

**ECOLOGY:** This is a solitary, burrowing omnivore that hibernates during winter; diets can include almost 50% animal matter, and insect abundance has been found to be a predictor of the presence of the species in northern Colorado.<sup>11</sup> This species is regarded as one of the most important nest predators of shortgrass prairie birds in this region.<sup>12</sup> It is exposed to plague during episodic epizootics. Population-level effects are not known, but few animals have been found to carry antibodies, suggesting that mortality rates resulting from infection may be high.<sup>13</sup>

**CONSERVATION AND MANAGEMENT:** The species is sufficiently common and widely distributed that it is not generally considered a conservation concern. However, agricultural pesticide use has arisen as a potential policy issue in the Rocky Mountain states, with some questioning how pesticide use has affected the distributions of some subspecies.

#### NOTES AND REFERENCES

1. UWMV specimens.
2. Commission Regulations Chapter 52, Section 6.
3. Harrison et al. (2003), Helgen et al. (2009).
4. Streubel and Fitzgerald (1978b), Hall (1981).
5. Howell (1938), Streubel and Fitzgerald (1979b).
6. This distribution was estimated based on six specimens from four localities. See Howell (1938), Long (1965), Streubel and Fitzgerald (1979b), Hall (1981).
7. Of the 213 specimens that contribute to the locations depicted, 118 were collected before 1955, and very few since 1990.
8. Long (1965, 579).
9. Maxwell and Brown (1968).
10. Clark (1971a).
11. Higgins and Stapp (1997).
12. Grant et al. (2006), Stanley (2010).
13. Stapp et al. (2008).

---

#### White-tailed prairie dog, *Cynomys leucurus*

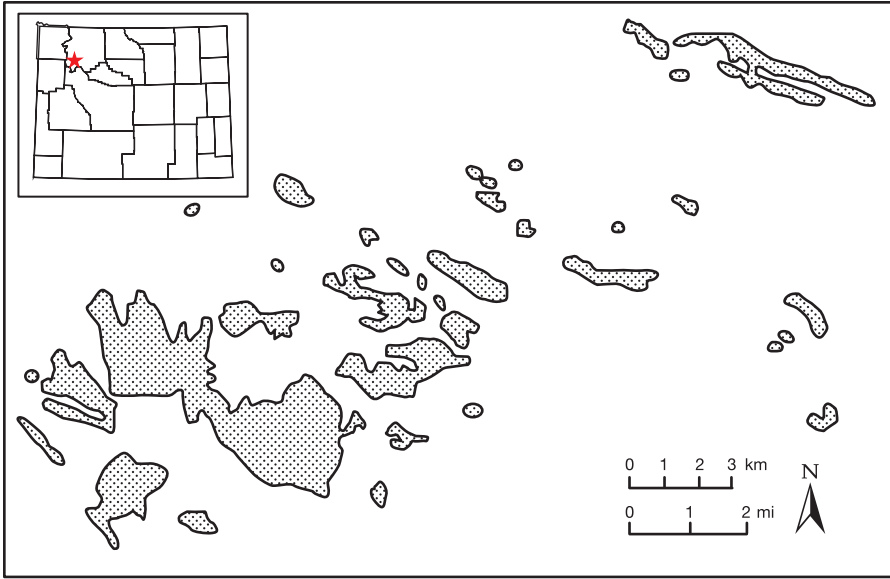
**DESCRIPTION:** A medium-bodied, colonial ground squirrel with a distinctive bark-like vocalization. Pelage is tan or buff over most of the body, with a short white- or light-tipped tail and a black band above and below the eye. The species is sexually dimorphic for size (adult males are 20–35% heavier, depending on season), but not body form or pelage color. In adults standing erect, the thorax and head appear slender, but the abdomen plump. Colonies in shrub-dominated steppe are less conspicuous from a distance than those of black-tailed prairie dogs. This could be because burrow entrances are not rimmed as they are for black-tailed prairie dogs, population densities are lower, or because white-tailed prairie dogs modify vegetation less by clipping than do black-tailed prairie dogs.<sup>1</sup> Measurements: (**Sex** [n] mean (mm, g), *SD*) Larimer County, Colorado, L = F [41] 353, 13.2; M [28] 371, 11.3; TL = F [41] 54, 5.2; M [28] 55, 5.6; WT = F [41] 925, 147; M [28] 1139, 256.<sup>2</sup> Dental formula: 1/1, 0/0, 2/1, 3/3 = 22.



