

# 302 Outdoor Vertebrate Prairie Dogs

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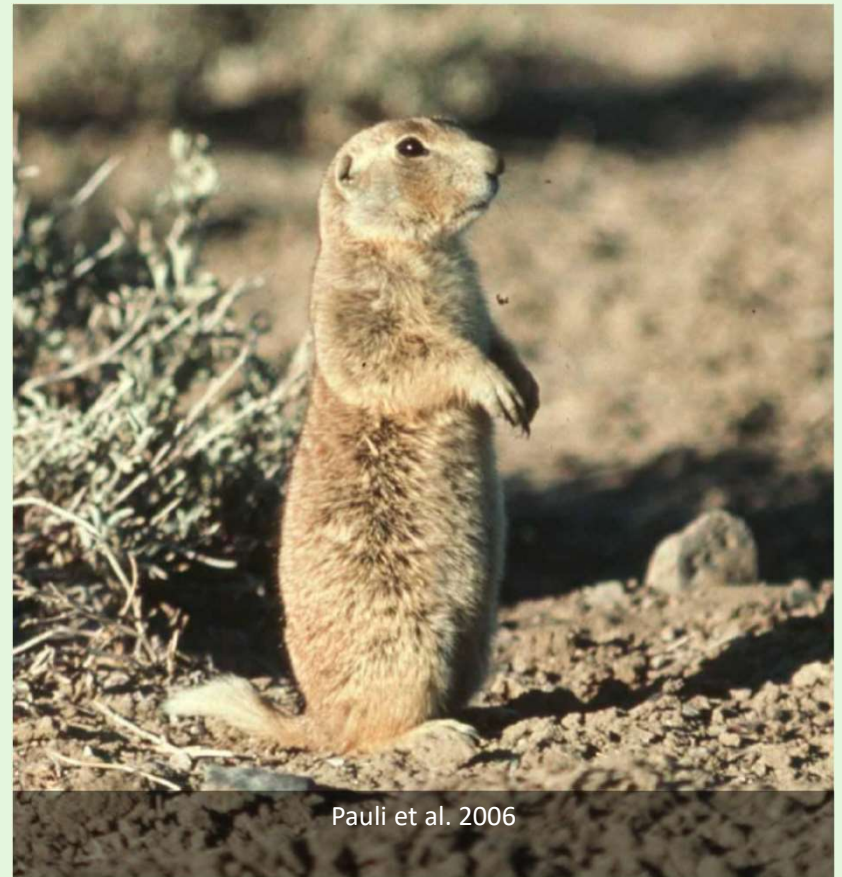
Western Colorado Research Center – Rogers Mesa



WESTERN COLORADO RESEARCH  
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# White-Tailed Prairie Dog

- *Cynomys leucurus*
- Occupied across 43-51 million acres from southern Montana to West-central Colorado
- Range is now 840,000 acres
  - 98% reduction
  - Agriculture, urban development, eradication campaigns
- Classified as “small game species”
  - Private landowners exempt
  - Season is year-round



# White-Tailed Prairie Dog

## Biology and Ecology

- Subgenus *Cynomys*
  - Black-tailed (*C. ludovicianus*) and Mexican prairie dog (*C. mexicanus*)
- Subgenus *Leucocrossuromys*
  - White-tailed (*C. leucurus*) and Gunnison's prairie dog (*C. gunnisoni*)



