

Black-footed Ferret

Mustela nigripes

REGULATORY STATUS

USFWS: Endangered
USFS R2: No special status
USFS R4: No special status
Wyoming BLM: No special status
State of Wyoming: Protected Animal

CONSERVATION RANKS

USFWS: No special status
WGFD: NSS1 (Aa), Tier I
WYNDD: G1, S1
Wyoming contribution: HIGH
IUCN: Endangered

STATUS AND RANK COMMENTS

Black-footed Ferret (*Mustela nigripes*) was listed as Endangered on the first Endangered Species List in 1967¹. Until recently, all Black-footed Ferrets in Wyoming were part of a reintroduced population in Shirley Basin, which is considered an Experimental, Non-Essential population under Section 10(j) of the Endangered Species Act². The United States Fish and Wildlife Service (USFWS), in coordination with the Wyoming Game and Fish Department (WGFD), has recently implemented a statewide 10(j) designation for the species³, which facilitated the addition of a new reintroduction site near Meeteetse. Black-footed Ferret is one of six species protected by Wyoming Statute §23-1-101.

NATURAL HISTORY

Taxonomy:

All Black-footed Ferrets are descended from 15 breeding individuals from a single population, which represented the genetic equivalent of 7 founders⁴. There are no recognized subspecies of Black-footed Ferret⁵.

Description:

Black-footed Ferret is easily identified by a black face mask and black feet, legs, and tail tip. The dorsum is yellowish, and the undersides, forehead, muzzle, and throat are white. Males and females have identical markings, but females are approximately 10% smaller than males, which average 500 – 533 mm in length with the tail comprising 114–127 mm. Black-footed Ferret can be distinguished from Long-tailed (*M. frenata*) and Short-tailed (*M. ermine*) Weasels by its larger size and black mask and legs^{5,6}.

Distribution & Range:

Historically, Black-footed Ferret existed throughout the Great Plains and generally followed the distribution of prairie dog (*Cynomys* spp.). The last known native population of ferrets was discovered near Meeteetse, Wyoming in 1981. When the last remaining individuals were taken

into captivity in 1987, ferrets were presumed extinct in the wild⁶. Black-footed Ferret has since been reintroduced at over 20 sites across the species' historic range in 8 states, Canada, and Mexico^{4,7}; additional reintroduction activities are on-going. All populations are highly isolated. The only extant populations in Wyoming are in Shirley Basin, where individuals were reintroduced beginning in 1991, and Meeteetse, where individuals were reintroduced in 2016. Wyoming is on the western edge of Black-footed Ferret's historic range⁶.

Habitat:

Black-footed Ferret lives exclusively in prairie dog colonies, which are usually found in short and mid-grass prairies and semi-arid grasslands and shrublands⁶. Historically, Black-tailed Prairie Dog (*C. ludovicianus*) likely provided the majority of Black-footed Ferret habitat range-wide, but ferrets were associated with 3 of the 5 species of prairie dogs, including Black-tailed, White-tailed (*C. leucurus*), and Gunnison's (*C. gunnisoni*) Prairie Dogs⁴. In Wyoming, Black-footed Ferret was reintroduced to White-tailed Prairie Dog colonies in Shirley Basin and Meeteetse, which are characterized by mixed-grass prairie with patches of sagebrush (*Artemisia* spp.) and rabbitbrush (*Chrysothamnus* and *Ericameria* spp.). Black-footed Ferret spends most of its time in prairie dog burrows⁶.

Phenology:

Breeding begins as early as late February and continues through early April, with gestation lasting 42–45 days⁵. Kits typically begin emerging from burrows in July and August but remain with the female until September to late October, at which time the kits disperse⁸. Dispersal is sex-biased, with juvenile males typically dispersing farther than females and ultimately leaving the natal prairie dog colony⁶. Ferrets do not hibernate and are active throughout the winter.

Diet:

Black-footed Ferret is a prairie dog specialist, with these species making up about 90% of the diet. Other prey items are taken infrequently and include mice, voles, cottontails, jackrabbits, ground squirrels, and potentially birds^{5,6,8}. The importance of non-prairie dog food items in the diet differs between ages and sexes of ferrets, with adult females utilizing these other food items more often than adult males or juveniles⁹.

CONSERVATION CONCERNS

Abundance:

Continental: WIDESPREAD BUT PATCHY

Wyoming: VERY RARE

Black-footed Ferret was historically found across the Great Plains but never in high numbers⁷. Since 1991, nearly 4,000 Black-footed Ferrets have been reintroduced. As of 2012, a minimum of 418 breeding adults were estimated in wild populations throughout reintroduction sites^{4,10}. Although the estimated abundance of Black-footed Ferret in Shirley Basin, Wyoming has been stable since 2006 (range 203–229 individuals), the population showed a decrease in 2013 to a minimum of 39 individuals known alive¹¹. The most recent surveys in Meeteetse detected 19 individuals.

