

Predation Pressure on Desert Tortoises at the BCCE

by

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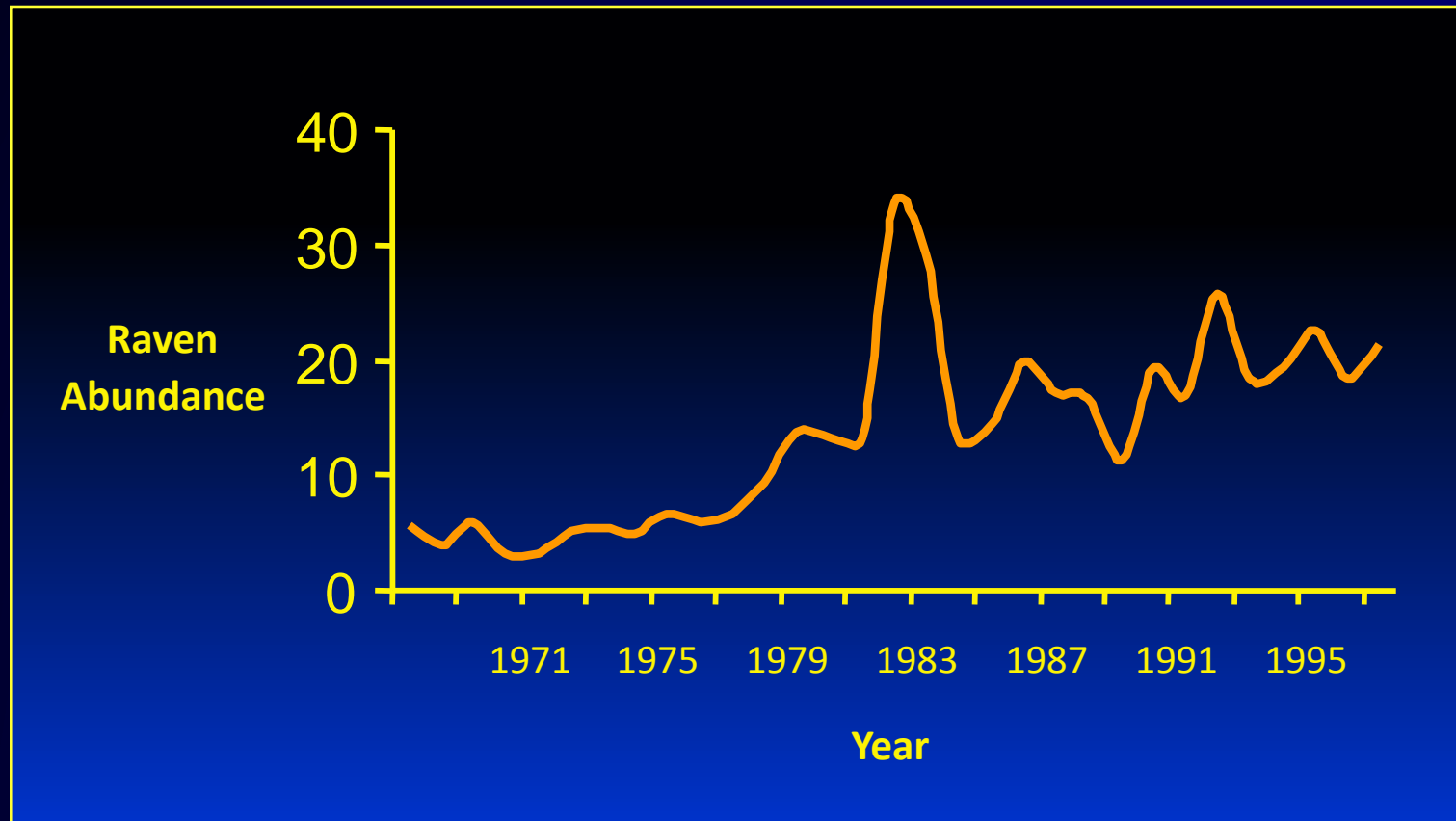
Subsidized Predators are:

“Populations of predatory species that survive and prosper partially as a result of resources provided by human activities.”

