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Adaptive Management Program

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Adaptive Management Program: Overview

Presentation Overview

- Define adaptive management
- What is the adaptive management program?
- How we use adaptive management
- Dissemination of data
- Future projects



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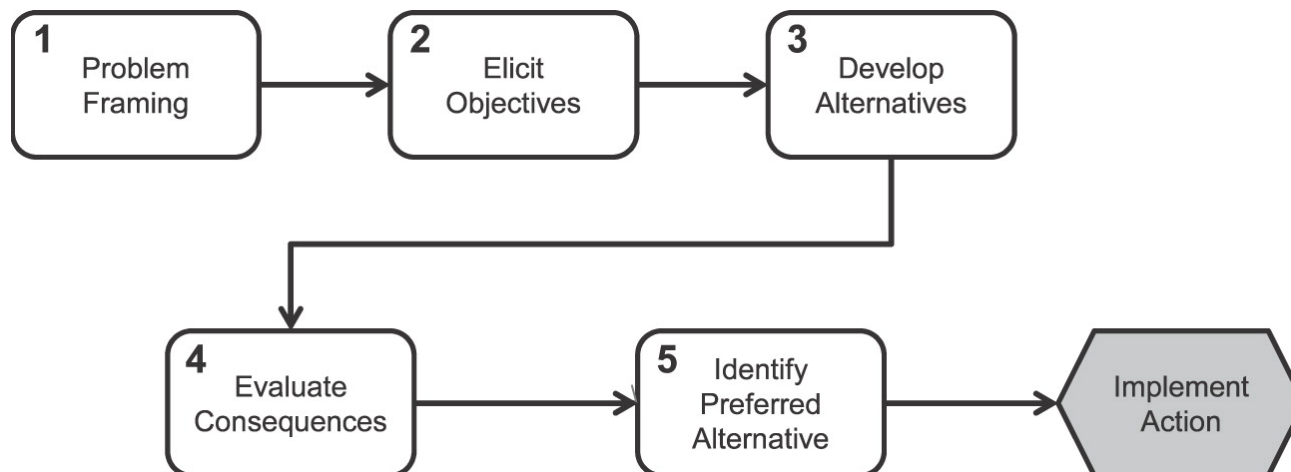
Structured Decision Making

A method for analyzing a decision by breaking the decision into different stages.

Key Elements:

