

# The Utah Prairie Dog

*Cynomys parvidens*

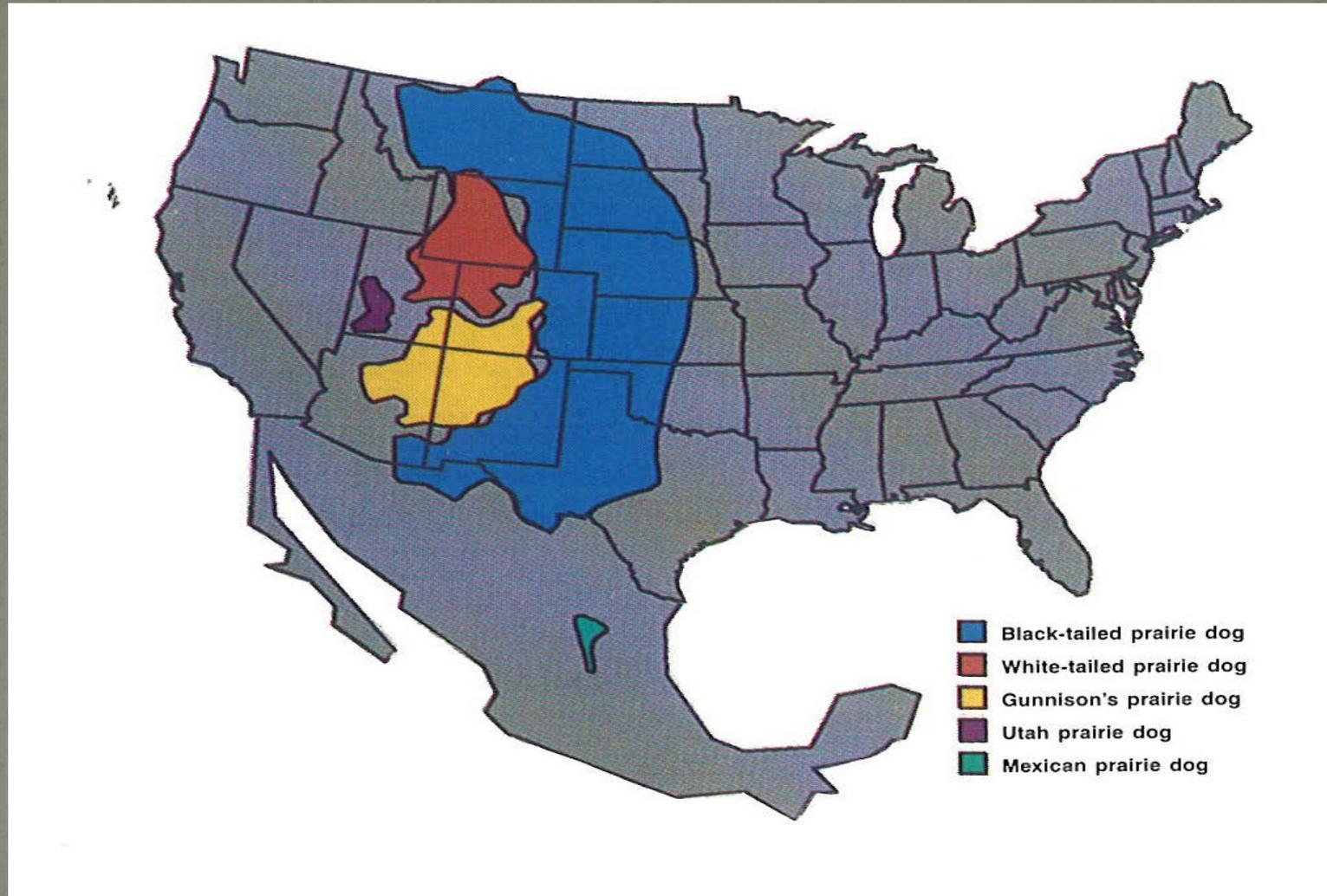
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Life History, Ecology and  
Management of a Threatened  
Species

