Desert Tortoise Occupancy Sampling

Project Number 2007-KLA-1012D 2017 Data

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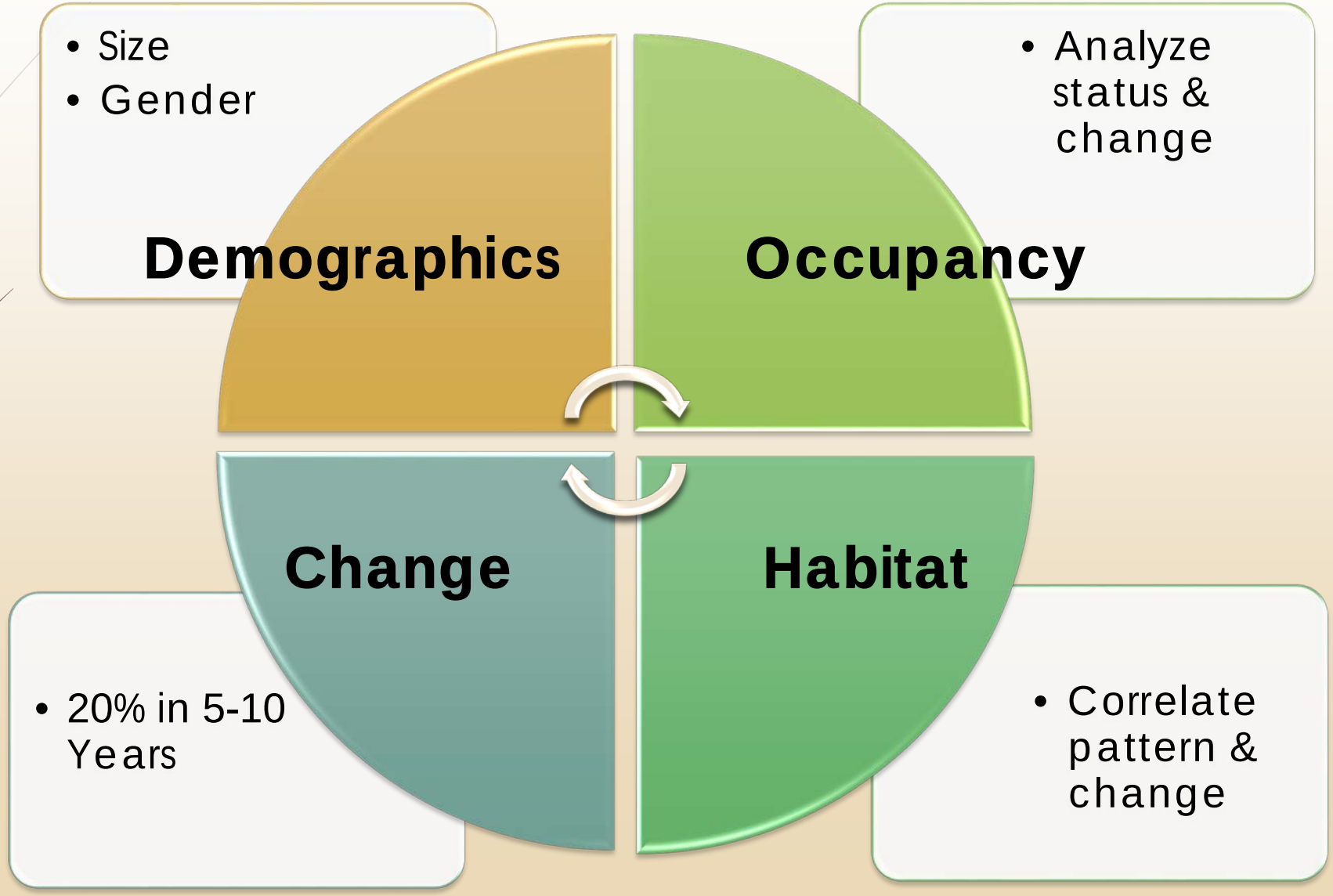
Contents Outline