- Problem Decomposition

- Focus on Values



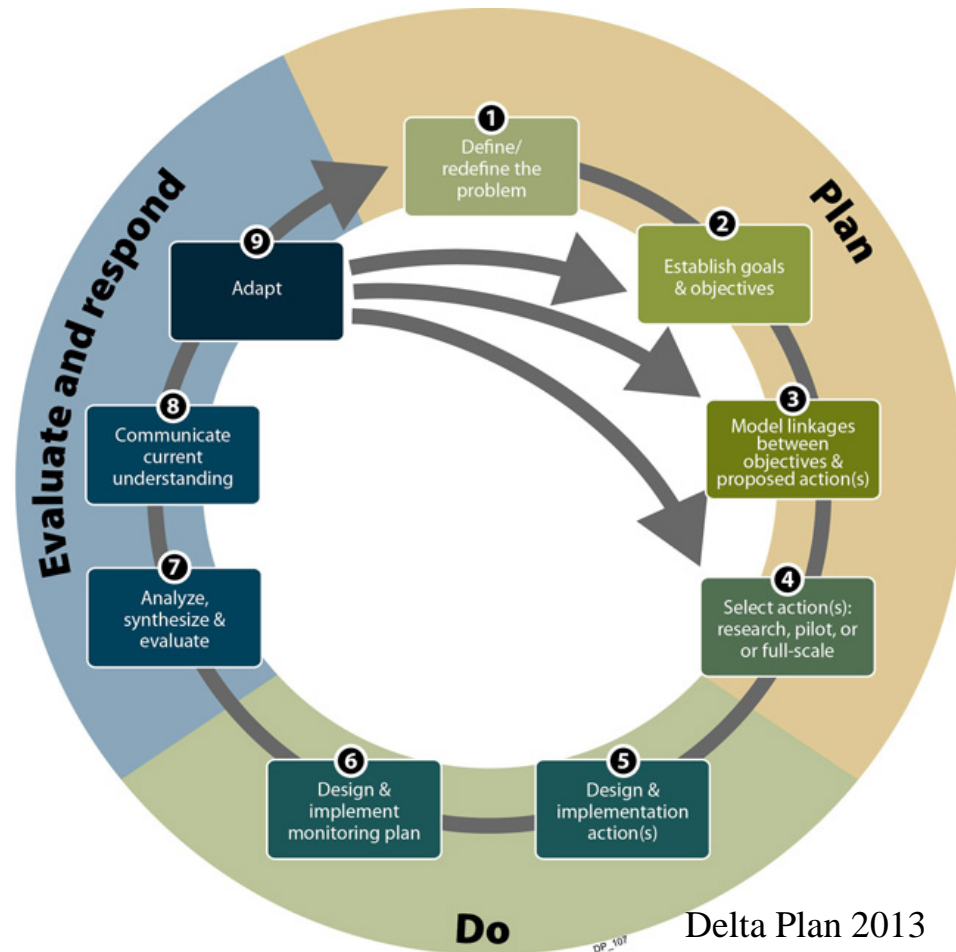


Adaptive Management

A form of structured decision making that promotes flexible decision making that can be adjusted based on uncertainties as outcomes from research and management become better understood.

Differences from structured decision making

- Recurrent decisions
- Uncertainty





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Adaptive Management Program: What is the Adaptive Management Program?

Multi-Species Habitat Conservation Plan

“...[Those involved] are proposing an Adaptive Management Process to gauge the effectiveness of existing conservation measures and to propose additional or alternative conservation measures, as the need arises, and deal with changed or unforeseen circumstances.”





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Adaptive Management Program: What is the Adaptive Management Program?

The Adaptive Management Program:

- Provides objective, science-based approach to the implementation of the MSHCP
- Helps direct expenditures
- Leads projects that further the MSHCP
- Maintains a database on all covered species
- Ensures an adaptive management approach to all actions



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Adaptive Management Program: What is the Adaptive Management Program?

Who is Involved

- DCP staff
- Science advisor
- Agency personnel
- Land managers
- Academics



Enduring Conservation Outcomes





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Adaptive Management Program: Overview

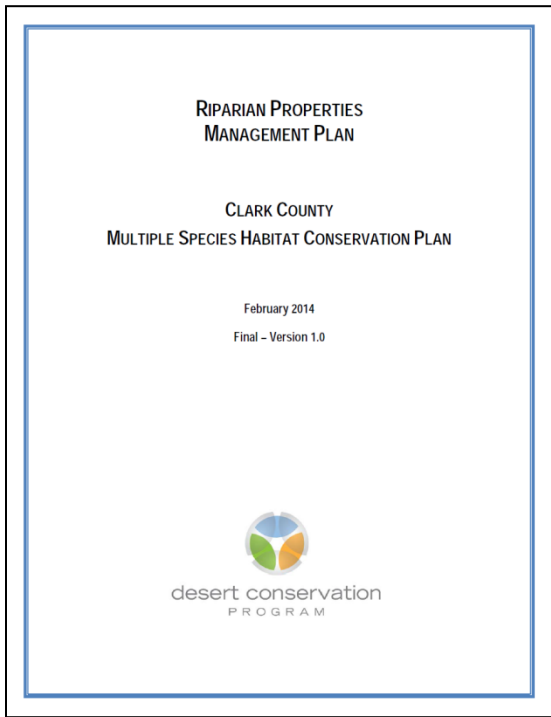
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Management Plans

- Use to determine next steps on properties
- <http://www.clarkcountynv.gov/depts/dcp/Pages/Management>