# 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



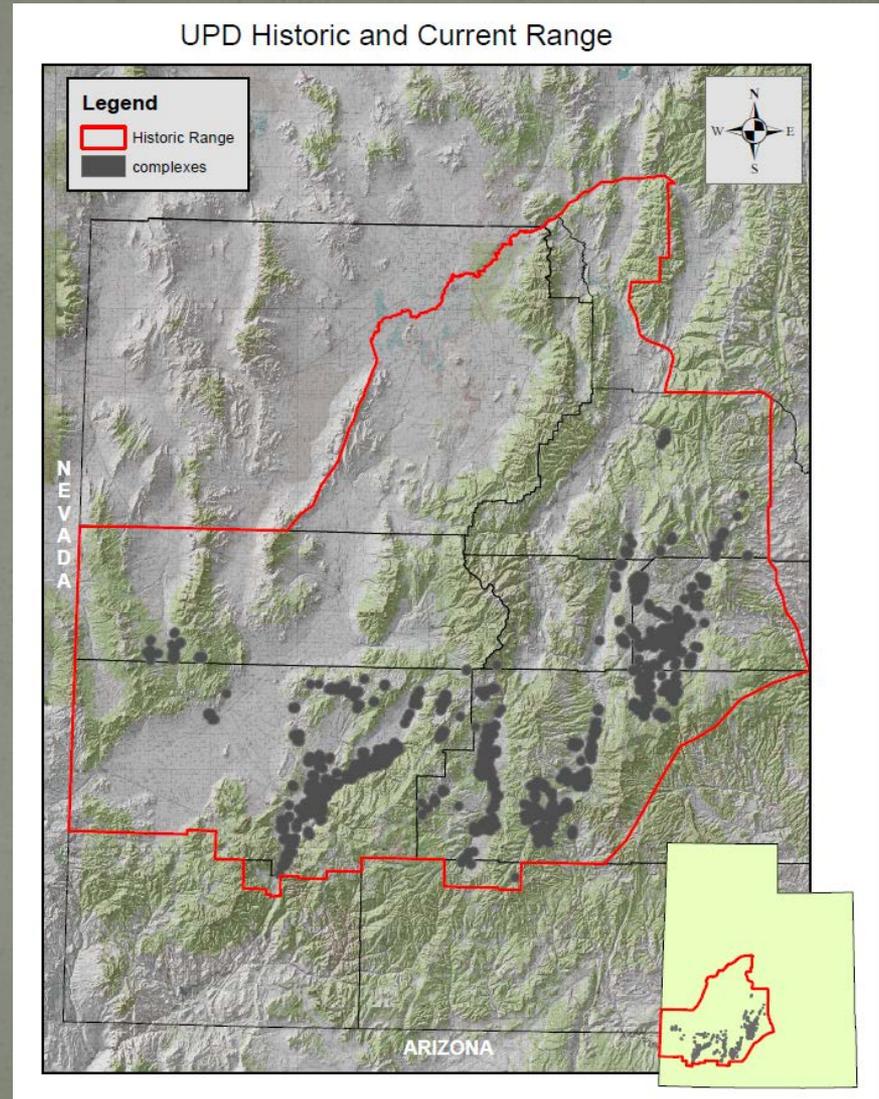


## Geographic ranges of the five prairie dog species in N. America

From : Foster, N. S. and S. E. Hingstrom.. 1990. Prairie Dogs and Their Ecosystem, Univ. of Nebraska Ext. Publ., Lincoln, 8pp.

