

Picky Eater

Grades: 3 - 12

Objectives: Students will be able to 1) explain how the loss of habitat and food that can cause animals to go extinct 2) give examples of specialist species and generalist species 3) identify what ferrets eat 4) identify competition 5) define a specialist

Subjects: Science, social studies, physical education

K – 4 Life Science Content Standard C: Organisms and environments

5 – 8 Life Science Content Standard C: Structure and function in living systems; populations and ecosystems; diversity and adaptations of organisms

9 – 12 Life Science Content Standard C: Interdependence of organisms; Behavior of Organisms.

Duration: 20-30 Minutes

Group size: Minimum of 10

Setting: Playing field, large room or gym.

Background: The black-footed ferret (*Mustela nigripes*) is one of the most endangered species in North America. An endangered species is a species of organisms facing a high risk of extinction. Generally this is caused by changes in the animal's habitat; this could be changes in living conditions or food sources. In the case of the black-footed ferret both the habitat – prairie dog towns – and their food source – prairie dogs – were changed.

Black-footed ferrets were once found from Alberta and Saskatchewan Canada, throughout the Great Plains of the United States, and northern Mexico. These locations are ideal for another mammal, the prairie dog. Black-footed ferrets depend almost entirely on prairie dogs. Prairie dogs comprise over 90 percent of ferrets' food source. An adult ferret can consume over 100 prairie dogs in one year. Black-footed ferrets use prairie dog burrows for their homes. Scientists estimate that approximately 90 percent of a ferret's life is spent underground in passages and chambers made by prairie dogs.

Ferrets are long, slender, and flexible, which make them a perfect prairie dog predator. This body shape is ideal for moving through narrow tunnels. They have razor sharp teeth which they use to kill their prey. Ferrets are predators but they are also prey. Black-footed ferrets are hunted by owls, hawks, eagles, coyotes, badgers, and bobcats; all of which are found at Wind Cave National Park.

Prairie dog towns are the best ecosystems to support self-sustaining populations of black-footed ferrets. Prairie dog colonies are essential to ferrets in the wild. The extermination of prairie dogs, and the conversion of prairie dog towns into land for agricultural use, prompted a decline in prairie dog populations. This reduced the black-footed ferret's main food source. Disease like sylvatic plague and canine distemper also took their toll on ferret populations.

In 1967 the black-footed ferret was listed as an endangered species. In 1974 the last known ferret population located in southwestern South Dakota vanished. In 1977 a park naturalist observed a ferret at Wind Cave National Park. This was the third sighting in the park after the ferret was listed as endangered and it was the last documented park sighting. At this time scientist believed the black-footed ferret was on the verge of extinction and existed in such small populations that the animals would go extinct because of diseases or a natural disaster.

In 1981 a ranch dog named Shep killed a black-footed ferret near Meeteetse, Wyoming. This led to the discovery of approximately 130 ferrets in that area. These ferrets were studied but an outbreak of sylvatic plague and canine distemper decimated the population.

Scientists captured the last 18 known ferrets from Meeteetse by the end of 1987. These animals were transported to a facility in Sybille Canyon, Wyoming where a captive breeding program began. This facility later became known as the National Black-Footed Ferret Conservation Center. In 1991 the first black-footed ferret reintroduction site selected was Shirley Basin in central Wyoming. Forty-two juvenile ferrets were released. Since then ferrets have been released in many of the plains states. In some areas, like the Conta Basin near the Badlands National Park, ferrets have survived and have developed a self-sustaining population.

Starting in 2000, national park resource management staff began working on a plan to reintroduce black-footed ferrets at Wind Cave National Park. This process included completing an environmental assessment study, prairie dog management plan, and applying for a special permit to reintroduce an endangered species. Wind

Cave National Park is one of the few remaining plague-free prairie dog town locations with a large enough population of black-tailed prairie dogs to attempt a reintroduction effort.

On July 4, 2007 the first 8 ferrets were reintroduced to Wind Cave National Park. Between July and November a total of 49 ferrets were released. Sixteen of the ferrets were born in captivity at the Black-Footed Ferret Captive Breeding Center in Fort Collins, Colorado. Thirty-three were wild ferrets captured at Conata Basin, South Dakota and transported to Wind Cave National Park. The National Park Service and the U.S. Fish and Wildlife Service are working together on the reintroduction project at Wind Cave National Park. Since then more ferrets have been released in the park. Current populations are estimated to be at about 60 ferrets.

To date ferrets have been reintroduced in Wyoming, South Dakota, Arizona, Montana, Utah, Colorado, Kansas, and Chihuahua, Mexico. Currently the most successful population is in Conata Basin near Badlands National Park, South Dakota. The black-footed ferret recovery goal is to have at least 10 separate, self-sustaining, black-footed ferret populations. Wind Cave National Park is becoming one of those areas.

