

# On T.R.A.C.K.S.



Teaching Resource Activities and Conservation to Kansas Students

Vol. 23, No. 1

Kansas Wildlife, Parks & Tourism

Spring, 2014



## Return of a Native: Black-footed Ferrets Are Back!

### INSIDE...

The Black-footed Ferret	2
Captive Breeding	4
Frequently Asked Questions	5
Black-tailed Prairie Dogs	6
Decoding Prairie Dog Language	8
Prairie Dog Fun Facts	9
Prairie Dog Ecosystems: A Keystone Species	10
Prairie Dog Myths and Misperceptions	13
Return of a Native	14
Resources	16
Black-footed Ferret Handouts	17

**Don't Miss  
Our Next  
Issue:**

**Plight of  
the  
Pollinators**

# Black-footed Ferrets

Twice a year I pack my bags and head to western Kansas to participate in nighttime surveys to assess the number of black-footed ferrets at two release sites in Logan County. My friends call me crazy as this involves staying up all night, driving through pastures at 5 mph with large spotlights, scanning the countryside in hopes of catching a glimpse of emerald green eye shine. Some nights, we drive all night and never get rewarded by glowing ferret eyes. The crazy part is trying to sleep during the day, then repeating it all over the next night for a total of 10 nights. It is grueling work in one sense, fighting to stay awake when you'd rather be sleeping, but it is rewarding work too and that is part of this story.

Why all this craziness? What is a black-footed ferret? Black-footed ferrets (*Mustela nigripes*) are considered the most endangered mammal in North America. Never common, they were described by Audubon and Bachman in 1851 from a specimen at Fort Laramie, WY. Then the species was unreported for 26 years before being rediscovered near Cheyenne in 1877. The last verified sighting in Kansas was in December 1957 near Studley in Sheridan County. By the late 1970's, it was believed that the black-footed ferret was extinct. But that all changed in the blink of an eye.

On September 25, 1981, a dog named Shep brought his owner a dead ferret from somewhere on their ranch near Meeteetse, Wyoming. The ranch owner was unsure of what his dog had found and took it to a local taxidermist. The taxidermist suspected the animal was a rare black-footed ferret and contacted the Wyoming Game and Fish Department. The black-footed ferret wasn't extinct after all. And here begins the story we want to tell about the re-introduction of black-footed ferrets in Kansas.

**B**lack-footed ferrets instantly remind you of a masked bandit. Their face is permanently adorned



with a black mask across the eyes and their feet and the tip of their tail are also black. The remainder of their body is a pale yellow

buff, lighter on the under parts and nearly white on the forehead, muzzle and throat. They are 18 to 24 inches long, which includes a 5-6 inch tail and they can weigh from 1 1/2 to 3 pounds. It is about the size of a mink but more slender. Males are larger than the females.

The ferret, along with badgers, fishers, otters, minks, wolverines and martins, is a member of the weasel family (Mustelidae). There are only three species of ferret in the world. The domestic ferret, also called the European ferret, is sold in pet stores and resembles the black-footed ferret but is

longer and darker. The Siberian polecat from Asia is the closest relative, sharing an ancestor 2 million years ago. **The black-footed ferret, however, is the only ferret native to North America.**

Black-footed ferrets are predators that kill and eat prairie dogs (about 80% of their diet). To make them even more elusive, they do their hunting at night. Mice and other small animals are also taken on occasion, but the ferret lives in prairie dog burrows and cannot survive without them. For this reason, they are referred to as **obligate carnivores** of the prairie dog thus describing their unbreakable link to the health and habitat of prairie dogs.

Few ferrets live beyond 2 or 3 years in the wild, however, they can live to be about 8 year old in captivity. Many things can kill a ferret and predators include owls, hawks, eagles, coyotes, badgers, and bobcats. Diseases like canine distemper, sylvatic plague, and parasites can also kill ferrets. Sylvatic plague is the wildlife form of the infamous bubonic plague or "Black Death" which once devastated much of the human population of Europe in the Middle Ages and can wipe out whole prairie dog colonies in a season or two.



Black-footed ferrets once lived across the prairies of central and western North America. Their range extended from Texas to southern Saskatchewan, Canada and from the foothills of the Rocky Mountains eastward through the grasslands of Oklahoma, Texas, Kansas, Nebraska, and the Dakotas. Not surprising, this range is remarkably similar to that of prairie dogs.

Habitat for black-footed ferrets has been, and continues to be,



Prairie dogs are large, burrowing rodents that serve as the ferrets' primary food

in decline. Scientists estimate we have lost as much as 98% of the prairies, and hence, the prairie dog habitat, that once existed. Historically, large stretches of native grassland were plowed into farmland destroying prairie dog habitat. Prairie dogs have frequently been considered pests and destroyed en

masse via poisoning, shooting, gassing, etc. and ferrets are frequent victims. As prairie dog numbers declined, black-footed ferrets nearly disappeared.

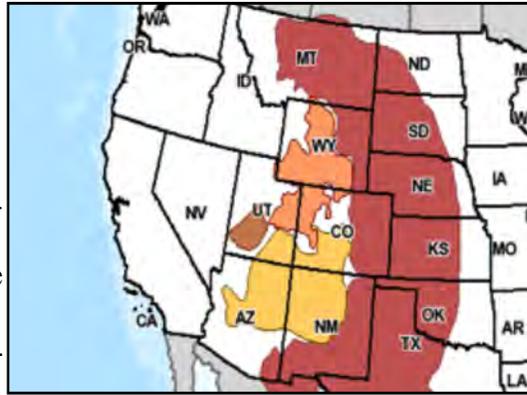
By the 1950's, very few ferrets were left. A small group was discovered in South Dakota in 1964 and a few were taken into captivity beginning in 1971. Eventually, all were lost to old age and disease. None were successfully bred.

The ferret was officially listed as an endangered species in 1967. Most scientists believed by the mid 1970's that the species was either extinct, or, if populations existed, they were so small that natural disasters would eventually eliminate them.

The discovery of the ferrets in Meeteetse, Wyoming in 1981, by Shep, the ranch dog, offered new life for the species. Intensive efforts by biologists over the next three years, determined that around 120 animals existed in this population but the population was limited to a complex of prairie dog towns west of Meeteetse and there apparently were no other ferrets in the surrounding area.

Almost from the time of their discovery, captive breeding of black-footed ferrets was discussed.

Research, however, suggested that the Meeteetse colony was thriving and in no immediate danger.



Small isolated populations (like this colony) are always at a greater risk from local calamities, such as habitat loss and prey (prairie dog) loss or disease, and this proved to be the case. In 1985, the population estimates showed that the Meeteetse ferret population was rapidly declining. The cause turned out to be an outbreak of

canine distemper. Unless some type of action was taken immediately, free-ranging ferrets could be faced with imminent extinction. The decision was made to trap any remaining ferrets and bring them into captivity to breed them for a future release back into the wild. By the end of 1985, 18 ferrets were captured (six males and twelve females).

Even though earlier attempts to breed black-footed ferrets were unsuccessful, this new effort met with success and captive breeding has been taking place since 1985. Breeding populations are maintained at the National Black-footed Ferret Conservation Center in Colorado and several zoos around the country. The first reintroductions to the wild began in Wyoming in 1991 and continue to this day.

