



# Giant Kangaroo Rat

*Dipodomys ingens*

Michelle dela Cruz | EE275 | Winter 2022

# Background

- Heteromyid family
- The largest species in the *Dipodomys* genus
- Keystone species in California grasslands
- State and federally listed endangered species

## Interesting facts

- Can leap over 6 ft. distances when they are escaping predators
- Lifespan of ~9.8 years in the wild, 5 years in captivity
- Solitary and territorial
- Communicate by drumming with their hind feet

# Description

- Bipedal locomotion
- Long legs, short arms
- Short neck, large flat head
- Long tail, tuft at end
- Large fur-lined cheek pouches on each side of mouth
- Distinguished by size and number of toes
  - Total length: 13 in.
  - Tail length: 7 in.
  - Mass: 4 to 5 oz.
  - 5 toes, longer than 1.7 in.



Photo: Harrison, G. USFWS.



Photo: Sacramento Office. USFWS.

# Reproduction

# Life History

- Food and Foraging
  - Primarily seeds, also green plants and insects
  - Collect seeds, cure, and store
  - Forage on surface, sunset to sunrise, most active 2 hours after dark, especially in spring
  - Ability to reserve food aids survival during drought
- Historical/Preferred Habitat
  - Annual grasslands with few or no shrubs
  - Well drained sandy loam soil, Gentle slopes
  - ~ 6 inches of annual rainfall or less
- Territory
  - 600 - 4000 sq. ft. around their core area/burrow system (precinct)
  - Multiple individuals may live in a precinct