BCCE Management Plan									
MANAGEMENT ACTION DESCRIPTION	LOCATION	TIMEFRAME	LEAD	PERMIT(S)	PRIORITY/COST	EFFECTIVENESS MEASURES	FREQUENCY	STATUS	Mandatory/Discretionary
1.0 Restore and enhance habitat for desert tortoise									
1.1 Evaluate easement for the spatial extent and trends of desert tortoise occupancy									
Occupancy sampling pilot study determines spatial extent of desert tortoises and provides a baseline to detect changes in spatial extent and numbers of tortoises by which to identify and prioritize areas for habitat restoration/enhancement.	BCCE; north and south study area plots	Multi-year study, as needed; 2013-2017	DCP, contractor	Boulder City, USFWS	H	VH	No effectiveness measures needed; quality assurance is part of pilot study data collection and management		Year 1 completed; beginning Year 2
1.2 Assess environmental variables that influence the spatial extent and trends of desert tortoise occupancy									
Covariates monitoring project assesses the relationship of desert tortoise occupancy with multiple environmental covariates (vegetation, substrate, topographic features, precipitation, distance to disturbances and habitat alteration, and management actions). The data will be used to develop a prescriptive model of where tortoises are and could be in the BCCE.	BCCE; north and south study area plots	Multi-year study; 2013-2015	DCP, contractors	Boulder City, USFWS	H	VH	No effectiveness measures needed; quality assurance is part of data collection and management		Soils, vegetation, and remote sensing contracts are ongoing
1.3 Identify and prioritize locations for habitat restoration and enhancement									
Statistically analyze data from occupancy sampling and covariates monitoring projects using PRESENCE model to prioritize areas for habitat restoration/enhancement.	BCCE; DCP office	After 1.1 and 1.2 are completed	DCP, contractor		H	L-M	Map of priority areas for habitat restoration	Upon completion of analysis	Not started
1.4 Develop restoration/enhancement plans for priority locations									
Use results from 1.3 to plan location, type, and extent of restoration/enhancement; determine if plans are prepared by DCP staff or by contract	BCCE; locations identified in 1.3	After 1.3 is completed	DCP, contractor(s)		M	M	Plans meet restoration goals and objectives, contract requirements, and are ready for implementation	Upon completion of each plan	Not started



Riparian Monitoring

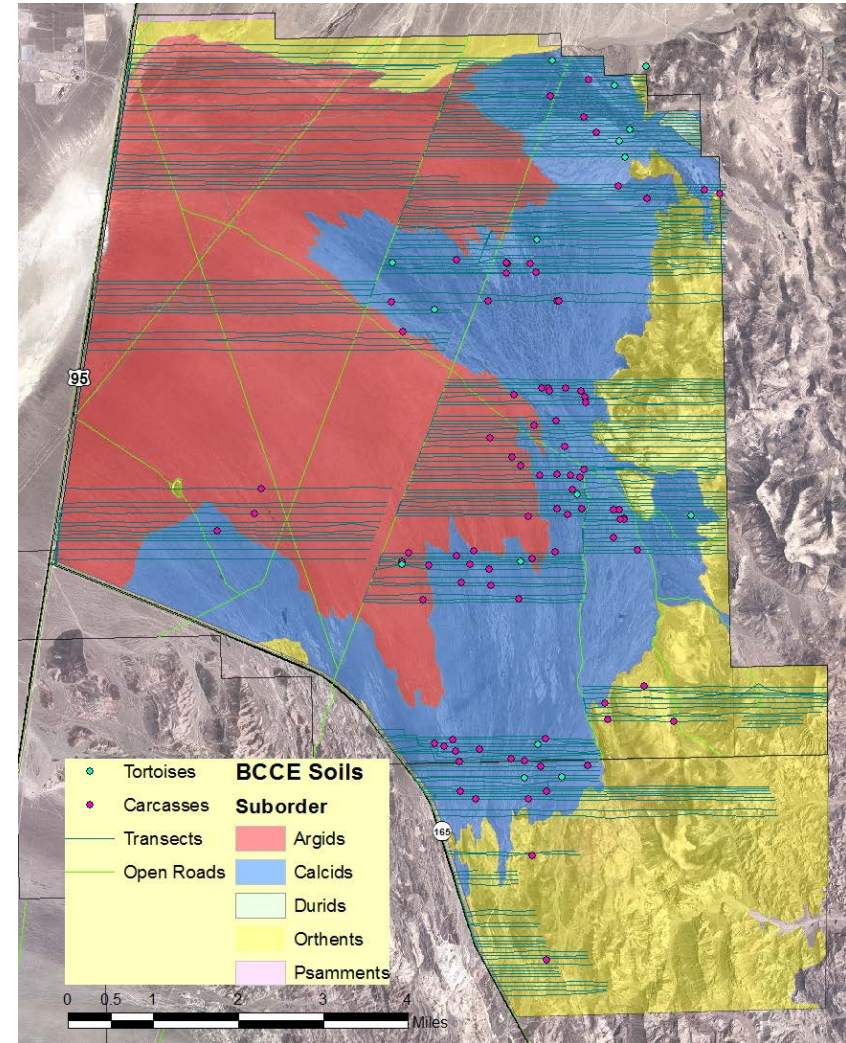
- Vegetation photo points on the Virgin River
- Geotechnical assessment on the Muddy River





