The Adaptive Management Program

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8/23/2023

Overview

- Purpose

- Goals and Objectives

- Adaptive Management Process
    - Connectivity
    - Predator Management

- Translocation
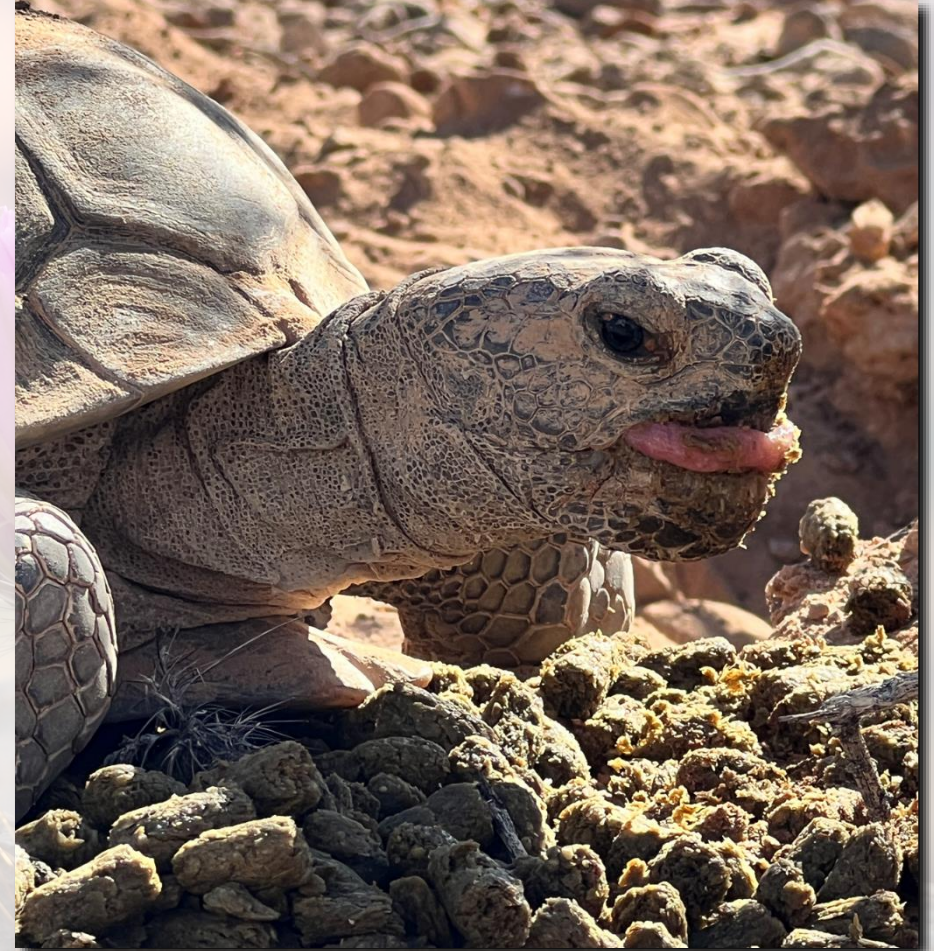
- Volunteering

- Website Updates

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Purpose

The Adaptive Management Program:

- Helps direct expenditures

- Provides an objective, science-based approach to the implementation of the MSHCP

- Ensures an adaptive management approach to all management actions

- Lead projects that further the MSHCP

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Table 1. Biological Goals and Objectives