# Historical Range



Created By: USFWS  
Map Date: 07/24/2019  
Source: IUCN

# Extant Population

Ciervo-Panoche

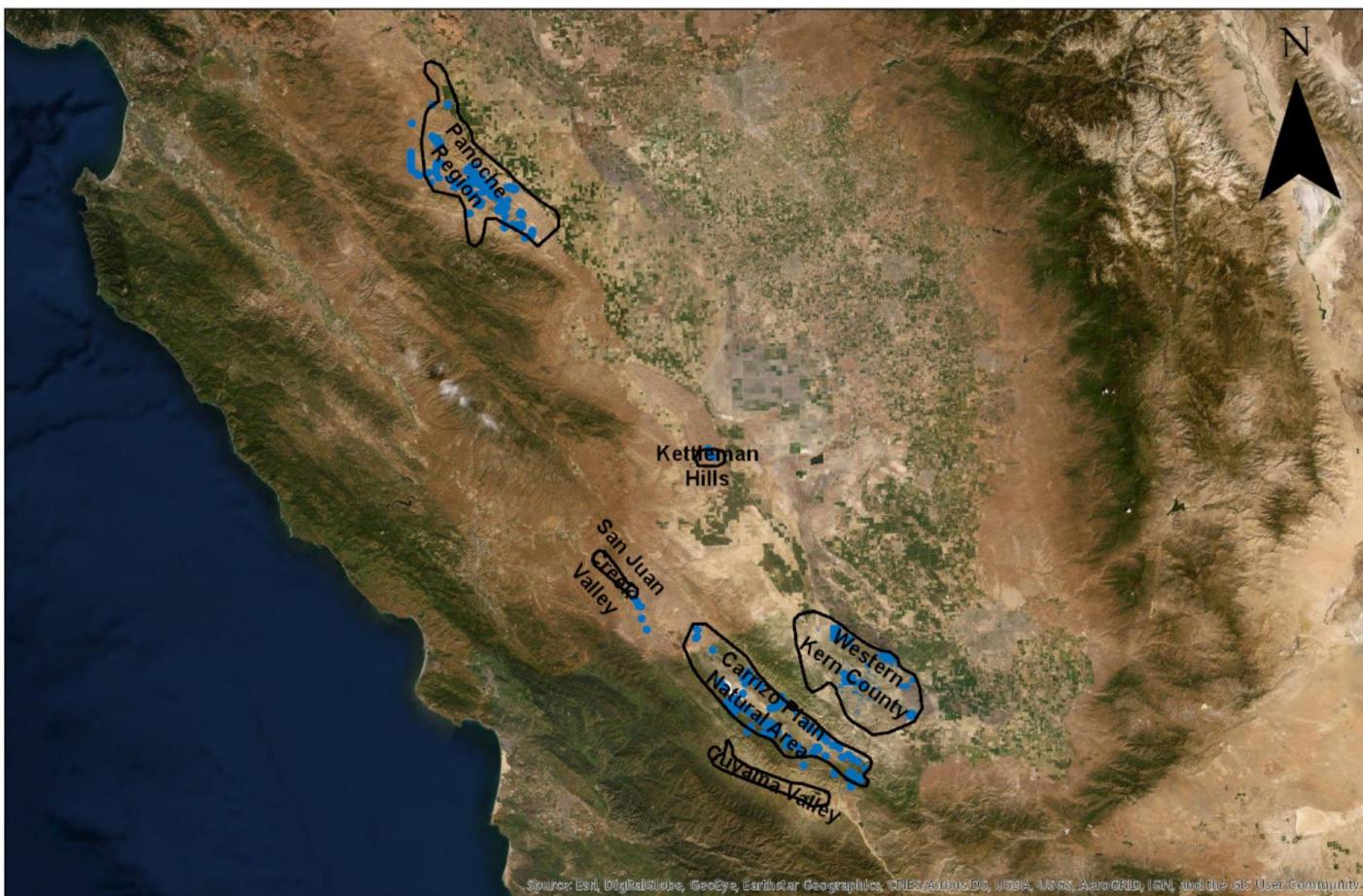
Kettleman Hills\*

San Juan Creek\*

Western Kern County

Carrizo Plain Natural Area

Cuyama Valley



Description: Geographical Units and range-wide occurrence data since the time of listing for the giant kangaroo rat. Data were accessed through the California Natural Diversity Database (CNDDB, 2019) and Humboldt State University (Bean in litt. 2019)

0 12.5 25 50 Miles

■ GEOGRAPHIC UNITS (ANALYSIS UNITS)  
■ OCCURRENCE DATA

# Significance - a keystone species

- Prey for many species
  - San Joaquin kit foxes
  - American badgers
  - Coyotes
  - Long-tailed weasels
  - Owls (burrowing, barn, great horned, and short-eared)



Photo: Schechter, G. 2012.



Photo: Shield, M. 2018.



Photo: Lavin, M. 2011.



Photo: Weeks, B. 2011.

# Significance - a keystone species

- Burrows also used by
  - Blunt-nosed leopard lizards
  - San Joaquin antelope squirrel



Photo: O'Leary, G., CDFW. 2015.



Photo: Schechter, G. 2012.

# Significance - a keystone species

- Plant interaction
  - Net herbaceous plant productivity increases 2 - 5x on precinct vs. non-precinct areas with sufficient rain
  - *Caulanthus californicus* grows primarily on the burrow systems of the GKR



Photo: Sleuter, W., CDFW.

# Threats

- **Habitat loss**
  - **Urbanization**
  - **Energy development**
  - **Transportation infrastructure**
  - **Agriculture**
- Small population sizes
- Rodenticides
- Grazing regimes
- Invasive plants
- Wildfire
- Climate change and variability

# Conservation Status

- Endangered
  - 1987 - Endangered Species Act
  - 1980 - CA Endangered Species Act
  - 2008 - IUCN Red List
- 2020 USFWS Five Year Review
  - No change in status - still endangered

# Recovery Plan

- Recovery Plan for Upland Species of the San Joaquin Valley, California (USFW 1998)
- Protect and manage three largest populations
  - Ciervo-Panoche
  - Western Kern County
  - Carrizo Plain Natural Area
- Random catastrophic events pose greatest risk to long-term survival
  - Best to maintain large areas of habitat



# Conservation and Conclusions

- Target habitat protection locations
  - Dispersal corridors and expand northern range in the Panoche area
  - Restore Buena Vista Valley in western Kern County.
- Habitat management plans
  - Adaptable grazing plans to prevent dominance of non-native grasses
- Research and monitoring
  - Continued long-term monitoring in western Kern County and Carrizo Plain
  - Begin long-term monitoring in Panoche area
  - Census and monitor GKRs in the satellite populations
- Acquire and protect habitat
  - Expand range, increase connectivity, Co-locate conservation lands acquired for San Joaquin kit fox and blunt-nosed leopard lizard