only if designed to keep tortoises in and vehicles out (e.g., hogwire fence with hardware cloth at bottom).
DISCUSSION: There can be considerable spill-over from off-highway vehicle open areas onto adjacent lands. Spill-over is expected to increase as open areas become crowded, denuded, and

visually less attractive. Also, without a barrier the natural movement of tortoises into an open area will increase losses due to vehicle kills.

GUIDELINE 15: Enforcement of existing laws, regulations, and rules particular to protection of the desert tortoise will be increased within Category I and II habitats, and on privately owned lands designated as crucial habitat by the Department.
IMPLEMENTATION: The Category I and II habitat areas will be analyzed to determine priority needs for enforcement of laws, regulations, and rules dealing with off-highway vehicle use, livestock grazing, and shooting. Specific patrol and enforcement strategies will be developed for each Category I and II habitat. A joint law enforcement task force involving the Bureau, the Department, and the Service has been formed to coordinate agency enforcement activities.
DISCUSSION: A number of laws, regulations, and rules which are of benefit to the tortoise exist. Priority for limited time of Bureau rangers and Department wardens will be focused on tortoise protection during the spring and fall periods of above-ground activity. Existing laws, regulations, and rules will be enforced as effectively as possible in order to reduce habitat loss and tortoise mortality.

GUIDELINE 16: The establishment of shooting closures will be considered where appropriate in the western Mojave during the periods of above ground tortoise activity.
IMPLEMENTATION: The habitat management plan for the western Mojave will address the issue of unlawful shooting of tortoises. If and where shooting closures are proposed in the habitat management plan, the counties of San Bernardino, Los Angeles, and Kern will be requested to issue regulations prohibiting the discharge of firearms within the western Mojave during the parts of the year when tortoises are above ground. The Fish and Game Commission will be requested to adjust hunting seasons in the closure area to exclude the times of year when tortoises are above ground. Enforcement will be by wardens, rangers, and deputy sheriffs.
DISCUSSION: It has been shown by Berry (1986b) that a high proportion of carcasses retrieved from the western Mojave have been shot. Weapons used included rifles, shotguns, and handguns. The hunting seasons for rabbits and hares (currently year-round hunting seasons) and mourning doves, quail, chukar, and deer (currently fall hunting seasons) may need to be changed by the Fish and Game Commission. Most of the desert will still be open to discharge of firearms for lawful purposes (e.g., hunting, target shooting).

GUIDELINE 17: Raven predation on tortoises will be reduced through implementation of a raven management plan.
IMPLEMENTATION: Surveys for ravens have been conducted in many portions of the desert to establish baseline densities. Where raven populations are notably high, studies will be undertaken to identify breeding and roosting concentration areas. Where appropriate, attempts will be made to manipulate various habitat factors that might regulate raven populations. Actions which might be taken include attaching anti-perch devices to artificial structures, changing waste landfill and sewage pond management, removing ineffective trash bins, and fencing highways to reduce roadkills. Application of such measures will be accompanied by monitoring studies to determine the effectiveness.

A raven management plan is being developed to provide detailed direction for reducing raven predation. The Animal Plant Health Inspection Service (APHIS) will conduct the raven reduction program. Depredation permits will be obtained from the appropriate agencies (e.g., U. S. Fish and Wildlife Service and California Department of Fish and Game). Raven control will be by direct killing, using cost-effective, humane methods.

A raven control program will include periodic surveys conducted to determine the changes in raven and tortoise densities in various areas throughout the desert, especially where reduction programs have been instituted.

DISCUSSION: Ravens are known to fly long distances (50 miles or more) from nighttime roosts to daily foraging areas. Nesting ravens are probably more restricted in foraging area. Ravens have been observed pecking tortoises at fenceposts, and numerous shells of hatchling tortoises have been found below posts and Joshua trees. Berry (1985), Berry *et al.* (1986), and others have shown that raven predation, especially on young tortoises, is very high in the western Mojave and is expanding elsewhere. Raven populations are believed to have increased greatly in the last few decades due to human activity. More specifically, raven food supplies have increased due to highway roadkills, dumps, and agriculture. A reduction in predation on tortoise hatchlings will allow a greater proportion of hatchlings to reach reproductive maturity. Raven densities will be monitored to determine the effectiveness of depredation control measures. Monitoring will aid in the identification of problem areas.

GUIDELINE 18: Guzzlers and livestock waters will be studied to determine if they increase or concentrate canid populations and contribute to increased tortoise losses by predators.

IMPLEMENTATION: Studies will be conducted to determine the use of artificial water sources by coyotes, kit foxes, and free-roaming dogs. If it is found that artificial water sources increase or concentrate canid populations, modifications to guzzler entrances will be made to limit access of canids within Category I and II habitats. Livestock waters will be evaluated in allotment management plans for the most appropriate location and season of water availability.

DISCUSSION: Coyotes, kit foxes, and dogs are known to eat eggs, young tortoises, and even adults. Kit fox predation on tortoise nests is high in some places (Turner and Berry 1985, 1986).

Management Goal D. Prevent Deterioration and Promote Restoration of Category I and Category II Habitats.

GUIDELINE 19: Sheep grazing in Category I and II habitats will be reevaluated.

IMPLEMENTATION: Sheep grazing has been reevaluated during formal consultation with the Fish and Wildlife Service in 1991 and 1992. Alternatives considered included a moratorium on grazing in Category I and II habitats, modification of turnout requirements, and changes in distribution of use. The California Desert District Manager has formed a Blue Ribbon Task Force on Desert Tortoise/Sheep Grazing to evaluate and submit recommendations on the proposed sheep grazing program. A system of monitoring plots, referred to as the Tortoise and Burrow Study (TABS), has been developed to evaluate the effects of sheep grazing on tortoise burrows. A research

project to determine the effects of sheep stepping on tortoises of various size classes and trampling on their burrows will be conducted in 1992.

DISCUSSION: Affected allotments include Cantil Common, Monolith Common, Superior Valley, Gravel Hills, Boron Sheep, Buckhorn Canyon, and Stoddard Mountain allotments in the West Mojave Habitat Area and Ford Dry Lake allotment in the Chuckwalla Habitat Area. Sheep may compete directly with tortoises for forage during the short, critical spring season when tortoises are above ground. Sheep forage intensively over the zone of passage and may reduce forage below requirements for tortoises present in that zone. This, together with other direct (e.g., crushing of young tortoises and collapsing of burrows) and indirect (e.g., reduction in cover from weather and predators) effects, may be a contributing factor in the recent decline of the western Mojave tortoise population.

GUIDELINE 20: Surface disturbing activities in Category I habitats will be restricted to those which cannot be relocated elsewhere.

IMPLEMENTATION: Every effort will be made to relocate proposed surface disturbing activities to areas outside of Category I habitats. Where relocation is possible, permits for such projects within Category I habitats will be denied.

DISCUSSION: Tortoise populations are limited by the habitat carrying capacity. Carrying capacity is determined by forage availability, burrow site availability, soil friability (i.e., diggibility), etc. These aspects are negatively affected by surface disturbances.

GUIDELINE 21: Surface disturbance to soil and vegetation will be minimized through mitigation measures in Category I and II habitats.

IMPLEMENTATION: For surface disturbing activities in Category I and II habitats, disturbance to soil and vegetation will be minimized by the incorporation of effective mitigation measures. For surface disturbing activities in Category III habitat, less intensive mitigation measures will be applied. (See Guideline 2.) The specific measures will be addressed in the environmental analysis for the proposed action, and the permit will be stipulated accordingly.

DISCUSSION: Examples of existing mitigation measures include driving over or around vegetation rather than blading a road or work area and limiting the overall extent of roads or project work area. (See Guideline 3 for requirements in Category III habitat.)

GUIDELINE 22: Rehabilitation and/or restoration of vegetation will be required in Category I and II habitats.

IMPLEMENTATION: For permitted surface-disturbing activities, project proponents will be required to restore the land to productivity by replacing topsoil and recontouring. Consideration will be given to reseeding with appropriate native annuals and replanting native perennials (if determined feasible by the manager with botanical staff technical advice). All required restoration/revegetation projects will be monitored and evaluated for effectiveness. Monitoring will include vegetation transects and photo trend plots. Project proponents will be responsible for the costs of extensive vegetation monitoring; these requirements will be identified on the permit.

DISCUSSION: The intent is to return habitat carrying capacity as quickly as possible to the original, undisturbed level. Annual plants are the primary foods for tortoises, and perennial plants

are used for cover from sun, weather, and predators. Previous attempts at replanting perennials have met limited success. Some cacti and other plants can be replanted, but most require irrigation, which usually is not available. Careful monitoring will show the success of various rehabilitation/restoration techniques. As revegetation techniques are improved, the success of this measure will increase.

GUIDELINE 23: Compensation will be required for residual habitat degradation or loss (i.e. habitat degradation that cannot be fully mitigated on-site) in Category I, II, and III habitats.
IMPLEMENTATION: Whenever possible, compensation will be in the form of habitat enhancement sufficient to support the tortoise population on the affected habitat; the objective is to maintain overall tortoise carrying capacity. Where direct habitat enhancement is not feasible, compensation will be in the form of land acquisition or payment of fees for use in other conservation activities that will promote the survival and recovery of the species. Compensation is normally considered to be a mechanism for offsetting project impacts off-site. The guidelines for determining the amount of compensation required are given in Guideline 29.
DISCUSSION: The enhancement, acquisition, and protection of habitat assists in meeting the goal of maintaining stable, viable populations. Habitat enhancements include any permanent improvements, such as exclosures, fencing, or reseeding which will result in an increase in habitat carrying capacity of tortoises. The amount of compensation reflects both direct loss of habitat and indirect losses due to the future effects of the project. The future effects might be direct, such as tortoise losses from vehicles associated with the project, or indirect, such as collection of tortoises by those using the project roadways. Temporary measures, such as ranger patrols, will not be considered as compensation.