Biological Goal 1: Maintain or improve habitat quality and quantity within DCP reserve system lands to promote resiliency, redundancy, and representation for covered species.	
Obj 1.1	Utilize invasive species treatment methods to maintain or decrease the 8-year average area requiring weed management.
Obj 1.2	Acquire riparian acreage at an equivalent rate as take over the life of the permit. An 8-year lag after riparian acreage is developed is allowed to account for the willing-seller, willing-buyer basis of property exchange, within the life of the permit.
Obj 1.3	Protect, restore, or otherwise increase the quality and quantity of habitat for MSHCP-covered species, as determined by the monitoring methods, definition of quality, and timeframes specified in the AMMP.
Obj 1.4	Incorporate natural ecological, hydrological, and geomorphological processes into restoration design and implementation to maintain ecological integrity, ecosystem function, and biological diversity. Include consideration that climate change may result in significant changes in these processes over historical frequencies and magnitudes. Review quadrennially as part of every other Adaptive Management Report (AMR) using project level worksheets (Appendix B).
Obj 1.5	Identify critical uncertainties (e.g., climate change, human population growth) of MSHCP-funded projects on DCP reserve system lands and report on them in biennial updates to the DCP Reserve System Management Plans.
Obj 1.6	Incorporate concepts of ecosystem redundancy and representation to promote ecological resiliency in the biennial updates to the DCP Reserve System land Management Plans.
Obj 1.7	Protect and enhance connectivity (i.e., road restoration, culvert placement) within DCP reserve system lands for Desert Tortoise and other high priority covered species. Review and report on the status of these projects quadrennially in every other AMR.
Biological Goal 2: Maintain stable or increasing populations of covered species occurring within DCP reserve system lands.	
Obj 2.1	Monitor covered wildlife species as described in the AMMP. Report quantitative population data, as described in the AMMP, for covered species biennially in the AMR and report statistical analyses of population trends quadrennially in every other AMR.
Obj 2.2	Conduct surveys for covered plant species as described in the AMMP. Protect, conserve, and monitor known occurrences of these species annually. Report quantitative population data as described in the AMMP biennially in the AMR, and report statistical analyses of population trends quadrennially in every other AMR.
Obj 2.3	Translocate and augment desert tortoise populations in accordance with USFWS guidance through translocation programs that achieve survivorship rates within 10 percentage points of resident tortoise survival rates in the same areas (or with survivorship as prescribed by USFWS guidance). Report survivorship data biennially in the AMR and report analysis on aggregated translocated tortoise survivorship compared to aggregated resident tortoise survivorship quadrennially in every other AMR.
Obj 2.4	Ensure the best available scientific information is being evaluated and incorporated into population management efforts for covered species, including monitoring methods and identification of critical uncertainties (e.g., climate change, human population growth), by completing a focused literature review (or Systematic Review) and updating it quadrennially in the AMMP.
Biological Goal 3: Foster community and stakeholder engagement to maintain or improve covered species populations and their habitats.	
Obj 3.1	Develop and disseminate educational materials that cover the following topics: 1) the value of the desert ecosystem in Clark County; 2) promoting responsible recreation; 3) promoting following development procedures; and 4) avoiding and minimizing impacts to the environment. Re-evaluate material's relevance quadrennially (branding, technology, social and recreation trends, etc.).
Obj 3.2	Protect habitats within the Boulder City Conservation Easement (BCCE) from unauthorized land use through vigilance (by patrolling an average of at least 100 hours each month) and education (by providing information during encounters). Compile data annually and report quadrennially in every other AMR.
Obj 3.3	Provide information to permitted users (project proponents, construction personnel, researchers, biological consultants) about best management practices for the desert tortoise and associated reporting procedures. If BMPs are developed for other covered species, this objective would expand to apply to them also. Compile data annually and report quadrennially in every other AMR.

