White-tailed Prairie Dog

Cynomys leucurus

REGULATORY STATUS

USFWS: Petitioned for Listing
USFS R2: Sensitive
USFS R4: No special status
Wyoming BLM: Sensitive
State of Wyoming: Nongame Wildlife; Pest

CONSERVATION RANKS

USFWS: No special status
WGFD: NSS4 (Cb), Tier II
WYNDD: G4, S2S3
Wyoming contribution: VERY HIGH
IUCN: Least Concern

STATUS AND RANK COMMENTS

White-tailed Prairie Dog (*Cynomys leucurus*) was petitioned for listing under the Federal Endangered Species Act in 2002. In 2010, the United States Fish and Wildlife Service (USFWS) concluded that the species was not at risk of extinction in all or a significant portion of its range and, therefore, listing was not warranted [1]. This decision was subsequently challenged in court and, in September 2014, the decision was remanded back to the USFWS for evaluation. A final decision is expected in early 2017. The Wyoming Natural Diversity Database (WYNDD) has assigned White-tailed Prairie Dog a range of state conservation ranks because of uncertainty regarding the proportion of the species' range occupied and intrinsic vulnerability in Wyoming.

NATURAL HISTORY

Taxonomy:

Five species of prairie dogs are found worldwide; all are in the genus *Cynomys*, and all are found in North America. The genus is further divided into two subgenera, *Cynomys* and *Leucocrossuromys*, the latter of which includes White-tailed Prairie Dog as well as Utah Prairie Dog (*C. parvidens*) and Gunnison's Prairie Dog (*C. gunnisoni*) [2]. White-tailed Prairie Dog is monotypic and does not have any recognized subspecies [3, 4].

Description:

White-tailed Prairie Dog is identifiable in the field. It is a large rodent with a robust, stocky body and short legs [5]. When standing upright, individuals exhibit a slender head and torso with a rounded abdomen [6]. Males are larger than females, but pelage is similar between sexes [6]. White-tailed Prairie Dog has yellowish buff brown pelage with a dark brown-black patch above the eye and on the check [3]. White-tailed Prairie Dog can be distinguished from the only other prairie dog in Wyoming, Black-tailed Prairie Dog (*C. ludovicianus*), where they overlap by a white as opposed to black tail. Its large size (body length = 34–37 cm) and lack of conspicuous eye ring

and dorsal patterns distinguish it from other ground squirrels [6]. Among other vocalizations, White-tailed Prairie Dog emits a conspicuous bark-like sound used for communication [3, 6].

Distribution & Range:
White-tailed Prairie Dog is thought to exist across most of its historic range but is now found in relatively smaller, more fragmented colonies than in the past [2]. Specifically, White-tailed Prairie Dog is found in shrub-steppes throughout the Wyoming Basin in Montana, Wyoming, Utah, and Colorado and farther south into northeastern Utah and northwestern Colorado [3]. Wyoming makes up about 55–75% of the entire species' range [1, 6], and the eastern-most portion of White-tailed Prairie Dog range overlaps with that of Black-tailed Prairie Dog.

Habitat:
White-tailed Prairie Dog is typically found in semi-arid and arid grassland, desert grassland, and shrub-land habitats with low to moderate slopes. In Wyoming, the species is found between 1,300 and 2,300 m in elevation. Colonies are found in areas with open plant communities, likely because of increased predator detection and avoidance provided by short plants. The species requires deep and well-drained soils in which to develop burrow systems [2].

Phenology:
White-tailed Prairie Dog hibernates throughout the winter, emerging in late February to mid-March. Adult males are the first to emerge, followed by adult females 2 to 3 weeks later [7]. Individuals are strictly diurnal, and activity patterns are closely tied to temperature. In the hot summer months, activity is bimodal, with peaks of activity between sunrise and 0900 and again between 1500 to before sunset. In the cooler months, activity peaks early afternoon [3]. Breeding occurs in late March and early April; juveniles emerge from burrows in late May and early June following a 30-day gestation [7]. Average litter size is 5 young, and a single litter is produced annually [3]. Juvenile dispersal from the natal burrow occurs in July and August [5], with most emigration to new colonies occurring in early spring [3]. Activity levels tend to decrease in mid-July for adults, with adult males entering hibernation before adult females. All adults are inactive by late August, and all age classes enter hibernation by late October or early November [3].

Diet:
White-tailed Prairie Dog is an opportunistic feeder, and diet items vary seasonally. The species consumes a variety food, mainly vegetation including shrub and grass leaves, forbs, cacti, seeds, and roots. The species will also consume insects and carrion [5, 6].

