

# KEEPERS OF THE PRAIRIE

*The case of the black-tailed prairie dog reveals many of the issues and misconceptions that lead to species becoming endangered.*

## ARIZONA SCIENCE STANDARDS

SC05-S3C2-02,  
SC03-S3C1-02,  
SC03-S3C1-01&02,  
SC03-S4C3-03&05,  
SC03-S4C3-01

## OBJECTIVES

Students should:

- Outline the reasons for black-tailed prairie dogs' near extinction.
- Discuss the importance of prairie dogs in the prairie ecosystem.
- Explain the attitudes that led to prairie dog extirpation and how those attitudes were misinformed.

## VOCABULARY

Conservation  
Endangered species  
Habitat  
Population  
Threatened species

## BACKGROUND

Fewer than 100 years ago, black-tailed prairie dogs numbered an estimated 5 billion across the prairies of western North America. By the early 1970s, black-tailed prairie dog numbers had dropped so much that they were in danger of extinction. What happened? Prairie dogs were the victims of development and unwarranted disfavor that virtually extirpated the species. As people moved into the prairies, prairie habitats were altered for agriculture and urban development. In the rangelands, ranchers viewed prairie dogs as pests and embarked on a poisoning and shooting campaign to eradicate them from the range. Misguidedly, ranchers believe that prairie dogs compete with their livestock for grass and other forage. In actuality, prairie dogs avoid many plants that livestock prefer and eat plants that livestock avoid. Prairie dog foraging habits are an important part of the prairie ecosystem because they improve the quality of certain plants, so much so that pronghorn antelope, American bison, and livestock prefer to graze on land occupied by prairie dog colonies.

In their presumed competition with livestock, ranchers fear that prairie dogs reproduce rapidly and that they continually invade new range. Prairie dogs, however, are moderate breeders. Only half of the adult females in a colony produce litters each year, and the average litter size is three or four. The area the colonies occupy does not automatically increase with new young. Research has shown, too, that prairie dogs tend to establish colonies in areas that livestock have already overgrazed, so these areas would be less viable for livestock anyway. And, although ranchers claim that livestock might stumble into prairie dog burrows and break a leg, actual incidences are rare.

Despite the evidence that prairie dogs pose little threat to the livestock industry, prairie dogs are still persecuted through eradication programs and recreational shooting. Today, they are found in fragmented populations throughout much of their range (they have been extirpated from Arizona), and are mostly restricted to Wildlife Refuges, Indian reservations, and National Parks and preserves. In response to their decline, in 1998 it was proposed that they be added to the U.S. Fish and Wildlife Service's list of Endangered and Threatened Species. After much review, the agency determined that the black-tailed prairie dog warrants listing under the Endangered Species Act. But because other species in greater need of protection await listing, the Service will not list the species at this time. Meanwhile, protection of the prairie dog depends on states, tribes, local communities, and private landowners. Several prairie region states have developed and signed an agreement and strategy for prairie dog conservation and recovery. If efforts are successful, the prairie dog may never need to be listed.



# KEEPERS OF THE PRAIRIE

## DOING THE ACTIVITY

### SETTING THE STAGE

- 1) Ask the students what they know about prairie dogs. List their ideas on the board. Explain that black-tailed prairie dogs are being considered for listing as a threatened species. Have the students hypothesize possible reasons for their decline. Elaborate on any of their answers that reflect the causes as noted in the background reading above.
- 2) Explain that habitat loss has been a factor as people have changed the prairies for their purposes. But habitat loss is not the only reason black-tailed prairie dogs are close to extinction.
- 3) Tell them that they are going to read an article that shows how sometimes people cause an animal or plant to go extinct because they have opinions about it that may not be based on truth. Pass out a copy of the reading "Keepers of the Prairie" to each student, have them read it, and discuss it as a class.

### DISCUSSION

- 1) Ask the students about prairie dog declines and the misconceptions people have generated about prairie dogs:
  - Why have prairie dog numbers dropped so low? (habitat loss, elimination by people)
  - Why have people wanted to get rid of prairie dogs? (They viewed them as competition or a threat to livestock.)
  - Are prairie dogs really as big of a threat as they have been perceived to be? (no) How do we know this? (Wildlife biologists have studied prairie dogs and discovered their positive impacts.)

- 2) Ask the students about the benefits that prairie dogs provide the prairie:

- How do prairie dogs benefit other animals that live on the prairie? (They trim grass and plants which provides more nutritionally valuable food for grazers, their burrows and tunnels provide homes, they are prey to other animals, and they warn other animals with their alarm calls.)
- 3) Have the students think about how new scientific information might help in the protection of a species. Do they think people will change their minds about prairie dogs now that scientists have shown that prairie dogs are actually useful for the prairie and not a threat or competition?
  - 4) Discuss what they think can be done to protect prairie dogs. Can they work together to make a proposal? What arguments would different interests have in the protection of prairie dogs?

### EXTENSION

Have the students research and report on the work of a wildlife biologist. Ask questions such as:

- What do wildlife biologists do? (They study wildlife in nature and report their findings so people understand wildlife and how to manage wildlife.)
- How do they study endangered and threatened species? (They study populations of animals to see if they are healthy or declining.)
- How do they help protect endangered and threatened species? (They make recommendations for ways to protect and restore wildlife populations, they help with programs like captive breeding and release, and manage and monitor wildlife.)

### MATERIALS

- a copy of the article "Keepers of the Prairie"\* for each student
- a map of North America

\*Reprinted with permission from the author, Dorothy Hinshaw Patent. Dorothy is also the author of the book for children "Prairie Dogs" published by Clarion Books.