Breeding season for ferrets begins in late March and continues through April. Territorial males will breed as many females as possible. Black-footed ferrets are induced ovulators. Gestation is 44 days and kits are born below ground completely altricial (blind, naked, helpless).

Average litter size is 3 (range 1-6). Female nurses the kits until they emerge above ground for the first time, usually in July. After copulation the male has no role in raising the young. Kits are adult sized by September (females) and November (males) and will disperse away from their mothers in September. Males typically disperse farther than females and also experience a higher mortality rate. Survival to 1 year is approximately 30% for males and 50% for females.





# Captive Breeding

Back in 1985 when the remaining Meeteetse ferrets were captured, raising black-footed ferrets in captivity had never really been done successfully. An earlier attempt in the 1970's successfully breed some of the last South Dakota ferrets but their offspring did not survive. Needless to say, the fate of the entire species rested in the hands of those tasked with breeding the 18 ferrets captured.

Biologists from the Wyoming Fish & Game Department and the U.S. Fish & Wildlife Service consulted with reproductive experts from the Association of Zoos and Aquariums and domestic ferret breeders to develop a Species Survival Plan for the Black-footed ferret. Today there are six

facilities and about 280 captive ferrets that make up the managed BFF Species Survival Plan®(SSP®). These include the U.S. Fish and Wildlife Service's National Black-footed Ferret Conservation Center (Colorado),



National Zoo's Smithsonian Conservation Biology Institute (VA), Louisville Zoological Garden (KY), Toronto Zoo

(Ontario, Canada), Cheyenne Mountain Zoo (CO) and Phoenix Zoo (AZ). Facilities that house breeding black-footed ferrets are not open to the public for disease and disturbance concerns. Older, non-reproductive ferrets from the SSP® which are not suitable reintroduction candidates serve as education ambassadors and can be found on display throughout North America. There are at least 5 of these ambassadors in Kansas.

Genetic diversity is a constant concern for the breeding program. Since no new, unrelated ferrets have been found since 1981, all pairings are done to minimize the loss of genetic diversity. Every ferret born is entered into a studbook. The studbook contains individual animal information (birth, death, transfers & transponder chip) as well as the pedigree of each animal. The primary task of the SSP® is to produce as many kits as possible to support ongoing reintroduction efforts.

Black-footed ferrets are seasonal breeders. Facilities begin checking both males and females for reproductive readiness in January. (Females are called "jills" and males are "hobs".) After breeding, 1-6 kits are born after a gestation period of 44 days. The kits develop their markings around 21 days of age, and open their eyes around 35 days. They begin to come above ground about 70 days of age and at about 90 days they begin preconditioning.

**Preconditioning** is an important pre-cursor to reintroducing captive bred black-footed ferrets into the wild. Ferrets are placed in outdoor pens for a minimum of 30 days. While in these pens, they are exposed to natural burrow systems and have the opportunity to encounter live prairie dogs. Before being released, they are vaccinated against canine



distemper virus and plague. At about 120 days old, they are ready to naturally disperse from their family group, which is the opportune time to release them into the wild.

Since 1986, over 7,100 kits have been produced at the captive breeding facilities. About 350-450 kits are born each year and approximately 200-220 are released.

# Frequently Asked Questions

## **Where do black-footed ferrets live?**

Black-footed ferrets once ranged throughout the Great Plains in the states of Arizona, Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah and Wyoming and portions of Canada and Mexico. Ferrets live in prairie dog burrows and spend about 90% of their time underground. They can only be seen in places where they have been reintroduced.

## **What do black-footed ferrets eat?**

Black-footed ferrets eat prairie dogs. A typical prairie dog is as large or larger than a ferret, but a ferret will attack a prairie dog below ground at night when the prairie dog is sleeping. The ferret places a bite on the neck of the prairie dog to suffocate it. A ferret, on average, will eat about one prairie dog every three days and they eat every bit of the prairie dog.

## **Why are black-footed ferrets endangered?**

Loss of habitat and disease. The black-footed ferret is considered a specialist since it is completely dependent upon prairie dogs for survival. Prairie dogs have declined in numbers due to conversion of prairie for agricultural purposes, poisoning campaigns and exotic diseases like sylvatic plague. It is estimated that they occupy only about 2% of their original range. As prairie dog numbers declined, so did the black-footed ferret, until only 18 known individuals were left in the world.

## **How many black-footed ferrets are there?**

While it is impossible to know the exact number of ferrets in the wild, 1998 marked the first year since recovery efforts began that there were more ferrets living in the wild than in captivity. As of fall 2010 biologists estimate the total wild population at 1,000 individuals. There are an additional 300 ferrets housed in captivity. As of 2010, over 7,000 ferrets had been born in the captive breeding program.

## **What is the difference between a black-footed ferret and a pet ferret?**

Black-footed ferrets are the only ferret species native to North America and are a different species than ferrets kept as pets, which are actually European ferrets. The two species are closely related along with the Siberian polecat which lives in northern China and Mongolia. Black-footed ferrets physically differ from pet ferrets mostly in their fur. Black-footed ferrets always have black feet, face mask and tail tip with a creamy/buff colored body. The fur on a black-footed ferret is shorter than that of pet ferrets, thus they look less fuzzy.

## **How fast is a black-footed ferret?**

They can travel at a rate of 5-7 miles per hour. Biologists have tracked ferrets who have traveled 6 miles in one night and one busy ferret checked out over 100 prairie dog burrows in a single night! Black-footed ferrets “bound” across the prairie going from burrow to burrow.

## **Do black-footed ferrets make any sounds?**

Black-footed ferrets chatter loudly when they are alarmed or excited. At such times, they emit several loud barks interrupted by low hissing sounds. Ferrets also chuckle during breeding and ferret kits emit tiny squeaking sounds.

## **How long do black-footed ferrets live?**

Few black-footed ferrets live beyond 3 years of age in the wild and 6-9 years in captivity.



# Black-tailed Prairie Dogs

**B**lack-tailed prairie dogs (*Cynomys ludovicianus*) aren't really dogs at all but members of the squirrel family....ground squirrels to be exact! Described by Lewis and Clark in 1804, it was a French fur trapper with the expedition that called these prairie denizens "*Petit chien*" meaning little dog. Lewis preferred calling them barking squirrels and Clark dubbed them the bur-



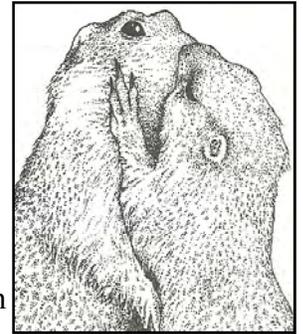
rowing squirrel or ground rat. It was Sergeant Ordway of the expedition that insisted on calling these animals the prairie dog and the name has stayed with it for two centuries.

Prairie dogs are burrowing rodents native to grassland habitats of North America. From head to tail, most prairie dogs are 14 to 17 inches (the tail is 3-4 inches) and weigh from 1.5 to 3 lbs. Males are typically heavier than females. They are generally tan in color with lighter colored bellies and snouts and the last 1/3 of the tail is black in color. There are no truly black prairie dogs but rare white prairie dogs have been documented.