CONSERVATION CONCERNS

Abundance:
Continental: REGIONAL ENDEMIC
Wyoming: ABUNDANT
Estimates of White-tailed Prairie Dog abundance in Wyoming are generally assessed as area of occupied habitat (i.e., habitat containing active colonies). Recent estimates of occupied area in Wyoming vary from roughly 186,000 ha [8] to over 300,000 ha [9].

Population Trends:
Historic: MODERATE DECLINE
Recent: STABLE
Although the geographical distribution of the species has changed little since European settlement, the species likely has experienced some decline in abundance [1], although the exact

level of decline is difficult to quantify because accounts prior to settlement are lacking [10]. Statewide aerial surveys conducted in 2008 and 2011 demonstrated little change in amount of area occupied by active colonies, although both surveys likely overestimated total active area overall due to the difficulty in correctly assigning activity status from the air [9, 11]. Recent trend analyses in Meeteetse, Wyoming demonstrate a 4-fold increase in abundance of prairie dogs from 4.8–5.2 prairie dogs per ha in 2013 to 15.0–26.7 prairie dogs per ha in 2015 [12]. Nonetheless, it is generally accepted that the species has experienced at times drastic, localized declines attributed to disease, large-scale control efforts, and habitat modification [5]. Such factors have resulted in populations and colonies fluctuating considerably among years [13, 14], which further complicates trend assessment.

Intrinsic Vulnerability:

MOERATE to HIGH VULNERABILITY

White-tailed Prairie Dog is very susceptible to sylvatic plague, and, with mortality rates exceeding 90% in infected colonies, epizootic outbreaks of sylvatic plague can lead to localized extirpation of prairie dog colonies [15]. Although the species is widely distributed throughout the Wyoming Basin, relatively low dispersal rates make it difficult for White-tailed Prairie Dog to colonize new sites or recolonize formerly occupied sites [8].

Extrinsic Stressors:

MODERATELY STRESSED

Because prairie dogs are classified as a pest by the Wyoming Department of Agriculture [16], control activities, including poisoning and shooting, are legal throughout the range of the species in Wyoming. Although such efforts can have small-scale impacts, up to and including eradication of colonies, the USFWS has concluded that these are generally localized and do not translate into a large-scale threat [1]. Conversion of habitat to cropland and urban or exurban development are also generally localized threats and thought to impose a relatively small threat to the species range-wide. Energy development within the distribution of the species is increasing and likely impacts a significant portion of White-tailed Prairie Dog range in Wyoming [2], although impacts are largely un-quantified [1].

KEY ACTIVITIES IN WYOMING

Most work for prairie dogs to-date has revolved around developing and implementing methods to monitor population trends as well as localized mapping efforts in support of Black-footed Ferret (*Mustela nigripes*) recovery efforts (e.g., Van Fleet 2009) [17]. Beginning in 2008, the Wyoming Game and Fish Department (WGFD) evaluated and implemented range-wide aerial surveys for White-tailed Prairie Dog [11, 18], which were again completed in 2011 [9]. However, given the difficulty in assessing status and colony boundaries from aerial surveys, the WGFD will implement occupancy surveys in the future to monitor trends [19, 20]. In 2013, the WGFD joined a nationwide, multi-agency collaborative effort with the United States Geological Survey, state agency, and non-agency personnel to evaluate the efficacy of an oral vaccine for sylvatic plague throughout the range of prairie dog species in the United States [21, 22]. The WGFD study took place on a White-tailed Prairie Dog colony near Meeteetse, Wyoming [12, 23, 24]. In 2015, the WYNDD, through funding provided by the WGFD, completed a pilot project to implement recommended occupancy surveys throughout Wyoming [25]. Statewide surveys were conducted in conjunction with surveys in Colorado and Utah in the summer of 2016 following the "Protocol for conducting prairie dog occupancy surveys" published by the White-tailed Prairie Dog and Gunnison Prairie Dog Working Group [26].