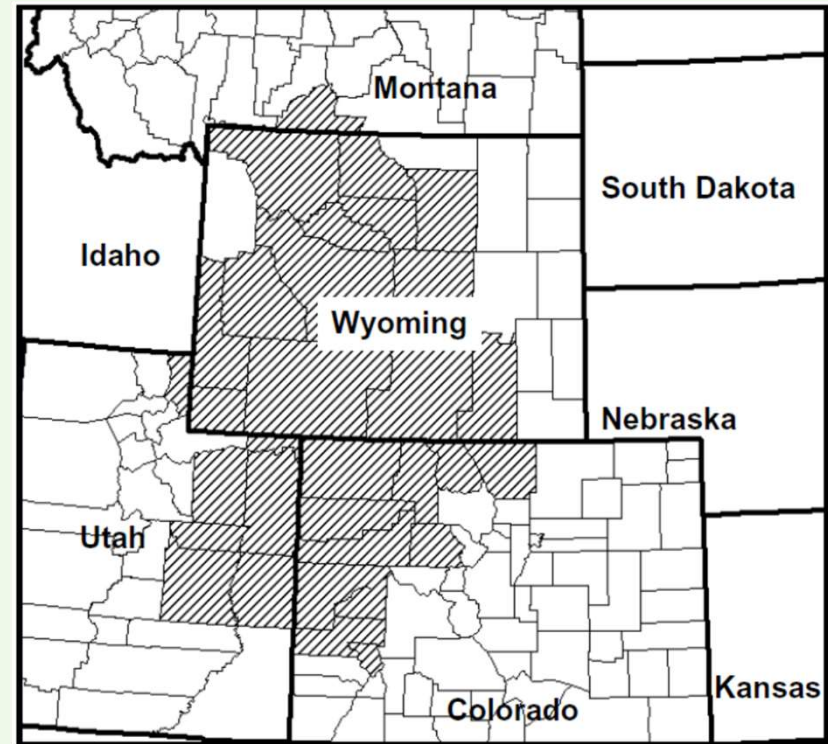
Pauli et al. 2006

# White-Tailed Prairie Dog Biology and Ecology

- Males typically heavier than females
  - Larger difference during breeding season
- Habitat
  - Grasslands (5,600 – 8,500 ft)
  - 191,866 active acres in CO

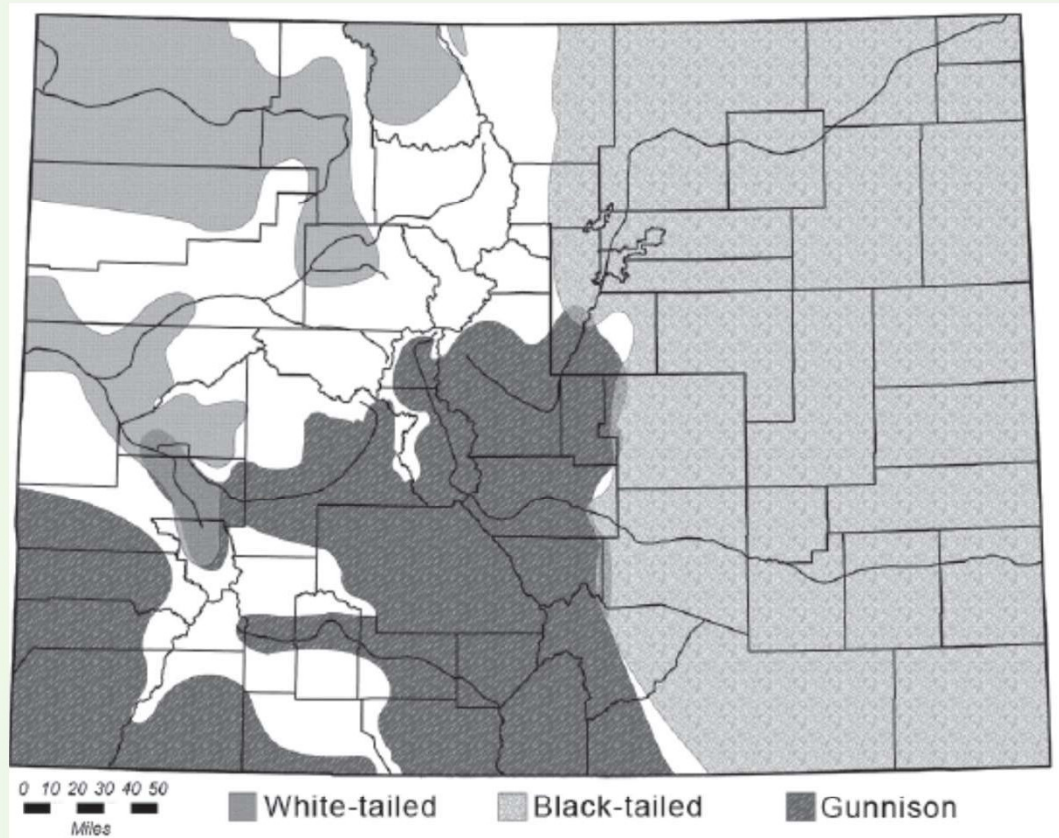
**Table 2. Areal extent of white-tailed prairie dog colonies on USDA Forest Service land.**