Tortoise Translocation on the BCCE

- Pre-translocation surveys
 - 1065 km of transects
 - 15 tortoise
 - 11 health assessments with only one suspect for URTD
 - 1.7 tortoise/km²
 - Released 98 tortoises

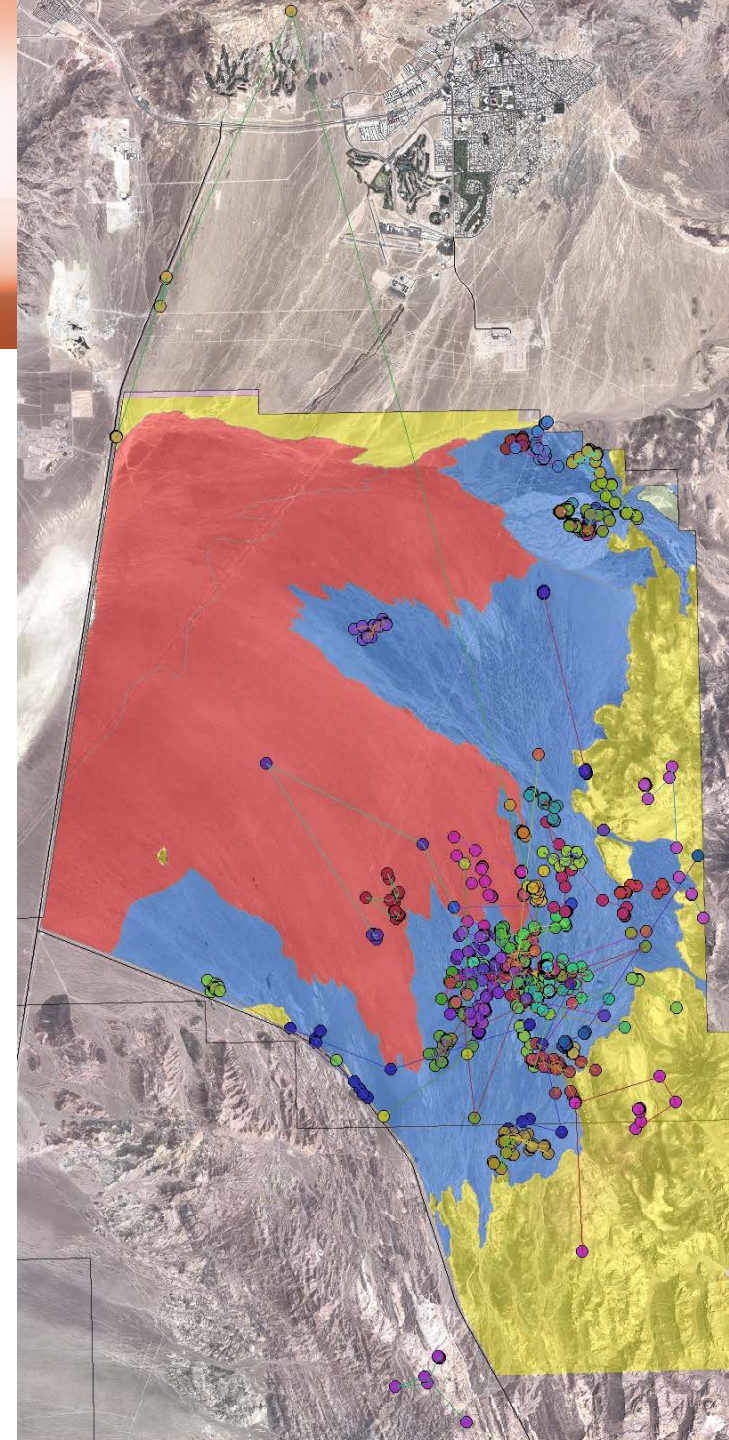




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Tortoise Translocation on the BCCE