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Connectivity

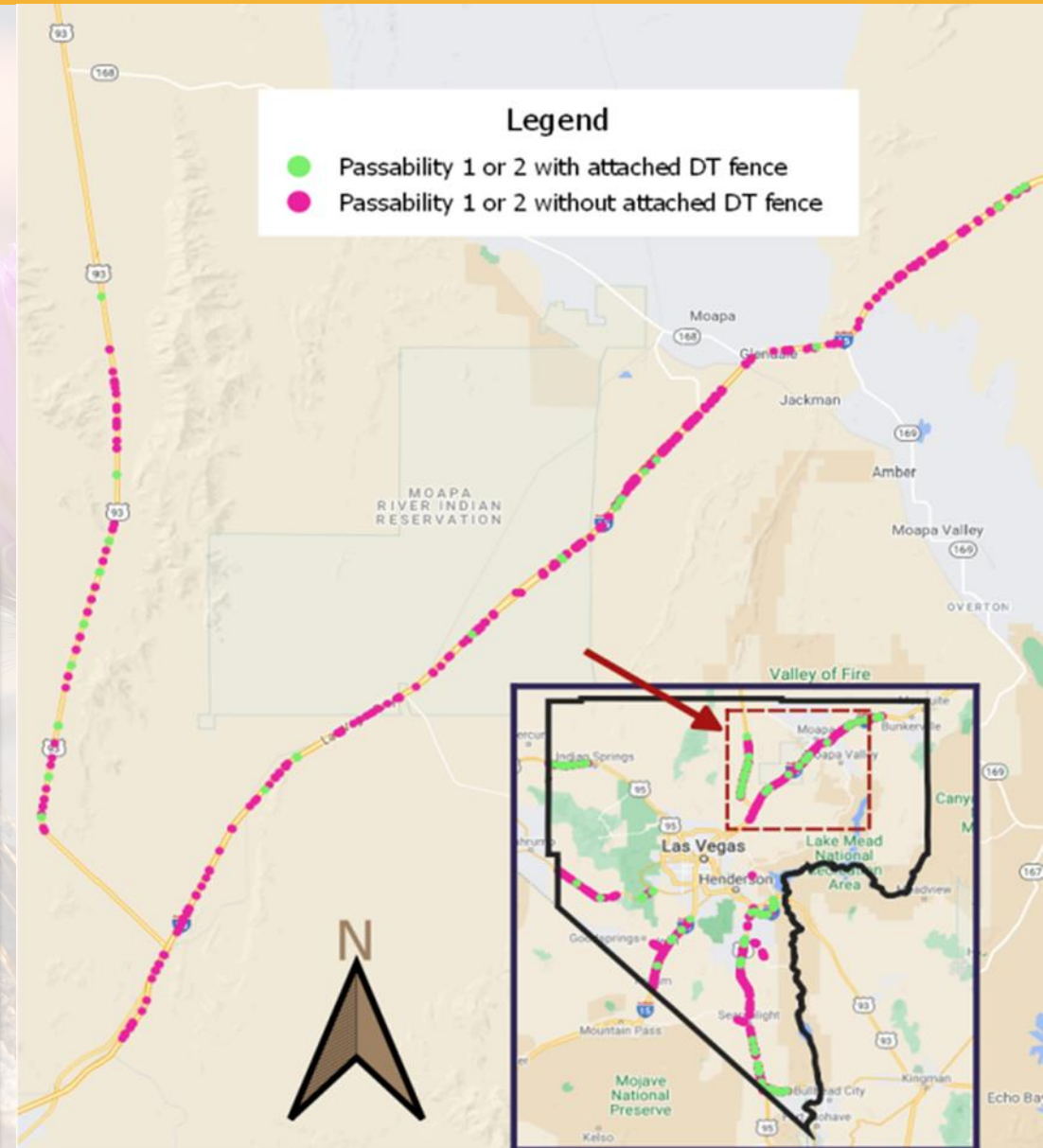Clark County

Connectivity Management Plan

Final
May 2022

Prepared for:
Clark County Desert Conservation Program
500 S. Grand Central Parkway
Las Vegas, Nevada 89155

Prepared by:
RECON Environmental, Inc.
3111 Camino del Rio North, Suite 600
San Diego, California 92108

Connectivity - Culverts

- 12% of passable culverts and 10% of all culverts are connected to the tortoise fencing in NV

- 18% of passable attached culverts have a drop off on one side and 46% of all culverts

	# of Culverts	Avg distance Between Culverts in Meters
Grade 1 / Easily Passable	225	N/A
Grade 2 / Passable With Some Effort	112	N/A
Grade 3 / Passable by some tortoises	112	N/A
Grade 4 / Not passable requires intervention	109	N/A
Grade 5 / Major Redesign or Heavy Equipment	165	N/A
all Culverts	723	472
Culverts grade 1-4	558	605
All Culverts Grade 1 or 2	337	992
all Culverts Attached to Fencing	74	3,857
All Culverts grade 1 or 2 Attached to Fencing	51	5,048

Legend
- ● Passability 1 or 2 with attached DT fence
- ● Passability 1 or 2 without attached DT fence

Connectivity Solutions Project

Objectives

- Create a fire management plan for Clark County.

- Reassess all culverts associated with fencing to see how time affects passability.

- Attach tortoise fencing to culverts indicated as passible by previous assessments and in high value tortoise habitat

- Determine how long it takes for tortoises to start using culverts once fences are reconnected.