GUIDELINE 24: Facilities and activities that concentrate visitors will be discouraged in and adjacent to Category I and II habitats.
IMPLEMENTATION: Attempts will be made to relocate existing facilities and to locate proposed facilities and activities which would attract concentrated visitor use to areas outside of Category I and II habitats. Where this is possible, authorizations for new projects within Category I and II habitat will be denied.
DISCUSSION: Concentrations of visitors can cause unusually high losses of tortoises due to collecting and vandalism. High losses in a small area can result in population declines and local extirpation. Activities which can generally be located outside Category I and II include rallies and organized events. Facilities which can generally be located outside Category I and II include campgrounds, movie sets, etc.

GUIDELINE 25: The management effectiveness of established tortoise preserves will be determined and, where necessary, management practices will be modified to ensure long-term maintenance of viable populations.
IMPLEMENTATION: The Desert Tortoise Natural Area, as an established preserve, will be monitored to ensure that tortoise populations remain stable in the long term. If declines occur, causes will be identified through appropriate studies, and corrective measures will be instituted. Where appropriate, additional preserves will be established to maintain viable, stable, core

populations of high density; the need for additional or expanded preserves will be addressed in the habitat management planning process. The actual establishment of any new preserve may require designation of an area of critical environmental concern (ACEC) through CDCA Plan amendment.

GUIDELINE 26: No Category I habitat will be transferred out of public ownership.
IMPLEMENTATION: Proposals to exchange Category I habitats out of public ownership will not be considered.
DISCUSSION: The objective is to maintain the amount of land under conservation management for the benefit of tortoises. To achieve this objective, it is imperative that the land base within Category I habitat not be diminished.

GUIDELINE 27: Exchanges of Category II habitat will be allowed only if an equivalent or greater amount of Category I or II habitat is acquired in public ownership as a result of the exchange.
IMPLEMENTATION: Land exchanges involving Category II lands will be considered only if the quantity and quality of Category I or II habitat to be acquired as a result of the exchange creates an improved management situation for the tortoise.
DISCUSSION: As with Category I, Category II habitat is to be conserved, and development is not to be facilitated by simple 1:1 exchanges.

GUIDELINE 28: Prior adverse impacts to existing and acquired lands in Category I and II habitats will be restored and rehabilitated using compensation funds, contributed funds, and State and Federal wildlife program funds.
IMPLEMENTATION: Within Category I and II habitats, projects will be undertaken to enhance habitat (e.g., vegetation restoration, road rehabilitation, filling of pitfalls, removal of hazards) or increase management capability (e.g., exclosures, fences, interpretive centers, signing). Priority for funding will be given to projects in Category 1. These actions will be undertaken as they are identified and as funding becomes available.
DISCUSSION: These measures will aid in stabilizing or increasing tortoise populations by reducing conflicts, reducing mortality, or increasing carrying capacity.

Management Goal E. Acquire Private Lands Within Category I and Category II Habitats Through Purchase or Exchange and Through Compensation for Habitat Losses in Category I, II, and III Habitats.

GUIDELINE 29: A standard process for determining compensation will be used, as discussed in Guidelines 2, 23, and 27.
IMPLEMENTATION: Compensation is defined as those activities away from the project site which make up for the residual affects of the project after all mitigation measures have been applied. A standard process as described in the following paragraph will be applied only where compensation is required, habitat enhancement is not being performed, and project acreage (to be compensated

for) is under 1,000 acres. If over 1,000 acres, compensation will be computed on a case-by-case basis. Neither the project proponent's ability to pay nor the cost of the project will be a consideration in the compensation rate.

Compensation funds may be expended on land acquisition or other conservation activities that will promote the survival and recovery of the species. The Bureau or other agencies, in consultation with the Department and the Service, will decide the amount of compensation, its form, and, if land acquisition, where the land will be acquired. Land acquisitions will be in the nearest Category I or II habitats; priorities for acquisition of habitat will be specified in the tortoise habitat management plans to be prepared. The project proponent will transfer the deeded lands directly or will furnish funds to cover the costs of acquisition. All lands acquired with compensation funds will come to the Bureau, the Department, or an appropriate conservation organization, and will be managed for tortoise conservation purposes.

Standard Compensation Process. Compensation will be based on acres of land directly disturbed or lost. The dollar value of the land disturbed or affected is to be considered only where funds are to be provided for acquisition by other than the proponent. The standard compensation process is designed to produce a compensation rate that multiplies the number of acres of direct loss of habitat. The compensation rate will be computed using the standard compensation process outlined below; codes and values are described in Table 3. For each project, documentation concerning the application of the five factors that determine the compensation rate will be provided in writing.

$$\text{Compensation Rate} = C + A + G + E + D$$

Table 3. Description of factors used to compute the compensation rate.

Code	*Factor*	*Value*
C	Category of habitat:	
	a) The lands are in Category III tortoise habitat.	*
	b) The lands are in Category II tortoise habitat.	2.0
	c) The lands are in Category I tortoise habitat.	3.0
A	Adjacent lands will receive impacts:	
	a) Adjacent lands will not be affected.	0
	b) Adjacent lands will receive direct or indirect impacts which will reduce tortoise densities.	0.5
G	Growth inducing:	
	a) The project will have no growth inducing effects.	0
	b) The project will have some growth inducing effects.	0.5
E	Existing disturbance on site:	
	a) There is moderate to heavy existing habitat disturbance.	0
	b) There is little or no existing habitat disturbance.	1.0
D	Duration of effect:	
	a) The effects of the project are expected to be short term (less than 10 years).	0
	c) The effects of the project are expected to be long term (greater than 10 years).	1.0

* Category III habitats receive a compensation rate of 1.0 only, regardless of other factors.

DISCUSSION: Similar compensation procedures have been used for many years. Compensation rates for game species (e.g. deer) have often been calculated at a 3:1 ratio. Compensation rates for endangered species have sometimes exceeded a 10:1 ratio. The maximum compensation rate using the above standard compensation process is 6, but on most projects it will be less than that.

Compensation is designed to offset residual losses of habitat, both direct and indirect, due to the effects of projects. The end result of compensation will be 1) acquisition of Category I and II habitats, and/or 2) enhanced management of tortoises. Although not a purpose of compensation or a factor in the standard compensation process, the compensation requirement will function as a deterrent to conflicting activities in Category I and II habitats.

GUIDELINE 30: Acquisition of Category I and II habitats will be facilitated by using funding sources in addition to compensation funds.
IMPLEMENTATION: Funds will be sought from appropriate State, Federal, and private sources to acquire privately owned inholdings within Category I and II habitat areas, or privately owned lands adjacent to Category I and II habitat areas. (Because privately owned lands are not categorized by the Bureau, the lands targeted for acquisition will not have a BLM category designation before they are acquired.) Lands acquired for this purpose will be dedicated to tortoise management as the primary goal or will be used as a credit to manage an equivalent amount of tortoise habitat elsewhere for tortoises. Lands may be acquired by either the Department or the Bureau. The Bureau and Department will encourage other organizations (e.g., The Nature Conservancy, Desert Tortoise Preserve Committee, Desert Tortoise Council) to contribute lands. Priorities for acquisition of habitat will be specified in the tortoise habitat management plans to be prepared.
DISCUSSION: In order to manage lands for the protection and enhancement of tortoises, it is essential that development projects beyond the control of the Bureau or Department do not occur on intermingled private lands. Such projects often diminish management effectiveness and indirectly affect populations on adjacent lands. The most effective way to avoid management conflicts is to acquire the intermingled private lands.

Management Goal F. Maintain and Increase Populations Through Translocation of Wild Tortoises Into Suitable Unoccupied or Depleted Habitats Within the Historic Range.

GUIDELINE 31: All tortoise relocations and reintroductions will be conducted under experimental controls until adequate information is available to ensure that tortoises can be effectively and humanely relocated. Only wild tortoises will be considered for relocation.
IMPLEMENTATION: Until a formal protocol is established, all wild tortoises to be relocated will be marked, and some will be radio-tagged for monitoring. The Department will supervise the relocation and ensure that personnel are provided (normally by the project proponent) to evaluate the success by following marked individuals over both the short term and long term. Bureau State Director approval is required for all relocations onto Public Lands, and Department approval is required for any relocation.

DISCUSSION: Experimental relocations of wild tortoises may be part of a tortoise salvage project associated with a surface disturbing activity or may be individuals from a sharply declining (i.e., threatened with local extirpation) population. Where associated with a project, the cost of evaluation of the relocation (i.e., monitoring relocated individuals) will be borne by the project proponent. Data acquired will contribute to determining how or if tortoises can be effectively and humanely relocated. If conducted properly and at the proper season, survival rates for relocated tortoises may be relatively high because the donor stock is already surviving in a wild environment.

GUIDELINE 32: Relocation or reintroduction areas containing suitable habitat with few or no tortoises (i.e. nonviable populations), with low land use conflicts, and within historic range will be identified.
IMPLEMENTATION: The Bureau, with assistance from the Department, will identify and conduct an evaluation of potential relocation/reintroduction areas. Prior to use of approved areas in a project, baseline vegetation/habitat component will be surveyed for use in the evaluation of project success; these surveys will be conducted by the Bureau.
DISCUSSION: Careful evaluation and designation of relocation/reintroduction areas will ensure that conflicting activities are not present or introduced. The intent is to determine relocation/reintroduction effectiveness and to establish a new permanent tortoise population or augment existing populations.

The following factors have been identified as important in the selection of a relocation/reintroduction area: 1) the habitat must be appropriate, 2) the carrying capacity must be sufficient to support the released animals, 3) the area must be large enough to accommodate dispersal and homing movements, 4) impacts to the resident or host population must be minimal, 5) the release area must receive long-term protection (Berry 1986a), and 6) the release area must be within the natural range of the donor population (i.e. genetic units of wild tortoises will not be mixed).