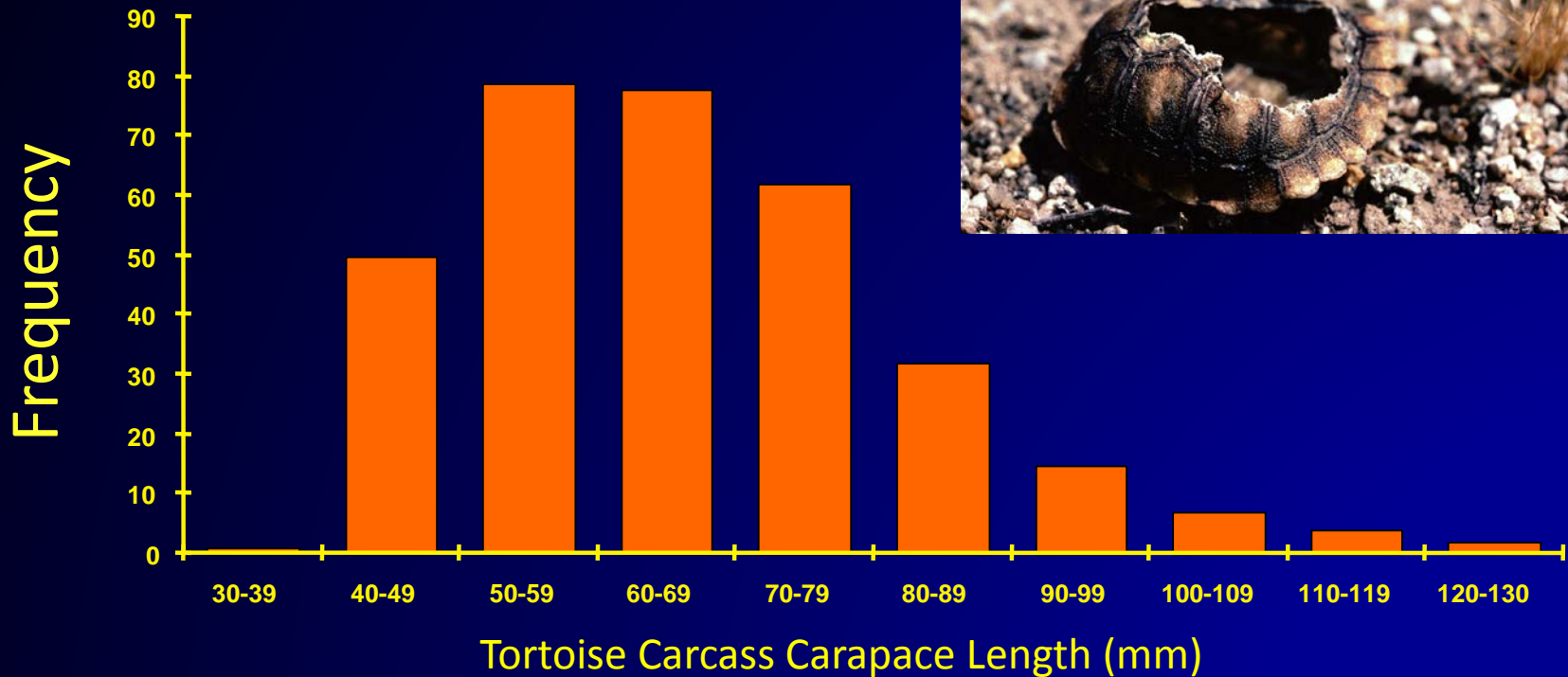
- Subsidies:
 - Food
 - Water
 - Nesting Substrate
 - Refugia



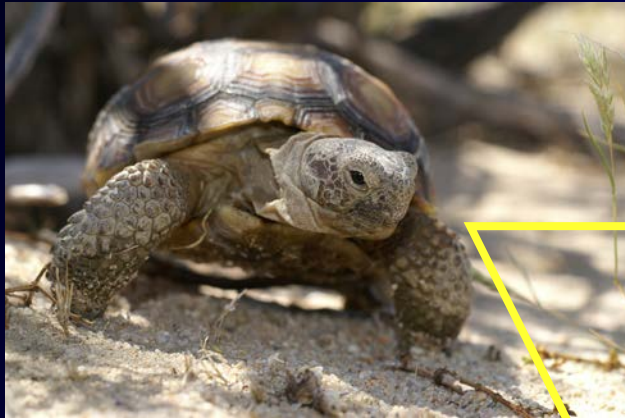
Raven Populations Increased in the Mojave Desert