- Project Overview & Background
1. Funding & Agencies
2. Objectives
3. Indicators
4. Purpose
- Methodology
1. Site
2. Recordable Data
3. Data Protocol
- Data Summaries
1. Tortoise Demographics
2. Carcass Sizes
3. Carcass Totals
4. Burrow Descriptors
5. Snake Demographics
6. Reptile profile
- Project Status
1. Year Review
2. Conclusion
- Credits/References

Funding and Agency Involvement

- Southern Nevada Public Land Management Act (SNPLMA)
- Agreement #LO8AC13225 (Clark County and BLM)
- Land sales through SNPLMA fund Multiple Species Habitat Conservation Plan (MSHCP)

Objectives and Assumptions



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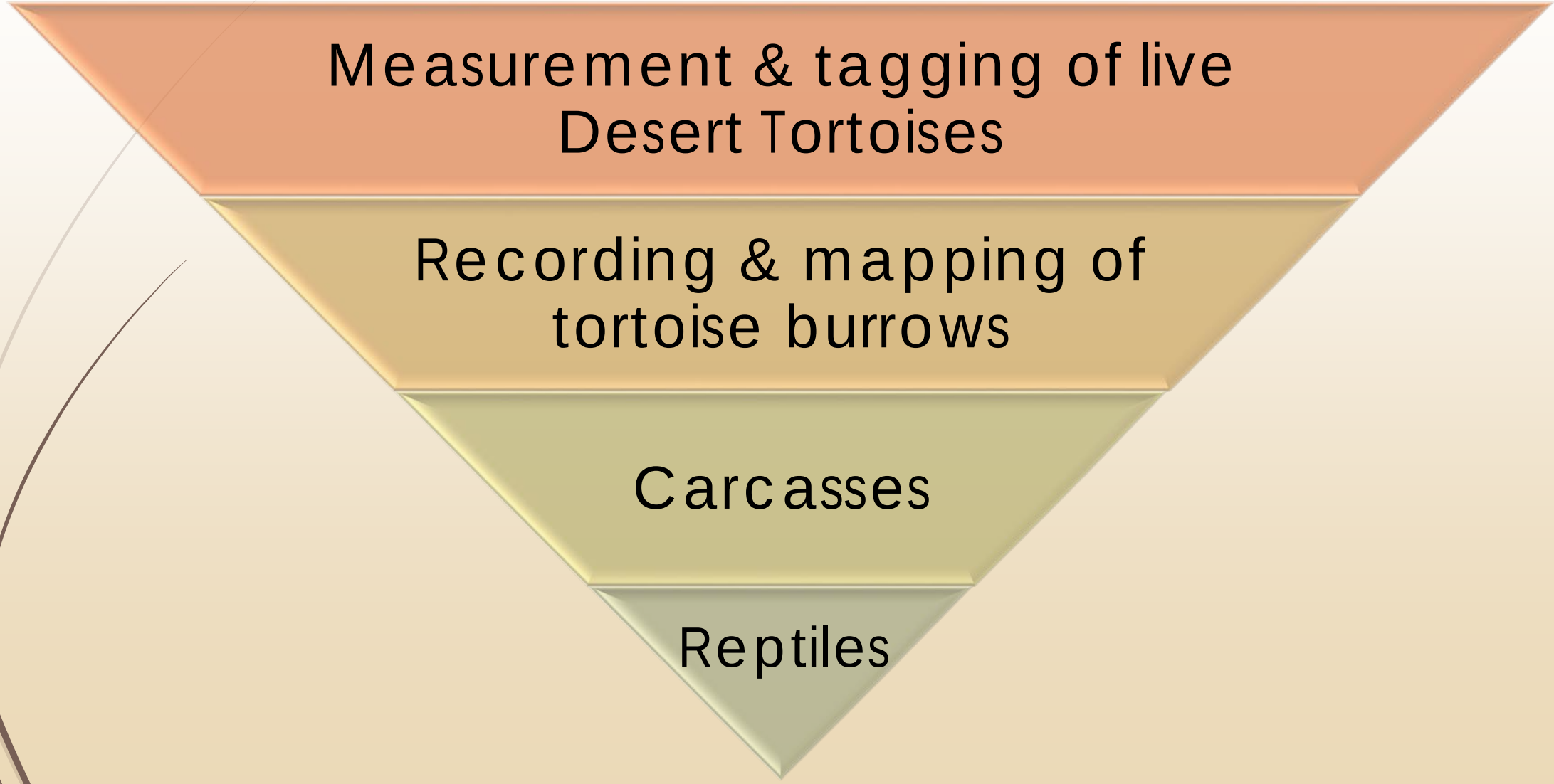
Indicators



