DRAFT

DESERT TORTOISE CONSERVATION
WORK PLAN
FY 2003

Project Summary:

The federally threatened desert tortoise occupies portion of the Mojave and Colorado deserts in California, Nevada, Utah, and Arizona. The desert habitat supporting this species lies within a short driving distance of more than 14 million people in southern California and over one million in the Las Vegas area. Approximately 93 percent of the designated critical habitat for desert tortoise occurs in California and Nevada. The primary delisting criterion requires that desert tortoise populations, within each of the six recovery units, exhibit a statistically significant upward trend or remain stationary for at least 25 years, determined by a scientifically credible monitoring procedure. Line distance sampling has been chosen by the Management Oversight Group (MOG) as the method to determine the status of tortoise populations before and after recovery. Through rangewide monitoring both within and outside recovery areas, the overall effectiveness of recovery actions implemented through land use plans may be evaluated and compared to areas outside planning areas to measure population responses to conservation actions. As lead for desert tortoise, the Service's Nevada offices have assumed the oversight responsibility for monitoring activities. Such oversight requires the Service to provide a rangewide coordinator (Coordinator), and this position was filled as of mid-August 2000, and rangewide monitoring was initiated in the spring of 2001.

The Coordinator will be responsible for developing a rangewide monitoring plan for each recovery unit that identifies line distance sampling activities. Sampling activities will involve conducting line distance sampling transects within each recovery unit or Desert Wildlife Management Area (DWMA). Focal animals will be monitored by radiotelemetry to determine g_0, or the probability of tortoises being aboveground and detectable. The variable, g_0, represents tortoises that were not detectable during the survey based on concurrent observations of focal animals.

As an initial step in the work plan implementation, the Coordinator conducted workshops within each Recovery Unit (RU) during the fall of 2000 to define the number and location of strata. Due to limited funding, during the spring of 2001 transects were randomly placed within each recovery unit regardless of strata, a sampling protocols developed, and rangewide monitoring initiated within each RU. The monitoring plan is being developed based upon the monitoring handbook developed to initiate sampling rangewide. The plan will include an adaptive management component providing flexibility to modify the plan to incorporate new data. Transects will be located both within and outside recovery areas in order to evaluate the success of recovery actions. The Coordinator will interface and work closely with the coordinator for the

Desert Managers Group Integrated Ecological Monitoring program, USGS Biological Resources Division (USGS-BRD), Bureau of Land Management (BLM), Department of Defense (DOD), National Park Service (NPS), state wildlife agencies, and other Service Offices and cooperators.

- In addition to the monitoring activities the Service's Ventura Office will provide added assistance and consultation to California planning teams developing and implementing the various land use plans in the California desert. Successful habitat conservation planning for current and future human uses while providing for the long-term conservation and protection for fish and wildlife resources will require additional Service staff and resources to work cooperatively with local communities, state and federal agencies and the military installations in the deserts.

Project Tasks/Objectives:

- The Service has hired a Coordinator to oversee the development of a rangewide monitoring plan by recovery unit, conduct a monitoring workshop to develop the monitoring program, and prepare annual reports.
- The Coordinator will work closely with the coordinator for the Integrated Ecological Monitoring program, exchanging and sharing data, and collaborating on common activities.
- Initiate the development of a predictive model that will estimate $g_{0.}$ Increase consultation and direction in the development of bioregional HCPs and provide technical assistance to Federal land managers in their regional land use plans for the California desert.
- Provide data on the effectiveness of management actions within recovery areas to determine their overall success at achieving recovery of the desert tortoise through implementation of line distance sampling techniques.
- Develop a prioritized list of recovery actions that are best accomplished in a coordinated manner: including line distances sampling, disease, predation, education, translocation, and hunting and the use of firearms.