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## STUDENT HANDOUT

# Keepers of the Prairie\*

Can you imagine a town with a population bigger than that of the entire United States? This town took up more land than Connecticut, Massachusetts, New Hampshire, and Rhode Island combined. But the inhabitants of this town weren't people – they were prairie dogs. Believe it or not, in 1901 a biologist found a series of prairie dog towns in Texas that was really this huge.

Of the five kinds of prairie dogs found in North America, only the black-tailed prairie dog lives



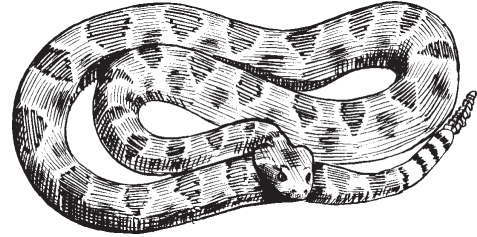
in large, densely populated towns. A prairie dog town doesn't look like much on the surface, but underground it's a different story. Each family had its own set of connected burrows with two or three entrances. One large room serves as a nesting chamber where the animals sleep at night. Side pockets in the burrows are used for storing food such as grass.

They clip off all the grass in their towns, even what they don't eat. Doing this gives them a clear view of any predators that might be coming their way.

Prairie dogs create a unique protected environment in their towns. The temperature in underground burrows stays in the eighties in summer, even when the sun is beating down. In winter it can be bitterly cold above ground, but the burrow temperature remains about forty degrees Fahrenheit.

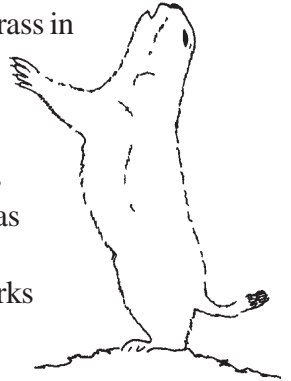
Many animals take advantage of the special conditions prairie dogs create both above and

below ground. Almost twice as many kinds of prairie animals live in an area with a town than in the surrounding prairie. Prairie rattlesnakes, spadefoot toads, tiger salamanders, and burrowing owls all find protection in the prairie dogs' dark, moist burrows.



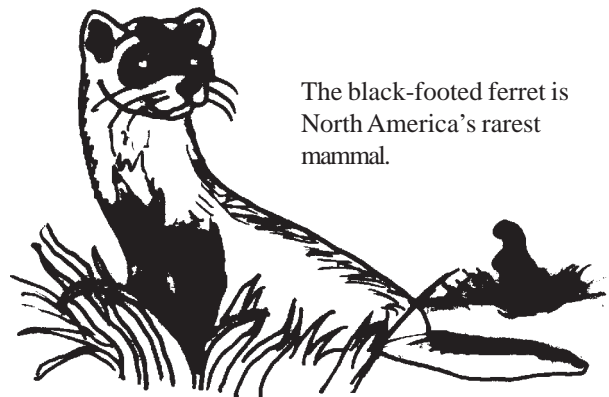
Rattlesnakes rest in the shade of prairie dog's burrows.

Above ground, birds such as Cassin's sparrows, lark buntings, and mountain plovers favor town life. Pronghorns feed on the herbs and shrubs that replace grass in the center of town. Pronghorns and other animals may benefit from the prairie dogs' alarm system. Prairie dogs are always on the alert for predators such as golden eagles and coyotes. If a prairie dog senses danger, it barks loudly, and other aboveground prairie dogs scamper for their burrows.



This prairie dog has sensed danger and is sounding the alarm.

One predator of prairie dogs is the black-footed ferret. It looks like a masked bandit and lives in prairie dog towns. The ferret feeds almost solely on prairie dogs – its long, slender body slips easily through their burrows.



The black-footed ferret is North America's rarest mammal.

Once prairie dogs thrived on the Great Plains from Canada to Mexico. But now they live on less than one percent of the land they originally occupied. Once they numbered in the billions. Now only thousands remain. Almost all of the shortgrass and mixed prairie that was home to prairie dogs has been replaced by cities, cattle pastures, and fields of wheat and other crops.



The black-tailed prairie dog's range stretches from Canada to Mexico across the plains of the United States.

In addition to losing their habitat, prairie dogs are seen by many people as enemies that should be destroyed. Because these animals eat grass, ranchers view them as competition for their cattle. With government support, ranchers have tried to eliminate prairie dogs with expensive poisoning campaigns. Some states even require that prairie dogs be exterminated.

Once the prairie dogs started disappearing, the other animals that benefited from their towns became less common, too. Without plenty of prairie dogs, black-footed ferrets could not survive. When prairie dogs lived across the plains, the black-footed ferret had many homes, too. Now it is an endangered species. In the 1980s these animals survived in only one prairie dog town in Wyoming. United States Fish and Wildlife Service employees carefully trapped the remaining ferrets and began breeding them in captivity. Now the ferrets are once again being released into the wild.



Pronghorns like to eat the plants that grow in the center of prairie dog towns. Constant clipping by prairie dogs eventually kills the grass there, and shrubs and herbs grow instead.

Some scientists now believe that prairie dogs do more good than harm. Yes, they eat grass, but mostly old stems and blades, and

much of their diet is made up of plants that cattle don't eat. This trimming clears the way for tender young shoots to grow that contain more nourishing protein. The fresh grass is also easier to digest, and cattle and bison prefer it to tough old blades.

Because wildlife biologists have learned that prairie dog towns are so vital to the life of the prairie, the government has recently changed its policy and is no longer destroying them. Meanwhile, the National Wildlife Federation has asked the federal government to list this animal as a threatened species. With government protection instead of persecution, prairie dogs and other animals that find homes in their towns could become common sights on the prairie once again.