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Purpose

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.

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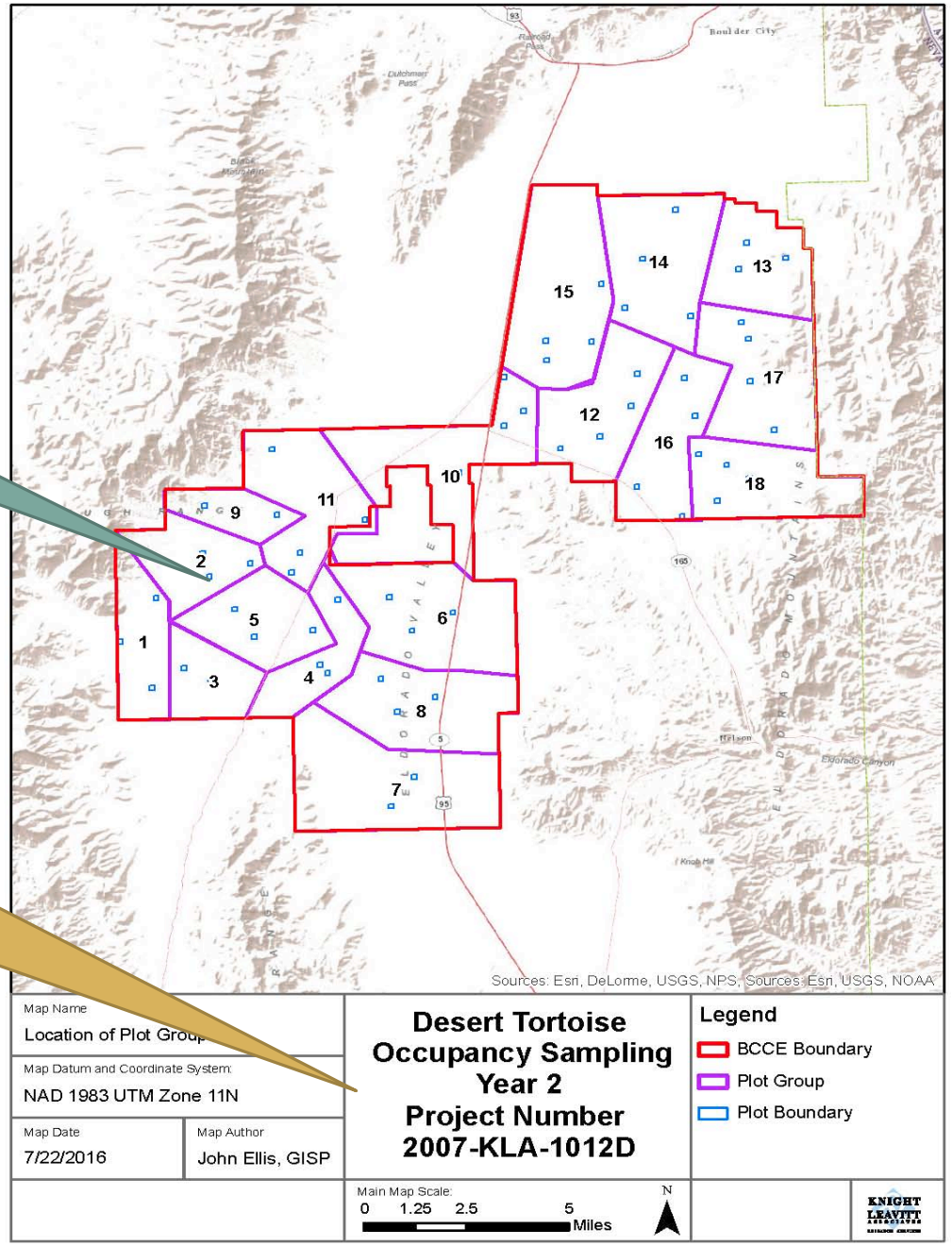
Methods: Site

