

# Vegetation Data for Desert Tortoise Occupancy Covariate Monitoring Project at the Boulder City Conservation Easement



**PROJECT NO. 2009-KLA-811H**

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# Project Overview and Background

- **Funding and Agency Involvement.**
  - Clark County Desert Conservation Program
  - 100% Section 10 Funding

- **Vegetation as a covariate of the Desert Tortoise occupancy study**
- **Vegetation data collected**
  - Shade (2014) as perennial cover
  - Food (2014 – 2016) as ephemeral species
- **Other data collected**
  - Perennial and succulent species richness (2014 - 2016)
  - Ephemeral species richness (2014 -2016)

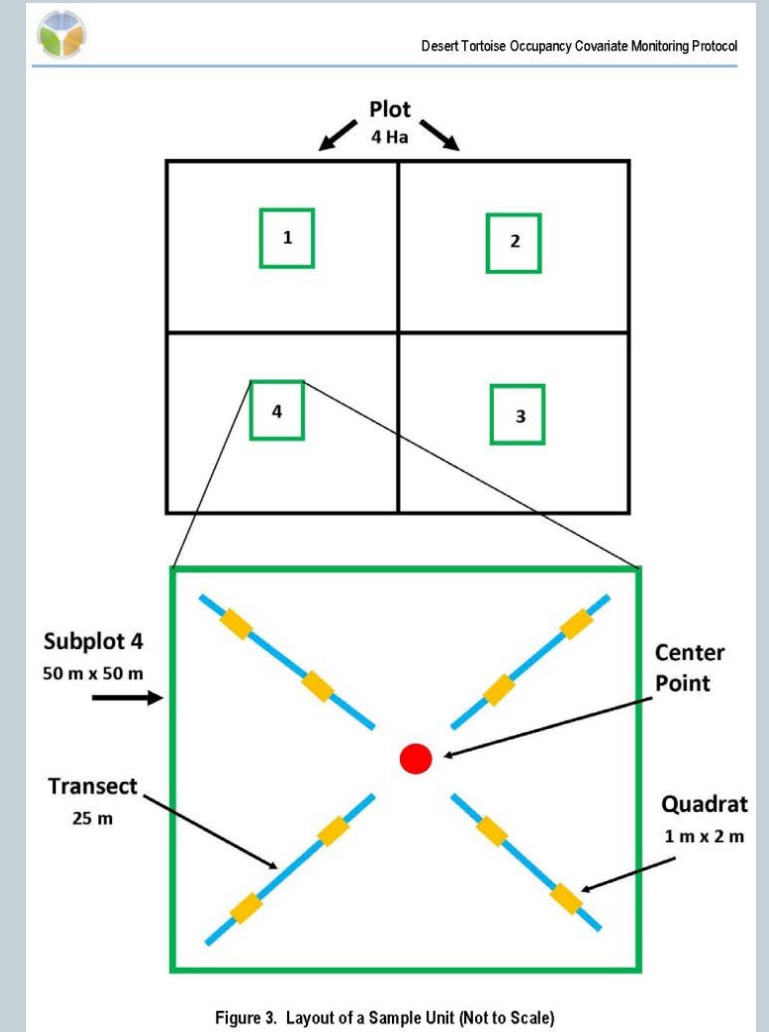
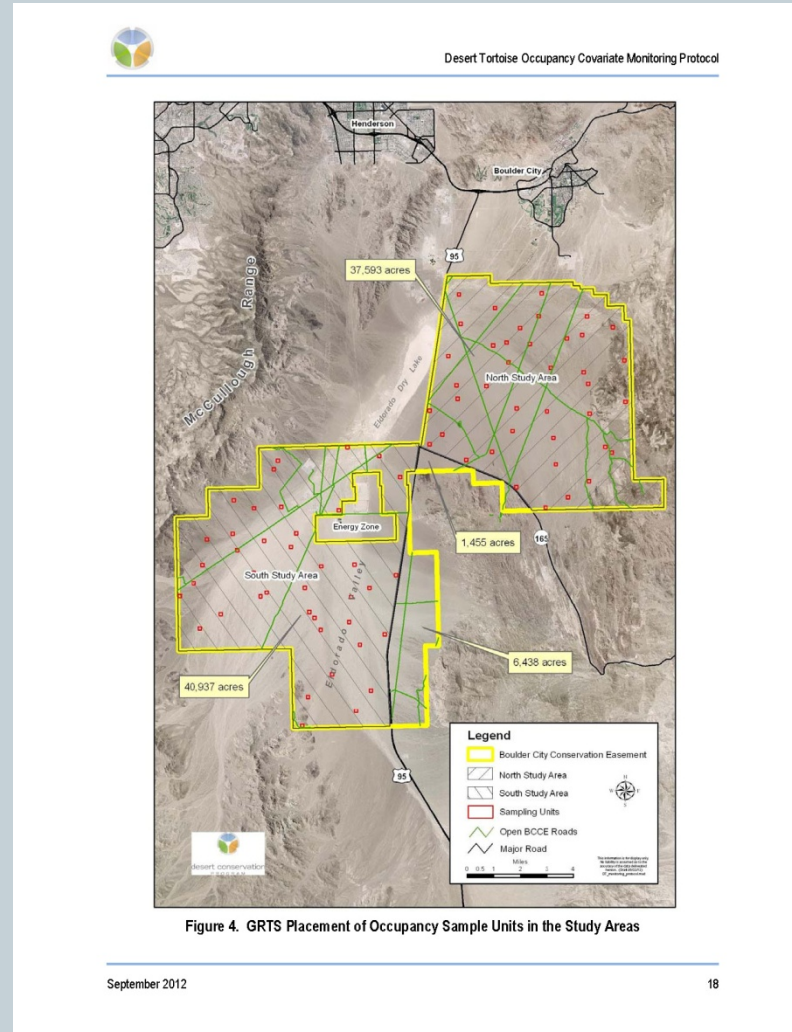
# Project Objectives for 2016



