Desert Conservation program - Predator Management Efforts

October 3, 2024

Introduction

Background/Context

Predator Assessment

Translocation

Predatory-Prey Interactions

Putting the pieces together – Implementing Management Actions

Desert Conservation Program

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DEPARTMENT OF ENVIRONMENT AND SUSTAINABILITY
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MISSION:

Manage regional compliance with the federal Endangered Species Act

HOW?

Ensuring survivability of imperiled species by implementing the Clark County Multiple Species Habitat Conservation Plan (MSHCP) and Section 10 Incidental Take Permit

Boulder City Conservation Easement

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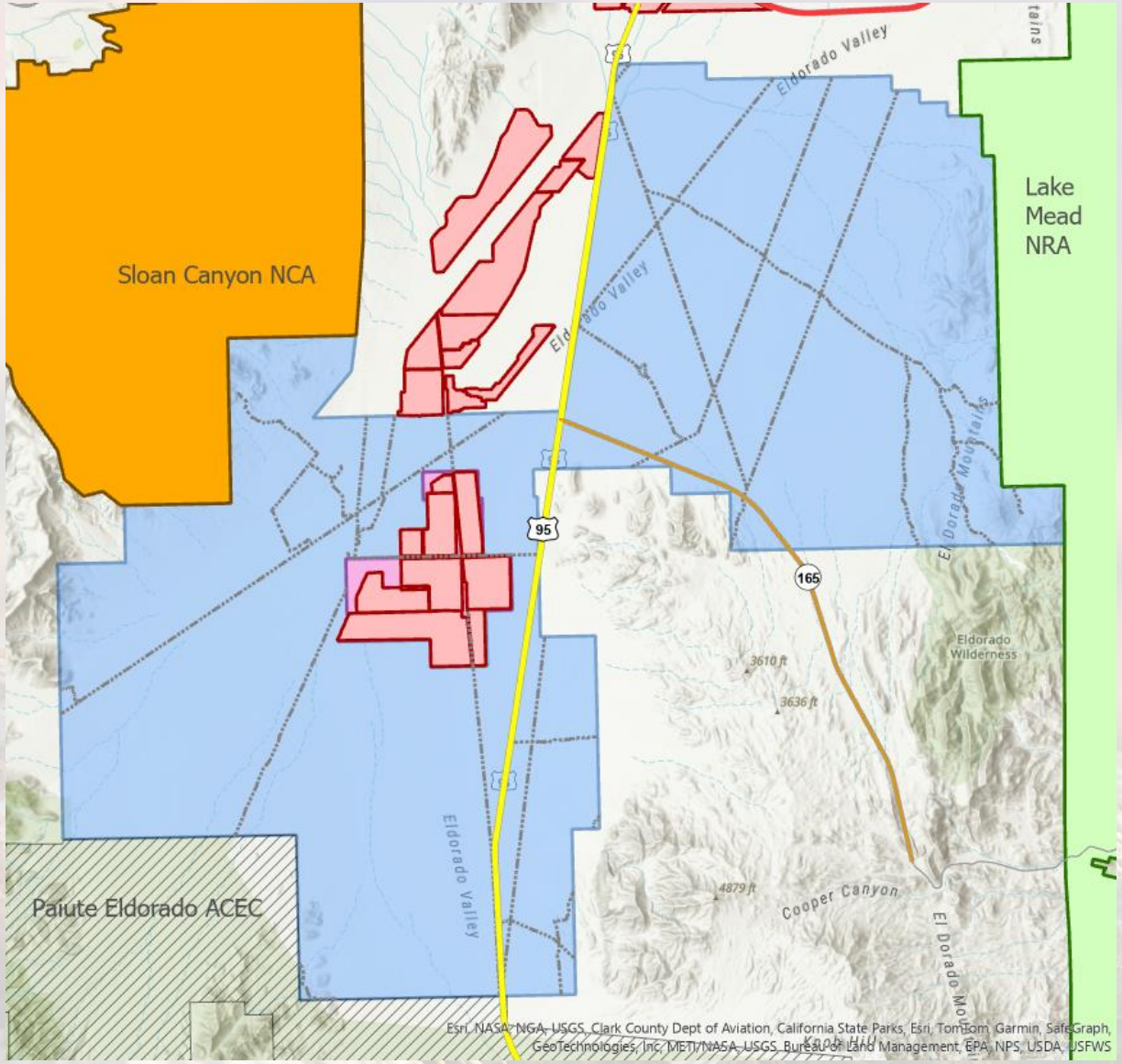
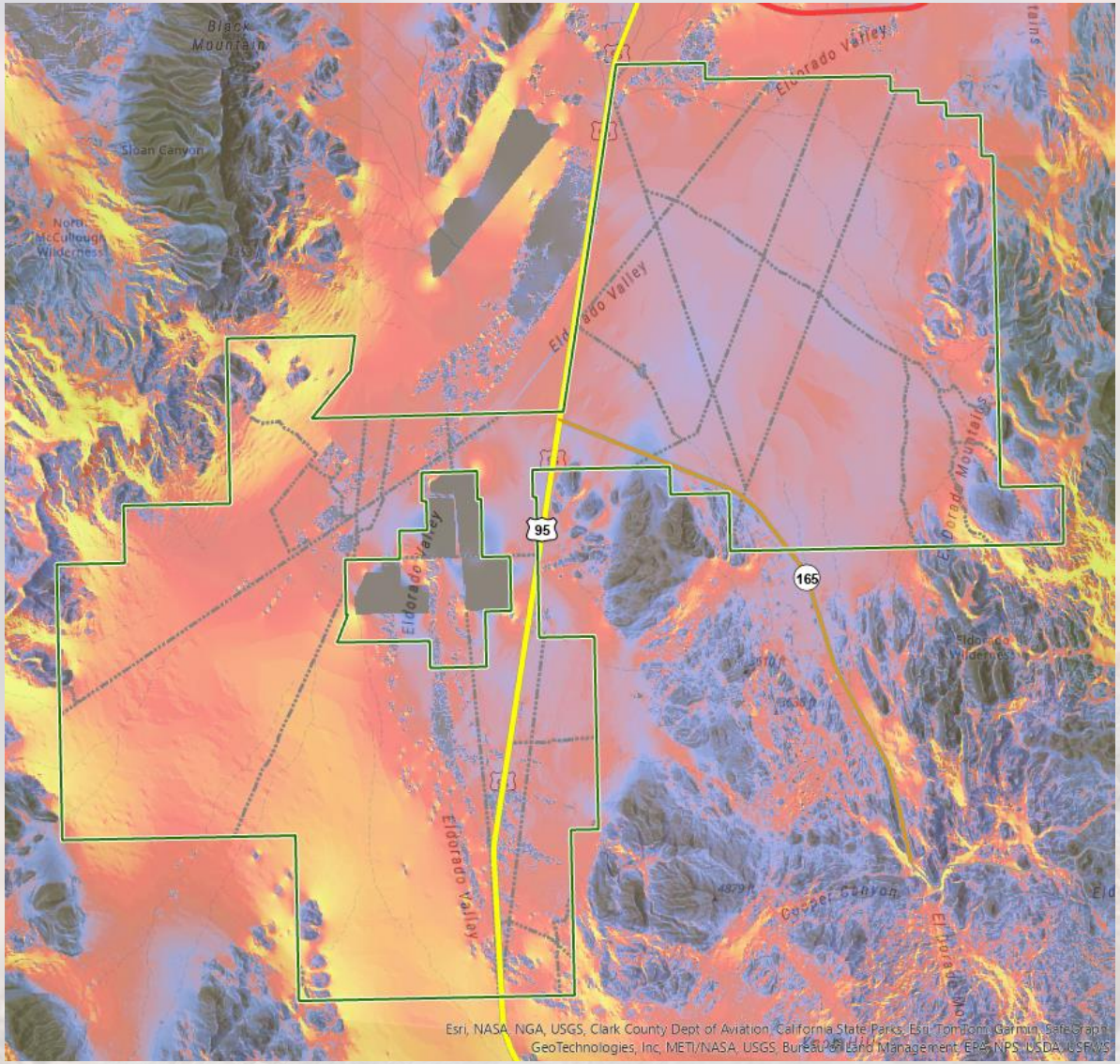
- A requirement of the MSHCP and incidental take permit
- Maintain in a natural condition and prevent impairment of values associated with tortoise habitat
- Established in 1995
- 87,310 acres
- Excludes 4,207 acres for energy production



Boulder City Conservation Easement



Source: Gray, M. E., B. G. Dickson, K. E. Nussear, T. C. Esque, and T. Chang. 2019. A range-wide model of contemporary, omnidirectional connectivity for the threatened Mojave desert tortoise. Ecosphere.