Ravens Eat Juvenile Tortoises



Finding the Nexus



Purpose of Study

- Determine if there is a “Raven Problem” in the BCCE
 - Extend to other predators
 - Does predation occur?
 - Nature/extent of the current situation
- How and when to manage predators
 - Understand dynamic predator populations
 - Study spatio-temporal nature of predation risk
 - Determine if and what measures should be taken

Objectives of Study

- Determine Temporal & Spatial Patterns of:
 - predator presence/abundance of active raven & raptor nests
 - predation pressure
- Identify Food Items
 - tortoise remains
 - other foods
- Develop Predator Management Plan

Determine Temporal & Spatial Patterns

- Predator presence and abundance
 - Raven surveys
 - road surveys
 - point counts

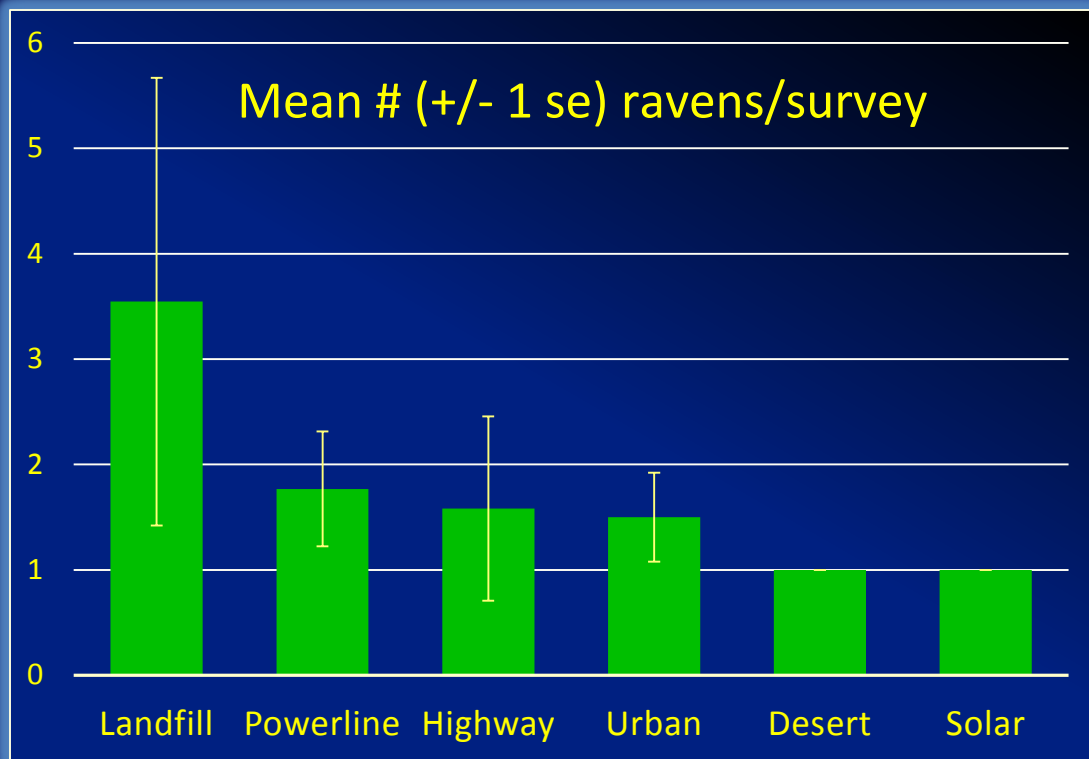


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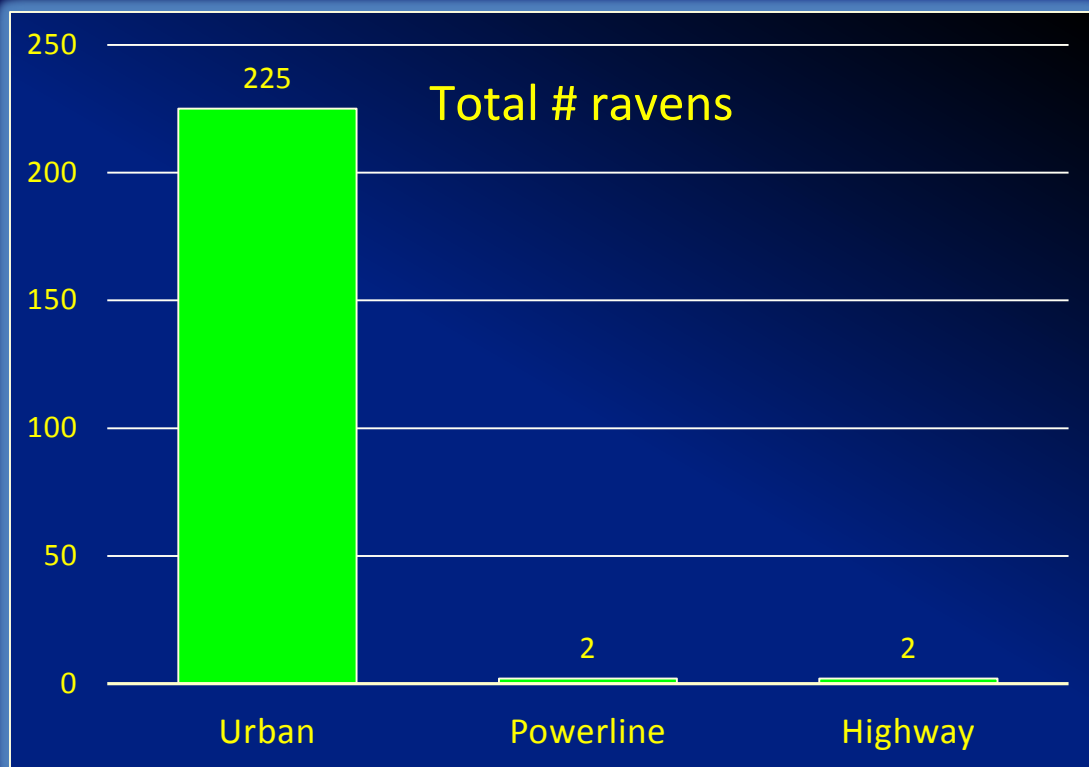