Management Goal G. Achieve Interagency Coordination and Demonstrate Commitment Necessary to Maintain Viable Tortoise Populations in the California Desert.

GUIDELINE 33: Habitat management plans (HMPs) or coordinated resource management plans will be prepared for each of the four major tortoise habitat areas.
IMPLEMENTATION: This Statewide Policy document will form a foundation for the four HMPs. The four major areas of tortoise habitat will be known as West Mojave, Ivanpah-Shadow-Kelso, Fenner-Chemehuevi, and Chuckwalla Habitat Areas. The proposed boundaries of the habitat categories (see Guideline 1) will be refined through the CDCA Plan amendment process and through the HMP process. The HMPs will specify locations for the actions to be implemented (e.g., routes to be closed, roads and canals to be fenced, shooting closures, relocation sites, priority areas for acquisitions). The HMPs will be cooperative plans by the Bureau and the

Department under the authority of the Sikes Act, and they will receive environmental review and public review.
DISCUSSION: The California Desert Conservation Area Plan prescribed five HMP's for the desert tortoise - West Mojave Crucial Habitat, Shadow Valley, Ivanpah Valley, Fenner-Chemehuevi Valleys, and Chuckwalla Bench. The four HMP's recommended here will fulfill the requirements for the five proposed in the CDCA Plan.

GUIDELINE 34: For the purposes of formal endangered species conferences between the Department and the Bureau, Category I and II habitats are designated as sensitive areas.
IMPLEMENTATION: Bureau Manual Supplement 6840.2 specifies that for desert tortoise formal endangered species conference will be required only in specified sensitive areas. Crucial habitat as shown on Map 3 in the CDCA Plan was given as the specified area. Consistent with direction of the Rangewide Plan, the designation of crucial habitat has been replaced with habitat categories.
DISCUSSION: It may also be necessary to confer in Category III habitat to ensure that project proponents do not have an unauthorized take under the California Endangered Species Act.

GUIDELINE 35: Other agencies will be encouraged to implement the decisions resulting from the recommendations contained in this report on lands under their jurisdictions.
IMPLEMENTATION: Through various meetings and in review of environmental documents, the Bureau and the Department will encourage other agencies (Federal, State, and local) to use their authorities to protect and enhance tortoise populations and habitat by applying consistent requirements, where appropriate, to their lands.
DISCUSSION: Much of the existing tortoise habitat is not controlled by the Bureau or the Department. In order to accomplish the overall goal of maintaining stable, viable populations, it will be essential that other lands be managed in a manner consistent with tortoise survival.

Management Goal H. Develop and Implement a Monitoring Program to Determine Progress Toward Meeting the Overall Management Goal of Maintaining Viable Tortoise Populations in the California Desert.

GUIDELINE 36: Surveys will be continued on four of fifteen permanent trend plots each year.
IMPLEMENTATION: Fifteen permanent trend plots have been identified for resurvey on a four-year cycle (Table 4). The surveys will be conducted under contract through the Bureau. Standardized procedures must be followed precisely to make comparisons possible. Analysis will be conducted annually and will evaluate changes in population attributes such as density, sex ratio, age structure, mortality rate, and reproductive rate.
DISCUSSION: The fifteen plots were selected from 27 plots which have been surveyed. The fifteen were selected to give a reasonable time interval with an affordable yearly scope. Most of the other plots had small populations unsuitable for continued study. Consideration will be given in the HMPs to dropping those permanent trend plots outside of Category I and II habitats (e.g., Johnson, Lucerne, Stoddard) and replace them with new plots in Category I or II habitats.

Table 4. List of fifteen permanent trend plots which currently are used to assess trends in tortoise population attributes.

Plot name	CDCA Plan crucial habitat area	Recommended habitat area	Resource Area	Years surveyed	Future dates
DTNA Section 11	Fremont-Stoddard	West Mojave	Ridgecrest	79,82,88	92,96
DTNA Interpretive Ctr. (3 plots)	Fremont-Stoddard	West Mojave	Ridgecrest	79,85,89	93,97
Fremont Valley	Fremont-Stoddard	West Mojave	Ridgecrest	79,81,87	91,95
Fremont Peak	Fremont-Stoddard	West Mojave	Ridgecrest	80,85,89	93,97
Kramer Hills	Fremont-Stoddard	West Mojave	Barstow	80,82,87	91,95
Stoddard Valley	Fremont-Stoddard	-	Barstow	79,81,87	91,95
Johnson Valley	Johnson	-	Barstow	80,86	90,94
Lucerne Valley	Lucerne	-	Barstow	80,86	90,94
Ivanpah Valley	Ivanpah	Ivanpah-Shadow-Kelso	Needles	79,86	90,94
Shadow Valley	Shadow	Ivanpah-Shadow-Kelso	Needles	79,88	92,96
Chemehuevi Valley	Fenner-Chemehuevi	Fenner-Chemehuevi	Needles	79,81,88	92,96
Goffs	Fenner-Chemehuevi	Fenner-Chemehuevi	Needles	80,83-86	90,94
Upper Ward Valley	Fenner-Chemehuevi	Fenner-Chemehuevi	Needles	80,87	91,95
Chuckwalla Valley	Chuckwalla	Chuckwalla	Palm Springs	80,87	91,95
Chuckwalla Bench	Chuckwalla	Chuckwalla	Palm Springs	79,82,88	92,96

NOTE:
1. The crucial habitat areas are defined in the CDCA Plan, Map 3.
2. The Recommended habitat areas are shown in Map 1 of this policy document.

GUIDELINE 37: A list of mitigation measures and stipulations intended to benefit tortoises will be compiled, and studies to determine their effectiveness will be conducted. Those measures found to be ineffective will be modified or discontinued.

IMPLEMENTATION: A list of mitigation measures and stipulations has been compiled by the Bureau and distributed to Bureau field staff for application where appropriate. The Department has also developed a list of commonly applied measures. The Service has carefully developed a wide range of measures which have been applied as terms and conditions in biological opinions. Measures which have been applied in a systematic way should be examined for effectiveness. Such studies and tests will be paid for by project proponents as new projects are permitted. Studies and tests will be distributed to other agencies and offices so that application of measures can be modified accordingly.

DISCUSSION: It is important to know which measures are effective and which are not. Use of the most effective measures should be sought, and ineffective measures modified or abandoned.

GUIDELINE 38: Compliance reports will be required for projects that require the implementation of mitigation measures.

IMPLEMENTATION: Compliance reports will be required of project proponents at completion of the project. The report will indicate procedures followed in applying the measures, problems with

implementation of the mitigation measures, costs, and overall results. Interim or progress reports will be required if time to project completion is long.
DISCUSSION: Compliance reports will indicate whether measures are actually applied effectively.

GUIDELINE 39: Additional study and research test plots will be established to address special problems and to evaluate management effectiveness.
IMPLEMENTATION: Various sites have been identified as study plots to assess the effectiveness of the management program. Habitat management plans to be prepared will identify the need and specify the location for additional exclosures or facilities for the study of tortoises will be constructed. Exclosures will provide opportunities for future analyses that are unforeseen at this time.
DISCUSSION: There are currently 27 trend study plots identified. Fifteen of these plots have been identified for permanent study. (See Guideline 36.) In addition, an exclosure of 2.5 square miles was constructed in Ivanpah Valley in 1980 and a one-square mile fenced exclosure was constructed near Kramer Junction in 1982. Baseline vegetation surveys have been conducted at both exclosures. Various studies have also been conducted at the Desert Tortoise Research Natural Area; the Natural Area is useable for nonconsumptive, nonmanipulative types of studies. The Department manages parcels of one-square mile each in Fremont Valley and near Kramer Junction. The parcel near Kramer Junction is fenced and can be used to compare to adjacent, unfenced areas. Lands currently withdrawn for the Cuddeback Dry Lake Gunnery Range may be available when the withdrawal is relinquished; there is a 4.4-square mile exclosure around the base headquarters. Conflicts and issues that might be investigated using these plots include effects from sheep grazing, cattle grazing, and off-highway vehicle use.

GUIDELINE 40: Habitat acquisitions, habitat enhancements, and habitat losses will be tracked in each habitat area.
IMPLEMENTATION: A methodology for tracking the status of tortoise habitat will be developed. In each Bureau Resource Area office and Department field and regional office, maps will be maintained which record habitat degrading and enhancing activities. If possible, geographic information systems will be used to maintain the maps.
DISCUSSION: The Bureau's Rangewide Plan requires the tracking of habitat quality and quantity. Reports on cumulative impacts are to be prepared biennially beginning in 1990.

VII. COORDINATION WITH OTHER BUREAU PROGRAMS

The development of each habitat management plan (see Guideline 33) will receive full coordination among Bureau programs through the environmental analysis associated with each habitat management plan. Actions proposed in the HMP's may further restrict Public Land users.

Project proposals (Bureau and non-Bureau initiated) which the Bureau determines may affect the desert tortoise must be reviewed by the U. S. Fish and Wildlife Service under the consultation requirements of Section 7 of the Endangered Species Act. The Service will issue a biological opinion on whether the project will jeopardize the continued existence of the desert tortoise. The Service may authorize the incidental "take" of tortoises and habitat in such biological opinions. The Service may require protective stipulations (terms and conditions to minimize incidental take) as a condition for authorizing incidental take in a biological opinion. If a State agency is involved in the proposed project, it will initiate a formal State consultation. If no State agency is involved in the project, a formal conference between the Bureau and the Department will be required, and the project proponent must obtain a permit to take pursuant to Fish and Game Code Section 2081. The time required to perform consultations and conferences should be considered in the authorization schedule.

VIII. PUBLIC EDUCATION PROGRAM

Bureau policy as stated in "Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan" (Spang *et al.* 1988) is that each state shall embark on an aggressive public education program concerning tortoise populations and habitats to promote compliance with State and Federal laws and to reduce unnecessary mortality. As the first step in this campaign, the Rangewide Plan requires development of a desert tortoise public education plan in each state.

