



The Utah Prairie Dog

Cynomys parvidens

Life History, Ecology and Management of a Threatened Species

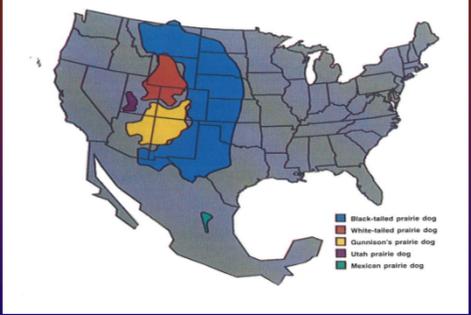
Annual USFWS Survey Protocol Training, Cedar City, Utah
May 7 & 8, 2013



The Utah Prairie Dog

- ❖ Order - Rodentia
- ❖ Family - Sciuridae
- ❖ Genus - Cynomys
- ❖ 5 species of prairie dogs in N. America:
 - Black Tailed, Mexican, Gunnison's, White-tailed and Utah
- ❖ UPD is the western-most and most isolated member of the Genus
- ❖ Their range contracted with the drying landscape and emergence of the Great Basin and they became isolated from other white-tailed groups



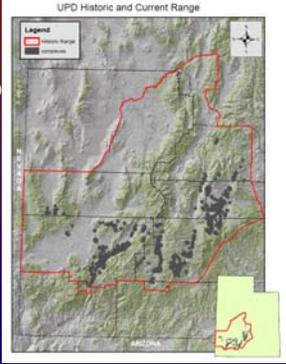


Geographic ranges of the five prairie dog species in N. America

From: Foster, N. S. and S. L. Hygnstrom. 1990. Prairie Dogs and Their Ecosystem. Univ of Nebraska Ext. Publ., Lincoln, Neb.

Distribution

- ❖ Entire Species ranges over 7 (8) counties in SW Utah
- ❖ Elevations from 5,000 ft to almost 10,000 ft
- ❖ Primarily in valleys, but also some mountain plateaus
- ❖ Can live in association with humans – agriculture, urban and suburban areas



The map, titled "UPD Historic and Current Range", shows the distribution of the species in southwestern Utah. A red outline indicates the current range, while a grey shaded area represents the historic range. The map includes a legend, a north arrow, and an inset map of Utah showing the location of the study area.

Habitat

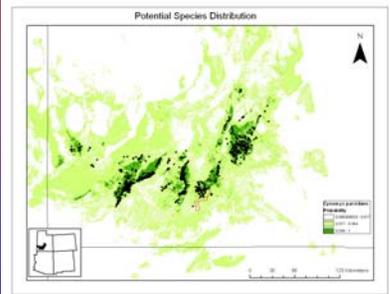
- ❖ Rangeland
- ❖ Grassland
- ❖ Shrub-steppe
- ❖ Meadow
- ❖ Edge of Ponderosa stands
- ❖ Typically not in PJ
- ❖ Can be in sagebrush, when canopy cover is low
- ❖ Prefer well drained soils, don't like Caliche



The habitat section includes four photographs: a rangeland with sparse vegetation, a lush green grassland, a shrub-steppe with low-lying bushes, and a meadow with tall grasses.

Habitat Potential

(D. Ikeda-NAU)



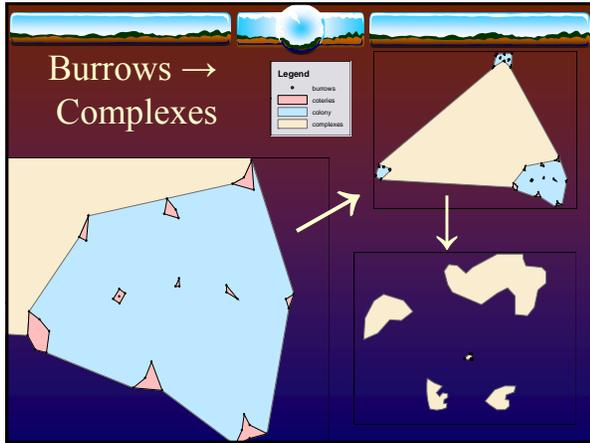
The map, titled "Potential Species Distribution", shows the potential distribution of the species in the southwestern region of Utah. The map uses a color scale to indicate habitat potential, with green representing high potential and yellow representing low potential. The map includes a legend, a north arrow, and an inset map of Utah showing the location of the study area.