60 Plots
- 4 hectares each

7 Survey rounds
- 420 Total plot surveys



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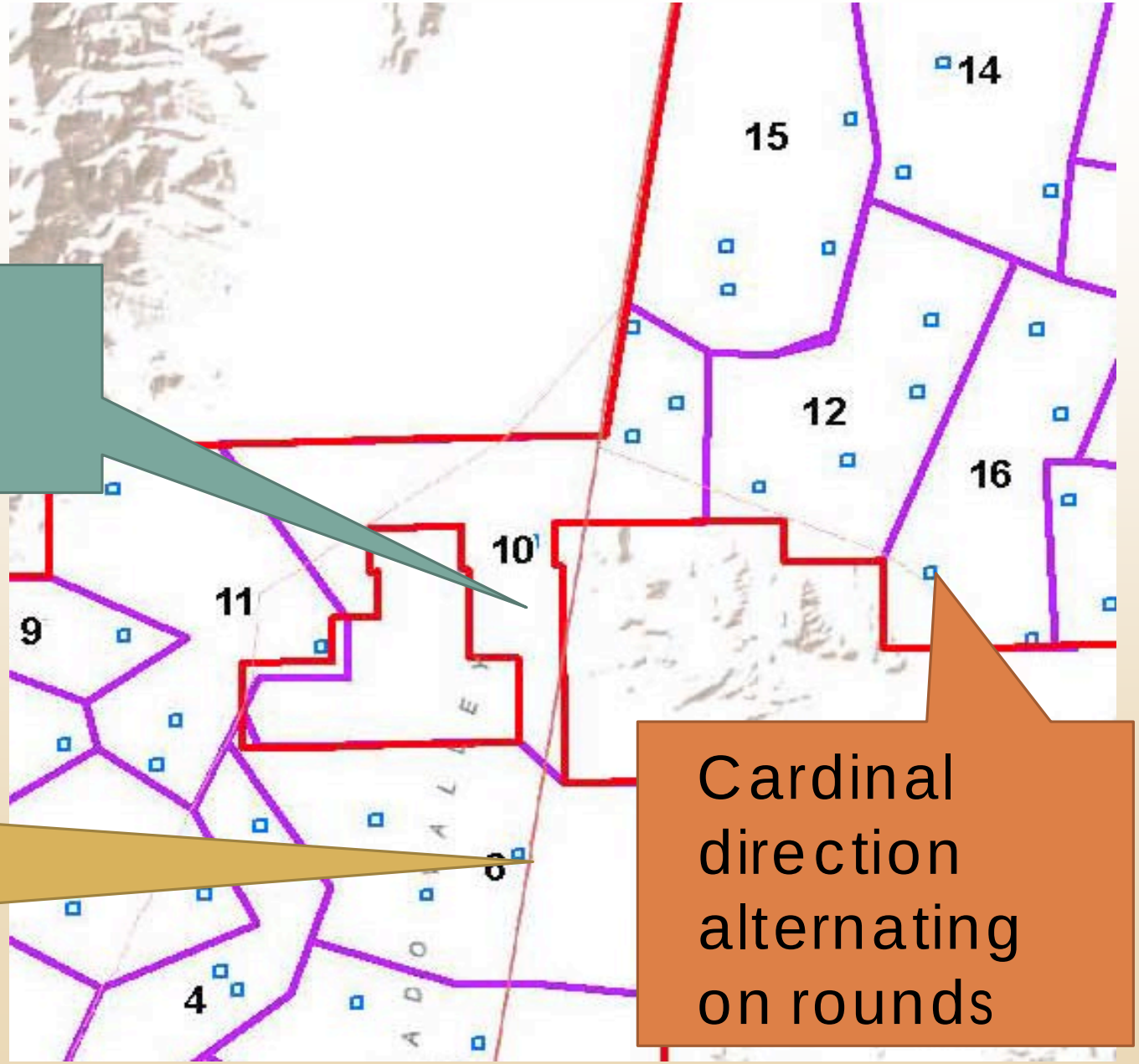
Methods: Site