The California Department of Fish and Game and U.S. Fish and Wildlife Service play key roles in managing and protecting desert tortoise populations and habitat. The assistance of these agencies will be required to implement an effective public education program. The participation of other State and Federal agencies with jurisdiction over tortoise habitat will be important, as well.

In addition to governmental agencies, several private organizations share concern for the desert tortoise and have valuable expertise. The Desert Tortoise Council, Desert Tortoise Preserve Committee, and California Turtle and Tortoise Clubs, among others, have been very active in assisting agencies with public education by developing brochures and slide presentations, leading public tours, developing signs and kiosks, and holding public forums and conferences.

Close cooperation between all of these agencies and organizations will enhance any efforts to benefit desert tortoises through increased public education. The following plan is built upon the proposition that the agencies can positively impact public knowledge of and behaviors toward the desert tortoise.

The specific objectives of the public education plan are to:

- increase public awareness of the need to protect desert tortoises and their habitat on California's Public Lands;
- increase public knowledge of State and Federal laws and regulations protecting desert tortoises;
- educate the public regarding their role in protecting tortoises and tortoise habitat;
- modify social behavior in a manner that benefits desert tortoise populations and their habitat; and
- increase public knowledge of and support for agency actions to benefit desert tortoises and their habitat.

STRATEGY A: Enhance public knowledge of desert tortoises (e.g., their evolution, life cycle, and habitat needs), stressing the need for their protection.

ACTION 1: Support efforts of museums, zoos, and other public institutions to develop permanent desert tortoise exhibits.
Target audience: General public, including schoolchildren.

ACTION 1-a: Continue support of the San Bernardino County Museum's effort to develop a desert tortoise exhibit.
Target Calendar Year: 1989 and ongoing.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $5,000.

ACTION 1-b: Offer support to the California Living Desert Museum in Bakersfield by providing assistance and brochures for their desert tortoise exhibit.
Target Calendar Year: 1993.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $500.

ACTION 1-c: Offer support to the Living Desert Reserve in Palm Desert in operating their outdoor interpretive program involving a live-tortoise exhibit.
Target Calendar Year: 1991 and ongoing.
Lead Responsibility: Bureau, Palm Springs.
Estimated Cost: $500.

ACTION 1-d: Offer support to the Mojave Narrows Regional Park in Victorville in developing an outdoor interpretive program involving a live-tortoise exhibit.
Target Calendar Year: 1990 and ongoing.
Lead Responsibility: Department.
Estimated Cost: $1,000 labor.

ACTION 2: Develop a portable desert tortoise exhibit primarily for use in museums throughout Southern California.
Target audience: General public, including schoolchildren.

ACTION 2-a: Design and produce the portable exhibit.
Target Calendar Year: 1990 and ongoing.
Lead Responsibility: Bureau, Riverside with Department.
Estimated Cost: $3,000 labor; $10,000 materials.

ACTION 2-b: Seek exhibit space at local museums.
Target Calendar Year: 1992.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $1,000 labor.

ACTION 2-c: Circulate exhibit to area museums and provide necessary maintenance.
Target Calendar Year: 1992-1995.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $500 labor; $2,000 materials.

ACTION 3: Develop tortoise displays for Federal and State agency offices.
Target Audience: General public.

ACTION 3-a: Construct a tortoise display for the Bureau's California Desert Information Center in Barstow.
Target Calendar Year: 1993.
Lead Responsibility: Bureau, Barstow.
Estimated Cost: $3,000 labor; $8,000 materials.

ACTION 3-b: Explore other opportunities and encourage other agencies (e.g., State Parks, Regional Parks, National Monuments) to develop desert tortoise exhibits and displays within their visitor centers.
Target Calendar Year: 1992.
Lead Responsibility: Bureau and Department.
Estimated Cost: None.

ACTION 4: Develop educational packets for use in classrooms.
Target Audience: Schoolchildren from elementary school through college.

ACTION 4-a: Complete desert tortoise segment of Bureau's California natural resources videotape series and distribute to schools statewide.
Target Calendar Year: Completed 1991.
Lead Responsibility: Bureau, Sacramento.
Estimated Cost: $10,000.

ACTION 4-b: Develop and print coloring books for elementary students.
Target Calendar Year: 1993.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $3,000 labor; $10,000 materials.

ACTION 4-c: Produce educational posters for classrooms.
Target Calendar Year: 1992.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $2,000 labor; $10,000 materials.

ACTION 4-d: Design and produce desert tortoise stickers for children.
Target Calendar Year: 1993.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $2,000 labor; $6,000 materials.

ACTION 4-e: Develop a teacher's handbook for their use in teaching units about the desert tortoise.
Target Calendar Year: 1992.
Lead Responsibility: Desert Tortoise Preserve Committee.
Estimated Cost: $9,000 labor; $6,000 materials.

ACTION 4-f: Develop a desert tortoise game for elementary students and make it available for incorporation into Project Wild materials.
Target Calendar Year: 1992.

Lead Responsibility: Bureau, Riverside.
Estimated Cost: $3,000 labor; $200 materials.

ACTION 5: Work with university/media/corporate sponsor(s) to develop a quality video on desert tortoises for release to network, local, and cable television stations.
Target Audience: General Public.
Target Calendar Year: 1993.
Lead Responsibility: Department.
Estimated Cost: $100,000.

ACTION 6: Encourage media feature coverage of desert tortoises and their environment.
Target Audience: Southern California television and radio stations, newspapers, and magazines.
Target Calendar Year: 1989 and ongoing.
Lead Responsibility: All agency Public Information Officers.
Estimated Cost: $3,000 labor/year.

STRATEGY B: Educate the public regarding their role in protecting wild desert tortoise populations and their habitat.

ACTION 7: Develop an informational reference book for agency information desks, rangers, and wardens.
Target Audience: Agency employees.
Target Calendar Year: 1989 and ongoing updates.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $1,500 labor; $500 materials.

ACTION 8: Produce informational brochures and leaflets for distribution to the general public and targeted audiences.
Target Audience: Varied.

ACTION 8-a: Develop a general informational brochure describing what the public can do to assist the desert tortoise.
Target Audience: General public; for distribution at county fairs, desert information outposts, agency offices, rest areas/truck stops, and to captive tortoise permittees.
Target Calendar Year: Completed 1991.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $1,500 labor; $12,000 materials.

ACTION 8-b: Develop a general informational brochure aimed toward schoolchildren for distribution at school presentations or as part of the teaching unit in Strategy A.
Target Audience: Elementary/Middle school students
Target Calendar Year: 1993.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $2,500 labor; $8,000 materials.

ACTION 8-c: Develop a series of brochures targeted toward specific users of the California Desert (e.g., OHV users, sheepherders, hunters and shooters, and campers); illustrate their potential role in helping the tortoise.
Target Audience: Specific to each brochure as outlined above.
Target Calendar Year: 1993.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $2,500 labor; $5,000 materials each.

ACTION 9: Design and erect a new sign at the Desert Tortoise Natural Area; include in the sign appropriate behavior messages and offer an "800" telephone number for information on tortoise adoption.
Target Audience: Visitors to the Desert Tortoise Natural Area.
Target Calendar Year: Completed 1991.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $2,000 labor; $ 5,000 materials.

ACTION 10: Design, produce, and distribute desert tortoise posters with protection message.
Target Audience: General public.
Target Calendar Year: 1992.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $2,500 labor; $12,000 materials.

ACTION 11: Work with CALTRANS to design and install separate, free-standing, interpretive kiosks with desert tortoise protection information at highway rest areas. CALTRANS has already furnished plaques on the desert tortoise at roadside rests as part of the Roadside Ecological Viewing Area program.
Target Audience: Desert travelers.
Target Calendar Year: 1992.
Lead Responsibility: Bureau and Department.
Estimated Cost: $4,000 labor; $25,000 materials.

ACTION 12: Develop and produce print media, radio, and television public service announcements for distribution throughout Southern California.
Target Audience: General public.
Target Calendar Year: Completed 1991.
Lead Responsibility: Bureau, Sacramento.
Estimated Cost: $6,000 labor; $30,000 materials.

ACTION 13: Review tortoise information in the Bureau's Desert Access Guide series and other agency publications/maps for possible revision or inclusion.
Target Audience: General public.
Target Calendar Year: 1992-94.
Lead Responsibility: All agencies' public information employees.
Estimated Cost: $2,000 labor.

ACTION 14: Develop and produce portable displays for use at county fairs, shows, agency offices, shopping malls, etc.
Target Audience: General public.
Target Calendar Year: 1993.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $3,000 labor; $30,000 materials.

ACTION 15: Develop a brochure/leaflet for distribution to tortoise permittees explaining the problems with unauthorized release of captive tortoises into wild populations.
Target Audience: Owners of captive desert tortoises.
Target Calendar Year: 1990 and ongoing updates.
Lead Responsibility: Department.
Estimated Cost: $1,000 labor; $6,000 materials.

ACTION 16: Encourage involvement of individuals, interest groups, students, Scouts, etc., in volunteer projects which benefit desert tortoises.
Target Audience: General public and groups named above.
Target Calendar Year: 1990 and ongoing updates.
Lead Responsibility: All agencies' volunteer coordinators.
Estimated Cost: $3,000 labor; $5,000 materials.

STRATEGY C: Increase public knowledge of State and Federal regulations protecting desert tortoises and modify public behavior to benefit tortoises.

ACTION 17: Develop a brochure explaining Federal listing of the desert tortoise and its effects.
Target Audience: General public.
Target Calendar Year: 1989 and ongoing updates.
Lead Responsibility: U.S. Fish and Wildlife Service.
Estimated Cost: $1,000 labor; $3,000 materials.