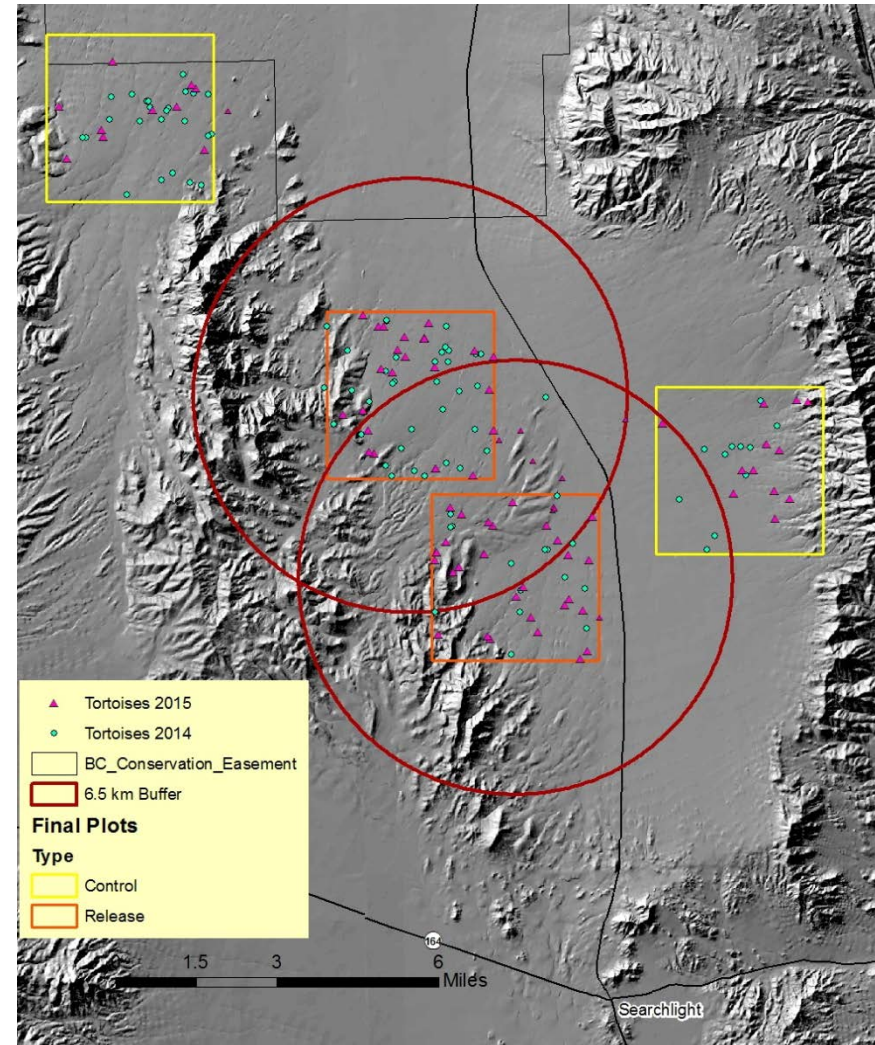
- Began a 4 year monitoring project
- 13 resident and 40 translocated
 - Movement patterns
 - Survival
 - Habitat use
- Through July
 - 70% Survival in traslocated
 - 100% Survival in residents





Tortoise Translocation to Eldorado Valley

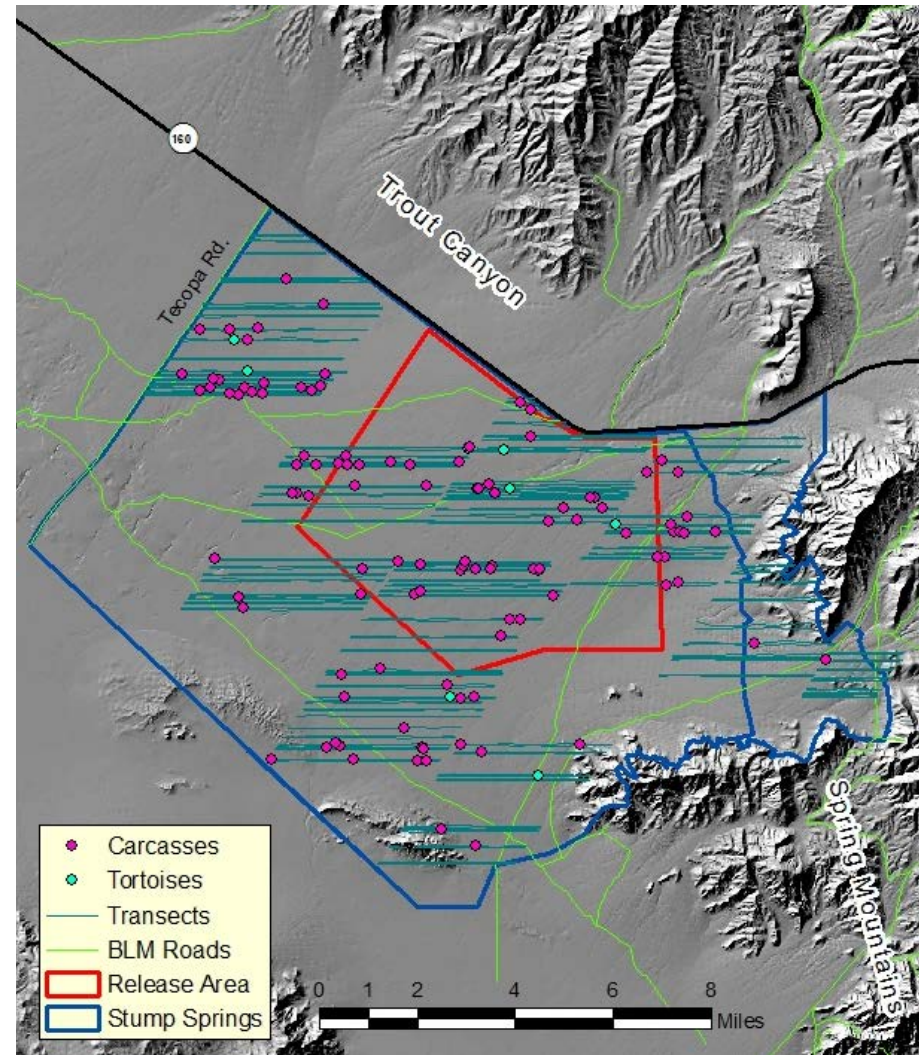
- Translocated Tortoises to Release Sites
 - 185 Adults
 - 125 Juveniles
- Finished 1st year of post translocation surveys





