

# NEBRASKA'S

## *Threatened and Endangered Species*



### *Black-footed Ferret*

NEBRASKA GAME AND PARKS COMMISSION

# Black-footed Ferret – An endangered species

## Status

The black-footed ferret (*Mustela nigripes*) has been considered the most endangered mammal in North America for many years. Although it was probably never abundant, historically the ferret occurred throughout the Great Plains in 12 states and two Canadian provinces, from the foothills of the Rocky Mountains east to Nebraska and from southern Canada south to Texas. Ferrets were occasionally listed in fur company records from the upper Missouri River basin in the early to mid-1800s. The ferret was held in special regard by Native Americans, who used its pelts on headdresses and in religious ceremonies.

The range of the black-footed ferret coincides closely with that of three species of prairie dogs on which the ferret depends for food and habitat. As the plains were settled and large tracts of prairie were plowed for farmland, prairie dog and ferret habitat was destroyed. Poisoning campaigns eliminated vast acreages of prairie dogs that were competing with livestock for forage. Prairie dogs occupied an estimated 700 million acres in the Great Plains in the late 1800s but occupy only about 1.5 million acres today. The black-footed ferret's decline probably followed that of the prairie dog. In the 1950s, ferrets were still thought to occur in low densities throughout most of their historic range. In the 1960s, the only known population of black-footed ferrets was a small colony in southwestern South Dakota. That colony was studied from its discovery in 1964 until the last member died in captivity in 1979.

With its disappearance from South Dakota, it was feared the black-footed ferret might be extinct, until one was killed by a ranch dog in northwestern Wyoming in September 1981. That occurrence led to the discovery of a population of about 130 animals in

1984. Unfortunately, an outbreak of plague reduced prairie dog numbers in the area, and later an outbreak of canine distemper nearly eliminated the ferret population. The remaining 18 ferrets were taken into captivity between 1985 and 1987 to form the nucleus of a captive population that numbers about 300 adults today. The captive animals and some that have been reintroduced into the wild in Wyoming, South Dakota and Montana are the only known black-footed ferrets in existence today.

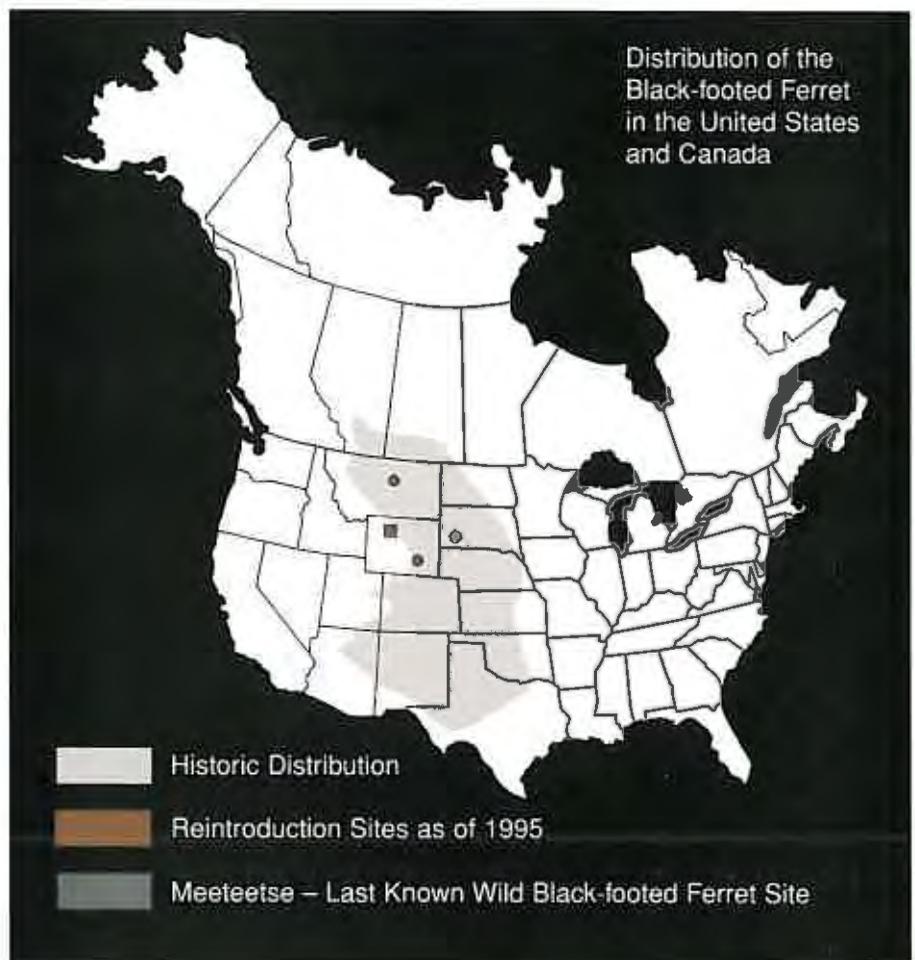
In Nebraska, the black-footed ferret probably occurred historically in the western three-quarters of the state, coinciding with the range of the prairie dog. The last known museum specimen from Nebraska is an animal killed on a road near Overton in