# 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



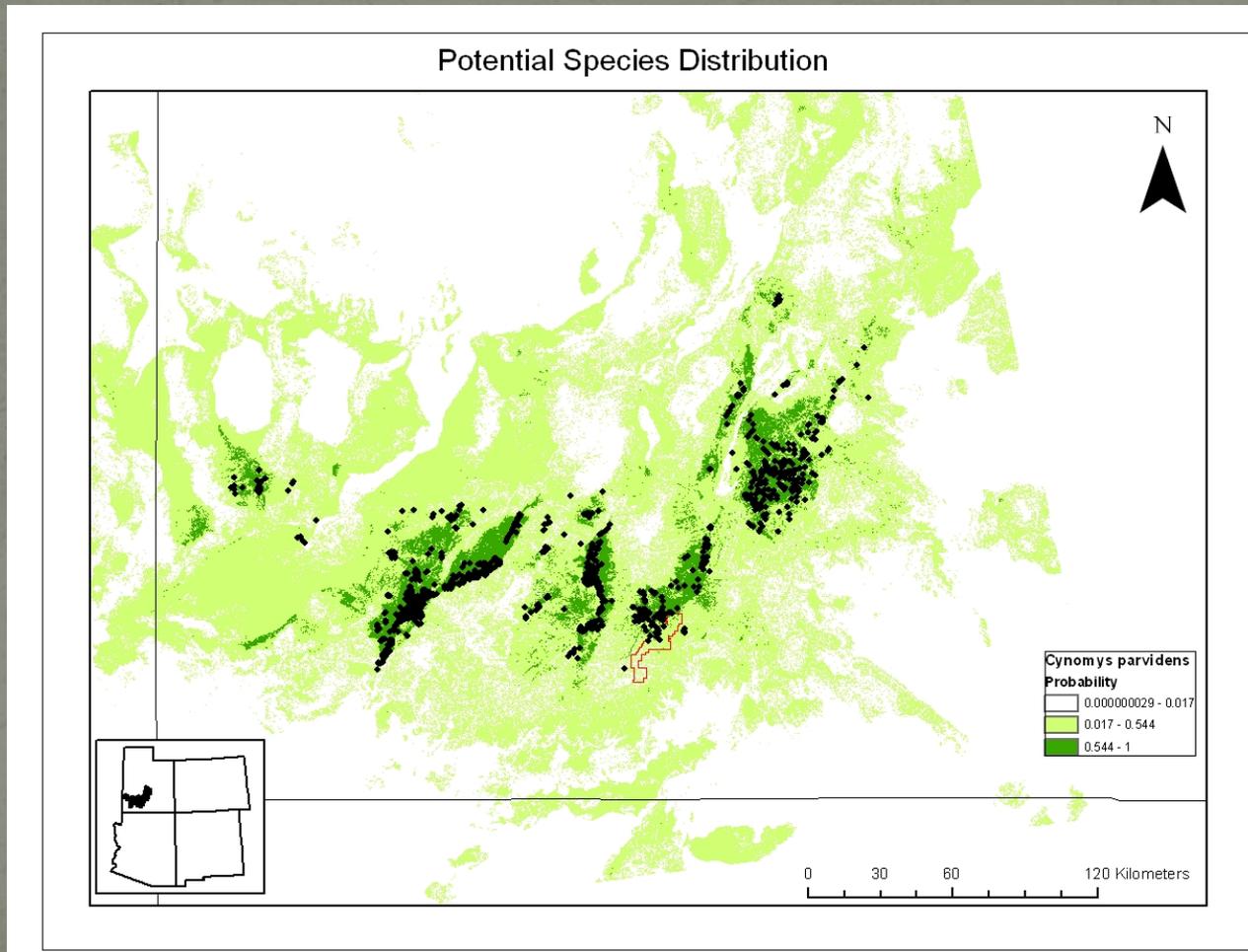
# Habitat

- ❖ 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



# Habitat Potential

(D. Ikeda-NAU)