Determine Temporal & Spatial Patterns

- Predator presence and abundance

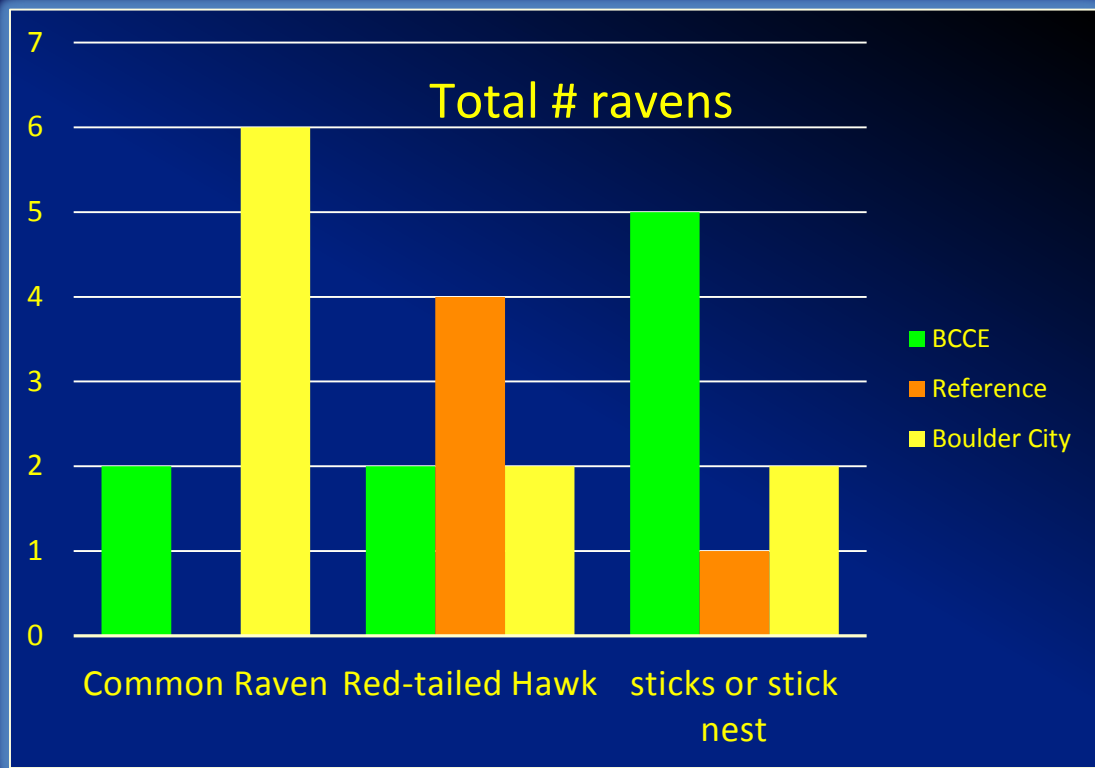
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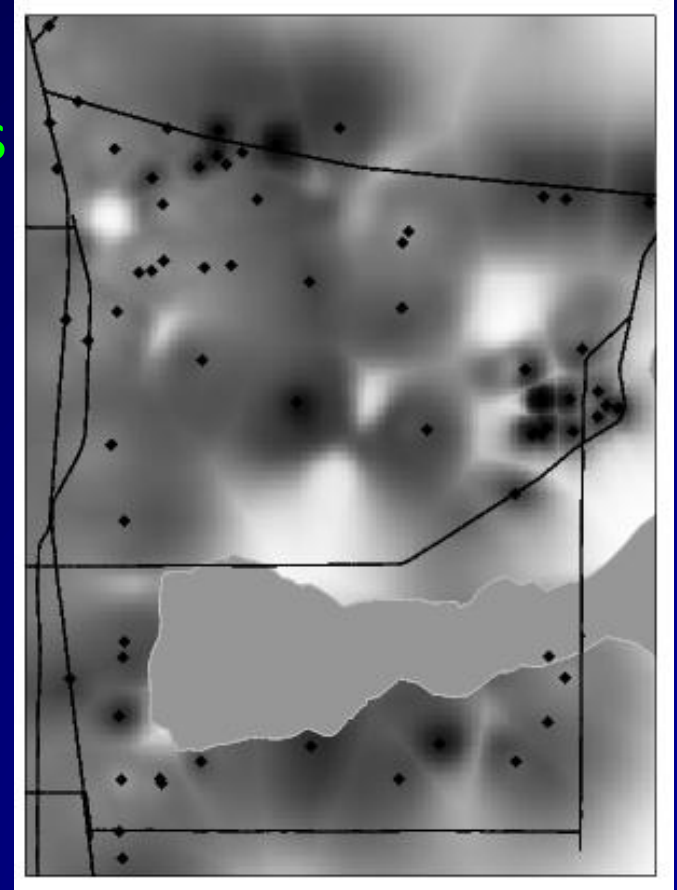
Determine Temporal & Spatial Patterns

- Predator presence and abundance
 - Active raven and raptor nests



Determine Temporal & Spatial Patterns

- Predation pressure
 - 50 Motion-triggered cameras
 - 3D-printed tortoise shells



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Determine Temporal & Spatial Patterns

- 3D-printed tortoise shells
 - Other species attack or investigate the shells



Identify Food Items

- Tortoise remains
- Other foods from scat
 - Visual inspection
 - Genetic analysis



Predator Management

Multiphasic Approach

1. Alter Subsidizing Habitat
2. Aversive Conditioning
2. Lethal Removal
3. Research
4. Adaptive Management

Laser Warfare to Manage Ravens



Thank You!





Lethal Removal



Landfill Management



Nest Removal