There are actually five different species of prairie dogs. The prairie dogs that like the high desert and mountain valleys have white-tipped tails. These species are the white-tailed prairie dog, the Gunnison's prairie dog, and the Utah prairie dog. The prairie dog species that live on the low, dry grasslands have black-tipped tails. They are the black-tailed prairie dog and the Mexican prairie dog. The black-tailed prairie dog is the largest and most numerous of all prairie dog species.

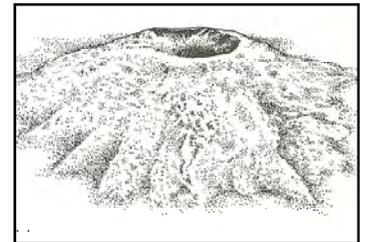
Prairie dogs are social and live in large family groups called **coterie**s. Each coterie is usually made up of one adult male, three to four adult females, and their young. Coterie's often live right next to other coterie's, much like neighborhoods in a town, however, burrows of one coterie's are not connected to the burrows of another. Members of

the wrong coterie's that stray into the territory of another are met with aggression in the form of barred teeth ready to fight. To members of the same coterie, front teeth are touched together, resembling a kiss, in a much more friendly greeting. Prairie dogs use taste and smell to tell if another dog is a relative, friend or enemy. Their keen sense of hearing and smell also help them avoid tunneling into each other's burrows.



Most burrows have from one to six openings and the average prairie dog town (5-35 adults for every acre) has around 50 holes per acre. There are several types of holes or burrow

entrances. The major entrance looks like a volcano mound. As the dirt is brought up from below, it is shaped with the prairie dog's paws and packed down using their foreheads. Mounds at these entrances may be as tall as 3 feet with the hole going underground measuring 6-12 inches wide and narrowing to only 3-4 inches as it descends. These mounds have many uses. They provide a good view in all directions for the prairie dog on guard, they keep rain-water from pouring in, and they help draw fresh air inside on a hot, dry day. Because they are so useful, a coterie may have more than one of these rimmed crater mounds.



Just underneath a volcano mound is a hollowed out place big enough for a prairie dog to sit up. This is called the listening chamber or sentry chamber. If danger is spotted by a prairie dog on guard duty, it will call out an alarm. Other dogs in the coterie and the rest of the town will echo it and respond. The prairie dogs go on alert and watch the danger and if it gets too close, the dog will duck into the listening chamber and not come back up until there is no sound of the predator or an all-clear call has been sounded.

The second kind of hole is the dirt hill or dome mound which is only about 4 to 5 inches tall. These



are not carefully tended and the mound is loosely packed. They may even have low vegetation growing on them and they primarily serve as back doors.

The third type of hole is the escape hatch. These are holes in the ground without mounds and sometimes, without connections to tunnels. These are used for hiding or taking a rest and can often be seen in the sides of hills or ditches.

The long claws of the prairie dog make them superb diggers. Burrows usually go down at a steep slant for 12-15 feet, then flatten out and may run 20-50 feet, sometimes longer. There are chambers built along the way for sleeping, nursing young, storing food, and other uses. Burrows are maintained from generation to generation and serve to help stabilize the physical and social aspects of the colony.

Prairie dogs are primarily plant eaters or herbivores and feast on grasses as well as wildflowers or forbs. Grasses are their preferred food, making up about 75% of their diet in the summer. An adult prairie dog eats about 25-50 lbs of grass per year. It would take approximately 256 prairie dogs to eat the amount of grass one cow eats in a year.

Over 68 different plants are listed as part of a prairie dog's regular diet but their diet changes through the seasons, depending on what is available. During drought or heavy snow, prairie dogs dig up roots to eat. They will eat prickly pear and cactus in desert environments and they will also gnaw on bushes and small trees like sagebrush and mesquite. They like dandelions and thistles too, and even eat the occasional grasshopper or other insects. They receive most of the water they need from the food they eat so they rarely drink.

Prairie dogs breed from late February to April but the time will vary with location and altitude. Usually, a black-tailed prairie dog is 2 years old before it breeds but yearlings may breed if space is plentiful and food is abundant. Pregnancy lasts for 34 days and the young, called pups, are born deep underground, naked and blind. The eyes will open at

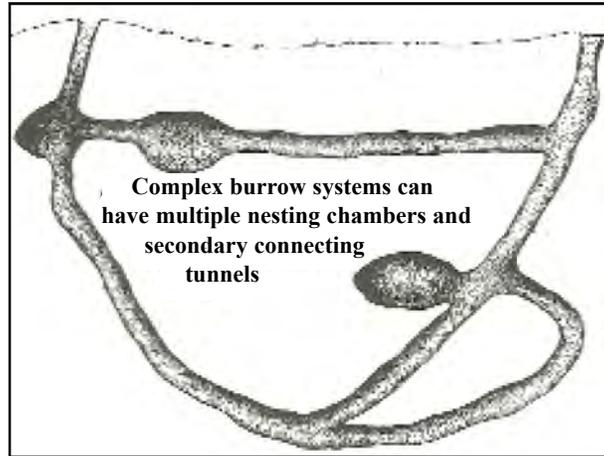
4 weeks (30 days) but fur develops within about 2 weeks. Litter size varies from 1 to 8 pups and prairie dogs breed just once each year.

Young prairie dogs experience a high death rate. By the time the young make their first venture above ground (around 40 days), several from each litter have probably died due to disease, predation, or cannibalism. The average number of young to survive to this point is three. Both male and female adults in the coterie watch out for the young, though the females do most of the pup care.

A prairie dog is mature at 15 months old. Females seem to live longer than males and some estimates put the male lifespan at 5 years and the female around 7 years. In captivity, prairie dogs may live to 10 years or more. Males typically leave the family coterie between 12-14 months after weaning and disperse in May and June an average distance of 1.5 miles. Females generally remain in their family coterie for their lifetime.

A prairie dog is a potential meal to a wide variety of predators. Coyotes, badgers, and hawks and eagles are definitely threats, as well as, the black-footed ferrets in those areas where they have been reintroduced. Weasels, foxes, bobcats, and rattlesnakes will also frequent prairie dog towns.

Disease can also play a role in prairie dog mortality. Sylvatic plague is thought to have been brought to North America in the early 1900's and is a disease that is transmitted by fleas. It is carried by many different small mammals but it is mostly linked to rodents. Some rodents can carry the disease without any symptoms but it is almost 100% fatal to prairie dogs.



# “Hey, he’s fat!” Decoding Prairie Dog Language

There is more than meets the eye, or the ears in this case, when the yips, chirps and barks of the prairie dog are decoded. These small rodents actually have a language system that is highly sophisticated with a rich and varied menu of calls for communicating with family members and neighbors. But, do they really call us fat? Well, actually they might!

Dr. Constantine Slobodchikoff, a biologist at Northern Arizona University, has studied prairie dog language and social behavior for over 30 years. He has found that prairie dogs have different words, or alarm calls, for different types of predators and that their alarm calls include descriptive information about the specific predator. They also react differently when hearing the alarm call for a human, for example, verses that of a coyote. And then, Dr. Slobodchikoff noticed that the animals made slightly different calls when different individuals of the same species went by. Were they describing the physical features of each predator?