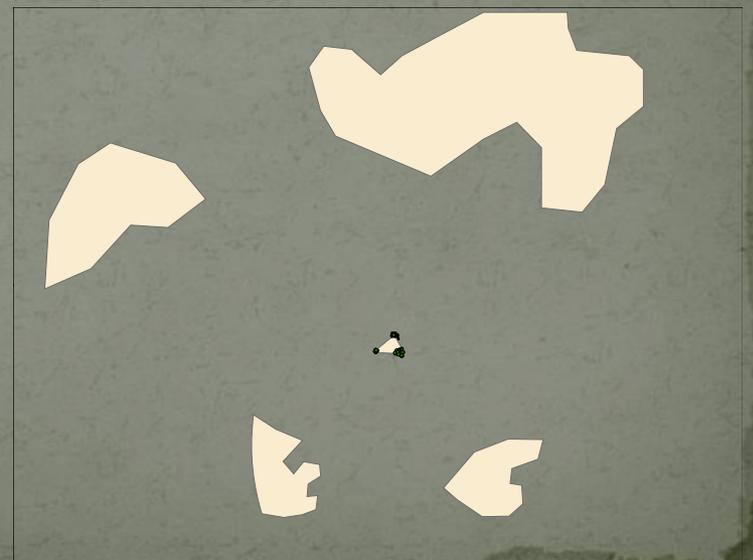
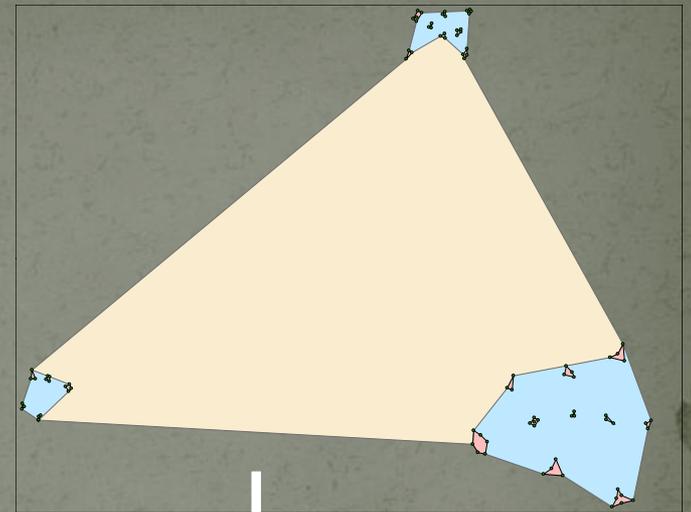
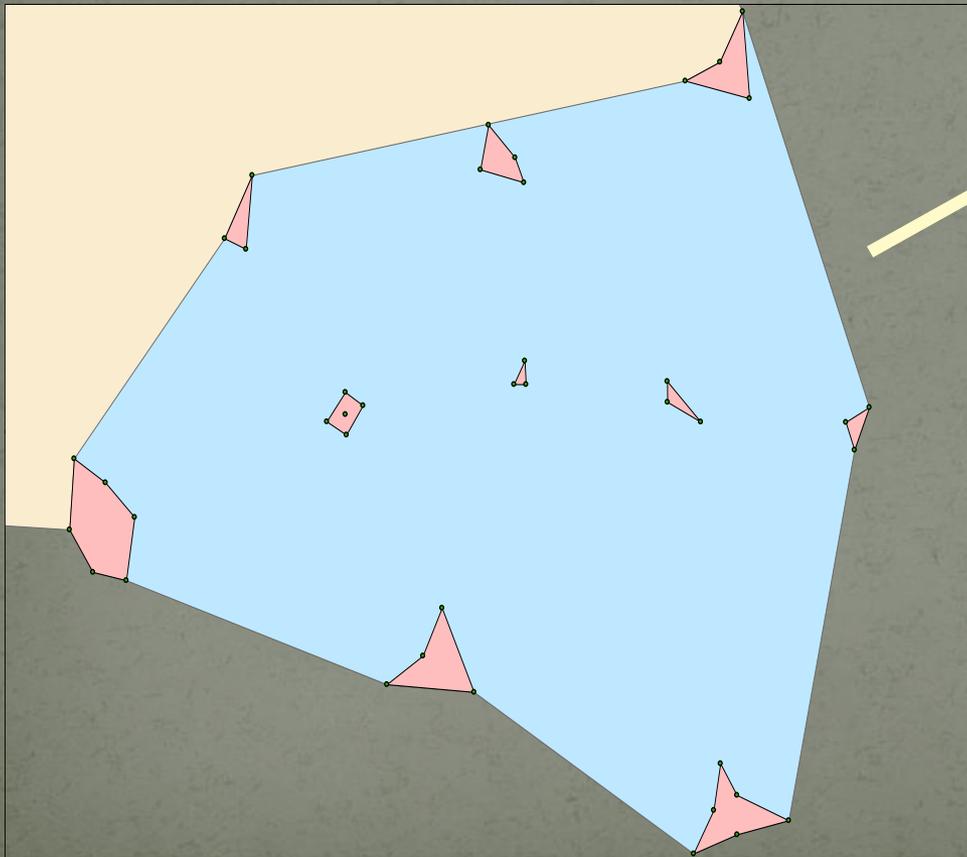
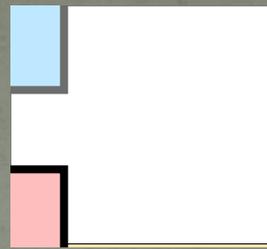


# Population Structure

- ❖ Social 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 coterie
- ❖ Complex – all colonies within 2 miles of one another
- ❖ Population trends are driven by metapopulation dynamics



