



2009 DESERT TORTOISE MONITORING HANDBOOK



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The handbook is the most recent incarnation of handbooks that have been used each year of the range-wide monitoring program. The 2008 Desert Tortoise Population Monitoring Handbook presented a much more comprehensive set of material than its predecessors, and this version is built heavily on that 2008 edition. The University of Nevada, Reno and their collaborators at the U.S. Geological Survey were involved in all of those earlier versions of the Handbook, and the major revisions in 2008 were contributed by: Jill S. Heaton, Rohit Patil, and Erin Aldrich from UNR; Steve Corn and Ken Nussear with the USGS; and Linda Allison with U.S. Fish and Wildlife Service.

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INTRODUCTION

The overall goal of the USFWS recovery plan for the desert tortoise is the recovery and delisting of the tortoise. This monitoring project contributes annual population density estimates of the Mojave population of the desert tortoise - information that the USFWS will use to assess the status of the tortoise at various stages during recovery.

The original recovery plan (U.S. Fish and Wildlife Service. 1994. Desert tortoise (Mojave population) Recovery Plan. U.S. Fish and Wildlife Service, Portland, Oregon. 73 pages plus appendices.) requires for delisting that “As determined by a scientifically credible monitoring plan, the population within a recovery unit must exhibit a statistically significant upward trend or remain stationary for at least 25 years....” The recovery plan is currently under revision; however the current version includes a similar recovery criterion.

The USFWS coordinates this monitoring program to

- 1) Collect data range-wide that are scientifically credible, and
- 2) Use these data to develop accurate and precise estimates of population densities in each recovery unit, and then
- 3) Design this project to allow detection of meaningful population recovery after 25 years.

The training outlined in this manual addresses the specialized skills that are required to collect credible data. Desert tortoise population monitoring relies on distance sampling to estimate each year the number of tortoises in managed areas of the Mojave Desert. Distance sampling has been implemented in a variety of settings; this project trains crews in the general approach to distance sampling as well as the specifics of how this is implemented for desert tortoises. Each of the chapters in this Handbook mentions the primary issues to be addressed, states the training objectives and standards, and provides written reference material. The following definitions apply:

Objective: statement of aim or purpose to be pursued; a priority, or an end, towards which significant effort is directed.

Standard: Statement of the necessary activities required to meet specific training objectives. By the end of training, each crew member should feel confident in their performance of these standards.

Metric: Quantitative or qualitative means used to gauge success or failure in performance. By the end of training, instructors will have evaluated all trainees using these metrics.

2009 TRAINING SCHEDULE

First-year Trainees				Experienced Trainees		
Day/Date	Activity	Location	Trainer	Activity	Location	Trainer
WEEK 1						
Monday, 16-Mar	Transect methods lecture (paper forms) 6km transects	DTCC Mgmt Area	Allison/ Experienced crews			
Tuesday, 17-Mar	Introductions and DT Recovery/Monitoring Programmatic Overview Distance Sampling Tortoise Activity/G ₀ Working on Public Lands Transect methods lecture Non-standard transects RDA/BT GPS, Pendragon Database Lecture and Exercises Quality control procedures for field crews Compass/GPS Lecture	Atrium Business Tower	Allison “ “ BLM Districts Allison “ Patil Allison, Learmont, Patil Allison			
Wednesday, 18-Mar	Tortoise biology and handling instruction Tortoise handling and data collection - small groups Pen search image exercise (with RDA) Training line lecture & crew quality control procedures Compass/GPS Exercise Data transfer and QA/QC (for specialists)	DTCC “ “ “ “ GBI Field Station	Staff Staff “ Allison/ Brenneman Allison Patil, Learmont			
Thursday, 19 March	Training Lines (practice, 8km) Begin data download from RDAs	DTCC Mgmt Area				
Friday, 20-Mar	Training Lines (practice, 8km) G ₀ Initial QAQC (QAQC specialists only)	DTCC Mgmt Area Coyote Spgs DTCC	Sparks Brenneman			

First-year Trainees				Experienced Trainees		
Day/Date	Activity	Location	Trainer	Activity	Location	Trainer
WEEK 2						
Monday, 23-Mar	Full transects (12km) (half crew) G ₀ / activity observation (half crew)	LSTS River Mtns	Sparks			
Tuesday, 24-Mar	Tortoise handling Pen search image exercise Training line debriefing	DTCC	Staff " Allison			
Wednesday, 25 Mar	Training Lines (evaluation, 8km)	DTCC		Practice 8- or 12-km transects Data transfer and QA/QC	LSTS LSTS	
Thursday, 26 Mar	Training Lines (evaluation, 8km)	DTCC		Updates for 2009 (see material for 1 st -year trainees, 17 March)		Allison
Friday, 27 March	Full transects (12km) (half crew) G ₀ / activity observation (half crew)	LSTS River Mtns	Sparks	Training Lines (evaluation, 8km)	DTCC	Allison
WEEK 3						
Monday, 30-Mar	Tortoise handling Compass navigation exercise Training line debriefing	DTCC	Staff Allison	Training Lines (evaluation, 8km)	DTCC	
Tuesday, 31-Mar	Full transects (create non-standard) or repeat training lines as needed G ₀	LSTS Piute		Training lines debriefing Tortoise handling	DTCC DTCC	Allison Staff
Wednesday 1-Apr	Repeat training lines as needed <i>Begin field data collection</i>			<i>Begin field data collection</i>	LSTS	
Thursday, 2April	Deliver QA/QC'd data from practice transects electronically to ftp site			Deliver QA/QC'd data from practice transects electronically to ftp site		

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