Population Structure

- ❖ Social, fossorial mammal
- ❖ Coterie (family group) consists of one adult male (invests nothing in parental care), one to three adult females, sub-adults, and juveniles
- ❖ Colony – a group of related coteries
- ❖ Complex – all colonies within 2 miles of one another
- ❖ Population trends are driven by metapopulation dynamics

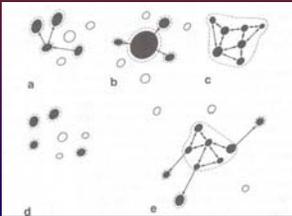


Burrows → Complexes



Population Structure (cont.)

- ❖ Metapopulation Dynamics
 - ❖ Populations are spatially structured into assemblages of local breeding assemblages
 - ❖ Migration has some effect on local dynamics, including the possibility of population reestablishment following extinction (Hanski & Simberloff)
 - ❖ Long term persistence depends on the balance between extinction and recolonization
- ❖ Colonization/Extinction must be >1 for persistence



Life History

- ❖ Hibernation/Aestivation – late summer through winter; differences by age and sex
- ❖ Females come into estrous for only 1 day a year soon after emerging in the spring, usually in late March or early April; there is some multiple paternity; 82% of copulating females gave birth
- ❖ Gestation - 35 days
- ❖ Litter size 1-8 (average ~ 4)
- ❖ Juveniles emerge several weeks after birth, normally mid-May to mid-June
- ❖ High Summer production (colony can triple-quadruple in size)
- ❖ Diet consists of grasses, shrubs, forbs, and insects



Life History (cont.)

- ❖ Burrows usually have at least two entrances; older mounds may have multiple entrances
- ❖ Burrows are 5-10 m long, 2-3 m deep
- ❖ High colony & burrow system affinity
- ❖ Dispersal does occur, but is not well understood: distances to 6 km have been documented
- ❖ Diurnal, but spend ~ 50% of the time underground; they will enter aestivation during drought, high temps
- ❖ Predators - coyote, badger, raptors, weasel, foxes, bobcat, etc. (it's a drag to be at the bottom of the food chain!) – hence the importance of the burrow system
- ❖ Juvenile mortality is high: overwinter mortality is 60-80%



Behavior:

- ❖ Vigilance - predator scanning and anti predator calls
- ❖ There is some evidence in Black-tailed PD of variation in anti-predator calling - work in other sciurids – demonstrate - different calls for different predators, and different calls for the same predator - diff. condition of predator-urgency levels - coyote trotting v. charging
- ❖ Communal nursing - close kin
- ❖ Kissing, grooming
- ❖ Infanticide
- ❖ Cannibalism
- ❖ Fighting-male /male competition



Reasons for Listing

- ❖ Dramatically reduced distribution by 1960's
- ❖ Turner (1979) estimated 95,000 UPD in Southwest Utah in 1920's
- ❖ Collier and Spillett (1972) estimated less than 3,300 UPD remaining and predicted extinction by 2000
- ❖ About 6,000 today (adult spring count)
- ❖ Factors - considered an agricultural pest, government sponsored "intensive control" campaigns (poisoning, shooting), disease (sylvatic plague), and anthropogenic habitat loss and fragmentation
- ❖ Similar situation with other PD species



Plague

- ❖ Sylvatic plague (*Yersinia pestis*) - can cause colony wide extinctions
- ❖ Brought to N. American c.1899 by shipboard rats, probably through San Francisco
- ❖ Reached Utah in the early 1930's
- ❖ Vector is a flea
- ❖ Control efforts - plague vaccine, Deltamethrin -



Sick dog- potential plague victim, found near plague outbreak near Ft. Collins, CO

Lead Poisoning

- ❖ Stress hormones
- ❖ Local extinction
- ❖ Let us know



Why care about prairie dogs?



- ❖ Some work supporting the idea that prairie dogs are an important “keystone” species in prairie ecosystems
- ❖ Keystone species – a species that, despite low biomass exert strong effects on the structure of the community they inhabit (Molles 1999)
- ❖ Burrow systems provide habitat for a wide range of species, and prairie dogs themselves are an important prey species
- ❖ Preserving biodiversity
- ❖ Work shows that bison and other ungulates (livestock) may actually preferentially graze around/near prairie dog towns

photo by John Paul Rodriguez, Princeton University

What actions have been taken?