- Preliminary site visit
- Align transects and quadrats to previous years.
- Collect ephemeral plant species richness and cover data within quadrats
- Collect species richness data in subplots
- Data verification, validation, management
- Record incidental tortoise sightings and priority plants

# Project Methods

- 2 Crews consisting of 1 botanist and 1 Assistant
- 60 four hectare plots
- Four subplots per plot
- Four 25 m transects.
- Two 1m x 2m quadrats per transect.



# Project Status



- Project completed in March during the spring wildflower bloom (March 7 – April 4)
- Permanent metal cap markers were located in the center of each subplot
- Starting at the lowest elevation in the BCCE, and working in order of elevation going up.



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# Ephemerals in Early March

- Size
- Timing
- Rainfall
- Micro-climate



# Project Timeline

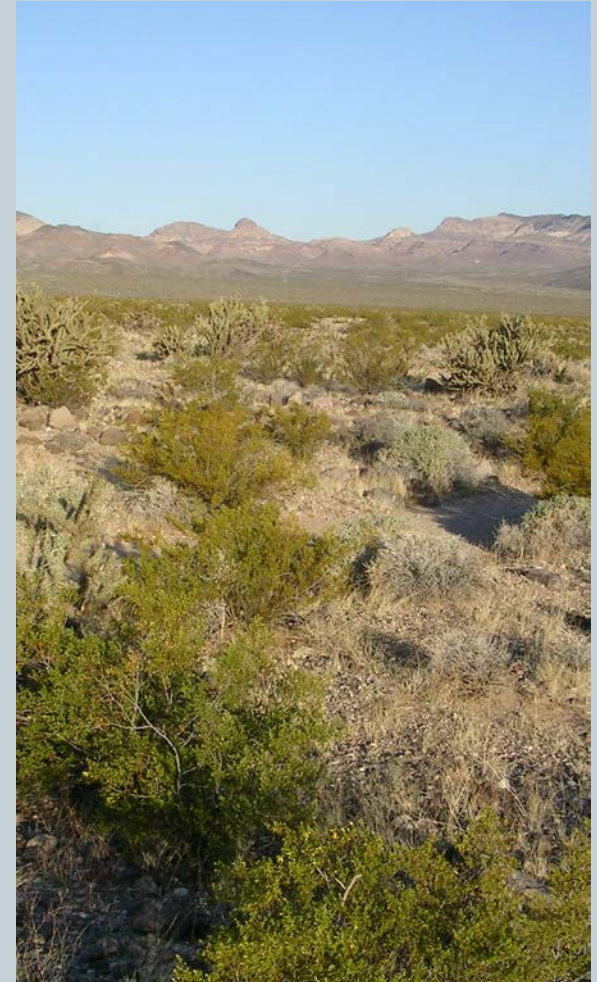


- **2 crews were able to complete 1-3 plots per day each.**
  - A Crew consisted of one botanist and one field assistant
- **The project was broken into plot groups using GIS**