ECOLOGICAL INFORMATION NEEDS

A better understanding of trends of White-tailed Prairie Dog is needed in order to quantify abundance and monitor populations. Given the extreme variability in abundance of White-tailed Prairie Dog, additional research is needed to evaluate the causes of these fluctuations and to evaluate why some colonies exhibit rapid recovery following declines while others demonstrate little to no recovery. Although our knowledge of the plague cycle has increased, a better understanding of the difference in plague dynamics among prairie dog species is needed to inform conservation and management activities. For example, White-tailed Prairie Dog is less social and more widely spaced on the landscape than Black-tailed Prairie Dog [2], which may impact rates of transmission and prairie dog mortality. Information on how populations respond to the disease in enzootic and epizootic states as compared to other stochastic events (e.g., drought) would also be beneficial. Additionally, improved understanding of how different habitats (e.g., grasslands versus sagebrush) affect abundance, distribution, and persistence of populations of White-tailed Prairie Dog across its range would greatly improve conservation. Finally, prairie dogs throughout their range are exposed to a number of stressors, and a quantification of these stressors and an understanding of their impacts to population dynamics and persistence are needed.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Nichole L. Bjornlie. White-tailed Prairie Dog is classified as both a pest and a nongame species in Wyoming, and, as such, both the Wyoming Department of Agriculture and the WGFD have shared management authority for prairie dogs, which makes management of White-tailed Prairie Dog difficult. Current management priorities for the WGFD for White-tailed Prairie Dog include continuing state-wide monitoring efforts and coordinating with other state agencies within the range of the species to develop a range-wide occupancy estimate in 2016. This will serve as a baseline that can be used to evaluate population trends every 6 years and evaluate the impacts of potential threats. Additional priorities include continued localized on-the-ground colony mapping and population monitoring in support of Black-footed Ferret reintroduction efforts. Although the official field-trials for the sylvatic plague vaccine at Meeteetse were completed in 2015, the WGFD completed one additional field season in 2016 to provide additional data to evaluate the efficacy of the oral vaccine. Sylvatic plague control efforts, including dusting and vaccine baits, will be implemented on a local scale as necessary, with priority given to active and potential Black-footed Ferret reintroduction sites. Finally, the WGFD will continue active involvement with the interstate Prairie Dog Conservation Team and collaborate with the Western Association of Fish and Wildlife Agencies on the range-wide conservation needs for this species. Outreach and collaboration with private landowners will remain a priority to ensure conservation of prairie dogs and prairie dog habitat.

CONTRIBUTORS

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Figure 1: Adult White-tailed Prairie Dog in Albany County, Wyoming. (Photo courtesy of Ian M. Abernethy)

Figure 2: North American range of *Cynomys leucurus*. (Map from: Patterson, B. D., et al. (2007) Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0, NatureServe, Arlington, Virginia.)

Figure 3: White-tailed Prairie Dog habitat in Shirley Basin, Wyoming. (Photo courtesy of Katie Leuenberger)

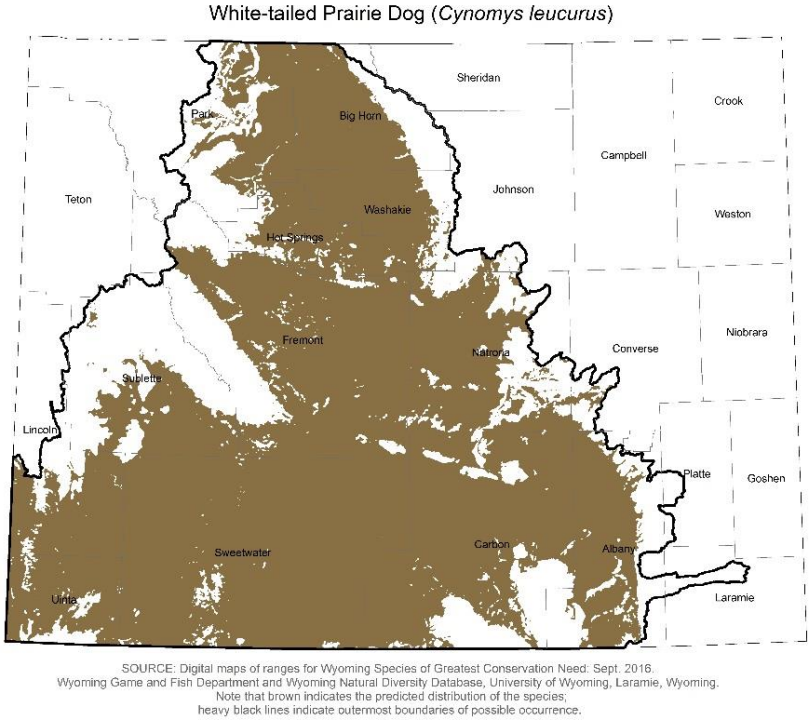

Figure 4: Range and predicted distribution of *Cynomys leucurus* in Wyoming.