He and his team conducted experiments where they paraded dogs of different colors and sizes and various humans wearing different clothes past the colony. They recorded the prairie dogs' calls, analyzed them with a computer, and were astonished by the results.

They're able to describe the color of clothes the humans are wearing, they're able to describe the size and shape of humans, even, amazingly, whether a human once appeared with a gun, according to Slobodchikoff. Equally remarkable is this information is crammed into a single chirp lasting a 10th of a second. In one tenth of a second, they say 'Tall thin human wearing blue shirt walking slowly across the colony'. Some of this information is remembered for periods of up to two months or longer.

Other research shows that prairie dogs from different regions have distinctive dialects. A colony from one area will make calls that differ from those in another area, just as people from the South may pronounce words differently from those in the North. The farther apart prairie dog colonies are, the more pronounced the differences are in their calls.

Prairie dogs emit a variety of sounds and have developed different postures and displays that are used for communication. At least 11 different types of calls are used and arranged in different ways to produce different messages. The most serious threats produce the loudest alarms and are repeated the most frequently. At the highest level of threat, alarm barks may be produced at the rate of 60 or more per minute. If the threat continues, alarm calls may be produced for more than an hour. Alarm barks vary according to what kind of predator is in the area. For example, a raptor alarm call is a two-note bark, with both notes at a high pitch and the second note sustained.



Alarm call

Prairie dogs will scream when they are afraid, snarl when they fight, churr or buzz when they argue, and chirp or purr when they mate. They also make their voices go high or low, fast and slow, or friendly and harsh to convey different meanings. An often comical call is the jump-yip, thought to be the “all clear” signal that danger has passed. Issued while standing on the hind legs, prairie dogs giving the all clear signal have been known to jump completely off the ground and in some cases, fall over backwards.

The research into prairie dog language not only demonstrates the complexity of their communication, but implies that prairie dogs can discuss things that are not present, a process known as displacement, which is typically thought to be unique to humans. They also create new words to refer to new things in their environment, a concept known as productivity, which, again, was thought to be unique to humans. This research is showing that small animals like prairie dogs are more intelligent than people think. As Slobodchikoff points out, having language implies fairly sophisticated cognitive processes and gives animals tools to think about the world around them. This can put them on a different plane from the “dumb animal” image so many people tend to have, and raise ethical concerns about how animals are treated.



Jump-yip



# Prairie Dog Fun Facts

The largest prairie dog town ever documented was in Texas. This colony reached 250 miles in one direction and 100 miles in another. It was estimated 400 million prairie dogs lived there.

Over 500 pounds of dirt is tossed out to make the average burrow.

Prairie dogs have been called sod poodles, barking squirrels and prairie rats. Their scientific name, *Cynomys*, means mouse-dog squirrel.

Males and females mate with numerous partners. The young in any litter often have different fathers.

There are 63 geographical locations in the U.S. named for the prairie dog. Kansas has Prairie Dog State Park by Norton.

In the early days of settlement in Kansas, a man named David Morrow arrived in Hays City to make a living hunting buffalo. When buffalo meat was at a surplus, he turned to selling young prairie dogs he had captured and tamed. This earned him the name Prairie Dog Dave.

The earliest fossil found that is similar to modern prairie dogs comes from Kansas and has been dated to what is called the Kansas glacial period of the Pleistocene.

Prairie dogs have a total of 22 teeth.

Kansas black-tailed prairie dogs do not hibernate in winter.

Prairie dogs, as well as squirrels, are color blind in the red/green spectrum so only see blues, yellows, and grays.

Mutual grooming is frequently practiced by prairie dogs. This activity helps strengthen the bonds between individuals and family members, besides keeping the fur clean and controlling parasites.



# Prairie Dogs and the Ecosystem:



The prairie dog is unmatched in its role in the short and mixed grass prairie ecosystem. In fact, scientists consider the prairie dog a **keystone species** because of its wide impact on the environment and the other life forms it influences. The variety and abundance of plants, insects, and other animals are intertwined with the altered habitat created by the prairie dogs and their colonies, yet only 1%-2% of the original habitat occupied by prairie dogs exists today. Scientists have documented about 40 species of mammals, 90 species of birds, 80 species of plants, 29 species of insects, 15 species of reptiles, and 10 species of amphibians connected to prairie dog towns. Some research suggests over 200 species of animals are intricately connected to prairie dog colonies.

The uses by wildlife are many and varied. Some wildlife use the burrows as homes and to take refuge from predators, while some prey on the prairie dogs and the other species using the towns. The way prairie dogs graze and dig improves soil and vegetation quality, increases water concentration, and contributes to the overall plant and animal diversity in and around colonies.

Vegetation is one of the first things to change in and around a dog town. Prairie dogs are selective in what they eat. Grasses are their favorites and kept short due to their feeding. The constant foraging keeps plants in a continual state of regeneration and actually makes them more nutritious. Bison, antelope, deer, and even cattle are attracted to towns for the higher quality of food available. And, because the burrows channel



# A Keystone Species



precious water into underground aquifers and protected layers of soil and rock, dog colonies stay greener later in the year, prolonging the food supply for prairie dogs and other grazers. Bison find prairie dog towns attractive for another reason too. The unusually high amounts of bare ground invite ideal places for dust baths, and the open areas are favored by bison for rutting and resting.

Burrowing adds water to the soil but also produces richer growing conditions for plants by aerating the soil and mixing the inorganic layers with the organic layers. Prairie dogs even provide some of the organic material in the form of their own excrement. Compared to surrounding grasslands, the soil in prairie dog colonies has been found to be richer in nitrogen, phosphorus, and organic matter.

An increase in the number of bird species are one of the most visible shifts observed in an active prairie dog town. Raptors are frequently seen in higher concentrations above prairie dog towns, looking for a meal among the large numbers of prairie dogs. Bald eagles, golden eagles, ferruginous hawks, and red-tailed hawks frequently target prairie dogs, and in the winter months, this may mean the difference between life and death. Studies have observed that larger colonies attract higher concentrations of raptors with the year-around average of four raptors an hour in the air above colonies in Colorado.

Other raptors are also linked to prairie dog towns. Harriers, rough-legged hawks, kestrels, short-eared owls and prairie falcons don't feed on prairie dogs (pups may be taken occasionally), but feed on songbirds, small mammals, reptiles, amphi-



bians, and insects that are abundant in the dog towns.

The raptor that utilizes prairie dog colonies the most extensively is the burrowing owl. These small owls don't often eat prairie dogs but use empty burrows for nesting and rely on the mounds to provide good places to perch while they hunt for food. Burrowing owls feed primarily on insects and small rodents that are concentrated in the prairie dog towns.

Other birds use prairie dog towns as well. Horned larks, killdeer, barn swallows, long-billed curlews, and mourning doves are among many species of birds that prefer prairie dog towns over grasslands with no prairie dogs. Mountain plovers, recognized as rare and in need of federal protection since 1990, breed, nest, and feed in prairie dog towns because the plant variety and density in a town is ideal for supporting the insects they eat.