# Burrows $\rightarrow$ Complexes

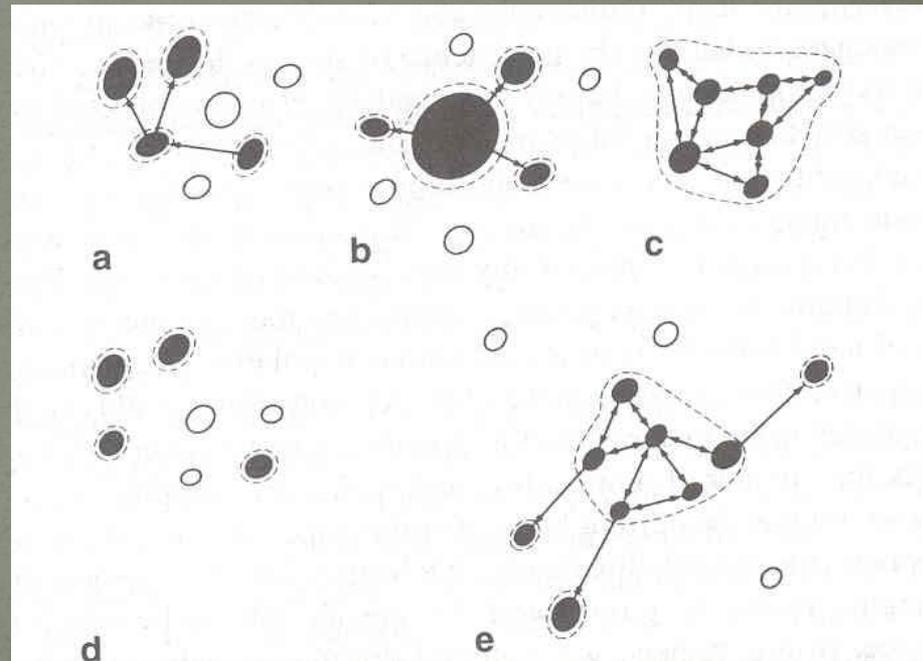


# Population Structure (cont.)

## ❖ Metapopulation Dynamics

- ❖ Populations are spatially structured into local breeding assemblages
- ❖ Long term persistence depends on the balance between extinction and recolonization, facilitated by migration between colonies/complexes

❖ Colonization/Extinction must be  $>1$  for persistence



# Life History and Basic Biology

- ❖ Hibernation/Aestivation – late summer through winter; differences by age and sex
- ❖ Females come into estrous for only 1 day a year, usually in late March or early April; there is some multiple paternity; 97% of copulating females give 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, forbs, some shrubs, and insects



# Life History and Basic Biology<sub>(cont.)</sub>

- ❖ Burrows usually have at least two entrances; older mounds may have multiple entrances
- ❖ Burrows are 5-10 m long, 2-3 m deep
- ❖ Dispersal does occur, but is not well understood: distances up to 10 miles 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. - 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 and Gunnison PD of variation in anti-predator calling: different calls for different predators; different calls for the same predator depending on threat level (e. g. coyote trotting vs. charging)
- ❖ Communal nursing - close kin
- ❖ Kissing, grooming
- ❖ Infanticide , fighting-male /male competition
- ❖ Cannibalism (road kill)



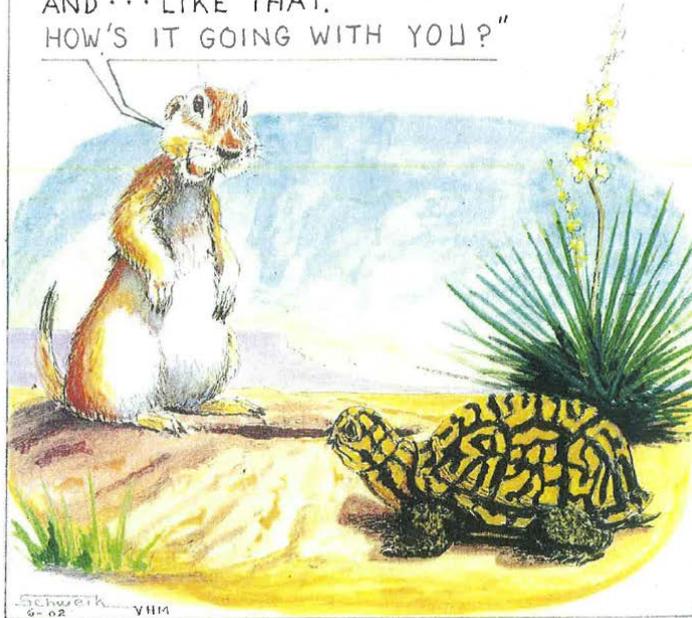
# Reasons for Listing

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"IT'S GOING PRETTY WELL.  
OH, THERE'S THE USUAL, YOU KNOW :