Tortoise Translocation to Stump Springs

- Pre-translocation surveys
 - 1068 km transects walked
 - Located 9 tortoise (0.9 tortoises/km²)
 - No tortoises with URTD (N=5)
 - Space for up to 339 adults
- Currently working on translocation plan





Pet Desert Tortoise Registration and Sterilization Clinics

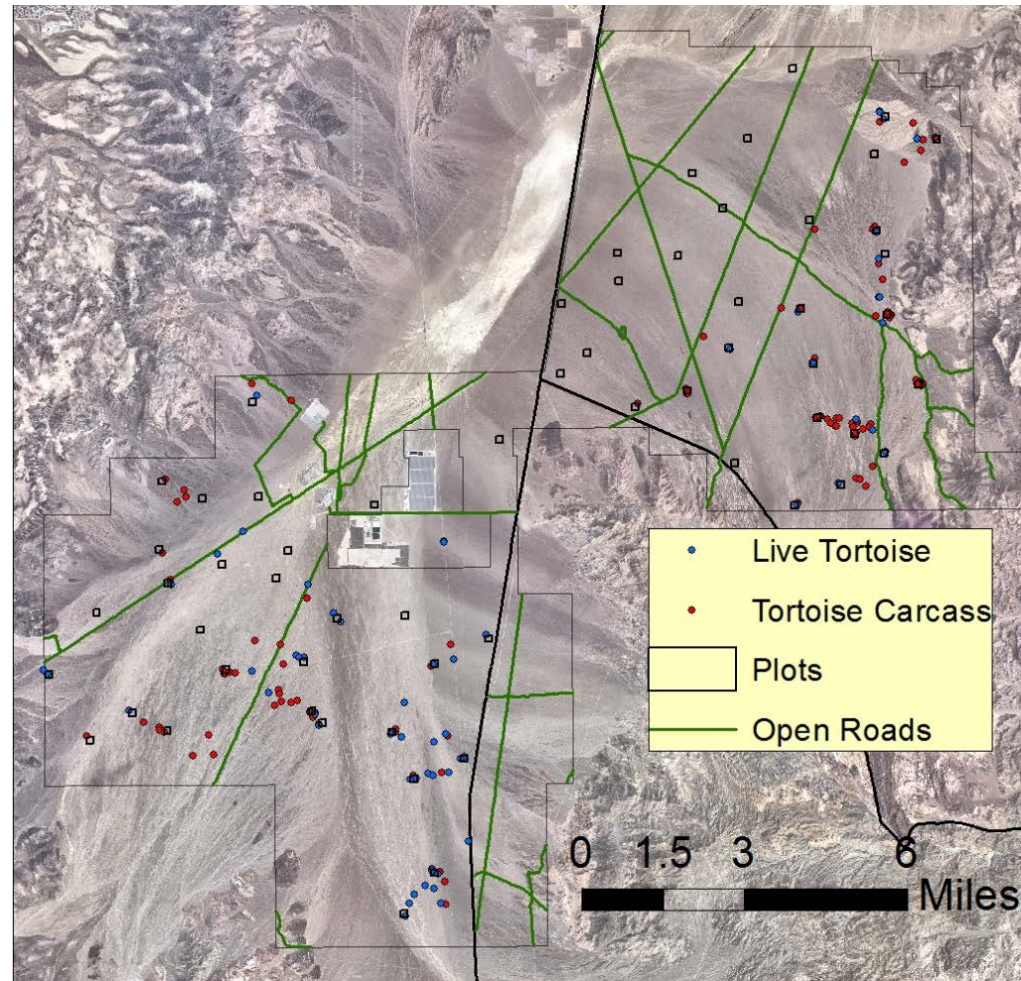
- Health assessed and micro chipped 87 pet desert tortoises
- 1st sterilization Clinic
 - 15 females / 32 males
- 2nd sterilization clinic
 - 25 females / 29 males
 - 58 microchipped
- 54 veterinarians and technicians trained