Project Area:

The project area for monitoring activities includes critical and non-critical desert tortoise habitat in the Mojave and Colorado deserts in southern California and Nevada, southwestern Utah, and northwestern Arizona. Monitoring activities will occur on Federal lands administered by the BLM, NPS, and DOD, and non-Federal land conserved under HCPs. Increased consultation efforts and technical assistance for regional HCPs and bioregional planning for the protection of desert resources will be focused primarily in the California desert.

Project Management:

Successful planning for current and future human uses in the Mojave and Colorado deserts while providing long-term conservation of fish and wildlife will depend upon the Service's ability to work cooperatively with communities, local and state governments, Federal agencies, and private industry and organizations. As a National Performance Review laboratory, efforts are already underway in the Mojave and Colorado deserts of California to implement this goal through establishment of management and conservation groups such as the Desert Managers Group. Regional interagency and private sector planning efforts include the West Mojave Coordinated Management Plan (WMCMP) in California; Clark County Desert Conservation Plan (CCDCP) in Nevada; and the Washington, County HCP in Utah. The WMCMP covers over 9 million acres in California in Los Angeles, Kern, Inyo and San Bernardino counties. Approximately 90 species are being considered for inclusion and the West Mojave planning effort in which the State and federally listed desert tortoises and the State-listed Mohave ground squirrel and considered keynote species. The CCDCP conservation and planning area includes over 4 million acres of Federal lands in southern Nevada. The CCDCP, and subsequent Multiple Species HCP (MSHCP) recently completed will included the desert tortoise and 77 other species initially, and another 103 species will be evaluated for potential inclusion in the future. The Washington County HCPs established a 61,000-acre desert tortoise reserve as mitigation for the loss of 12,264 acres tortoise habitat on private and state owned lands within the Upper Virgin River Recovery Unit.

The President's budget for FY 2003 has not been identified funding for the Service's budget for the California Desert Initiative of which $200K was provided in FY2001 and FY02 (at this time we presume that the funding will be at least equivalent to FY2002). The $200K would be used for rangewide desert tortoise monitoring which could be combined with monitoring funds presently being allocated by BLM ($ 50K) along with funding of $ 500K anticipated from DOD (presuming no emergency military situation occur). Approximately, $ 629K was spent in FY 2001 and $888K in FY 2002 for development and implementation of monitoring activities in California (this includes the desert tortoise coordinator).

Based on the sample sizes, encounter rates observed in 2001, and estimated number of kilometers needed to identify and measure population trends across the range of the desert tortoise needed to be increased. Therefore, we increased the sampling within California by an additional 1000 kilometers or about a 50% increase to obtain approximately 60-75 live tortoises per DWMA. Nearly 3300 kilometers of line distance transects were sampled in California in 2002. Due to budgeting shortfalls in FY02 the amount hoped for ($1.7M) was not realized, which resulted in the removal of the Chemehuevi DWMA and Shadow Valley portion of the Ivanpah DWMA from the sampling scheme. The University of Redlands was kind enough to make a one-time contribution to the field sampling effort by funding the sampling of the BLM portion of the Chuckwalla DWMA, while the Chocolate Mountain Aerial Gunnery Range funded sampling of the remainder of the DWMA.

The continued need for long term funding through the upper levels of management should be perused to ensure that the recovery plan goal to document the status of tortoise populations is

achieved. In June 1999 the MOG agreed to use the Anderson and Burnham line distance sampling design to document the status of desert tortoise populations rangewide.

. Additional funding is needed to be able to increase the capabilities of the Service to meet the following: population sampling goals, and initiation of other priority recovery actions as well as, consultation, HCP, and bioregional planning assistance in the California deserts.

Budget:

Funds would be identified among the Service, BLM, NPS and USGS-BRD to match up to $500K from the DOD for implementing desert tortoise monitoring. Once funds are identified, the Coordinator will develop and implement the proposed work plan with funding available (Table 1).

Table 1. Monitoring Funds Available (FY01-02) Anticipated (FY03?) and requested (FY04) to conduct Line Distance Sampling in California.