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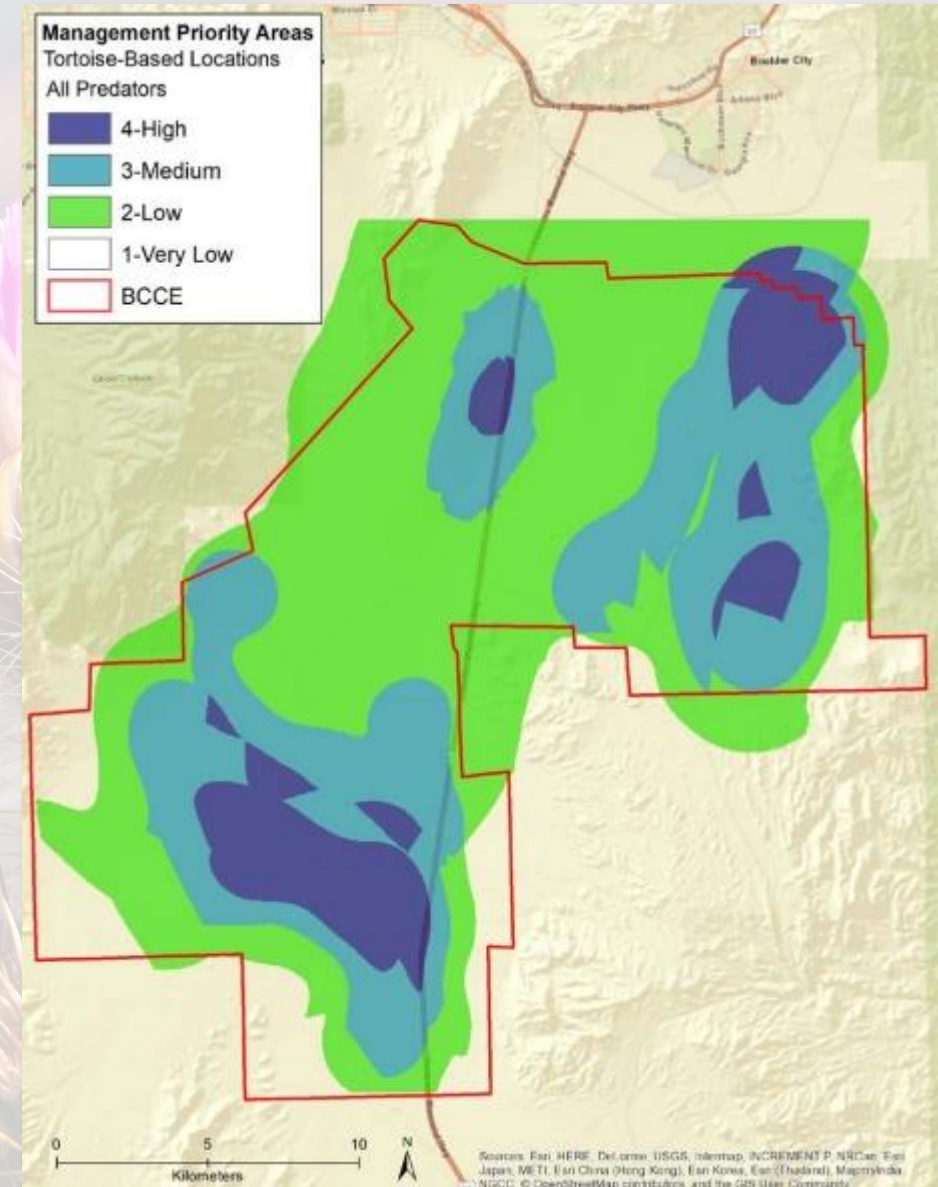- Translocation
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Conclusions

- Ravens and Coyotes are subsidized near Boulder City

- 32% of raven pellets and 16% of Coyote scat had DNA markers for desert tortoise

Management Recommendations

- Reduce availability to human subsidies

- Techno-Tortoise aversion training

- Handheld laser

- Lethal removal (last resort)