Distribution of the white-tailed prairie dog in Wyoming.

**STATUS:** An unprotected nongame species.<sup>3</sup> It is common but patchily distributed in suitable habitats. Classified as a “designated pest” by the Wyoming Department of Agriculture, it is subject to local control actions.<sup>4</sup>

**NOMENCLATURE AND SYSTEMATICS:** The genus and species names have been stable for decades; no subspecies have gained wide recognition. The genus comprises five species, three of which (*C. leucurus*, *C. gunnisoni*, *C. utahensis*) occupy higher-elevation regions farther west than *C. ludovicianus*. These three high-elevation species are placed in the subgenus *Leucocrossuromys*, and the white-tailed prairie dog has the northernmost distribution of them, extending just over the state line into Montana. A 2009 reclassification of Holarctic ground squirrels confirmed that prairie dogs were a monophyletic group, with its sibling



Map of a white-tailed prairie dog colony complex near Meeteetse, Wyoming, showing the tendency for colonies to align with soil or vegetative features, which in this case run from northwest to southeast.

lineage the pygmy ground squirrels.<sup>5</sup> Hybridization with other prairie dog species has not been reported.

**DISTRIBUTION AND HABITAT ASSOCIATIONS:** This is a high plains shrub-steppe species that occurs today (shown) over much of the high-elevation shrub-steppe of Wyoming, Colorado, and eastern Utah. Estimates of presettlement colony area are difficult to generate and tend to be species-wide in scope, not specific to Wyoming. Most accounts suggest a smaller distribution today than 120 years ago. The 2006 colony area in Wyoming was estimated at 185,988 ha (718 mi<sup>2</sup>), which represents 55% of the area of the entire species range.<sup>6</sup> The species occurs in shrub-steppe below the lower elevational limit of trees over a triangle-shaped region with the northern corner where the Clarks Fork of the Yellowstone River crosses the state line into Montana, one in southeastern Albany County, and the southwestern one in southern Uinta County. The geographic range overlaps slightly with that of black-tailed prairie dogs at the zone of contact between the Bighorn and Laramie Mountains. Those two mountain ranges are barriers between the ranges of the two species in the northern and southern parts of the state. Colonies are distributed across the landscape in a pattern that reflects soil and vegetative features.<sup>7</sup>

**ECOLOGY:** This is a diurnal, colonial, burrowing herbivore that superficially resembles black-tailed prairie dogs. But their ecology differs in important ways. They are less socially structured than black-tailed prairie dogs, although both species have territorial home ranges occupied by adult females that mate with a single male that limits access by other males.

Colonies are associated with level or rolling topography, tending to avoid steep slopes. White-tailed prairie dogs hibernate in winter, plugging their burrows with dirt that, when frozen, becomes a physical barrier to burrowing predators. Hibernation is obligate, deep, and prolonged, with 70–80% of animals in torpor at any one time in midwinter. Emergence from burrows begins in late February, depending on location. Adult males disappear from aboveground areas by late summer, presumably entering torpor then.<sup>8</sup> Diets vary seasonally: shrub leaves in early spring, then forbs as green-up progresses. In late summer, diets tend to be grass leaves and seed heads. Strong selection for particular plant species at a site has not been reported.<sup>9</sup> The species is shorter-lived than the black-tailed prairie dog, producing their first litters at one year of age; litters are larger than those for black-tailed prairie dogs. Survival rates are highly variable by age and year; juveniles survived to their second year at rates of 9–23%, while adults (>1 year old) had annual survival rates of 23–70%.<sup>10</sup> The lowest of these values may have reflected the effects of plague.<sup>11</sup> Population densities within colonies vary by year and season. In northern Colorado, densities were 3.5/ha (910/mi<sup>2</sup>) in the spring, but 8.4/ha (2200/mi<sup>2</sup>) after juveniles emerged from burrows. On-colony densities are typically lower than those for black-tailed prairie dogs.<sup>12</sup> White-tailed prairie dogs are eaten by many mammalian and avian predators: coyotes, badgers, black-footed ferrets, red foxes, golden eagles, and various hawks. They are vulnerable to flooding in low-lying areas. Unknown numbers are killed by recreational shooters, but perhaps the single greatest factor in their abundance is plague, an introduced disease to which they are susceptible, and which reaches epizootic proportions episodically.<sup>13</sup>