Agency	FY2001	FY2002	FY2003	FY2004
USFWS	$200 K	$200 K	$200 K	$500 K
NPS	60 K	138 K	20 K?	200 K
BLM	200 K	0 K	50 K?	500 K
DOD	169 K	500 K	500 K	500 K
Univ. of Redlands	----	50 K	----	----
Totals	$ 629K	$ 888K	$ 770K	$ 1700K

Project Schedule Summary:

FY 2001: Rangewide Coordinator is providing guidance and technical assistance for planning efforts in the California desert, and has initiated a series of implementation plan meetings for each Recovery Unit which took place during the fall of FY 2001. Each Recovery Unit is presently being sampled as a single entity without stratification. The Implementation Plan for "Line Distance Sampling" is based upon the "Sampling Handbook" developed by the Coordinator and sampling was initiated during the spring of FY 2001. A monitoring workshop was held in January 2001 in Las Vegas, Nevada and sampling techniques were explained, demonstrated, and performed in the field to

provide agency personnel with first hand knowledge of the techniques to be used in "Line Distance Sampling". Each RU was considered a single stratum for purposes of sampling during 2001, and will continue to do so in 2002. Designation and placement of permanent transect lines on the ground were distributed randomly based on a predetermined set of criteria, i.e. transects could not be on private land, over 4200 feet in elevation, occur on playas, fall on slopes >30%, etc. In March of 2001 two 3-4 day line distance training workshops were held for both contractors and Student Conservation Association personnel to practice the sampling technique and for FWS and cooperators (USGS/BRD from the Aldo Leopold Research Center, Missoula, Montana, the Cooperative Wildlife Research Unit from Colorado State University, and the Biological Resources Research Center of the University of Nevada, Reno) to evaluate the training effort. During FY 2001 tortoise density sampling was initiated within each Recovery Unit and shall be expanded upon in subsequent years as funding permits. The preliminary determination of encounter rate for each strata shall be important in the subsequent determination of the number of transects required to adequately sample the habitat. A preliminary meeting was held during November 2000 to discuss data and data management, and a plan shall be developed. The FWS suggested that a permanent data base be located at 2 locations, one at the Desert Managers Group Data Management Team headquarters and a second with the FWS in Nevada. The DMG database shall be accessible via a server with certain restrictions as per the data management plan that is being developed. In early September 2001 a contractor debriefing meeting was convened in Las Vegas, Nevada to discuss the results of the sampling effort for 2001, provide insights as to how to better improve training, data standardization, submission, and transcription, and ways to increase sampling efficiency. The recommendations from that meeting were implemented in 2002.

FY 2002 Expand implementation of line distance sampling within each Recovery Unit to ensure an adequate sample size of live tortoises are encountered. The grand mean encounter rate observed in 2001 was 0.13/per kilometer. An additional 1000 kilometers were sampled within California in 2002 in order to provide adequate sample sizes. We were able to achieve a 25% gain in the number of kilometers by increasing the length of each transect from 1.6 km to 2.0 km (Table 2). A minimum of 60 live tortoises per RU with a preferred number of 70-75 per RU to provide increased statistical significance. The number of tortoises observed in 2002 fell short of expectations. Drought conditions prevailed over the majority of the Mojave Desert during 2002 resulting in a reduction of tortoise activity. Through the leadership of USGS/BRD Western Ecological Science Center, and the cooperative efforts and assistance of the University of Redlands, Desert Tortoise Project, U.S. Army, Mojave Desert Ecosystem Program, USGS/BRD Northern Rocky Mountain Science Center, University of Nevada, Reno, Chambers Group, and Kiva Biological Consulting an electronic field data collection system using a personal data assistant (PDA) was designed, developed, and implemented for use in the field in April 2002. This automated field data collection system using PDAs reduced numerous errors in data collection, entry,