THE PREDATORS, RAPTORS, AND VIPERS;  
THE HUNTERS, PLINKERS, AND TRAFFIC;  
THE PLAGUES, PARASITES, AND POISONS;  
THE FLOODS, DROUGHTS, AND POLLUTION;  
THE ENCROACHMENT, OVERPOPULATION, AND STARVATION;  
THE OZONE HOLE, GLOBAL WARMING AND/OR GLOBAL COOLING;  
THE PROGRAMS FOR RELOCATION, STERILIZATION, AND FERRET REINTRODUCTION;

AND ... LIKE THAT.  
HOW'S IT GOING WITH YOU?"



# 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
- ❖ Factors - considered an agricultural pest, government sponsored "intensive control" campaigns (poisoning, shooting), disease (sylvatic plague), and anthropogenic habitat loss and fragmentation
- ❖ About 12,000 today (adult spring count)
- ❖ 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?



photo by John Paul Rodriguez, Princeton University

- ❖ Some studies 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

# What actions have been taken?

- ❖ Classified as an endangered species in 1973
- ❖ Down-listed to threatened in 1984
- ❖ Since 1972- UDWR has implemented a translocation program-moving prairie dogs from private land to areas of “historical occupancy” on public lands
- ❖ Official recovery plan

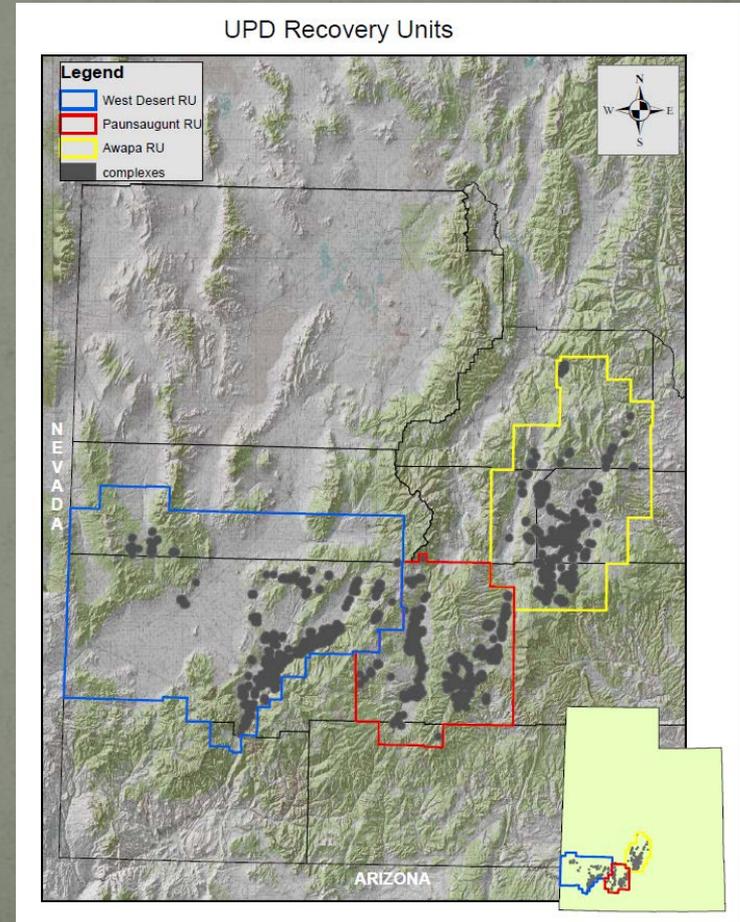


photo by John Paul Rodriguez, Princeton University

- ❖ 1991 – recovery on public land only; established 3 Recovery Areas (Units)
- ❖ 2012 revision – allows private lands as well; requires 1000 counted dogs on 5,000 ac protected occupied habitat in each R. U.