  - Elevation
  - Access to other plots
- **Fieldwork started March 7, 2015 and completed March 27, 2015**
  - 19 days total, average 13 days per crew

# Data Collection

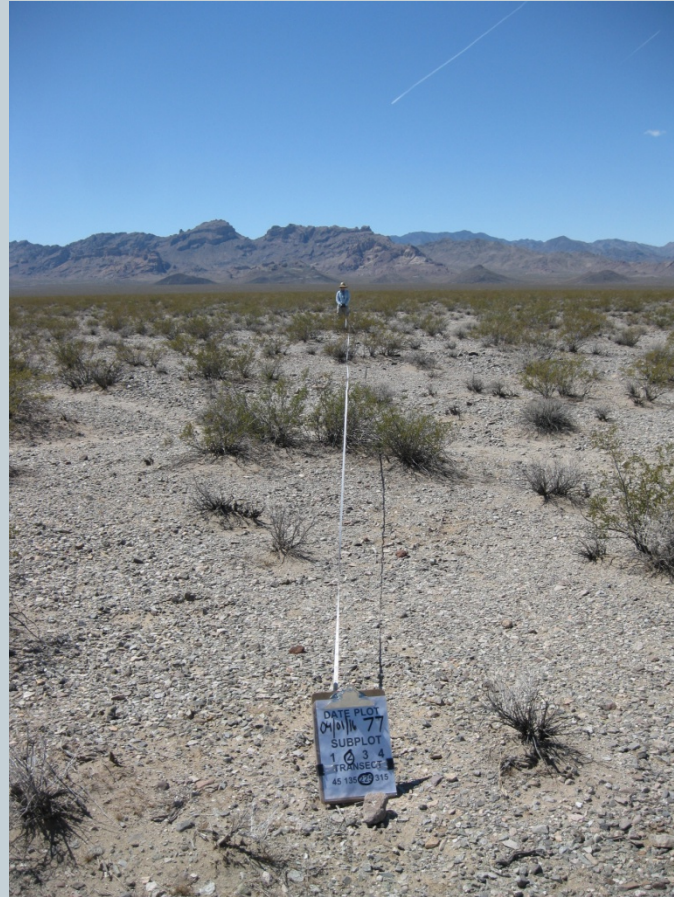


- Data was collected in the field and verified after each transect
- Data was then entered into an excel table with:
  - Built in validation for logical values
  - Visual cues to identify errors
  - Formulas to help verify data and spot errors not found in the validation scheme
- Data was verified again after entry to ensure data was accurate





# Vegetation Cover Varies Greatly



# Results



- 136 live species observed.
- 2,995 observations within 1920 quadrats.
- 3,586 Observations within 60 plots
- Ephemeral average cover 1.3% - 1.5%.
- Most diverse plot: BC\_N\_008 31 species; least diverse plot: BC\_S\_058, 1 species.

# Conclusion



- Ephemeral cover was highest in 2015 of the three study years.
- Few weedy species observed
- This is part of a larger covariate study and the data will be used as part of a fine scale predictive model for Desert Tortoise Occupancy



# Questions ?