Tortoise Occupancy Surveys

- Changed Methods
 - 60 plots
 - 7 visits
 - 175% increase in work
- Located 63 Tortoise
 - 300% increase in tortoise





Tortoise Occupancy Covariates

- Vegetation surveys
- NDVI vegetation index
- Lidar Processing



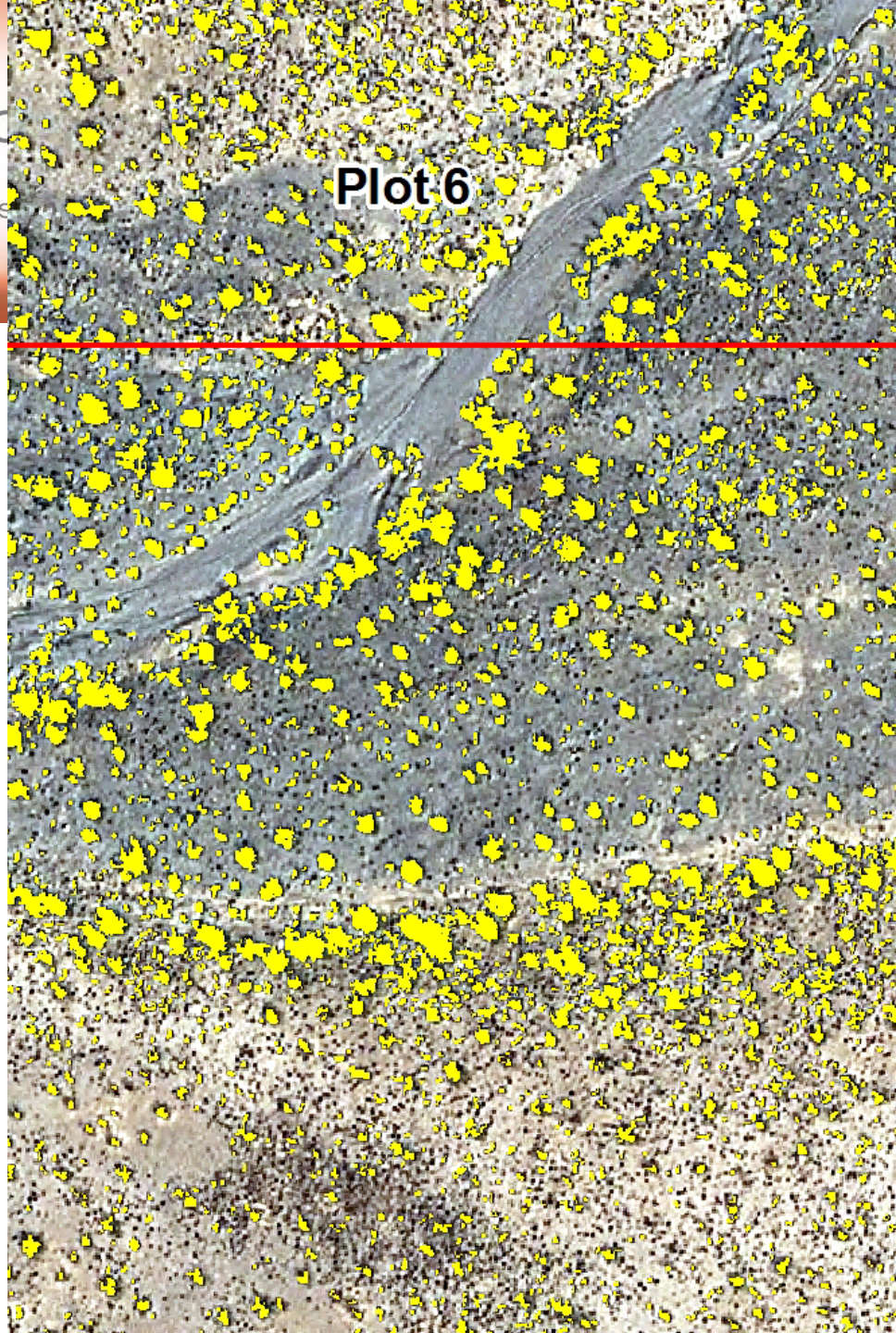


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Plot 6

Tortoise Occupancy Covariates

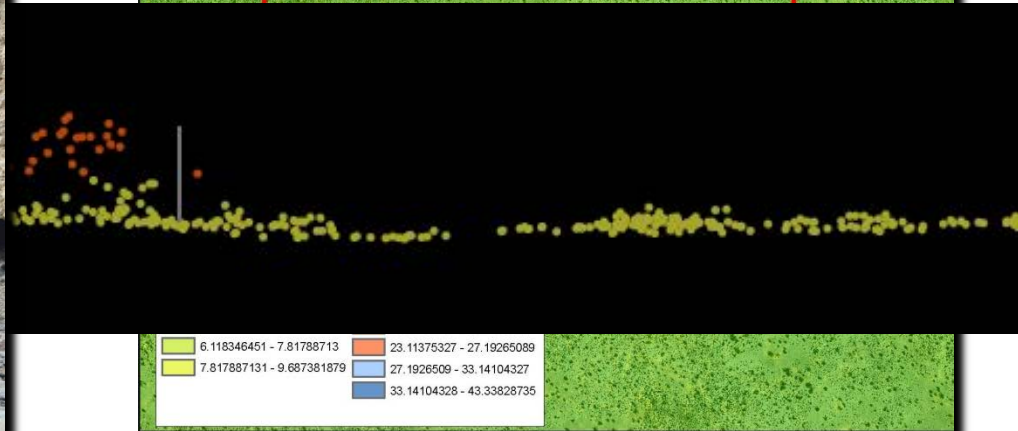
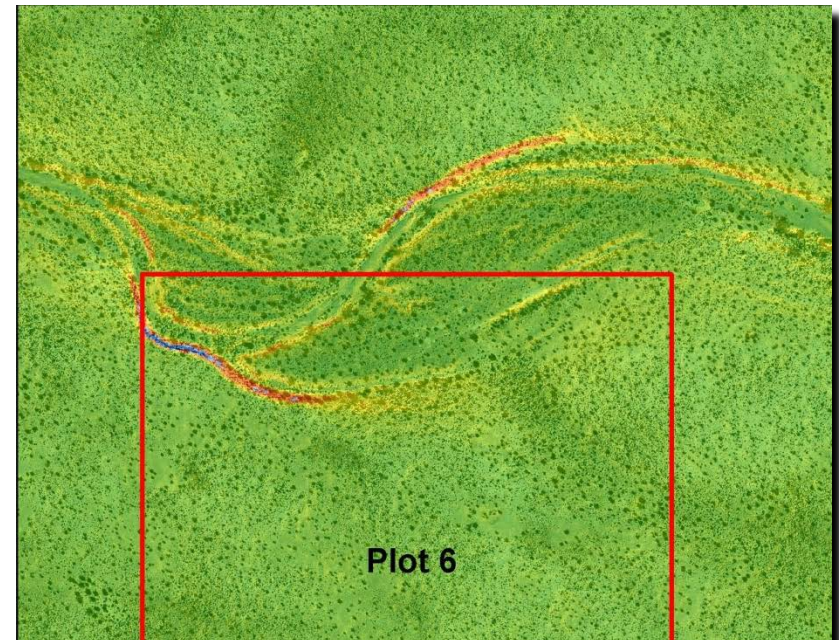
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Tortoise Occupancy Covariates

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Adaptive Management Program: Dissemination of Data

- DCP Website
<http://www.clarkcountynv.gov/depts/dcp/Pages/DCPReports.aspx>
- Symposium
- Adaptive Management Report





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Adaptive Management Program: Next Steps

- Baseline bird surveys
- Predator study
- Range-wide monitoring
- Further restoration on the BCCE and riparian properties





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Adaptive Management Program:

Questions?