Many mammals, besides other grazers, are associated with prairie dog colonies. Badgers, who adore the prairie dog as a meal, can be found in larger numbers closer to the towns. They are equipped with long claws to dig up prairie dogs from their burrows and, consequently, use these enlarged burrows as dens.

Cottontails and jack rabbits are found in much higher concentrations around prairie dog colonies and this, in turn, attracts wild canids such as coyotes. Coyotes don't often use prairie dogs as food, but the rabbits, insects, small rodents, and ground-dwelling birds found in the area of the towns are eaten.

A smaller canid that does eat the prairie dog is the swift fox. Prairie dog towns provide the swift fox with shelter and a stable food source. As much as 50% of their diet may be prairie dogs.

Insects attracted to prairie dog colonies, in turn, attract birds and mammals, but also the Great Plains Toad and other amphibians and reptiles. The toad makes use of the burrows for shelter and the insects for food just like tiger salamanders and box turtles, to name a few.

The role of prairie dogs as a keystone species is now well-established scientifically. Indeed, prairie dogs probably qualify under multiple categories of keystone species – as prey and for their modification of their habitat. More studies are regularly coming forth reporting strong relationships between prairie dogs and other

wildlife, proving that the biodiversity of the shortgrass prairie depends significantly on the prairie dog.

The dramatic alteration of prairies by humans is unparalleled among North American ecosystems. In the United States, we are left with only small and isolated remnants of the prairie as it once existed. Indeed, grasslands could be considered the most imperiled major ecological region worldwide and prairie dogs as the single most important animal of the prairie.

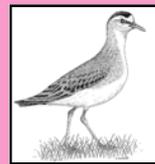
### Examples of Species That Utilize Prairie Dogs and the Habitat They Create



**Black-footed Ferret**



**Burrowing Owl**



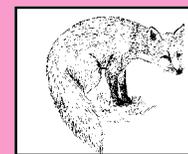
**Mountain Plover**



**Golden Eagle**



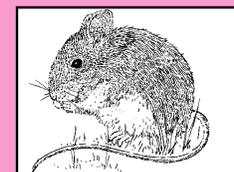
**Ferruginous Hawk**



**Swift Fox**



**Horned Lark**



**Deer Mouse**



**Grasshopper Mouse**



# Prairie Dog Myths and Misperceptions



Few animals engender as much controversy as black-tailed prairie dogs. But negative reactions and even downright hatred of these small mammals are most often fueled by misperceptions. Decades of careful scientific studies tell a different story about the important role these creatures in prairie ecosystems. We have learned that the presence of black-tailed prairie dogs on the shortgrass prairie is crucial to the survival of other prairie species. We have also learned that they have little impact on cattle grazing operations, a major industry in the Southern Plains. Furthermore, black-tailed prairie dogs are very intelligent and have one of the most complex language systems ever studied.

## **Myth #1: Prairie dogs are overpopulating.**

**In Reality:** Black-tailed prairie dogs have been significantly reduced, with populations at less than 1-2% of their historic numbers. They have been poisoned, shot, and bulldozed throughout their range across the Great Plains. Plague is also a major killer. There are no prairie dog complexes in the Southern Plains currently large enough to sustain the full complement of wildlife species in the prairie dog ecosystem.

## **Myth #2: Prairie dogs breed like crazy.**

**In Reality:** Prairie dogs have a very low rate of reproduction. Prairie dogs breed at a very low rate compared to other small mammals. They reproduce only once per year, and the average litter size is 3-4 pups. Most prairie dog pups do not survive their first year. When confronted with physical barriers to expansion, prairie dogs practice population control, sometimes through infanticide.

## **Myth #3: Prairie dogs spread the plague.**

**In Reality:** Prairie dogs cannot spread the plague, as they have no immunity to it. Prairie dogs are too busy dying from the plague to act as carriers and spread the disease. Prairie dogs lack immunity to plague, and mortality rates from outbreaks can exceed 99% of prairie dog populations. Prairie dogs typically die within a few days after contact with the plague bacterium. Other mammals, such as cats and dogs, do carry the plague. Plague in humans is easily treatable with standard antibiotics. While humans should take the health threat posed by plague seriously, the chances of catching it from a prairie dog are much less than the danger of being struck by lightning. In fact, some of the cases of direct transmission of plague from prairie dogs to humans involved people killing and skinning the animals.

## **Myth #4: Prairie dogs are an economic threat to livestock production**

**In Reality:** It must be said that the economic threat to livestock depends on prairie dog density and the percent of the pasture occupied by prairie dogs. Prairie dogs can be quite compatible with cattle production but the impact on cattle grazing can still be considered controversial. Multiple studies, conducted over the course of the past twenty years, support the position that prairie dogs do not present a significant economic threat to livestock operations. Studies have found no significant difference in the weight of steers grazing on and off prairie dog towns even under heavy cattle stocking rates, thereby maximizing opportunities for competition between cattle and prairie dogs. Other studies have similarly concluded that prairie dogs pose a negligible economic threat to cattle ranching and found that cattle weights did not significantly differ between colony and off-colony sites. Furthermore, studies have shown that poisoning prairie dogs was not cost-effective, as the annual cost of maintaining control exceeded the annual value of the forage gained. Similarly, cattle do not break their legs in prairie dog burrows. As long as cattle are permitted to see where they are going, they easily avoid burrows.

## **Myth #5: No one will miss prairie dogs when they're gone.**

**In Reality:** Wildlife and humans alike are harmed when prairie dog colonies are destroyed. Given the keystone role prairie dogs play, a variety of wildlife suffers when prairie dog populations decline, some to the point of near-extinction, such as the black-footed ferret. People are also affected. In states across the black-tailed prairie dog's range, including every state in the Southern Plains (Colorado, Kansas, New Mexico, Oklahoma, Texas), local residents have rallied to defend this underdog. Concerned citizens are rising up to protect individual colonies slated for poisoning, developing or shooting contests and pushing their local governments to adopt policies meant to protect prairie dogs and their habitat.



# A Native Returns: The Reintroduction of

Those who have followed conservation in Kansas for a time, will remember dreamily wondering if the black-footed ferret might ever make a return to the short-grass prairie of Kansas. “No” was the general thought because Kansas doesn’t possess large tracts of public land (only 3% of Kansas is public land) and all of the previous release sites were on public land in northern or western states. ***No, the prospects weren’t good.***

But, all of that changed in December of 2007. Twenty-four black-footed ferrets were released on two ranches in the Smoky Hill River drainage (Logan Co) that are separated by less than 10 miles. The first is the Smoky Valley Ranch owned and operated by The Nature Conservancy (TNC) through its Kansas chapter. The second is comprised of properties owned by three different families, but managed as a single ranch unit by Larry and Bette Haverfield, one of the owners. ***How did that happen?***

Well, this story begins several years earlier. Because of the success of captive propagation efforts, the next step in the recovery of the black-footed ferret was to reestablish the species in the wild. Federal agencies are directed by the Endangered Species Act of 1973 to take action to recover endangered species. The U.S. Fish & Wildlife Service (USFWS) began to consider releasing ferrets in Kansas when landowners Larry and Bette Haverfield and Gordon and Martha Barnhardt contacted the Service and said, “We have prairie dogs. Can we get ferrets?” This was the fall of 2005.