Management Priority Areas
Tortoise-Based Locations
All Predators
- 4-High
- 3-Medium
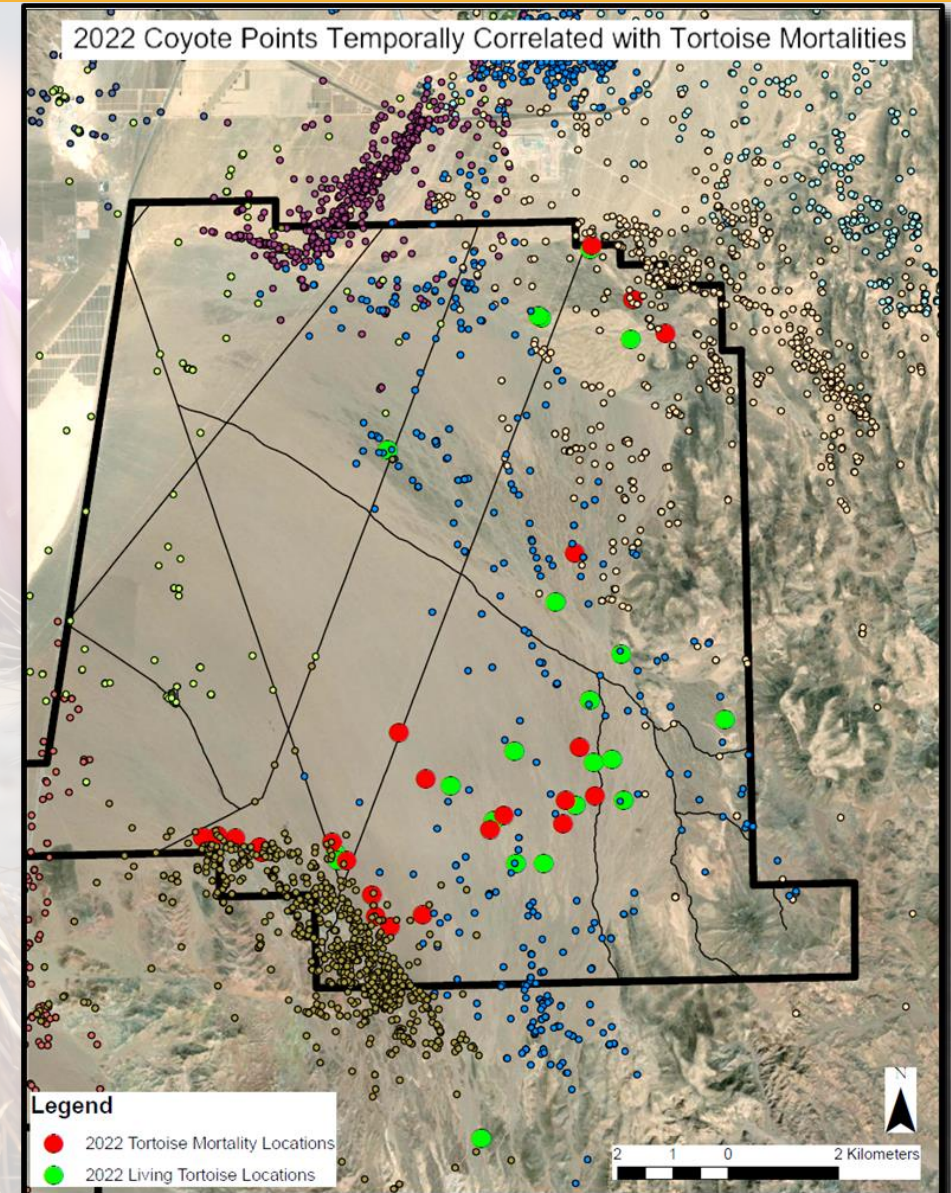- 2-Low
- 1-Very Low
- BCCE

Predator- Prey Dynamics

Conclusions

- Jackrabbit decline was strongly related to the drought

- Coyote populations were not tied to drought effects

- Subsidies are an issue

Management Recommendations

- Limit access to subsidies

- Weaponize focal tortoise

- Coyote reproductive interference

2022 Coyote Points Temporally Correlated with Tortoise Mortalities

Legend
- 2022 Tortoise Mortality Locations
- 2022 Living Tortoise Locations

2 1 0   2 Kilometers

Subsidized Predator Management

Objectives

- Implement city wide measures to reduce Raven access to food and water and educate residents

- Create new signage along Highway 95 to discourage littering.