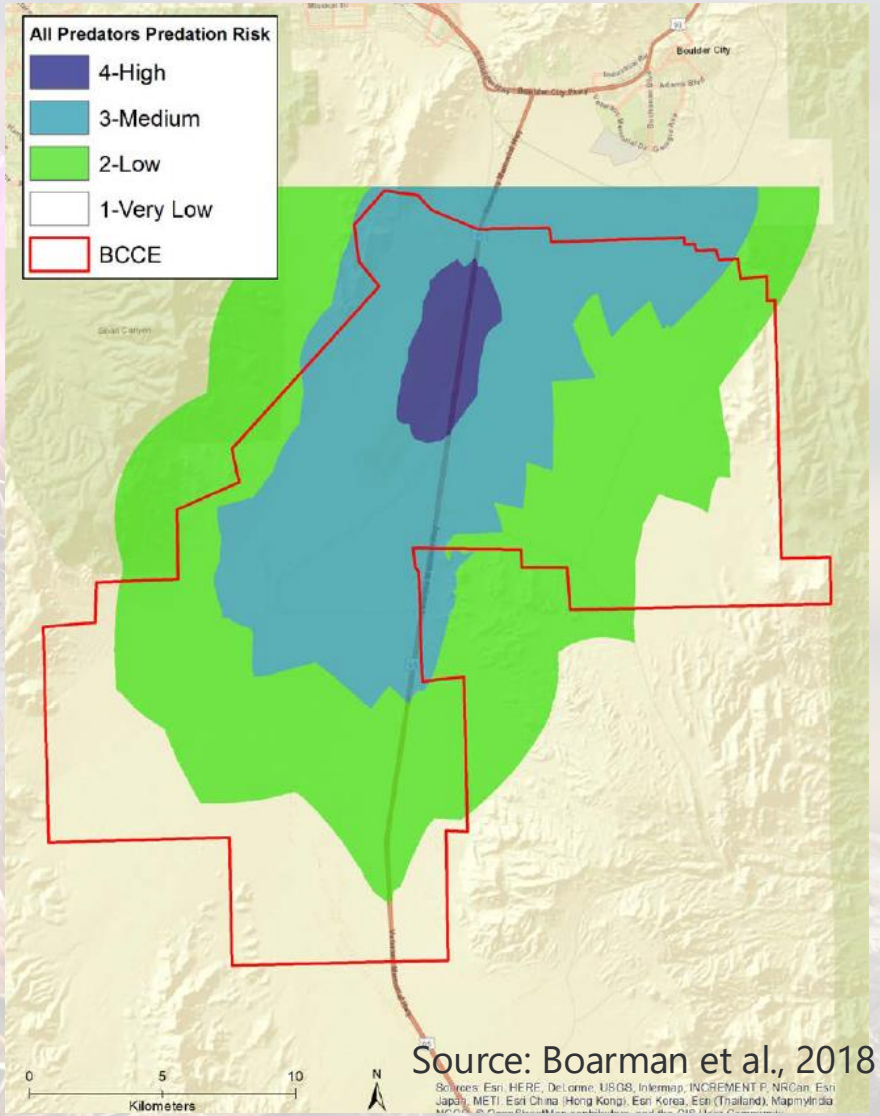
Predator Assessment

Predator assessment within and adjacent to the BCCE

- Phase I: - 2013
    - Data collected on presence/abundance of ravens, coyotes, and kit foxes
- Phase II – 2015-2018
    - Estimate spatial distribution and relative abundance of predators
    - Estimate rate of occurrence of predation on tortoises
    - Model spatial risk of predation
    - Prepare a Predator Assessment and Management Plan for the BCCE

Results

- Rabbit was most common prey item detected in coyote samples; birds, lizards, and beetles were most common prey items detected in raven samples
- 32% of raven pellets, 16% of coyote scat, and 13% of kit fox scat contained desert tortoise DNA
- Overall predation risk was highest near U.S 95 and nearer to the populated area of Boulder City



Source: Boarman et al., 2018

Translocation

Translocation event conducted in 2014

- Released 98 tortoises
- Transmitters affixed to 40 translocated tortoises and 13 resident
- High mortality in Year 1; by Year 2 only 17 translocated tortoises remained
- Indications that coyote predation was prevalent