Before any releases could take place, the habitat of the potential release sites had to be evaluated. During a July 2006 habitat survey, it was determined the two ranches supported approximately 8,300 acres of black-tailed prairie dog colonies. The prairie dogs were calculated to be of sufficient acreage and density to provide suitable habitat for

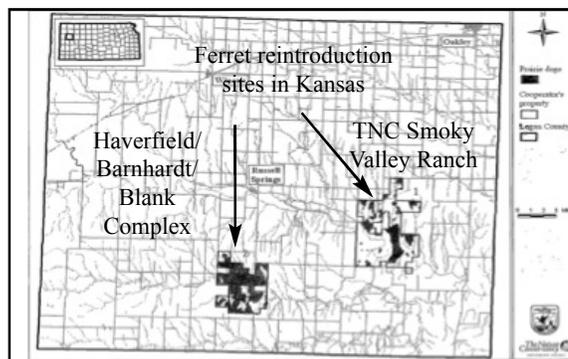
black-footed ferrets. However, since most ferret reintroduction sites in other areas at the time were considerably larger in acreage than this site, efforts here in Kansas were considered experimental. This placed an additional goal on the Kansas reintroduction site to determine if a release site of this size could support a reproducing population of black-footed ferrets.

Reintroduced ferrets are fully protected by the Endangered Species Act, but since the release in Kansas was considered experimental, the liability for accidental loss of any animals that wandered off the reintroduction properties fell to the USFWS rather than to surrounding landowners. In this way, no action would be taken against any non-participating property owners and residents if ferrets left the release site and died, nor would any non-participating property owner be told what he/she can and can’t do because ferrets were in the area.

Even with the experimental status, ferrets are still protected from intentional killing like shooting.

The releases followed the normal procedures which have been worked out over the 20-year history of ferret reintroductions, with captive-raised animals being brought to the sites. All animals undergo a period of pre-conditioning at the Service’s National Black-Footed Ferret Conservation Center (NBFFCC) during which they must demonstrate their ability to hunt and kill prey and survive in simulated natural conditions. (see Captive Breeding page 4) Successful animals are then transported in individual carriers and released directly into active prairie dog burrows.

So, the first black-footed ferrets were released in Kansas on December 18, 2007, with 24 captive-bred animals divided between the two reintroduction ranches. Additional planned releases were made in the fall of 2008 and 2010, and an unplanned release of 12 animals was made in the fall of 2012. In total, 135 ferrets have been released into Kansas since the project began. The bulk of these have been captive-bred animals, but a small number were wild-born and captured and translocated from other reintroduction sites.



# the Black-footed Ferret in Kansas

*How do you find a ferret on an 8,000 acre ranch?*

Once ferrets were released, surveys are conducted twice a year to monitor how they are faring. These are spotlight surveys done at night. Spring surveys (March) since 2010 rely on vision and use “ring readers” to identify individual ferrets that have been previously marked with a transponder chip. Surveys in the fall (October) live-trap ferrets to provide a health assessment of the individual animals.

Believe it or not, the eyeshine (light reflected back from the eye) of a ferret is like no other prairie animal--it is emerald green! Other animals have eyeshine, even green eyeshine, but none glow like a ferret. Surveyors drive through prairie dog towns with large spotlights mounted on their trucks



hoping to spot the telltale eyeshine of a ferret.

When spotted, surveyors drive slowly towards the animal to get a better view of it.

Binoculars are used to help make the identification. Ferrets usually run down a prairie dog hole and then pop back up again

and look at you. They may go down again then pop back up, then down again, and so forth.

Researchers call this “periscoping” and it is a sure sign of a ferret!

Any ferret born in captivity was released with a transponder under its skin which can be read electronically and is identical to the tags used to microchip your favorite pet. Any ferret born in the wild and previously caught, also has a transponder inserted under its skin. During a spring survey, a



device to read the transponder is placed over a prairie dog hole (where a ferret was spotted) and left for several hours to try and get a reading off the transponder. It is shaped like a ring hence the term “ring reader”. If a transponder is successfully read, researchers know the age and whether it is male or female.

In the fall, researchers actually try to trap ferrets located through spotlighting.



Traps are simple rectangular boxes made of wire mesh inserted over the prairie dog hole the ferret was seen in.

There is no bait but ferrets are curious and most often go in the trap on their own. Once traps have been set, researchers must check the traps often to minimize the risk of the ferret getting too cold above ground.

If a ferret is caught, it is transported to a veterinary trailer where a mini physical is given and a transponder is inserted (under the skin above the shoulders) if the animal does not have one. Vaccinations for canine distemper are given and ticks are removed. To work on a wild



ferret, it must be anesthetized and closely monitored. When all procedures are complete and the ferret is awake, it is immediately taken back to the hole it was trapped and released.



## *What do we know?*

For the first three years of this project, the ferret population grew steadily from year to year, reaching a peak of over 100 animals by winter 2010. After a measurable decrease in numbers following a prairie dog die-off in 2010-2011 (believed to be due to drought), ferret numbers have remained stable the past two years. It is unknown whether ferret numbers will once again increase if prairie dog habitat increases, much of which may be dependent on weather. Fall 2012 was again very dry, possibly creating circumstances similar to 2010/11 with prairie dog die-offs.

In the face of all these uncertainties, the promising fact remains that black-footed ferrets have successfully reproduced every year of this project. They have spread out over the areas of both ranches, with the best ferret numbers associated with the best and most dense prairie dog habitats. While it is impossible to predict what the immediate future holds for this effort, the ferrets have demonstrated their ability to colonize and successfully utilize the habitats provided

on both ranches.



## Changing Attitudes

Attitudes are changing slowly when it comes to prairie dogs. Arizona, the one state that successfully eradicated prairie dogs, began reintroducing them in October of 2008. Arizona Game and Fish received every comment conceivable from this action, but some are fully supportive of the move. In fact, the reintroduction of prairie dogs was actually requested by the rancher who had the grazing permit on the BLM ground.

Oklahoma has an incentive program that rewards ranchers for hosting prairie dogs and, in fact, 6% of their prairie dog acreage is in conservation agreements with landowners. The Western Association of Fish and Wildlife Agencies has a 10 year objective to maintain current acreage occupied by black-tailed prairie dogs and to increase it to over 1.7 million acres by 2011. The good news is this goal has been exceeded and over 2.25 million acres have been maintained and the initiative renewed for another 5 years. A program in Utah allows developers to purchase "habitat credits", or the right to build on current prairie dog habitats, from farmers and ranchers who own land suitable for prairie dogs and are willing to protect them. The Northern Cheyenne Tribe in Montana lists both prairie dogs and black-footed ferrets as protected species.

Educating the public, and public officials in particular, about the ecological importance of prairie dogs is one of the keys to managing prairie dogs effectively. Research continues to show how important prairie dogs are to the health of the shortgrass prairie and efforts to reintroduce black-footed ferrets in North America depend on maintaining large tracts of prairie dog colonies.