Prairie dogs have important ecological roles aside from their herbivory and importance as prey. Their underground burrow systems are credited with providing physical structure in an environment that is otherwise physically simple. The burrows are important to various animal species: burrowing owls, snakes, mice, and insects. White-tailed prairie dogs clip shrubs from the vicinity of their burrow entrances, although less so than black-tailed prairie dogs, and these open sites are preferred by mountain plovers. Some consider prairie dogs generally to be keystone species because of their addition of physical structure (burrows) in a habitat that otherwise has little soil turnover and vegetation dynamics.<sup>14</sup>

**CONSERVATION AND MANAGEMENT:** White-tailed prairie dogs are not controlled for conflicts with agriculture to the extent that black-tailed prairie dogs are. This is primarily because the former do not attain the high local densities of the latter—at least in shrub-dominated steppe—and white-tailed prairie dogs are less likely to occur near crop agriculture. The primary human manipulations are shooting for recreation and localized control by poisoning. The species is critical to the recovery of the black-footed ferret in Wyoming.

#### NOTES AND REFERENCES

1. Hoogland (2003).
2. Tileston and Lechleitner (1966).

3. Commission Regulations Chapter 52, Section 6.
4. The authority for this designation is provided by Wyoming Statutes 11-5-102-a-xii.
5. Helgen et al. (2009).
6. Pauli, Stephens et al. (2006).
7. Map is modified from Forrest et al. (1988).
8. Harlow and Menkens (1986).
9. Clark et al. (1971).
10. Menkens and Anderson (1989).
11. Forrest et al. (1988).
12. Hoogland (1995).
13. Ubico et al. (1988).
14. Whicker and Detling (1988) and Miller et al. (2000), but see Stapp (1998) and Kotliar et al. (1999).

### Black-tailed prairie dog, *Cynomys ludovicianus*

**DESCRIPTION:** A colonial ground squirrel slightly smaller bodied than the white-tailed prairie dog. Its tail is longer and black-tipped, and it has no dark band over the eye. The dorsum is tan with a reddish cast; the underside is cream-colored. Males are slightly smaller than females in late April, but about 24% larger by late June. Vocalizations are more varied than for white-tailed prairie dogs. Colonies tend to be conspicuous, with high densities of entrances, most of them surrounded by rimmed mounds. Vegetation is clipped short or nearly absent near burrows.<sup>1</sup> Measurements: (**Sex** [n] mean (mm, g) *SD*, Larimer County, Colorado, L = F [32] 368, 19.1; M [21] 375, 15.4; TL = F [32] 76, 10.0; M [21] 78, 8.0; WT = F [32] 864, 174; M [21] 776, 152.<sup>2</sup> Dental formula: 1/1, 0/0, 2/1, 3/3 = 22.

**STATUS:** This is a non-protected nongame species.<sup>3</sup> It is common but patchily distributed within the geographic range, and classified a designated pest by the Wyoming Department of Agriculture.<sup>4</sup> Petitioned during the 1990s for listing under E.S.A., the species was found not warranted for listing in 2009.<sup>5</sup>

**NOMENCLATURE AND SYSTEMATICS:** The genus and species names have been stable for decades. Together with the very similar species or subspecies *C. l. mexicanus* (Mexican prairie dog), the species is placed in subgenus *Cynomys*. Two subspecies were recognized by 1996; only *C. l. ludovicianus* occurs north of New Mexico.<sup>6</sup>

**DISTRIBUTION AND HABITAT ASSOCIATIONS:** This Great Plains species occurred from Mexico to Canada when Europeans explored the area (shown); today it occurs in grassland and steppe habitats up to the lower elevational limit of trees (<2133 m, [<7000 ft]) in eastern Wyoming. The distribution of this species and that of the white-tailed prairie dog are roughly parapatric along a line connecting the southern end of the Bighorn Mountains and the northern end of the Laramie Mountains.

**ECOLOGY:** This is a diurnal, territorial, colonial, facultative hibernator. Although superficially resembling the white-tailed prairie dog, the two species' life histories differ markedly. First, reproduction in this species occurs at two years and litters are smaller than for white-tailed prairie dogs. Black-tailed prairie dog colonies have generally higher population