National Forest	Hectares	Acres
Ashley (Region 4)	509	1245
Grand Mesa-Uncompahgre-Gunnison (Region 2)	216	534
Medicine Bow-Routt (Region 2)	19	46
Arapaho-Roosevelt (Region 2)	18	44



**Distribution of White-Tailed Prairie dog**

(Fitzgerald 1994, Knowles 2002, Seglund 2004, J. Carlson personal communication 2003, M. Canning personal communication 2003, Wyoming Natural Diversity Database 2005)



**Figure 1:** Distribution map of the three species of prairie dogs in Colorado<sup>1</sup>

# White-Tailed Prairie Dog

## Behavior

- Strictly diurnal
  - Aboveground activity ending before sunset and resuming after sunrise
  - Morning: Standing/observation
  - As day progresses: Foraging further and further away from burrow
- Seasonality
  - June-August: Remain underground between late morning and late afternoon
  - Spring and Fall: Aboveground activity peaks in early afternoon
  - Hibernate for 3.5 to 5 months
    - First emergence: Late February to mid-March
    - Males active 3 weeks before females
    - Juveniles active by late May
    - All disappear belowground by end of July
- Dispersal (immigration to other burrows) is between March and April
  - Immigration to other colonies is common

# White-Tailed Prairie Dog

## Habitat

- Shrub-steppe, short grass prairie, meadow, mountain valley, and transitional areas
  - Low vegetative height
- 45 to 75% vegetative cover, low percentage of shrubs
- They don't clip vegetation to manage colonies
  - Unlike Black-tailed
- Burrows
  - One or more entrances
  - 1 to 2m deep



# White-Tailed Prairie Dog

## Food habits

- Early season: shrubs (sagebrush and saltbush)
- Green fleshy forbs, dandelion, goosefoot, grass seedheads, sedges.
- No roots
- No need for water
- Few insects





# White-Tailed Prairie Dog

## Reproduction

- Sexual maturity: Females: 1 yr, Males: 2yrs
- Breeding season Feb - April
- Gestation 30 days, parturition (birth) in late April to early May
- One litter per year (average of 5-6 pups)
  - Survival is 60%
- At 5-7 weeks, emerge aboveground
- Adult size by late October
- Lifespan of 4-8 years



