

Desert Tortoise Occupancy Sampling

Project Number 2007-KLA-1012D

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Project Overview and Background

Funding and Agency Involvement

- Southern Nevada Public Land Management Act (SNPLMA)
- Agreement #LO8AC13225 between Clark County and the U.S. Bureau of Land Management
- Funds from land sales through SNPLMA used for Multiple Species Habitat Conservation Plan (MSHCP)



Project Overview and Background



Desert Tortoise Occupancy Sampling

- Document the presence or absence of desert tortoise indicators in sampling units
 - Live Adult Desert Tortoises
 - Classification of Desert Tortoise Burrows
- Types of data collected
 - Measurement and Tagging of Live Desert Tortoises
 - Recordation and Mapping of Desert Tortoise Burrows
 - Carcasses
 - Reptiles of Interest

Project Objectives

The data from this project can be used to develop a statistical model to understand and predict the occurrence of desert tortoises in similar landscapes and supports conservation of the species as required by the MSHCP.



Project Objectives

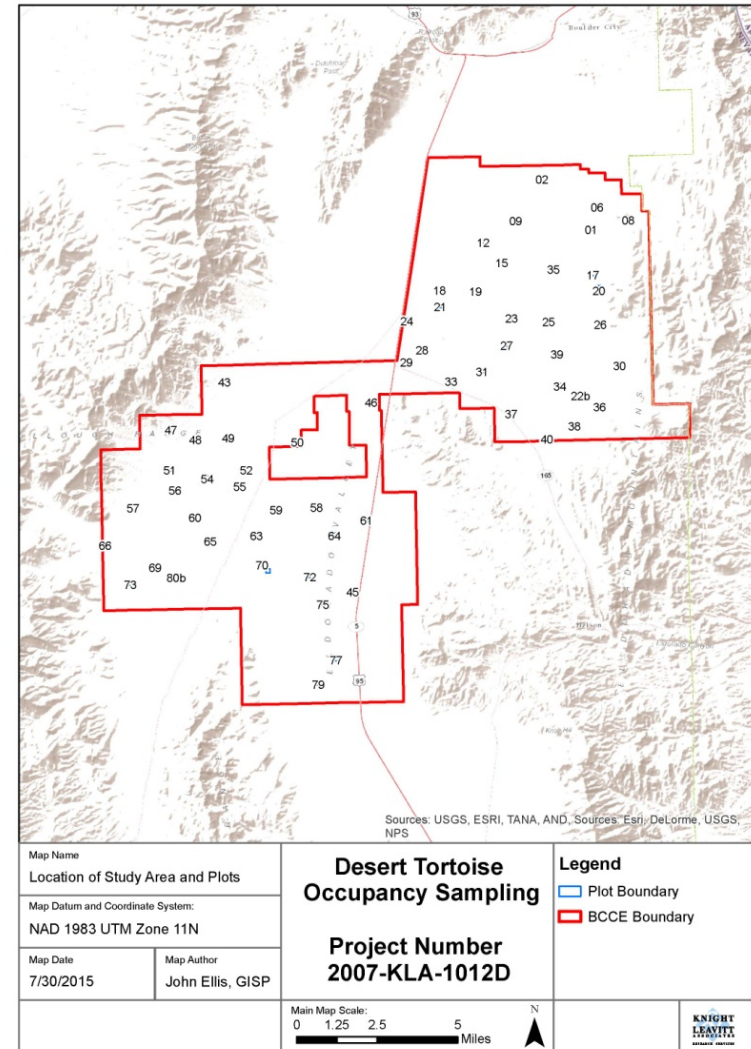
- Analyze the status and change over time in occupancy/use of tortoise habitat using the indicators of live tortoises and active burrows.



- Correlate the pattern and change in occupancy/use with habitat, habitat alteration, and management practices (covariates).
- Anecdotally assess the demographic condition of the population from tortoise size classes and gender.