Dawson County in 1949. Many reports have been received since then, but no specimens or photographs have been positively identified.

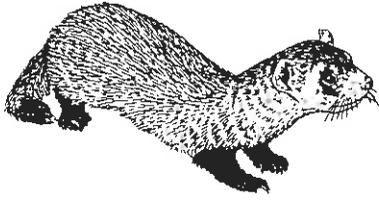
The black-footed ferret was given federal legal protection as an endangered species in 1967. The ferret has been included on Nebraska's list of endangered species since the Nebraska Endangered Species Act was passed in 1975.

## Description

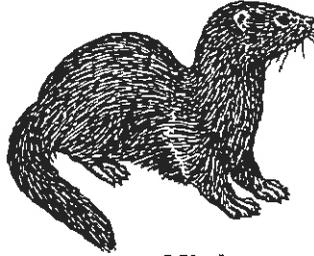
The black-footed ferret is a carnivore in the Mustelidae family, which also includes mink, weasels, badgers, skunks and otters. It is about the size of a mink, with a total length of 20 to 24 inches including a five- to six-inch



# COMPARISON OF THE BLACK-FOOTED FERRET TO OTHER MAMMALS WITH SIMILAR CHARACTERISTICS



**Black-footed Ferret**



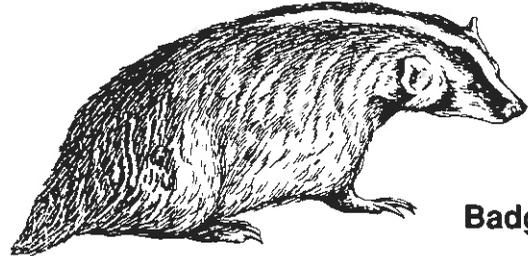
**Mink**



**Domestic Ferret**



**Long-tailed Weasel**



**Badger**

tail. Black-footed ferrets weigh up to about two and a half pounds, with males about 10-percent larger than females. As with other members of this family, ferrets have long, slender bodies with short legs. The fur on the sides and back is generally a pale yellowish buff with lighter areas on the face, throat, chest and abdomen. The top of the head and middle of the back are dark brown, and the feet, tip of the tail and a mask across the face are black.

The closest relative of the black-footed ferret is the Siberian polecat that occurs throughout eastern Asia. The black-footed ferret is thought to have descended from the Siberian polecat, crossing to North America in the Pleistocene when the two continents were connected at what is now the Bering Strait. Siberian polecat fossils have been found in Pleistocene deposits in Alaska. The domestic ferret, originating in Europe and commonly sold in pet stores, is another relative of the black-footed ferret.

Other species, including the long-tailed weasel and domestic ferret, are often mistaken for the black-footed ferret. The long-tailed weasel is considerably smaller than the ferret and

although the fur color can vary with the season, the weasel in summer is generally brown above with cream-colored underparts. The domestic ferret shows less color contrast between the feet and body than the black-footed ferret mainly because of the longer, darker guard hair on its back. The domestic ferret's tail is all black and it has a shorter neck and shorter ears.

## Habits

Black-footed ferrets would not be readily observed even if they were common. They are primarily nocturnal, with most daytime activity limited to the first few hours following sunrise. They spend most of their time in underground burrows, typically spending only a few minutes above ground each day. Finally, ferrets occur in areas with low human densities, also making observation difficult.

Ferrets do not hibernate, but in winter, the distances traveled and the amount of time they are active decrease substantially. Ferrets have been found to remain underground in the same burrow system for a week at a time in winter. In contrast, ferrets

have been observed traveling more than four miles in one night in September. Distances traveled by males tend to be about double that of females.