10 M
transect lines

Field Crew:
- 1 AB
- 1 DTOA



Cardinal direction alternating on rounds

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Methods: Recordable Data

- Live Tortoises
- Burrows
- Carcasses
- Reptiles

Incidentals

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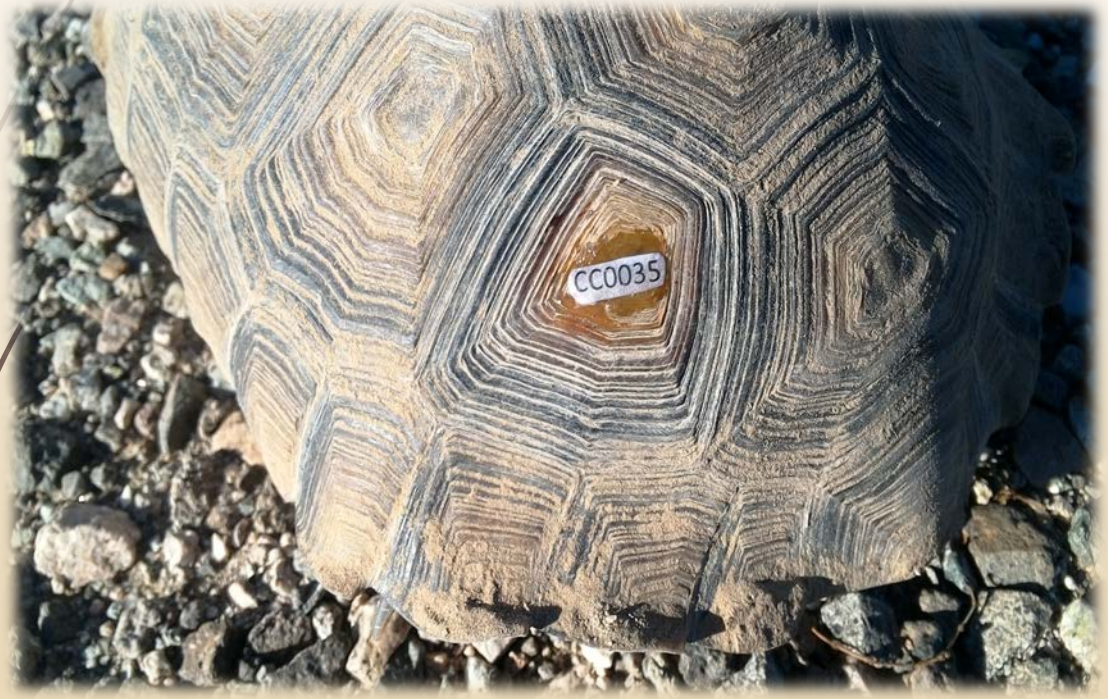
Methods: Samples