ACTION 18: Include regulatory information in other publications/products outlined above.
Target Audience: Desert residents and users.
Target Calendar Year: 1990 and ongoing updates.
Lead Responsibility: All agencies' public information employees.
Estimated Cost: $2,000 labor.

ACTION 19: Develop and publish a flyer for distribution by rangers and wardens stressing appropriate behavior while in desert tortoise habitat.
Target Audience: Desert users.
Target Calendar Year: 1990 and ongoing.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $1,000 labor; $2,000 materials.

ACTION 20: Publicize law enforcement actions and court-imposed penalties for offenders.
Target Audience: General public.
Target Calendar Year: 1989 and ongoing.

Lead Responsibility: All agencies' public information employees.
Estimated Cost: $2,000 labor.

STRATEGY D: Increase public knowledge of and support for agency actions benefitting desert tortoises.

ACTION 21: Provide accurate, timely, and detailed information to media in advance of actions through news releases, fact sheets, media tours, press conferences, media packets, etc.
Target Audience: Electronic and print media.
Target Calendar Year: 1989 and ongoing.
Lead Responsibility: All agencies' public information employees.
Estimated Cost: $10,000 labor/year.

ACTION 22: To develop broad-based support for management actions and maintain close cooperation among agencies and private organizations benefitting tortoises to keep them apprised of and involved in decision making.
Target Audience: Desert Tortoise Council, Desert Tortoise Preserve Committee, California Turtle and Tortoise Clubs, wildlife organizations, etc.
Target Calendar Year: 1989 and ongoing.
Lead Responsibility: All agencies.
Estimated Cost: $10,000 labor/year.

ACTION 23: Update existing slide programs and possibly convert them to videotape for use in presentations to interest groups, California Desert Information Center visitors, local/county/state/federal officials, and at county fairs.
Target Audiences: General public, as indicated above.
Target Calendar Year: 1993.
Lead Responsibility: Bureau, Riverside.
Estimated Cost: $5,000 labor; $15,000 materials.

ACTION 24: Develop a series of 5-10 minute slide programs or videos relating agency efforts to protect tortoises populations and habitat. Topics might include the following:

Disease control,
Raven predation and control,
Habitat acquisition,
Vehicle use in sensitive tortoise habitat,
Tortoise population trends and study plot data

Target Audiences: Agency employees, interest groups, general public.
Target Calendar Year: 1993.
Lead Responsibility: Bureau, Riverside and Sacramento.
Estimated Cost: $6,000 labor; $25,000 materials.

ACTION 25: Make presentations at professional symposia.
Target Audiences: Natural resource professionals.
Target Calendar Year: 1989 and ongoing.
Lead Responsibility: All agencies.
Estimated Cost: $6,000 labor/year.

IX. SUMMARY OF RESEARCH NEEDS

The following research needs have been identified at this time. Needs will change and additional needs may be identified as research progresses. Issues raised in development of habitat management plans may reveal other research needs. Research priorities are determined in coordination with the MOG and the Desert Tortoise Recovery Team.

1. Identification of pathogen(s) causing upper respiratory tract disease (URTD).
2. Identification of pathogen(s) causing unidentified disease on Chuckwalla Bench.
3. Determination of mode of transmission of URTD.
4. Determine and track the distribution and spread of URTD.
5. Develop treatment for URTD.
6. Determine normal range of values for well tortoises for various typical physiological parameters in blood, mucous, feces, urine, etc.
7. Determine nutritional requirements and energy and water balance for healthy tortoises.
8. Determine the changes in forage composition, quality, and quantity resulting from cattle grazing.
9. Determine the effects of cattle grazing on the physical habitat (e.g., plant cover, plant form)
10. Determine the changes in forage composition, quality, and quantity resulting from sheep grazing.
11. Determine the effects of sheep grazing on the physical habitat (e.g., plant cover, plant form)
12. Determine the tortoise mortality resulting from sheep and/or cattle trampling.
13. Determine differences in tortoise genetics and morphometrics.
14. Determine foraging behavior and food habits of common ravens in tortoise habitat.
15. Determine seasonal and daily movement patterns and site fidelity of common ravens in the desert.
16. Determine effectiveness of raven control techniques (lethal and nonlethal) in reducing excessive predation on juvenile tortoises.
17. Determine the effects of predation by predators other than ravens.
18. Determine effectiveness of highway fencing in restoring adjacent populations.
19. Determine survivorship of relocated tortoises and develop techniques for maintaining adequate survival.
20. Determine controlling factors in recruitment of hatchlings and juvenile survival.
21. Develop protocols for marking animals and population sampling.
22. Develop methods for restoring degraded habitats.
23. Develop methods for population viability analysis and preserve design.
24. Develop methods for treating diseased tortoises.
25. Determine impacts of controlled surface disturbing activities on tortoise habitat and the effectiveness of commonly applied mitigation and compensation techniques on reducing and offsetting impacts.

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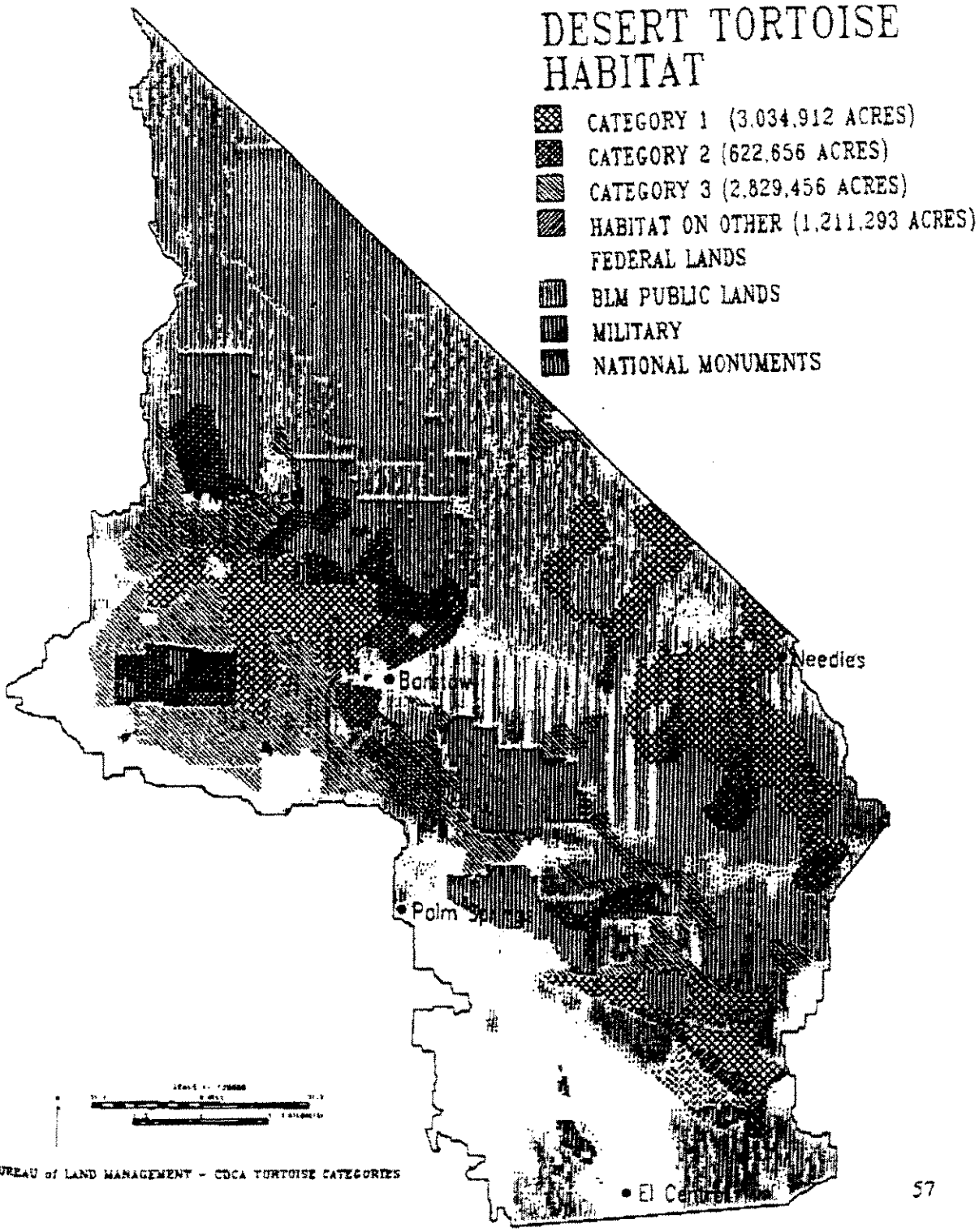
Map 1. Map of California Desert Conservation Area showing Interim Category I, II, and III desert tortoise habitat areas.