Black-footed ferrets can be playful, especially as juveniles. Young at play will wrestle, arch their backs and hop on their toes and hop backward.

Vocalizations are used for various purposes by black-footed ferrets. A chatter or hiss is used as an alarm call, and whimpering sounds are used by females to encourage young to follow.

## Reproduction

Black-footed ferrets lead solitary lives except during the breeding season and when females are caring for young. Breeding activity generally occurs in March and April, and after a gestation period of 41 to 45 days, a litter, typically three or four young, is born.

Young are born blind and helpless, but development is fairly rapid. Young are about three-quarters grown in July when they first venture above ground. Only the females care for the young, which continue to receive food for

about a month after weaning. By August, the young begin hunting alone, and by September they are independent. Both male and female ferrets become sexually mature at one year of age, and their peak reproductive period appears to be about three to four years.

## Food

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The black-footed ferret is a predator, and the bulk of its diet naturally consists of animals. Since ferrets are closely associated with prairie dogs, it is not surprising that close to 90 percent of their diet is prairie dogs. The remainder of the diet includes mice, ground squirrels, rabbits, rats, birds and even reptiles and insects.

Ferrets have a high metabolic rate and require large quantities of food in proportion to their body size. Food requirements vary seasonally and among individual ferrets, but captive ferrets have been found to consume one prairie dog every three or four days. Based on the caloric needs of black-footed ferrets in captivity, the number of prairie dogs and the acreage of prairie dogs needed to sustain individuals and family groups of ferrets has been calculated.

The black-footed ferret, like other members of the weasel family, kills by attacking its prey at the neck and base of the skull. Since prairie dogs are about the size of a ferret, a struggle often ensues when prairie dogs are attacked.

As with most predators, black-footed ferrets are opportunistic in their feeding behavior. They cache prairie dogs to feed on at a later time, and they feed on carrion.

Ferrets may reduce prairie dog numbers in small colonies by predation and by the disruption of prairie dog breeding activity caused by their presence in a prairie dog colony. Studies have shown a decline in

prairie dog numbers in a part of a colony occupied by ferrets, but the total number of prairie dogs in the colony was not greatly affected.

## Habitat

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Black-footed ferrets are closely associated with prairie dogs found in short and mid-grass prairies of the Great Plains. They use prairie dogs for food and use the burrow systems for shelter and for raising young. During nine years of study in South Dakota in the 1970s and four years in Wyoming in the early 1980s, ferret litters were found only in prairie dog colonies. Individual ferrets have been found outside prairie dog colonies during periods of dispersal, however.

Loss of habitat is the primary reason black-footed ferrets remain at the brink of extinction. Conversion of rangeland to agricultural and other uses and prairie dog eradication programs have reduced ferret habitat to a small fraction of what once existed. Remaining ferret habitat is now fragmented, with prairie dog towns separated by large expanses of cropland and grassland unoccupied by prairie dogs. Some ferrets undoubtedly have died from eating prairie dogs that died or were dying from consuming poisoned grain distributed to eradicate prairie dogs.

## Limiting Factors

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Black-footed ferrets face several threats in the wild, the most serious being predators and diseases. Ferrets have reached nine years of age in captivity, but achieving three or four years of age in the wild is quite an accomplishment. The reduction of ferret numbers to near extinction has increased the threat to the remaining animals.

Several animals, including coyotes, golden eagles, great-horned owls,

prairie falcons, badgers, bobcats and foxes, are known to take ferrets or are potential predators of ferrets. High predator populations can have a greater impact on a reduced ferret population.

Several diseases affect black-footed ferrets, the most serious being canine distemper and sylvatic plague. Canine distemper is thought always to be fatal to ferrets. It is spread by other animals that frequent prairie dog towns, including coyotes, badgers and skunks. It was the main cause of the catastrophic losses of ferrets in northwestern Wyoming in 1985 and 1986. Sylvatic plague is the wildlife version of bubonic plague that devastated the human population in Europe in the Middle Ages. Prairie dogs are susceptible to plague, and entire dog towns can be eliminated quickly.

Although ferrets were thought to be resistant to the disease, the death of a captive ferret in 1994 to plague it acquired from eating an infected prairie dog is cause for concern. Ferrets are also susceptible to other diseases, including rabies, tularemia and human influenza, but those diseases are not known to pose a serious threat.

Black-footed ferrets also are vulnerable to some human-induced mortality factors including road-kills, accidental trapping and shooting. None is considered a serious concern.