- **County Identification Numbers**



- **Data Sheets, QA/QC**

Live Tortoise Data Sheet

Unique No ID: _____ GPS Unit #: _____ PDOP Set High (circle one): yes/no Date: _____ (YYYY/MM/DD) Time: _____ (0000-2400)

Observation #: _____ Round: _____ Observer Name: _____

Plot #/INC (circle one): _____

UTMs: N _____ E _____

Location of Tortoise (circle one): Burrow Open Rock Vegetation Pallet Other: _____

Behavior when found (circle one): Walking Basking Eating Digging

Fighting Resting Mating Other: _____

Cloud Cover (circle one): Cloudy Overcast Sunny Raining Other: _____

Tortoise found in wash (circle one): Yes No Ground Temperature: _____ °C

Sex (circle one): Male Female Unknown MCL: _____ mm

MCL Recorded (circle one): Yes Juvenile Stress Burrow Other

Tag # (if present): _____ Tag color (if present): _____

New Tag # (if applied): _____ Photograph Taken (circle one): Yes No

Comments _____

Unique No ID: _____ GPS Unit #: _____ PDOP Set High (circle one): yes/no Date: _____ (YYYY/MM/DD) Time: _____ (0000-2400)

Observation #: _____ Round: _____ Observer Name: _____

Plot #/INC (circle one): _____

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Data Protocol

- Field data
- End of Day Verification
- Excel Data Entry
- QA/QC

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Data Summary: Tortoise Demographics

	2015	2016	2017
Total Number of DT Observations	63	52	79
Male	15	18	16
Female	23	13	35
Indeterminate sex	25	21	28
Number of Tortoises >=180 mm	37	29	54
Number of Tortoises <180 mm	17	16	19
Number Unable to Measure	9	7	6

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Data Summary: Carcass Sizes

Carcasses	MCL 2015	MCL 2016	MCL 2017
Average	220 mm	220 mm	231 mm
Average Male	238 mm	238 mm	248 mm
Average Female	207 mm	207 mm	213 mm
Largest	271 mm	274 mm	328 mm
Smallest	146 mm	88 mm	68 mm
Total Observed (non-Unique)	86	73	53

Data Summary: Carcass Totals

Carcasses (non-unique)	2015	2016	2017
Intact	95	78	58
Disarticulated	128	132	178
Total Carcasses	223	210	236

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Data Summary: Burrow Descriptors

Burrows	2015	2016	2017
Occupied burrow observations (not unique burrows)	14	15	22
Not occupied burrow observations (not unique burrows)	249	334	500
Unknown occupancy burrow observations (not unique burrows)	46	0	4
Total Burrow Observations	306	349	526
Unique Burrows (based on a 1m buffer grouping estimate of GPS location accuracy)*	212	244	317
Average burrow width	25 cm	26 cm	26 cm
Average burrow height	13 cm	13 cm	13 cm

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Data Summary: Snake demographics

Snakes	2015	2016	2017
Coachwhip	3	4	3
Glossy snake	2	1	1
Mojave Rattlesnake	0	0	2
Sidewinder	4	8	2
Speckled rattlesnake	1	0	1
Striped Whipsnake	0	2	2
Western patch-nosed snake	3	4	4
Total Snakes	13	19	15

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Data Summary: Reptile Profile

Lizards	2015	2016	2017
Desert horned lizard	74	94	43
Desert iguana	24	46	22
Desert Spiny Lizard	0	0	1
Great Basin Collared Lizard	0	1	1
Leopard lizard	19	25	15
Zebra-tailed Lizard	0	2	0
Total Reptile Observations	117	168	82

Project Summary: 2017

- 2017 data collection was completed from March through June. This is the 5th year of data collection to date and the project is also planned for 2018.
- 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: 2017

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 at times to increase efficiency

The project was broken into groups 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 20, 2017
- Completed June 09, 2017

Project Summary: Conclusion & Open Floor

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.

Acknowledgements

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