BUREAU of LAND MANAGEMENT - CDCA TORTOISE CATEGORIES

APPENDIX A

INDIVIDUALS AND GROUPS CONTACTED

Director, California Department of Fish and Game, Sacramento, California
Regional Manager, California Department of Fish and Game, Fresno, California
Regional Manager, California Department of Fish and Game, Long Beach, California
Field Supervisor, U.S. Fish and Wildlife Service, Laguna Niguel, California
Office Supervisor, U.S. Fish and Wildlife Service, Ventura, California
OHV Division, California Department of Parks and Recreation, Sacramento, California
California Energy Commission, Sacramento, California
Office of Environmental Analysis, CALTRANS, Sacramento, California
California Tortoise Technical Committee (Ken Nagy), UCLA
All Members of the Desert Tortoise Management Oversight Group
BLM Director (WO 200), with copies to WO 220 and WO 240
BLM State Directors in Arizona, Nevada, and Utah
Deputy State Director, Mineral Resources, California State Office (CA-920)
Deputy State Director, Operations, California State Office (CA-940.8)
Chief, Branch of Lands and Recreation, California State Office (CA-931)
Chief, Planning and Environmental Coordination Staff, California State Office (CA-930.1)
Chief, Public Affairs Staff, California State Office (CA-912)
Project Leader, West Mojave Coordinated Management Plan, Barstow Resource Area, BLM
Special Agent-In-Charge, Law Enforcement Staff, California State Office (CA-913.19)

California Department of Fish and Game
4665 LAMPSON AVE, SUITE J
LOS ALAMITOS, CA 90720
California Endangered Species Act
Incidental Take Permit No. 2081-2004-007-06
FRONTIER HOMES, LLC
DAYBREAK SOUTH AND DAYBREAK WEST

Authority: This California Endangered Species Act ("CESA") Incidental Take Permit ("Permit") is issued by the Department of Fish and Game ("Department") pursuant to Fish and Game Code section 2081(b) and section 2081(c), and California Code of Regulations, title 14, subdivision 3, chapter 6, article 1, commencing with section 783. CESA prohibits the take[1] of any species of wildlife designated as an endangered, threatened, or candidate species by the Fish and Game Commission[2]. The Department, however, may authorize the take of such species by permit if the conditions set forth in Fish and Game Code sections 2081(b) and 2081(c) are met. (See also Cal. Code Regs., tit. 14, § 783.4.)

Permittee: **Frontier Homes, LLC**

Name and title of principal officer: **Mr. James L. Previti, President**

Contact person: **Mr. Steve Speck, Vice-President**

Mailing address: **14318 California Avenue, Suite 200**
Victorville, CA 92392
(760) 951-0442

Effective Date and Expiration Date of Permit:

This Permit shall be executed in duplicate original form and shall become effective once a duplicate original is acknowledged by signature of the Permittee on the last page of the Permit and returned to the Department's Office of the General Counsel. Unless renewed by the Department, this Permit's authorization to take the Covered Species shall expire on **December 31, 2005.**

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[1]Pursuant to Fish and Game Code section 86, "'Take' means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill."

[2]"Candidate species" are species of wildlife that have not yet been placed on the list of endangered species or the list of threatened species, but which are under formal consideration for listing pursuant to Fish and Game Code section 2074.2.

Project Location: The project sites are located at the southwest corner of Seneca Road and Daisy Road (Section 18, T5N, R5W) and the northwest corner of Seneca Road and Aster Road (Section 18, T 5N, R 5W) in Adelanto, County of San Bernardino.

Project Description: The proposed projects (collectively, "Project") include the subdivision and development of approximately 20 acres into single-family residential communities.

Covered Species:

This Permit covers the following species:

Name	**Status**[3]
Mammals	
1. Mohave ground squirrel (*Spermophilus mohavensis*)	Threatened

This species and only this species is hereinafter referred to as "Covered Species."

Impacts to Covered Species:

The Project will result in the permanent destruction of 20 acres of habitat for the Covered Species. Individuals of the Covered Species may be incidentally taken as a result of mortality due to development activities, mortality due to project-related traffic on and off site, and project-caused habitat losses.

Incidental Take Authorization:

The Department authorizes the Permittee, its employees, contractors, and agents to take Covered Species incidentally in carrying out the Project, subject to the limitations described in this section and the conditions of approval identified below. This Permit does not authorize any intentional take of Covered Species, take of Covered Species from activities outside the scope of the Project as described above, or take of Covered Species resulting from violation of this Permit.

Conditions of Approval:

[3]Refers to status under CESA. Under CESA, a species may be on the list of endangered species, the list of threatened species, or the list of candidate species. All other species are "unlisted."

artificial burrow and lightly plug the burrow mouth with soil (in a manner similar to what Mohave ground squirrel do in natural burrows). The Designated Representative shall immediately notify the Department of the incident unless the incident occurs outside of normal business hours. In that event, the Department shall be notified no later than noon on the next business day. Notification to the Department shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location and circumstances of the incident, the name of the party that actually relocated the animal, and the location (including GPS coordinates) to which the animal was moved.

iii) If a Mohave ground squirrel is injured as a result of project related activities, it shall be immediately taken to a Department-approved wildlife rehabilitation facility. Any costs associated with the care or treatment of such injured Mohave ground squirrels shall be borne by Permittee. The Department shall be notified immediately unless the incident occurs outside of normal business hours. In that event the Department shall be notified no later than noon on the next business day. Notification to the Department shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location and circumstances of the incident, and the name of the facility to which the animal was taken.

5) Permittee shall acquire and permanently preserve 20 acres of Habitat Management Lands approved by the Department ("HM Lands") for the Covered Species prior to initiating ground-disturbing project activities or no later than **18 months** from the effective date of this Permit if Security is provided pursuant to Condition 6 below. The required acreage is based upon the Department's estimate of the acreage required to provide for adequate biological carrying capacity at a replacement location as a means of fully mitigating the Project's impacts on the Covered Species. As part of this condition, Permittee shall:

a) Transfer fee title to the HM Lands or a conservation easement over the HM Lands to the Department under terms approved by the Department. Alternatively, the transfer may be to another public entity or non-profit corporation approved by the Department under terms approved by the Department.

b) Provide a recent preliminary title report, initial hazardous materials survey report, and other necessary documents (see Attachment 2A and 2B). All documents conveying the HM Lands and all conditions of title are subject to the approval of the Department, the Department of General Services and, if applicable, the Fish and Game Commission.

c) Provide for the initial protection and enhancement of the HM Lands as determined

by the Department once Permittee identifies the HM Lands. The Department estimates that initial protection and enhancement will be approximately $95.00/acre. Alternatively, Permittee may fund the Department's initial protection and enhancement of the lands by providing the funds required for the initial protection and enhancement to the Department.

d) Provide to the Department a check in the amount of $4,000.00 drawn from a banking institution located within California for use as principal for a permanent capital endowment. Interest from this amount shall be available for the operation, management and protection of the HM Lands, including reasonable administrative overhead, biological monitoring, improvements to carrying capacity, law enforcement measures, and any other action designed to protect or improve the habitat values of the HM Lands. The endowment principal shall not be drawn upon unless such withdrawal is deemed necessary by the Department to ensure the continued viability of the species on the HM Lands. Monies received by the Department pursuant to this provision shall be deposited in a special deposit account established pursuant to Government Code §16370. The Department may pool the endowment with other endowments for the operation, management and protection of HM Lands for local populations of the Covered Species.

e) Reimburse the Department for reasonable expenses incurred during title and documentation review, expenses incurred from other state agency reviews, and overhead related to transfer of HM Lands to the Department. The Department estimates that this Project will create an additional cost to the Department of no more than $3,000 for every fee title deed or easement processed.

6) Permittee may proceed with ground-disturbing Project activities before completing all of the required mitigation (including acquisition of HM Lands), monitoring, and reporting activities only if Permittee ensures funding to complete those activities by providing to the Department prior to commencing ground-disturbing activities or within 30 days after the effective date of this Permit, whichever occurs first: (1) the endowment of $4,000 as described in Condition 5, and (2) an irrevocable letter of credit, a pledged savings account, or another form of security ("Security") approved by the Department's Office of the General Counsel (see Attachment 4). The Security shall allow the Department to draw on the principal sum if the Department, at its sole discretion, determines that Permittee has failed to comply with the Conditions of Approval of this Permit. The Security shall be in the amount of **$17,900.00** based on the following estimated costs of implementing the Permit's mitigation, monitoring and reporting requirements.

a. Land acquisition costs for impacts to habitat, calculated at $800/acre for

20 acres: $16,000.

b. Costs of enhancing HM Lands, calculated at $95.00/acre for 20 acres: $1,900.

7) This Permit may be amended without the concurrence of the Permittee if the Department determines that continued implementation of the Project under existing permit conditions would jeopardize the continued existence of a Covered Species. The Department may also amend the Permit at any time without the concurrence of the Permittee as required by law.

8) The Department may issue Permittee a written stop-work order to suspend any activity covered by this Permit for an initial period of up to 25 days to prevent or remedy a violation of Permit conditions (including but not limited to failure to comply with reporting, monitoring, or habitat acquisition obligations) or to prevent the illegal take of an endangered, threatened, or candidate species. Permittee shall comply with the stop-work order immediately upon receipt thereof. The Department may extend a stop-work order under this provision for a period not to exceed 25 additional days, upon written notice to the Permittee. The Department shall commence the formal suspension process pursuant to California Code of Regulations, Title 14, §783.7 within five working days of issuing a stop-work order.

Compliance with Other Laws

This Permit contains the Department's requirements for the Project pursuant to CESA. This permit does not necessarily create an entitlement to proceed with the Project. The Permittee is responsible for complying with all other applicable state, federal, and local laws.

Notices

Written notices, reports and other communications relating to this Permit shall be delivered to the Department by first class mail at the following addresses, or at addresses the Department may subsequently provide the Permittee. Notices, reports, and other communications should reference the Project name, Permittee, and Permit Number (2081-2004-007-06) in a cover letter and on any other associated documents.

Original cover with attachment(s) to:

Curt Taucher, Regional Manager
4665 Lampson Avenue, Suite J
Los Alamitos, CA 90720
Telephone (562) 598-9782

on _____.

CURT TAUCHER, Regional Manager
EASTERN SIERRA-INLAND DESERTS REGION

APPROVED AS TO FORM:

MICHAEL R. VALENTINE, General Counsel

ACKNOWLEDGMENT

The undersigned: 1) warrants that he or she is acting as a duly authorized representative of the Permittee, 2) acknowledges receipt of this Permit, and 3) agrees on behalf of the Permittee to comply with all terms and conditions of the Permit.