# White-Tailed Prairie Dog

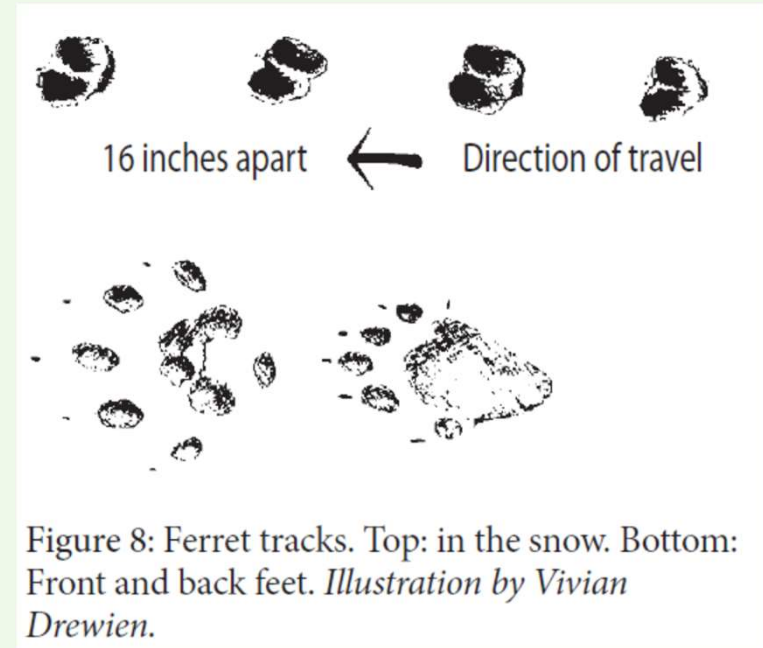
## Range & Community

- Home range is ~3-5 acres
- Social system: single-family female kin cluster
- Cohesive groups
  - Members of different clans often enter each others burrows without fights
- Females typically stay in natal areas
  - Males typically disperse
- Large colonies
  - More vulnerable to plague, resilient to threats of environment
- Small colonies
  - Less vulnerable to plague, susceptible to threats



# White-Tailed Prairie Dog Ecology

- Grassland keystone species
  - Support predators:
    - Black-footed ferret (obligate), badger, golden eagle, ferruginous hawk, coyotes, red foxes, long-tailed weasels, Swainson's hawks, bobcats
  - Burrows provide habitat for: Burrowing owl, prairie rattlesnake, and other small mammals and herpetofauna (reptiles & amphibians)
  - Herbivory alters vegetation and cycles nutrients
- Competitors: Ground squirrels



# Plague

- *Yersinia pestis*
- 85% - 100% mortality when introduced to colonies
- Worse for Gunnison's and Black-tailed – More social
  - Exterpate a colony within a year
- White-tailed are less social, so disease is more prolonged
- Source
  - Plague-resistant deer mice, grasshopper mice, kangaroo rats
  - Infected fleas

# Prairie Dog Conservation

- Historical poisoning campaigns
  - Early 1900s – millions of hectares across western grassland (for cattle)
  - In CO, 44 million acres poisoned for prairie dog between 1912 to 1923
- Rapid decline by 1973: Executive order to ban strychnine and compound 1080
- Modest recoveries are now observed
- Still regulated, useable poisons for landowners
  - Get into methods later
- Research suggests effects ranging from 30% less forage to an increase in percentage of grass species preferred by livestock



# Prairie Dog Conservation

- Blah

**Table 3.** Primary anthropogenic threats to the persistence of the white-tailed prairie dog.

Anthropogenic threat	Occurrence	Effects on prairie dog colony	Potential manageability	Research needs
Plague	Rangewide	Reduction or extirpation	Low	High
Poisoning	Rangewide	Reduction or extirpation	High	Low
Recreational shooting	Rangewide <sup>a</sup>	Unknown	High	High
<u>Habitat loss/degradation:</u>				
Agricultural land conversion	Localized	Fragmentation and isolation	Low	Low
Urban land conversion	Localized	Fragmentation and isolation	Low	Low
Gas, oil, mineral extraction	Localized <sup>b</sup>	Unknown	Moderate	High

<sup>a</sup>Excluding 48 ha in Montana and the black-footed ferret reintroduction sites in eastern Uintah County, Utah

<sup>b</sup>>55% of the species is distributed on BLM-managed lands, which have the potential for high levels of development; 77% of the species distribution in Wyoming, which has potential for future development

# Impacts



New tree planting  
bark stripped



Alfalfa field under CoAgMET  
weather station suffering due to  
new holes and pdog feeding



Lettuce variety trial eaten  
to the ground

# Survey

- Required before use of some products
- Between July 1<sup>st</sup> through October 31<sup>st</sup>, less than 30 days before using fumigant/tablet
  - At night
  - USDA APHIS
- Exempt if: less than 80 acres or 200 acres occupied within 4.3 miles. If in urban area.