# Recovery Units

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



# New State Management Plan (May, 2015)

- ❖ For private lands only: still fully protected on public lands
- ❖ Allows for lethal removal in safety and unmapped situations
- ❖ Allows take for development
- ❖ Allows take for agricultural damage
- ❖ Compensation program which provides for translocation source populations
- ❖ Increased translocations to public and protected lands
- ❖ Vowed continued support and coordination with partners (USFS, BLM, SUU, County Government, State Legislature...etc)

# Translocation Program

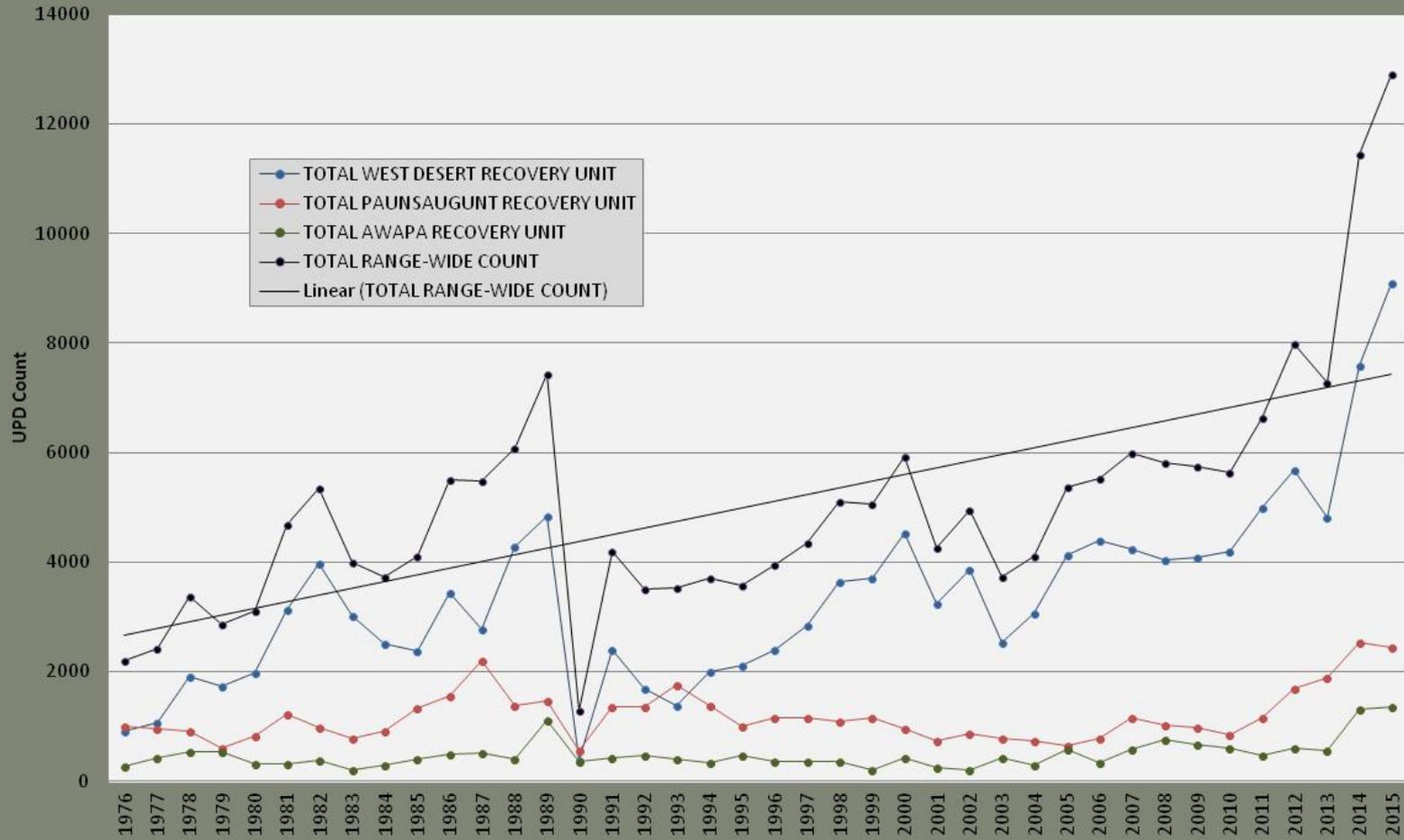
- ❖ Over 33,000 UPD have been moved from private to public land since 1972
- ❖ Some success- new colonies/complexes have been established
- ❖ Site criteria
  - ❖ Public land
  - ❖ > 1 mile from private land
  - ❖ Meets vegetative guidelines
  - ❖ Meets soil conditions