Predator-Prey dynamics

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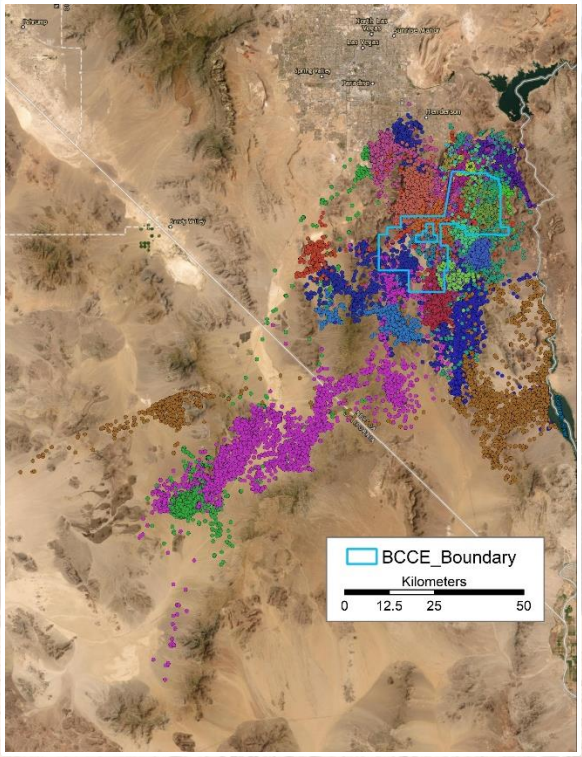
Assess predator-prey interactions of coyotes and black-tailed jackrabbits

- Collect health and life history data on coyotes and jackrabbits
- Determine how ecology/life history patterns are affected by anthropogenic subsidies
- Develop methods for cost–effective monitoring of predator and prey populations with a focus on improving translocation outcomes and providing tools for improved management of desert tortoise populations

Preliminary Results

Coyotes may be relying on subsidies in Boulder City and the solar development area to travel as far south as the Mojave National Preserve

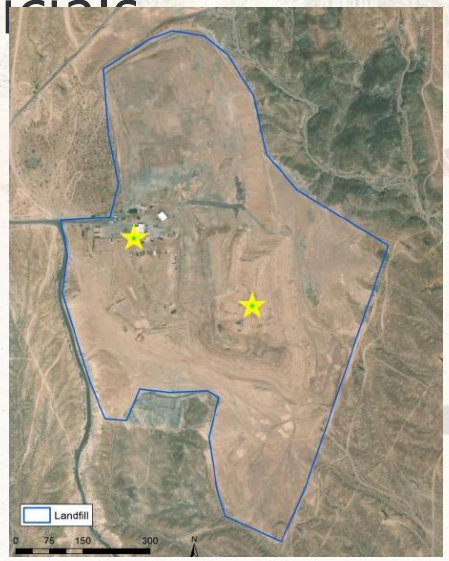
Coyotes – repeat offenders?