## RESOURCES

[www.prairiewildlife.org](http://www.prairiewildlife.org) (lots of resources at this site)

[www.blackfootedferret.org](http://www.blackfootedferret.org)

[www.fws.gov/mountain-prairie/species/mammals/blackfootedferret](http://www.fws.gov/mountain-prairie/species/mammals/blackfootedferret)

[www.southernplains.org](http://www.southernplains.org)

[www.audubonofkansas.org](http://www.audubonofkansas.org)

### DVDs

[Epeditions with Patrick McMillan, Clemson Public Services, 2010.](#)

[Return of the Prairie Bandit \(available from prairiewildlife.org\)](#)

### A few of our favorite children's books

[The Ferret Capture by Andrew Licht, Pronhorn Productions, 2008.](#)

[The Great Fuzz Frenzy by Janet Stevens and Susan Stevens Crummel, Scholastic Inc, 2005.](#)

[Prairie Dogs by Emery and Durga Bernhard, Gulliver Books, 1997](#)

[Wild and Free: The Story of a Black-footed Ferret by Jo-Ellen Bosson, Trudy Management Co., 1992](#)

### Places to see ambassador black-footed ferrets in Kansas

[Milford Nature Center, Junction City, KS](#)

[Topeka Zoo, Topeka, KS](#)

[Prairie Park Nature Center, Lawrence, KS](#)

[Lee Richardson Zoo, Garden City, KS](#)

[Hutchinson Zoo, Hutchinson, KS](#)

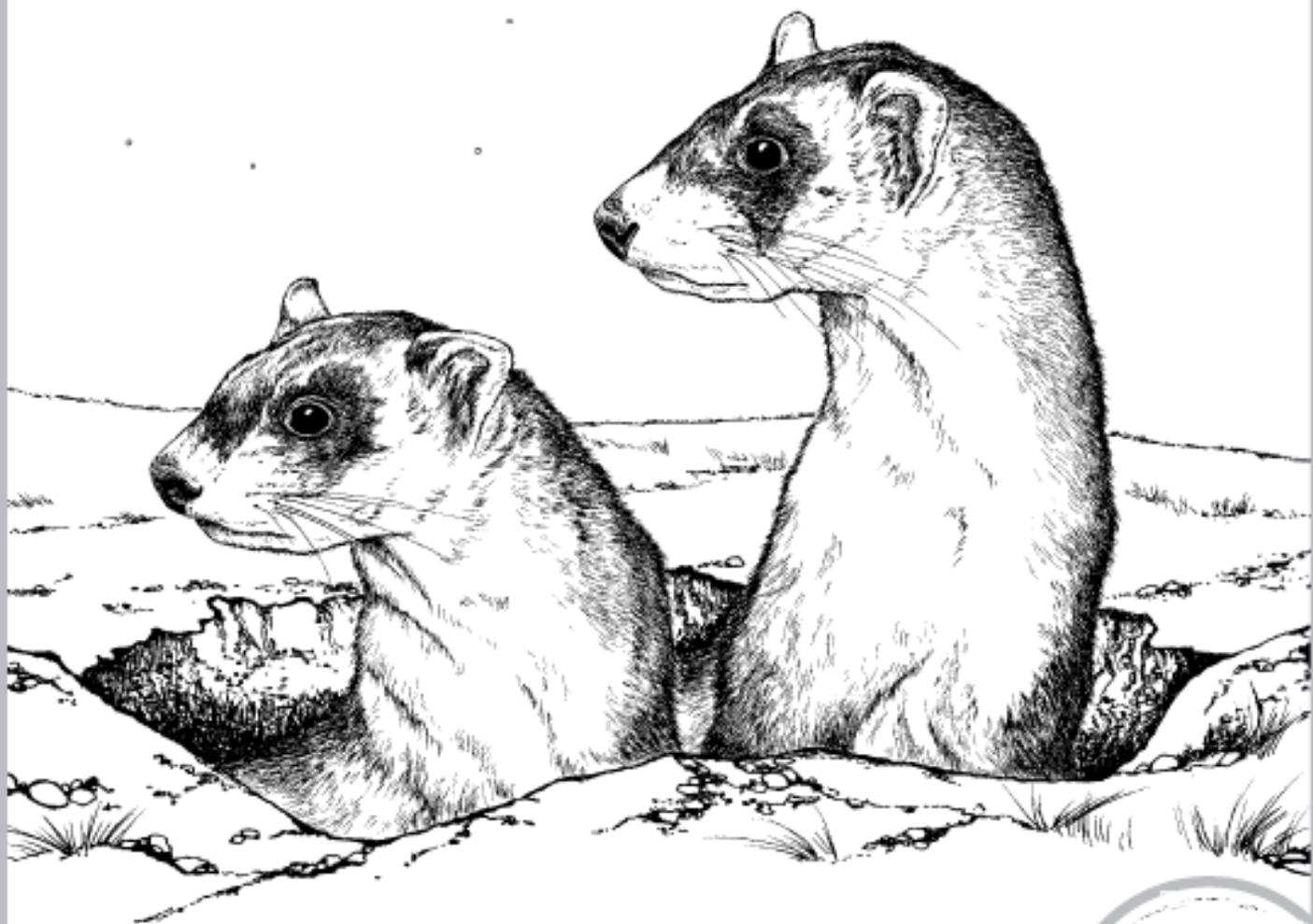




BLACK-FOOTED FERRET  
RECOVERY IMPLEMENTATION  
TEAM

Black-footed

ferret





**BLACK-FOOTED FERRET  
RECOVERY IMPLEMENTATION  
TEAM**

# Black-footed Ferrets

◦ *Black-footed ferrets are long, thin animals. They have short light tan fur with a black face mask, black feet, and a black-tipped tail. The ferrets' color and markings blend in with their grassland home.*

◦ *Black-footed ferrets hunt prairie dogs and live in their burrows. They are well-adapted to their lives in prairie dog towns. Their long bodies move easily through the underground tunnels. They have short legs with large front paws and claws for digging. Ferrets have large ears and eyes that help them find prey and avoid predators. Scientists think that smell is the black-footed ferrets' most important sense for hunting prey underground.*





BLACK-FOOTED FERRET  
RECOVERY IMPLEMENTATION  
TEAM

# GR8 2 C U Back BFF

## (Great to See You Back Black-footed Ferret)

Black-footed ferrets are long, slender-bodied animals. They have a brownish head, black face mask, black feet, and a black-tipped tail. Their short, buff-colored fur is lighter on the underside of their bodies. The ferrets' color and markings blend with their grassland home.

The black-footed ferret is a member of the weasel family and a close relative of mink, martens, badgers, pole cats, and otters. The black-footed ferret is the only ferret species native to North America. It is also one of the rarest species on Earth.

There were probably never enormous numbers of black-footed ferrets. Naturalists John Audubon and James Bachman first saw them in 1851. Black-footed ferrets were not seen again for 25 years and many people doubted their existence. In the late 1800s, they lived throughout the Great Plains, from Mexico to southern Canada. Where prairie dogs were found, so were black-footed ferrets.

Black-footed ferrets depend on prairie dogs for survival. They eat mostly prairie dogs and live in prairie dog burrows. Ferrets cannot dig their own burrows for shelter. Their dependence on prairie dogs almost led to their demise.