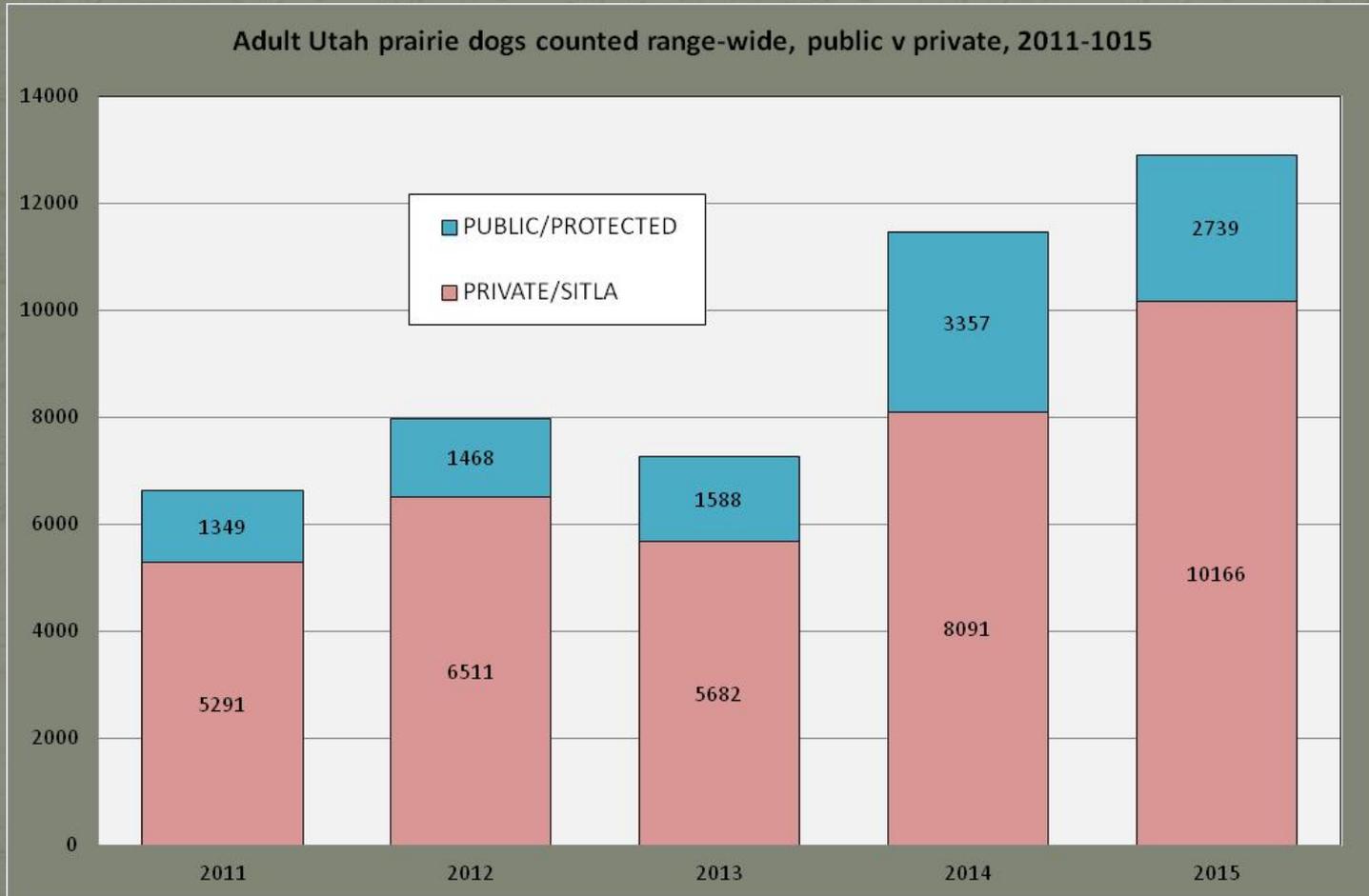
- ❖ Site preparation
  - ❖ Vegetation treatments – if necessary
  - ❖ Burrow construction
  - ❖ Livestock grazing
  - ❖ Predator control
- ❖ Transport
  - ❖ 200-400 UPD/year for 3 years

# Population Trend 1976- 2015

## UPD Spring Adult Count 1976-2015



# Private/Public Distribution



# Current Efforts

- ❖ Safe Harbors
- ❖ UPD Habitat Credit Exchange Program (HCEP)
- ❖ UPDOG and UPDRIT
- ❖ Ongoing research (SPV)
- ❖ State MGMT Plan



# Questions/Comments?



Photography

AcclaimImages.com

Photography