Source: T. Esque, 2023

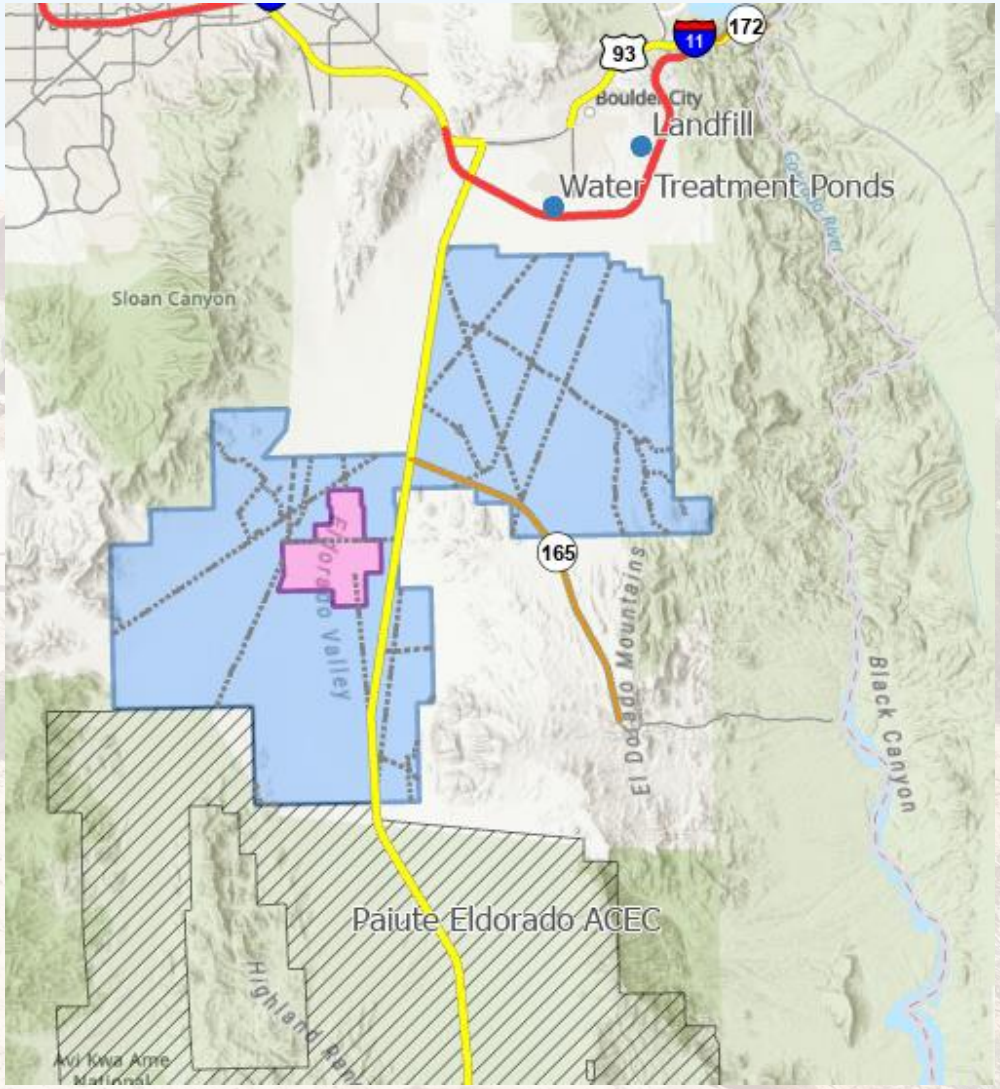
Management Actions

- Kicked off project activities in March 2024
- Efforts will be targeting known subsidy sites (landfill and water treatment ponds)
- Held demonstration meeting with City officials



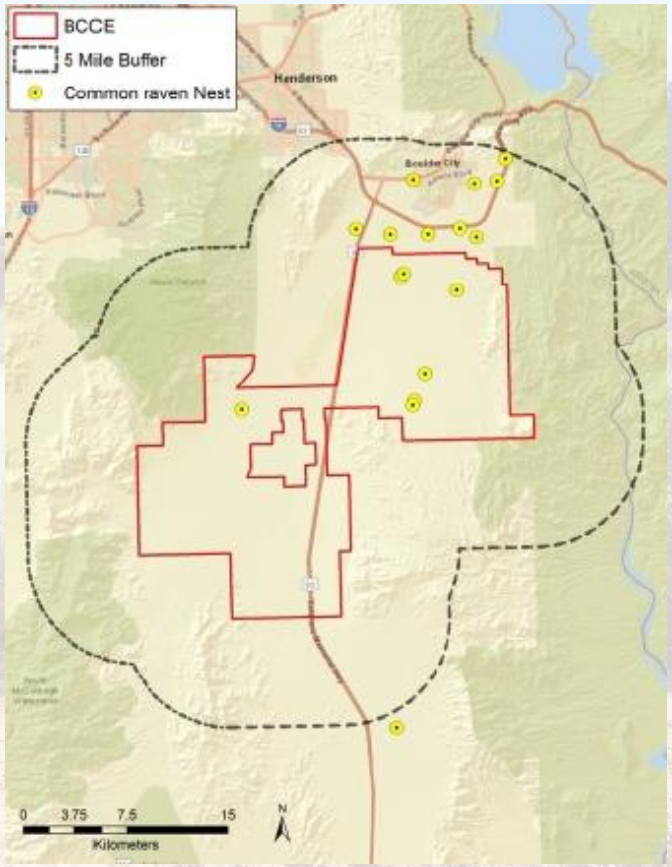
Landfill

Treatment Facility



Management Actions

- Completed raven nest surveys
- Working with utility companies and adjacent land management agencies to target raven nests
- Using aerial drones to oil eggs – Spring 2025
- Taste aversion using Techno-Torts
- Experimental rovers to target coyotes at subsidy sites



Outreach and Education

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Developing messaging to deter behaviors that attract predators to areas of known tortoise population. Specifically focused on:

- Residents who intentionally feed ravens
- Businesses with large trash receptacles left uncovered
- Policy makers in key areas (i.e. Boulder City) who will support our efforts

Education through outreach

- Signage and literature distributed at community events
- Speaking to residents at civic groups, public meetings and schools

Engaging residents in helping protect ravens' prey (specifically tortoise hatchlings and juveniles)

Conclusion

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- Early stages of implementation
- Monitoring is needed – how frequently do management actions need to be repeated?
- Management actions should be paired with education and outreach – it takes a village!