By: James Pruitt Date: 6/15/04

Printed Name: James Pruitt Title: President

California Department of Fish and Game
South Coast Region 5
4949 Viewridge Avenue
San Diego, CA 92123
California Endangered Species Act
Incidental Take Permit No. 2081-2003-012-05
California Department of Transportation
State Route 138 Widening Project
From Longview Road to 146th Street Junction
Los Angeles County, CA

Authority: This California Endangered Species Act ("CESA") Incidental Take Permit ("Permit") is issued by the Department of Fish and Game ("Department") pursuant to Fish and Game Code section 2081(b) and section 2081(c), and California Code of Regulations, Title 14, subdivision 3, chapter 6, article 1, commencing with section 783. CESA prohibits the take[1] of any species of wildlife that is included in the list of endangered species, the list of threatened species, or the list of candidate species[2]. However, the Department may authorize, by permit, the take of such species if the conditions set forth in section 2081(b) and section 2081(c) are met.

Permittee:

California Department of Transportation, District 7
Ron Kosinski, Deputy District Director
120 S. Spring Street
Los Angeles, CA 90012-3606

Mailing Address:

120 S. Spring Street
Los Angeles, CA 90012-3606

Contact Person:

Paul Caron
Phone (213) 897-0610

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[1]Pursuant to Fish and Game Code section 86, "'Take' means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill."

[2]"Candidate species" are species of wildlife that have not yet been placed on the list of endangered species or the list threatened species, but which are under formal consideration for listing pursuant to Fish and Game Code section 2074.2.

Fax (213) 897-068

Project Location In California: The widening will take place on State Route 138 from 0.2 kilometers west of Longview Road to 146th Street (PM 60.0/61.6) through the community of Pearblossom in Los Angeles County.

Project Description: The California Department of Transportation (Caltrans) plans to widen an approximately 18 mile long section of State Route 138 (SR 138) from Avenue T to the SR 138/18 junction in Los Angeles County. The proposed plan would widen both the eastbound and westbound highway to four lanes, re-align curves, raise the road profile and construct new drainage systems. Implementation of the widening will be phased over several years.

The current project, which will implement Segment 10, includes the addition of one lane in each direction for a distance of 1.6 miles, new shoulders, a 30-foot driver safety clearance zone extending from the new shoulders on both sides, a trapezoidal ditch at the far edge of the clearance zone parallel to the highway on both sides, and installation of 26, 1.8-foot diameter culverts connected to the trapezoidal ditches to convey rain water under the highway. The addition of lanes and shoulders will include laying pavement over areas with native vegetation. The clearance zone is proposed to be graded and no vegetation over three feet tall will be allowed to grow. Periodic grubbing of the clearance zone will take place if new vegetation exceeds the height limitations; however, post-construction revegetation of the area will be dominated by smaller native shrubs and annuals to minimize the need for maintenance. Periodic maintenance will be required to clear the trapezoidal ditch and culverts of debris and sediment.

This CESA permit will cover Segment 10 only. Additional CESA permits will be sought by Caltrans for each new phase of the project. At present, Caltrans does not have an implementation schedule for these phases nor have final construction plans or impact analyses been completed.

Project impacts/Special Condition: Caltrans will impact 26.0 acres of desert tortoise habitat, which is also habitat for the Mohave ground squirrel. The project contains measures to minimize take of these species, however, incidental take is still anticipated, even if direct mortality is avoided during construction. The loss of habitat will result in decreased foraging area and sheltering sites, increased habitat fragmentation, and potentially more vehicle strikes due to road widening. Compensation ratios for impacts to habitat from this project will be 1:1.

Covered Species:
This permit covers the following species:

Name	Status[3]
<u>Mammals</u>	
1. *Spermophilus mohavensis* (Mohave ground squirrel)	State Threatened
<u>Reptiles and amphibians</u>	
1. *Gopherus* [=*Xerobates*] *agassizii* (desert tortoise)	State and Federally Threatened

These species and only these species are hereinafter referred to as "Covered Species."

Effective Date and Expiration Date of Permit:

This Permit shall be executed in duplicate original form and shall become effective once a duplicate original is acknowledged by the Applicant (see below) and returned to the Department. Unless renewed by the Department, this Permit's authorization to take Covered Species shall expire on December 31, 2005.

Incidental Take Authorization:

The Department authorizes the Permittee, its employees, contractors and agents to take Covered Species incidentally in carrying out the project, subject to the limitations described in this section and the Conditions of Approval identified below. This Permit does not authorize any intentional killing of or injury to Covered Species, take of Covered Species from activities outside the scope of the project as described above, or take of Covered Species resulting from a permit violation.

Conditions of Approval:

The Department's issuance of this Permit and Permittee's authorization to take the Covered Species is subject to Permittee's compliance with and implementation of the following Conditions of Approval:

1. Permittee shall comply with all applicable state, federal and local laws in existence on the effective date of this Permit or adopted thereafter.

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[3]Refers to status under CESA. Under CESA, a species may be on the list of endangered species, the list of threatened species, or the list of candidate species. All other species are "unlisted."

Service shall occur in writing, within 5 calendar days of the incident. Notification shall include the date, time, location and circumstances of the incident.

ix. If a tortoise is killed by project related activities during construction, or if a tortoise is otherwise found dead, a written report will be sent to the Department and the Service within five (5) calendar days. The report will include the date, time of the finding or incident (if known), location of the carcass and the circumstances (if known). Tortoise remains shall be collected and frozen as soon as possible. The Department or Service shall be contacted as to the ultimate disposition of the remains.

d. **Mohave ground squirrel**:

i. If a Mohave ground squirrel is found in a burrow within the construction area, it shall be relocated to a burrow off-site by an authorized biologist approved by the Department.

ii. In addition to acquisition of the Habitat Management Lands ("HM lands") for desert tortoise and Mohave ground squirrel, prior to any surface disturbance, Caltrans has agreed to provide to the Desert Tortoise Preserve Committee, the sum of $3,640.00 ($140.00 per acre) to support Mohave ground squirrel research that will aid in determining habitat characteristics indicative of suitability within various parts of its range.

4. Prior to initiating ground-disturbing activities and no later than thirty (30) days following the execution of this Permit, Caltrans shall provide the Department with documentation that they have: (1) placed $104,000 ($4,000 per acre) into an escrow account for the Desert Tortoise Preserve Committee's ("DTPC") use in acquiring, enhancing and managing the HM Lands; and (2) have entered into a legally binding agreement with DTPC, approved by the Department, that requires DTPC to:

a. No later than 60 days following issuance of this Permit, use funds obtained from Caltrans to acquire at least 26.0 acres of habitat that is approved by the Department and is suitable to both desert tortoise and Mohave ground squirrel;

b. No longer than one year after issuance of this Permit, execute and deliver to the Department a conservation easement approved by the Department

under CESA, the measures required will maintain Caltrans' objectives to the greatest extent possible;

(5) All required measures are capable of successful implementation;

(6) The Permit is consistent with any regulations adopted pursuant to Sections 2112 and 2114 of the Fish and Game Code;

(7) Caltrans has ensured adequate funding to implement the measures required by the Permit as well as for monitoring compliance with, and the effectiveness of, those measures for the project; and

(8) Issuance of the Permit will not jeopardize the continued existence of the Covered Species based on the best scientific and other information that is reasonably available, and includes consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (a) known population trends; (b) known threats to the species; and (c) reasonably foreseeable impacts on the species from other related projects and activities. The Department's finding is based, in part, on the Department's express authority to amend the terms and conditions of the Permit as necessary to avoid jeopardy.

Attachments:

ATTACHMENT 1 Mitigation Monitoring and Reporting Program

ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME

on Aug 8 **, 2003.**

C.F. Raysbrook, Regional Manager
South Coast Region

California Department of Fish and Game
4949 VIEWRIDGE AVENUE
SAN DIEGO, CA 92123
Incidental Take Permit No. 2081-2004-052-05
California Department of Transportation
Segment 11 Phase of State Route 138 Road Widening Project
Los Angeles County, CA

Authority: This California Endangered Species Act (CESA) Incidental Take Permit (Permit) is issued by the Department of Fish and Game (Department) pursuant to Fish and Game Code section 2081, subdivisions (b) and (c), and California Code of Regulations, title 14, subdivision 3, chapter 6, article 1, commencing with section 783. CESA prohibits the take[1] of any species of wildlife designated as an endangered, threatened, or candidate species.[2] The Department may authorize,the take of such species by permit, however, if the conditions set forth in Fish and Game Code section 2081, subdivisions (b) and (c), are met.

Permittee: California Department of Transportation, District 7

Name and title of principal officer: Ron Kosinski, Deputy District Director

Mailing address: 120 S. Spring Street, Los Angeles, CA 90012-3606

Authorized Agent: Paul Caron Ph: (213) 897-0610

Mailing address: Caltrans-District 7, Division of Environmental Planning, MS-16A, 120 South Spring Street, Los Angeles, CA 90012

Effective Date and Expiration Date of Permit:
This Permit shall be executed in duplicate original form and shall become effective once a duplicate original is acknowledged by signature of the Permittee on the last page of the Permit and returned to the Department's Office of the General Counsel. Unless renewed by the Department, this Permit's authorization to take the Covered Species **shall expire on December 31, 2006.**

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[1]Pursuant to Fish and Game Code section 86, "'Take' means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill."

[2]"Candidate species" are species of wildlife that have not yet been placed on the list of endangered species or the list of threatened species, but which are under formal consideration for listing pursuant to Fish and Game Code section 2074.2.

Project Location: Los Angeles County, State Route (SR) 138, from 146th to 165th Street East, and including replacement of existing bridges at Big Rock Wash in the community of Pearblossom.

Project Description:
The Project will widen SR 138 from 146th to 165th Street East in Los Angeles County. The Project also involves replacement of existing bridges at Big Rock Wash to a standard one span bridge with 4 lanes and a median. Areas one mile to the east and west of the bridge will be widened to four lanes with concrete/asphalt shoulders and dirt shoulders, a minimum of 30 feet wide on each side, with additional areas graded for drainage systems. The shoulders of the highway and roadway widening aspect of the Project will be graded and periodically grubbed so that no vegetation over three feet tall will be allowed to grow. Construction of additional lanes and shoulders will include laying pavement over areas with vegetation. The drainage system consists of a trapezoidal ditch proposed for 500 feet east and west of the bridge to capture and direct floodwaters to Big Rock Wash. Construction is scheduled to begin in August 2005, and end in November 2006. Project activities include the clearing, periodic disturbance to and paving over of habitat within the range of the Mohave ground squirrel.