# Management Methods

# What are the treatment options?

- **Poisons/gas**
  - Ammonium phosphide tablets (conv.)
  - “USDA gas cartridge” (conv.)
    - Sodium Nitrate and charcoal
  - CO gas (conv.)
  - Poison baits/rodenticides (Zinc Phosphide, anticoagulants) (conv.)
- **Trapping**
  - Traps (Foot traps, square traps, live traps)
  - Requires an intensive program
    - (~10-20 pdogs per hole)
  - Relocation
    - Hard to find sites
    - Introduction of outside pdogs to a colony causes stress (fighting and rejection, most often)
- **Shooting**
  - Requires rotation of weapon ranges and suppressors
- **Harassment**
  - Flooding (anecdotal, and requires killing as they surface)
    - May restrict more holes from showing up
  - Sprinkler periodic harassment
    - No literature or mention
  - Vision blocking
    - Established pastures/thick growth
    - In our observations, established pastures have fewer holes, but the pdogs quickly settle into low growing spots or places the water has missed.
    - They also thrive in the orchards/vinyards, so that level of cover is insufficient
    - Reduce mowing!
  - Physical barriers
  - Repellants (Capsaicin, blood)
  - Predator poles

# Trapping and Barriers

- Large vacuum truck
- Flushing out with water (+soap)
- Lethal traps can be used, contact local CPW
- Traps (Foot traps, square traps, live traps)
- Requires an intensive program
  - (~10-20 pdogs per hole)
- Relocation
  - Hard to find sites
  - Introduction of outside pdogs to a colony causes stress (fighting and rejection, most often)
- Blocking vision – short walls, high vegetation

# Relocation

- Hard to find release sites
- Permit is required to relocate to new sites
- Contact Colorado Parks & Wildlife

# Shooting

- Best from February through March (breeding season and activity starts)
- Study: Exposed colony to recreational shooting
  - Pregnancy rates dropped 50%, reproductive output down 75%
  - Due to coloniality
- White-tailed prairie dogs are less social, so shooting may have less of a behavioral effect
- Requires rotation of weapon ranges and suppressors

# Harassment

- Flooding (anecdotal, and requires killing as they surface)
  - May restrict more holes from showing up
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# Rodenticide

- *Utilize all other management techniques first*
- Read the label and minimize off-target poisoning
  - Fines and tickets can be administered
- Steps:
  - Identify the pest and determine all alternative techniques to be used first before using rodenticides
  - Choose most effective, least toxic method first
  - Read the label
  - Abide by limitations

# Poison baits and fumigants

- **Poisons/gas**

- Aluminum phosphide tablets (conv.)
  - Very lethal to most life
- “USDA gas cartridge” (conv.)
  - Sodium Nitrate and charcoal
- CO gas (conv.)
- Poison baits/rodenticides (Zinc Phosphide, anticoagulants) (conv.)
  - Pre-bait – lay out grain without poison first
  - No livestock or other animal/human activity

- **Organic certification?**

- Physical means only

Baits Containing Anticoagulants:  
Chlorophacinone (Rozol Prairie Dog Bait)  
or Diphacinone (Kaput-D Prairie Dog Bait)



# Fumigants

- Cover treated holes, look for gas exiting other holes
- Walk field 2-3 days later to see any holes re-opened
- Ensure no stray containers/poisons left out

The phosphine gas produced by aluminum phosphide tablets is toxic to all forms of animal life.

Do not use fumigants in burrows occupied by black-footed ferrets, burrowing owls, rabbits and other non-target wildlife.

# Contacts/resources

- Colorado Parks & Wildlife
  - <https://cpw.state.co.us/>
  - 303-297-1192
  - Species of concern: Black Tailed
    - <https://cpw.state.co.us/learn/Pages/SOC-Black-tailedPrairieDog.aspx>
- CSU Tri-River Extension
  - 970-244-1834
  - <https://tra.extension.colostate.edu/contact-us/>
- Sources for this talk:
  - Andelt, W.F., Hopper, S.N. Managing Prairie Dogs. CSU Extension Fact Sheet 6.506
  - Pauli, J.N., Stephens, R.M., Anderson, S.H. (2006). White-tailed Prairie Dog (*Cynomys leucurus*) A Technical Conservation Assessment.



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