To achieve this goal many federal, state, and local agencies are working together along with private citizens. Public involvement is key to the recovery of the black-footed ferret. If you see a black-footed ferret in Wind Cave National Park please report the sighting to a park ranger. This information can help wildlife managers learn more and better protect this amazing animal.

One of the reasons the black-footed ferret is endangered is because it is very picky about where it lives and what it eats. The following activity will help student understand why ferrets and other animals become endangered and what we might be able to do to help them.

Vocabulary: habitat, adaptation, predator, prey, extinct, endangered, specialist, generalist, reintroduction,

Materials:

- 2 by 2 inch square pieces of paper of different colors to represent different foods that prairie animals eat. About 25 of each color will be enough for a group of 20 children. There should be about twice as many (50) red pieces

to represent the prairie dog color. Depending on the colors of construction paper on hand, different colors can be used. Animal groups can be combined as well: Mice and Rats=Rodents; Lizards and Snakes=Reptiles, etc.

Birds – yellow

Rabbits – light brown

Eggs – white

Snakes – light green

Lizards – dark green

Voiles – hot pink

Deer – dark brown

Insects – black

Mice – bright blue

Rats – dark blue/purple

Prairie dogs – red

Antelope – light blue

Berries and grasses – pink

Porcupine – gray

- Name tags with various prairie animals printed on them with the food that they eat (and their representational colors) indicated on the name tags. See Picky Eater folder for the name tags. Below are the animals and the food that they eat. Have two or three of each kind of animal for a group of 20. Below are the list of animals and what they eat.

Eagle: snakes, rabbits, birds, prairie dogs, mice/rats

Hawk: snakes, rabbits, birds, prairie dogs, mice/rats, lizards

Bob Cat: rabbits, birds, prairie dogs, mice/rats,

Mountain Lion: deer, rabbits, prairie dogs, grasses/berries, porcupine
Badger: voles, mice/rats, prairie dogs, rabbits, lizards, birds, eggs, insects.
Coyote: voles, rabbits, birds, prairie dogs, mice/rats, snakes/lizards, deer,
pronghorn, insects, eggs, berries/grasses
Black-Footed Ferret: prairie dogs

Procedure:

Have the children stand in a circle and give each child a nametag. Have them look at their animals and note what they eat. Scatter the pieces of paper inside the circle and tell them that the papers (and their colors) represent the various foods on the prairie (“Bounty of the Prairie”). Tell the kids to find a “home base” such a den, burrow, nest, etc. near the circle.

When everyone is ready, at the word “Go” they are to go out on the “prairie” from their home bases and pick up the paper one piece at a time and take it back to their home bases one piece at a time. Tell them that they can pick up only the colors on their names tags because this represents the foods that they eat. It is not necessary to pick up one of each color; they just have to get as many pieces of paper as they can.

If it is a windy day, have the kids hold on to their papers instead of leaving them at their home bases. They can just tag their home bases each time they pick up a new piece.

When most of the papers have been picked up, call all the kids back into the circle and have them count their pieces of paper. Ask the children to report how many pieces of paper they have gathered.

Optional: Complete further rounds of the activity, each time removing more and more the “prairie dog” color paper. This represents the loss of prairie dogs. Coyotes will continue to collect plenty of paper, but the black-footed ferrets will have fewer and fewer pieces of paper to collect.

Discussion:

Who gathered the most? Who gathered the least? Why?

If something happened to the prairie dog population which animal would be most affected?

Discuss the near extinction of the black footed ferret in the context of the loss of prairie dogs and prairie dog towns during the late 1800's and into the 1900's.

Coyotes (called a "generalists" species) eat a large variety of animals and also plants, so the children who are coyotes will most likely have picked up the most pieces of paper. Some of the other animals, who are a bit more specialized, have a less varied diet, so they will likely have less pieces of paper. Black-footed ferrets, (called a "specialists" species) are highly specialized. Their main food is prairie dogs, so they will most likely have even less pieces of paper. (There can sometimes be exceptions, however!) Since the black footed ferret eats mostly prairie dogs, it would feel the effect of the loss of prairie dogs much more than the coyote. The coyote would hardly notice if the prairie dog population disappeared since it can eat a large variety of other foods.

Further Discussion: An animal can be a generalist or a specialist in more aspects than what they eat- choice of habitat can play a part as well.

A generalist species is able to thrive in a wide variety of environmental conditions and habitats. It can make use of a variety of different resources (food, water, shelter, etc.) In the United States, coyotes and raccoons are examples of generalists. They can live in the wild, but can also thrive near urban areas. A specialist species can only thrive in a narrow range of environmental conditions or has a limited diet. The ivory billed woodpecker is nearly (?) extinct because of the large-scale destruction of its original habitat: large tracts of hardwood forests with close access to water. Most animals do not all fit neatly into either group; there is a range from highly specialized to broadly generalist species.