Inbreeding is another problem that can arise with the breeding of closely related animals carrying the same recessive problem gene. Even if a recessive trait does not show in the breeding animals, it will be seen in the offspring. Attempts to raise ferrets obtained from South Dakota in the 1970s were unsuccessful, probably at least in part because of inbreeding. Diabetes mellitus was diagnosed in one animal and others developed tumors and produced stillborn young, all signs of genetic problems. With the entire captive breeding population originating from 18 animals in one

relatively small area, the potential for future inbreeding problems is a serious concern.

## Management and Outlook

The U.S. recovery plan for the black-footed ferret calls for the establishment of a pre-breeding population of 1,500 animals in 10 or more populations by the year 2010 with no fewer than 30 breeding adults in any population. If those objectives are met, the ferret could be downlisted from endangered to threatened status.

With the only known black-footed ferrets in existence today occurring in captivity or at reintroduction sites, recent ferret management has been limited primarily to captive breeding efforts, searches for any possible ferrets still existing in the wild, the monitoring of prairie dog populations and management of prairie dog colonies at the reintroduction sites. The latest effort to breed black-footed ferrets in captivity began with the capture of 18 animals that survived an outbreak of canine distemper in northwestern Wyoming in 1985. The ferrets were taken to the Wyoming Game and Fish Department's research facility near Sybille, which became the primary ferret breeding facility.

Since 1985, private zoos at seven locations in the United States and Canada, including the Henry Doorly Zoo in Omaha, have established captive breeding populations, thus minimizing the potential for disease or other disaster to eliminate the entire species. The captive breeding program has been successful, with the first captive-raised animals reintroduced back to the wild in Wyoming in 1991. Additional animals were released at the same Wyoming site in 1992, 1993 and 1994, with sites in South Dakota and Montana also receiving ferrets in 1994.

Although the reintroductions are



Black-footed ferrets have long slender bodies, short legs and a distinctive mask across the face.

encouraging, problems are still being encountered. Fewer animals have been released at each site than biologists would like, and survival of released animals has been low.

Funding is also a problem for ferret recovery. The Sybille facility has produced about 75 percent of the young ferrets since 1987, but production has been expensive. The Wyoming Game and Fish Department is facing budget problems and likely will scale back captive breeding activities. Federal funds for endangered species recovery have always been limited, and budget cuts are likely. Future captive breeding activities might have to rely more on the zoos and other private funding sources.

Black-footed ferret recovery efforts in Nebraska since the mid-1970s have centered on the investigation of ferret reports in the wild and the monitoring of prairie dog colonies. Prairie dogs have been surveyed to identify areas where ferrets might still occur in the wild and to determine potential ferret reintroduction sites. For a site to be considered, a complex of prairie dog colonies must occur that includes at least 1,000 acres of prairie dogs.

Prairie dogs can occur in one or more

colonies, but colonies cannot be separated by more than about 4.3 miles, the maximum distance ferrets were found to travel in one night.

Although several potential complexes were identified in Nebraska, recent prairie dog control efforts have reduced colony acreage considerably, significantly affecting their suitability for ferrets. Potential prairie dog complexes must be monitored routinely to assess any changes in their suitability as ferret reintroduction sites. Sites in Nebraska would then be compared with sites in other states to determine the best sites for reintroduction.

Fortunately, in 1995, the Nebraska Legislature repealed a law in force since the 1930s that required annual extermination of prairie dogs on all private and state-owned land. This action eliminated a large obstacle to the reintroduction of the ferret. Another possible problem for ferret recovery in Nebraska is one of land ownership. Unlike most states within the historic range of the ferret that contain large amounts of federal land, most land in Nebraska is in private ownership. It will require the cooperation of a large number of landowners before ferrets can be released.



Prairie dogs are the black-footed ferret's primary food, and they use prairie dog burrows for shelter and for raising young.



The last confirmed black-footed ferret sighting in the wild in Nebraska was in 1949.

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Note: New data on the occurrence and distribution of this species are being collected constantly, and some of the information in this publication may be outdated. It should be used for a general understanding of the status of this species in Nebraska and not as the sole source of locational information for any report, project, regional/local planning or environmental impact assessment. For current information on this or other threatened and endangered species, or for additional copies of this publication, contact the Wildlife Division, Nebraska Game and Parks Commission, P.O. Box 39370, Lincoln, NE 68503.



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