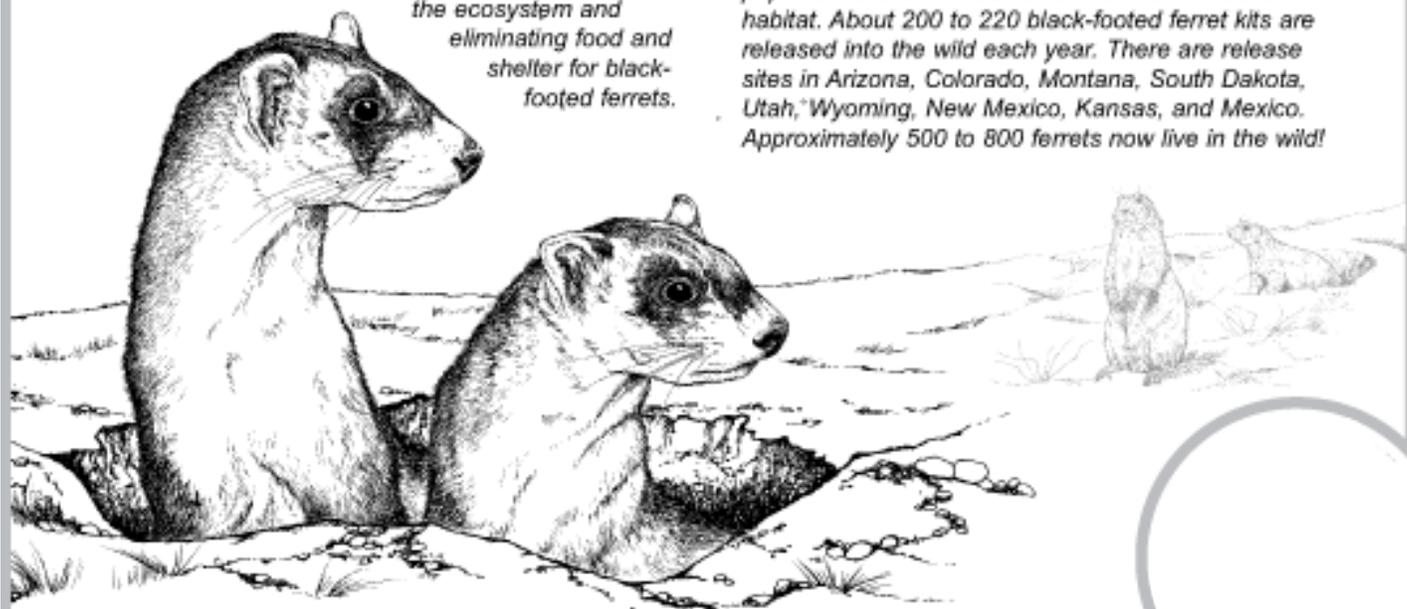
Since the early 1900s, large portions of prairie were converted to farmland. More recently, prairie has been used for urban development. This resulted in a loss of habitat for many species, including ferrets. Historically and currently, people poison prairie dogs for a variety of reasons, disrupting the ecosystem and eliminating food and shelter for black-footed ferrets.

Disease is also a continuous threat to ferret survival. Canine distemper, a naturally occurring disease, is fatal to ferrets. Outbreaks of sylvatic plague, a disease introduced to North America, periodically wipes out populations of both prairie dogs and black footed ferrets.

The U.S. Fish and Wildlife Service listed the black-footed ferret as endangered in 1967. This was before the Endangered Species Act was passed in 1973! Endangered means a species is in danger of becoming extinct in all or a significant portion of its range. By the 1970s, the only known population of ferrets was found in South Dakota. It soon disappeared.

People thought that black-footed ferrets were extinct until a small population was found in Wyoming in 1981. The last 18 ferrets were taken from the wild to start a captive breeding program. The goal of the program was to stabilize the black-footed ferret population at 280 breeding adults in captivity and to return young ferrets to the wild. The breeding population of ferrets was divided so that one catastrophic event would not kill off the entire species. Black-footed ferrets are now bred at the U.S. Fish and Wildlife Service National Black-Footed Ferret Conservation Center, Louisville Zoo, Toronto Zoo, Phoenix Zoo, Smithsonian's Conservation & Research Center, and Cheyenne Mountain Zoo.

Scientists hope to establish at least ten populations of black-footed ferrets in their natural habitat. About 200 to 220 black-footed ferret kits are released into the wild each year. There are release sites in Arizona, Colorado, Montana, South Dakota, Utah, Wyoming, New Mexico, Kansas, and Mexico. Approximately 500 to 800 ferrets now live in the wild!

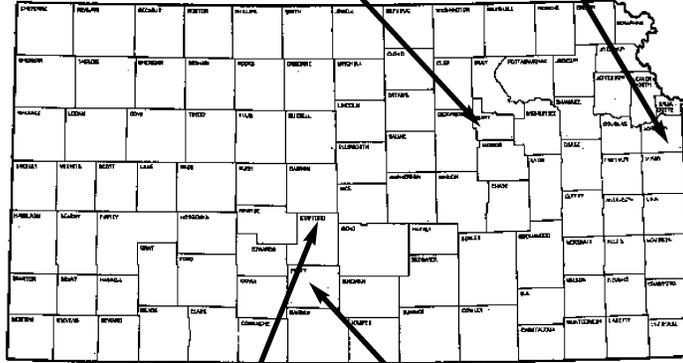


On TRACKS is published by the Kansas Department of Wildlife & Parks several times during the school year.

The purpose of On TRACKS is to disseminate information and educational resources pertaining to the natural, historic, and cultural resources of the prairie, emphasizing Kansas ecology. Information is presented from the perspective of current scientific theory.

Pat Silovsky  
Milford Nature Center  
3115 Hatchery Dr.  
Junction City, KS  
(785) 238-5323  
pat.silovsky@ksoutdoors.com

Alaine Neelly Hudlin  
The Prairie Center  
26325 W. 135th St.  
Olathe, KS 66061  
(913) 856-7669  
alaine.hudlin@ksoutdoors.com



Pam Martin  
Kansas Wetlands Education Ctr  
P.O. Box 276  
St. John, KS 67576  
(620) 786-7456  
pam.martin@ksoutdoors.com

Mike Rader  
Pratt Headquarters  
512 SE 25th Ave  
Pratt, KS 67124  
(620) 672-0708  
mike.rader@ksoutdoors.com

**Editor:**  
Pat Silovsky

**Contributing Authors:**  
Pat Silovsky

**Ferret Information Review:**  
Dan Mulhern, KS  
Ferret Reintroduction Coordinator

**Editorial Assistant:**  
Shelby Stevens

Equal opportunity to participate in and benefit from programs described herein is available to all individuals, without regards to their race, color, national origin or ancestry, religion, sex, age, sexual preference, mental or physical handicap, or political affiliation. Complaints of discrimination should be sent to: Office of the Secretary, Kansas Department of Wildlife & Parks, 1020 S. Kansas Ave, Suite 200, Topeka, KS 66612-1327.

Bulk Rate  
U.S. Postage Paid  
Permit No. 57  
Pratt, KS

ADDRESS CORRECTION REQUESTED

Wildlife Education Service  
512 SE 25th Avenue  
Pratt, KS 67124