transcription, and proofing. Continue to assist in land use plan development and implementation; initiate high priority recovery actions; maintain database; prepare and disseminate progress reports; and track budget. In April of 2002 the California Desert Managers Group (DMG) convened an ad hoc committee to develop plans to assist in the recovery of the desert tortoise. Those plans were submitted to the Desert Tortoise Management Oversight Group (DMG) on October 7, 2002 and accepted. The University of Redlands compiled a summary of all the land use plans recovery actions by recovery unit which is presently being edited. Plans for three workshops were developed in FY 02, one pertaining to disease held November 14-17, 2002, another on monitoring populations which is to discuss line distance sampling and permanent study plots held November 24, 2002, and a threats planned for spring 2003.

FY 2003 Continue to expand the implementation of line distance sampling by resampling transects sampled in FY 2002. Success in obtaining adequate sample sizes was only partially successful in 2002 due to the extended drought conditions which prevailed. Desert tortoise activity was reduced in 2002 although the number of kilometers were increased, we anticipate that the number of kilometers in Table 2 is adequate to provide statistically valid samples provided drought conditions abate in 2003. It is anticipated that the findings of the General Accounting Office (GAO) audit may corroborate the need of adequate long-term funding to complete the inventory and monitoring of tortoise populations rangewide. In 2003 two management actions shall be implemented. The DMG shall initiate plans to deal with the feral dog issue particularly in the Mojave Desert, and the Service will implement a raven management strategy rangewide. Both management actions will assist in the long-term survival of desert tortoises by reducing predation on the older as well as the younger ages classes respectively. Additionally, continue to provide assistance to land managers on recovery implementation through land use plans; maintain database; prepare and disseminate progress reports; and track budget.

Description of Final Products:

Implementation of this work plan will yield the following products:

1. Comprehensive monitoring plans for each recovery unit to identify rangewide desert tortoise population baseline density estimates and a preliminary evaluation of recovery actions.

2. A predictive model of desert tortoise activity patterns to provide estimates of g_0.

3. A process through which issues and concerns proposed in the work plan will be resolved.

4. Data on effectiveness of conservation and recovery actions including a database to maintain

and archive data.

5. Annual reports on work plan activities and a comprehensive report with recommendations for future program activities every 5 years, prepared by the Coordinator.

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Table 2. Kilometers sampled and tortoises observed to determine encounter rates in 2001 in the Mojave Desert of California. Kilometers required to provide adequate sample sizes of from 60-75 live animals per DWMA. By increasing the length of the transects in 2002 from 1.6km to 2.0km we will gain a 25% increase in kilometers sampled at the same cost as 2001.

DWMA	Kilometers sampled 2001	Number of Live tortoises observed / truncated at 15 meters	Total live tortoises needed 2002	Kilometers needed in 2002	Encounter rate observed in 2001	Cost equivalent 2001 samples vs 2002 samples 25% longer transect	Effective km added in 2002 to calculate budget costs
Fremont/ Kramer	338	58/49	75 +53%	338+179=517	.145	338=423	94
Superior/ Cronese	339	46/39	75 +93%	339+315=654	.115	339=423	95
Ord/ Rodman	317	72/56	75 +33%	317+104=421	.178	317=396	25
MCAGCC	149	26/22	33 +50%	149+75=224	.148	149=186	38
Joshua Tree National Park	131	18/15	22.5+50%	131+66=197	.114	131=164	33
Pinto Mountain	128	24/20	30 +50%	128+64=192	.156	128=160	32
Chuckwalla	323	73/60	60 +25%	323+80=403	.186	323=403	0
Chemehuevi	322	64/54	75 +37%	322+119=441	.17	322=403	38
Shadow Valley	133	7/7	7 +25%	133+33=166	.05	133=166	0
Eastern Mojave (MNP)	113	11/8	approx. 60	113+487=600	.07	113=141	459

Total	2,293			2,865	818