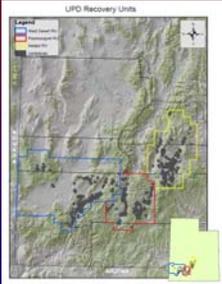
- ❖ Classified as an endangered species 6/4/1973
- ❖ Due to population growth of private land- declassified to threatened 5/29/1984
- ❖ Official recovery plan- approved by U.S. Fish and Wildlife Service –1991, New Plan in review- emphasize private lands as well, suggests 1000 counted dogs on each R.A. (yields effective population of 500 individuals in each R.A.)
- ❖ Since 1972- UDWR has implemented a translocation program-moving prairie dogs from private land to areas of “historical occupancy” on public lands
- ❖ Recovery efforts occur in 3 recovery areas



photo by John Paul Rodriguez, Princeton University

Recovery Units

- ❖ 3 recovery units have been identified West Desert, Paunsaugunt, and the Awapa Plateau
- ❖ West Desert = 5,000 - 6,000ft
- ❖ Paunsaugunt = 6,000 - 8,000ft
- ❖ Awapa = 7,000 - 10,000 feet

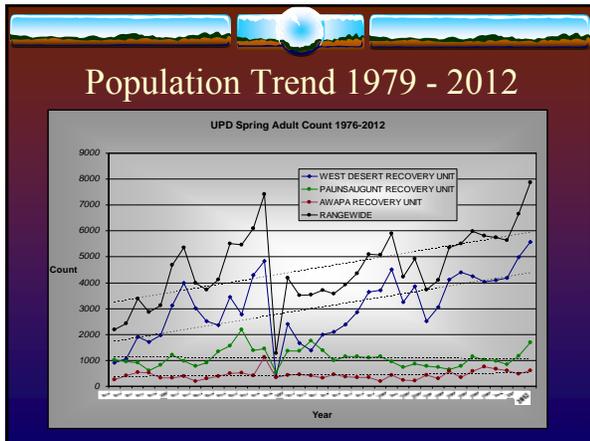


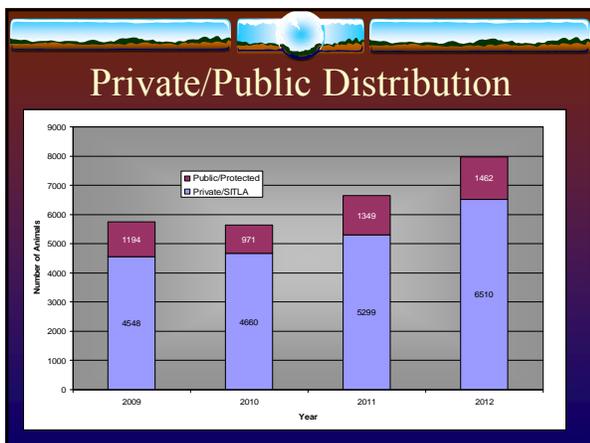
Translocation Program

- ❖ Over 27K UPD have been moved from private to public land since 1972
- ❖ Some success- new colonies/complexes have been established
- ❖ Site criteria
 - ❖ Public land
 - ❖ > 1 mile from private land
 - ❖ Meets vegetative guidelines
 - ❖ Meets soil conditions




- ❖ Site preparation
 - ❖ Vegetation treatments – if necessary
 - ❖ Burrows construction
 - ❖ Livestock grazing
 - ❖ Predator control
- ❖ Transport
 - ❖ 200-400 UPD/year for 3 years





4D rule

- ❖ Allows for “take” of UPD’s to ameliorate impacts on agriculture
- ❖ NOT designed to eliminate colony, only to cull summertime production
- ❖ 40%-50% reported “take” rate



Current Efforts

- ❖ Safe Harbors
- ❖ UPD Habitat Credit and Exchange Program
- ❖ UPDRIP
- ❖ Recovery Team
- ❖ Ongoing research
- ❖ Range wide HCP





Photography AcclaimImages.com Photography