Covered Species:

This Permit covers the following species:

Name	**Status**[3]
Mammals	
1. *Spermophilus mohavensis* (Mohave ground squirrel)	State Threatened

This species and only this species is hereinafter referred to as the "Covered Species."

Impacts to Covered Species:
The Project will result in the clearing, paving over, and periodic disturbance of Mojave desert scrub and Joshua trees that provide **225.1 acres** of potential habitat for the Mohave ground squirrel. Individuals of the Covered Species may be incidentally taken as a result of mortality due to development activities, mortality due to Project-related traffic on and off site, and Project-caused habitat losses.

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[3]Refers to status under CESA. Under CESA, a species may be on the list of endangered species, the list of threatened species, or the list of candidate species. All other species are "unlisted."

pipe (with thick enough walls that it will not collapse when buried) running to the surface at a 45 degree angle, cover the artificial burrow with dirt leaving the surface end of the 3 inch pipe open, and place the Mohave ground squirrel in the artificial burrow and lightly plug the burrow mouth with soil (in a manner similar to what Mohave ground squirrel do in natural burrows). The Designated Representative shall immediately notify the Department of the incident unless the incident occurs outside of normal business hours. In that event, the Department shall be notified no later than noon on the next business day. Notification to the Department shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location and circumstances of the incident, the name of the party that actually relocated the animal, and the location (including GPS coordinates) to which the animal was moved.

iv) If a Mohave ground squirrel is injured as a result of Project activities, it shall be immediately taken to a Department-approved wildlife rehabilitation facility. Any costs associated with the care or treatment of such injured Mohave ground squirrels shall be borne by Permittee. The Department shall be notified immediately unless the incident occurs outside of normal business hours. In that event the Department shall be notified no later than noon on the next business day. Notification to the Department shall be via telephone or email, followed by a written incident report. Notification shall include the date, time, location and circumstances of the incident, and the name of the facility to which the animal was taken.

4) Prior to initiating ground-disturbing Project activities, or no later than 12 months from the effective date of this Permit if Security is provided pursuant to Conditions 6 or 7 below, Permittee shall acquire and permanently preserve 225.1 acres of Habitat Management Lands (HM Lands) that the Department determines will provide suitable mitigation for impacts to the Covered Species. The required acreage is based upon the Department's estimate of the acreage required to provide for adequate biological carrying capacity at a replacement location as a means of fully mitigating the Project's impacts on the Covered Species. The Department's approval of the HM Lands acquisition must be obtained prior to acquisition and transfer by use of the Proposed Lands for Acquisition Form (see Attachment 2B) or by other means specified by the Department.

5) To satisfy the mitigation requirements in Condition 4, the Permittee has elected to perform HM Lands acquisition, enhancement and management through a legally binding Implementation Agreement with the Desert Tortoise Preserve Committee Inc. (DTPC). As part of this condition, DTPC shall:

(1) Use funds obtained from the Permittee to acquire, manage and enhance at least 225.1 acres of suitable habitat located at the Desert Tortoise Research and Natural Area near California City, California, or at another location approved by the Department, no later than **12 months** following issuance of this Permit.

(2) No later than **24 months** following issuance of this Permit, transfer fee title to the HM Lands or a conservation easement over the HM Lands for the Covered Species to the Department under terms approved by the Department.

(3) Use remaining funds to enhance and manage the habitat lands as specified in the DTPC's Habitat Management Guidelines.

(4) Provide a recent preliminary title report, initial hazardous materials survey report, and other necessary documents (see Attachment 2A and 2B). All documents conveying the HM Lands and all conditions of title are subject to the approval of the Department, the Department of General Services and, if applicable, the Fish and Game Commission.

(5) Reimburse the Department for reasonable expenses incurred during title and documentation review, expenses incurred from other state agency reviews and overhead related to transfer of HM Lands to the Department to the extent reimbursement is authorized under California law. The Department estimates that this Project will create an additional cost to the Department of no more than $3,000 for every fee title deed or easement processed.

6) Permittee shall comply with <u>either</u> this Condition or Condition No. 7:

a) The Permittee may initiate ground-disturbing activities prior to completing all of the required mitigation (including acquisition of the HM Lands, monitoring, and reporting activities) only if the Permittee ensures funding to complete those activities by providing the Department an irrevocable letter of credit, a pledged savings account, or another form of security (Security) approved by the Office of the General Counsel. Permittee shall obtain Department General Counsel approval for the Security and provide the fully funded Security to the Department prior to commencing ground-disturbing activities or within 30 days after the effective date of this permit, whichever occurs first. The Security shall allow the Department to draw on the principal sum if the Department, at its sole discretion, determines that Permittee has failed to comply with the Conditions of Approval of this Permit. The Security shall be in the amount of **$ 928,538.00** (rounded up to

available, and includes consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of (a) known population trends; (b) known threats to the species; and (c) reasonably foreseeable impacts on the species from other related projects and activities. The Department's finding is based, in part, on the Department's express authority to amend the terms and conditions of the Permit without concurrence of the Permittee as necessary to avoid jeopardy and as required by law.

Attachments:

ATTACHMENT 1	Mitigation Monitoring and Reporting Program
ATTACHMENT 2A, 2B	Habitat Management Lands Checklist
ATTACHMENT 3	Mitigation Payment Transmittal Form
ATTACHMENT 4	Letter of Credit Form

ISSUED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME

on 05/17/05.

CHUCK RAYSBROOK, Regional Manager
South Coast Region

APPROVED AS TO FORM:

MICHAEL R. VALENTINE, General Counsel

Attach to Permit No. 2081-2004-052-05 when fully executed

MINOR AMENDMENT NO. 1

California Endangered Species Act
Incidental Take Permit No. 2081-2004-052-05

California Department of Transportation
State Route 138 Segment 11 Widening Project
146th Street East to 165th Street East, including
Big Rock Wash Bridge Replacement
Pearblossom, California

EXPLANATION:

The California Department of Fish and Game ("Department") issued an Incidental Take Permit (Permit) to the California Department of Transportation (Caltrans) for the State Route 138 Segment 11 widening and Big Rock Wash Bridge Replacement Project on May 17, 2005. The Permit as issued in 2005 is scheduled to expire on December 31, 2006. The Permit authorizes take of the state threatened Mohave ground squirrel (Covered Species), *Spermophilus mohavensis,* during construction of the Project. The Department found that Caltran's compliance with the Conditions of Approval of the Permit would fully mitigate impacts to the Covered Species.

Caltrans has taken several steps to implement the mitigation measures required by the Permit. Caltrans entered into an agreement with the Desert Tortoise Preserve Committee (DTPC) in August 2003 for acquisition of the Habitat Management Lands (HM Lands) required by the Permit, and on February 8, 2006, Caltrans deposited $156,409.00 into an escrow account to fund DTPC's acquisition, protection and management of the HM Lands.

This amendment makes several changes in the Permit as originally issued. First, this amendment extends the term of the Permit by 16 months to April 30, 2008. Second, this amendment reduces the level of authorized impacts from the project from 225.1 acres to 53.34 acres and makes a corresponding reduction in the mitigation requirements to preserve the 1:1 habitat mitigation-to-impacts ratio. Third, this amendment adjusts the time allowed for HM Lands acquisition and preservation.

The specific changes to language in the Permit are set forth on pages 4-6 of this amendment. As explained more fully below, the Department has determined that these

APPROVED BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME ON Feb. 10, 2006.

Larry L. Eng, Ph.D., Regional Manager
South Coast Region

Approved as to form:

Stephen Adams, Acting Dep. General Counsel

ACKNOWLEDGMENT

The undersigned: 1) warrants that he or she is acting as a duly authorized representative of the Permittee, Caltrans, District 7, 2) acknowledges receipt of the original Permit and this amendment; 3) agrees on behalf of Caltrans District 7 to comply with all terms and conditions of the Permit as amended.

By: _____ Date: 2/10/06

Printed Name: Carlos Montez

Title: Sr. ENV. Planner

STATE OF CALIFORNIA
ENERGY RESOURCES
CONSERVATION AND DEVELOPMENT COMMISSION

In the Matter of:	)	Docket No. 07-AFC-1
	)	
Application for Certification,	)	**ELECTRONIC PROOF OF SERVICE**
for the VICTORVILLE 2	)	**LIST**
HYBRID POWER PROJECT	)	
by the City of Victorville	)	**(revised September 6, 2007)**
	)	
	)	

☒ Transmission via electronic mail and by depositing one original signed document with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the following:

DOCKET UNIT

CALIFORNIA ENERGY COMMISSION
Attn: DOCKET NO. 07-AFC-1
1516 Ninth Street, MS-4
Sacramento, California 95814-5512
docket@energy.state.ca.us

☒ Transmission via electronic mail addressed to the following:

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DECLARATION OF SERVICE

I, Paul Kihm, declare that on March 24, 2008, I deposited a copy of the attached:

ADDITIONAL ATTACHMENTS TO A DOCUMENT ENTITLED, "HABITAT COMPENSATION IN THE WEST MOJAVE URBAN INTERFACE: SURETY AND EQUITABLE PRECEPTS," PREVIOUSLY DOCKETED WITH THE CEC ON MARCH 21, 2008

with FedEx overnight mail delivery service at Costa Mesa, California with delivery fees thereon fully prepaid and addressed to the California Energy Commission. I further declare that transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service List above.

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 24, 2008, at Costa Mesa, California.

Paul Kihm