Population Trends:

Historic: LARGE DECLINE

Recent: INCREASE

Abundance of Black-footed Ferret has declined drastically since the early 1900s⁶. In 1991, the first captive-bred individuals were released in Shirley Basin, Wyoming, with 228 individuals released over a 4-year period^{4,6,7}. The population subsequently suffered an outbreak of Sylvatic Plague (*Yersinia pestis*) and Canine Distemper (*Morbillivirus*), and only 5 ferrets were located in 1997. Populations began to increase in 2003 and exhibited exponential growth until 2006¹², when the population began to stabilize¹¹. From 2005 to 2007, the population was supplemented with 250 ferrets in areas north and south of Shirley Basin. However, recent survey efforts suggest populations likely declined between 2011 and 2013¹¹. In Meeteetse, 35 ferrets were released in 2016, and additional releases are planned for both 2017 and 2018; population trends at this site will be evaluated in the coming years.

Intrinsic Vulnerability:

HIGH VULNERABILITY

Black-footed Ferret is a prairie dog specialist, depending almost exclusively on prairie dogs for food and burrows for habitat. Consequently, the size of prairie dog colonies and density of burrows are the most important factors in the success of reintroduction sites¹³. Additionally, both ferrets and prairie dogs are very susceptible to sylvatic plague¹⁴, which has historically been responsible for population crashes at both Meeteetse and Shirley Basin^{4,12}. Finally, because all ferrets originated from 15 founding individuals, lack of genetic diversity remains a concern, although captive breeding is highly regulated in order to maintain diversity, thereby minimizing this threat to the greatest extent possible⁴. However, reintroduced populations remain highly isolated, making natural genetic exchange unlikely and nearly eliminating the possibility of natural recovery from local extinctions.

Extrinsic Stressors:

MODERATELY STRESSED

Perhaps the greatest threat to the persistence of Black-footed Ferret is the availability of large prairie dog colonies for food and shelter. Because prairie dogs are classified as a pest species in Wyoming¹⁵, they are exposed to a number of anthropogenic threats, including poisoning and, to a lesser extent, recreational shooting^{4,16}. Loss of prairie dog colonies in Wyoming and across the species' entire range limits successful reintroduction potential for Black-footed Ferret^{6,13}. Wind farms are also becoming more common in Black-footed Ferret habitat, potentially leading to habitat loss, direct mortality through vehicle collisions, and indirect threats through prairie dog control around turbines. Although now established throughout the western United States, plague is an exotic disease that will likely continue to require active management⁴.

KEY ACTIVITIES IN WYOMING

Wyoming has been an integral player in the recovery of Black-footed Ferret and developed the first successful captive breeding program, provided the entire breeding stock for reintroduction efforts, and maintains the first and longest-lasting successful reintroduction site at Shirley Basin as well as the newest reintroduction site at Meeteetse. The WGFD conducts annual surveys for Black-footed Ferret at these sites to evaluate distribution, reproduction, survival, and abundance¹¹ as well as evaluates additional potential reintroduction sites where suitable prairie dog habitat is found. The WGFD is also participating in a multi-state, collaborative trial to evaluate the efficacy of oral baits in vaccinating prairie dogs for plague at Meeteetse^{17,18}. The Black-footed Ferret Recovery Implementation Team (BFFRIT), comprised of members from 48 government agencies, Indian tribes, universities, and conservation organizations, was founded in 1996 with an overall goal of ferret recovery¹⁰, and the Wyoming Black-footed Ferret Working Group was

reestablished in 2016. The national Black-footed Ferret Recovery Plan was revised in 2013⁴. Following the statewide 10(j) rule for Black-footed Ferrets in Wyoming, the WGFD, in collaboration with the USFWS, released 35 Black-footed Ferrets to Meeteetse in July 2016.

ECOLOGICAL INFORMATION NEEDS

The ecology and biology of Black-footed Ferret has been extensively studied. However, new reintroduction sites with sufficient prairie dog populations still need to be identified in Wyoming and throughout the range. This is likely the most pressing information need for the species. Both sylvatic plague and canine distemper are important diseases in ferret populations. Although sylvatic plague and canine distemper vaccinations are provided regularly to captive individuals and prior to release and to wild-born individuals captured during monitoring efforts, capturing individuals to administer vaccines is patchy and time-consuming, and we still lack a vaccine for plague that can be administered to wild ferrets consistently and effectively. However, preliminary results from field trials with an oral plague vaccine for prairie dogs are showing some promise. Additionally, relatively recent threats to habitat, such as wind farms, likely warrant further investigation. Finally, the cause of the recent decline in Shirley Basin and whether it represents a long-term or temporary decline is in need of further investigation.