- Deploy modified version of the Techno-Tortoises to deter predators

- Utilize lasers to prevent ravens from building nests near the BCCE.

- Determine effectiveness of management actions.

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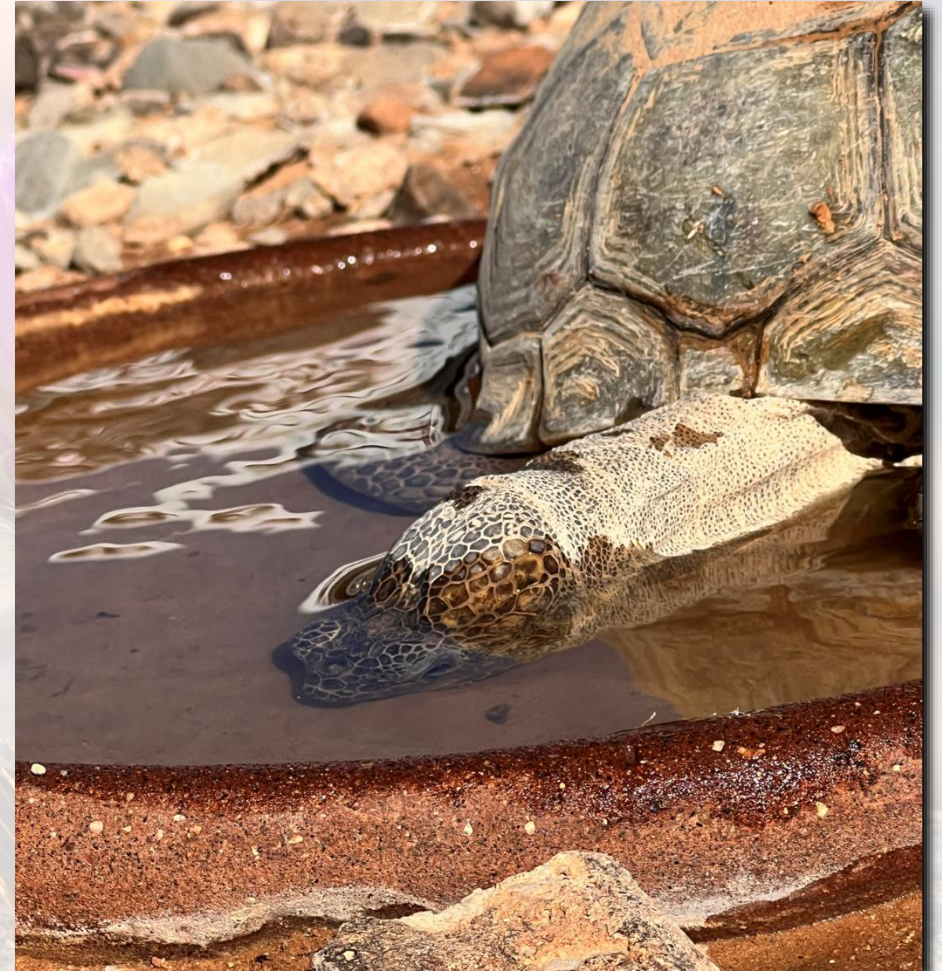
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BCCE Translocations

Fall 2022

- 5 tortoises removed from construction sites

- 26 tortoises from USGS

Fall 2023

- Up to 52 tortoise to be released mostly juveniles

Translocation Plan Update

Objectives

- Determine densities of tortoises on the BCCE

- Determine health status of tortoise on BCCE

- Create an updated translocation plan

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Desert Tortoise Volunteers

bit.ly/DCPBiologistVolunteers

- Upcoming translocation to the BCCE (end of September beginning of October)

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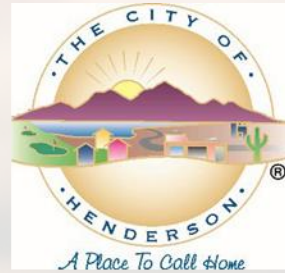- Translocation
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Website Updates

[Welcome to Clark County, NV (clarkcountynv.gov)](clarkcountynv.gov)

THANK YOU TO THE PERMITEES

Questions? Or Memes?