Project Methods

- BCCE 60 plots, four hectares each, 7 survey rounds (420 plot surveys).
- Crews of 2 biologists, 1 AB and 1 DTOA.
- 10 meter wide belt transects for 100% coverage, cardinal direction varying each round.



Project Methods



- Navigate and record live tortoises, burrows, carcasses, reptiles, and incidentals.
- Tag live tortoises using County identification numbers.
- Data sheets and data QA/QC.

Data Collection

- Data was collected in the field.
- Data was verified at the end of the day.
- Data was then entered into an excel table.
- Data was verified after entry to ensure data was accurate and complete.



Leopard Lizard (Gambelia wislizenii)

Data Summary

Live Tortoises	
Males	15
Females	23
Indeterminate	25
Total Observed (not unique)	63
>= 180 mm	37
<180mm	17
Not measured	9
Newly Tagged (unique*)	41

- Observations were not unique, includes all live desert tortoises recorded.
- Unique is based on a 1m buffer grouping estimate of GPS location accuracy.*

Data Summary

Carcasses	MCL
Average	220 mm
Average male	238 mm
Average female	207 mm
Largest	271 mm
Smallest	146 mm
Total observed measured (not unique)	86

Carcasses	
Disarticulated	128
Intact	95
Total (not unique)	223



Data Summary

Burrow Locations	
Open	137
Rock	5
Vegetation	165
Other	2
Average width	25cm
Average height	13cm



Burrow Observations	
Occupied	14
Not Occupied	249
Unknown	46
Total (not unique)	309
Unique	212

Data Summary

Reptile Observations	Number
Coachwhip (<i>Masticophis flagellum</i>)	3
Glossy snake (<i>Arizona elegans</i>)	2
Sidewinder (<i>Crotalus cerastes</i>)	4
Speckled rattlesnake (<i>Crotalus mitchellii</i>)	1
Western patch-nosed snake (<i>Salvadora hexalepis</i>)	3
Desert horned lizard (<i>Phrynosoma platyrhinos</i>)	74
Desert iguana (<i>Dipsosaurus dorsalis</i>)	24
Leopard lizard (<i>Gambelia wislizenii</i>)	19
Total	130

Reptile Observations

- Snakes=13
- Lizards=117

Photographs



Desert horned lizard
(*Phrynosoma platyrhinos*)



Sidewinder
(*Crotalus cerastes*)

Photographs

Leopard Lizard
(*Gambelia wislizenii*)



Project Status

- 2015 data collection was completed from March through June. 3rd year of data collection to date and also planned for 2016.
- The number of plots surveyed was decreased from 80 to 60 to facilitate 7 survey rounds and decrease cost and time necessary to complete the work.
- The data will contribute to tracking the status and trends of the desert tortoise in accordance with the MSHCP and may be useful as a monitoring approach.
- The data will also be correlated with other environmental variables (covariates) that are hypothesized to be related to the annual presence of desert tortoises and will aid in the interpretation of the occupancy sampling data.

Project Timeline

- Each crew that was sent out was able to complete 2-4 plots per day sometimes including 1-2 contingency plots.
 - A crew consisted of one AB and one assistant, crew of 3-4 at times to increase efficiency
- The project was broken into zones using GIS and a work plan was developed based on:
 - Plot locations in relation to other plots
 - Crew work assignments in relation to the other crews
- Due to limited roads in the area, some days required several miles of walking to reach the assigned plots.
- Fieldwork Start and End
 - Started March 31, 2015
 - Completed June 13, 2015

Conclusion



- The project was a success:
 - Data was successfully collected
 - A multi-step QA/QC process was completed
 - 2-4 plots per day was an acceptable rate for the amount of data collected.
- Why is this important?
 - This data will be included in a larger model to assess the status and detect long-term spatial trends for the desert tortoise in the BCCE.

Questions



This work was supported by the Clark County Desert Conservation Program and funded by Southern Nevada Public Land Management Act as project #2007-KLA-1012D, to further implement or develop the Clark County Multiple Species Habitat Conservation Plan