MANAGEMENT IN WYOMING

This section authored solely by WGFD; Nichole L. Bjornlie. Recent management priorities for Black-footed Ferret have focused on reintroductions and population monitoring in Shirley Basin and Meeteetse, Wyoming. Moving forward, management activities will include continuing to address these objectives, working with landowners and land managers to conduct additional reintroductions under the statewide 10(j) designation for Black-footed Ferret, developing a statewide management plan for Black-footed Ferrets in Wyoming, and collaborating on projects to evaluate and conduct plague control efforts. The WGFD will also continue to actively participate in the BFFRIT and the Wyoming Black-footed Ferret Working Group and coordinate with landowners and land managers to promote information dissemination, habitat conservation, and management activities. Through this collaborative process, WGFD will work to locate and evaluate additional reintroduction sites throughout the state.

CONTRIBUTORS

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Figure 1: A Black-footed Ferret at a Black-tailed Prairie Dog (*Cynomys ludovicianus*) colony in the short-grass prairie of Logan County, Kansas. (Photo courtesy of Brian Zinke)



Figure 2: Map not available.

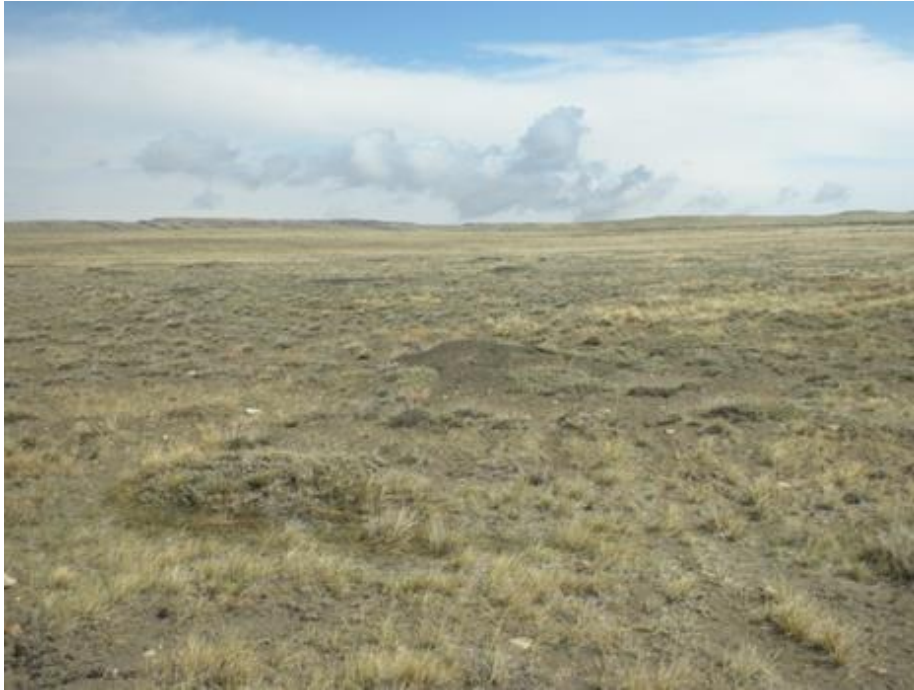


Figure 3: Black-footed Ferret habitat in Shirley Basin, Wyoming. (Photo courtesy of Katie Leuenberger)

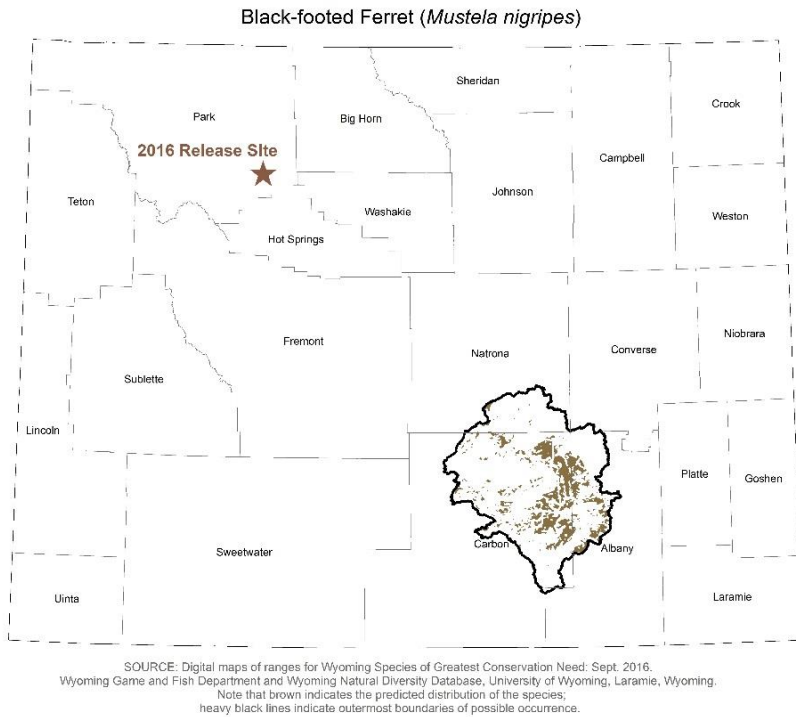


Figure 4: Range and predicted distribution of *Mustela nigripes* in Wyoming.