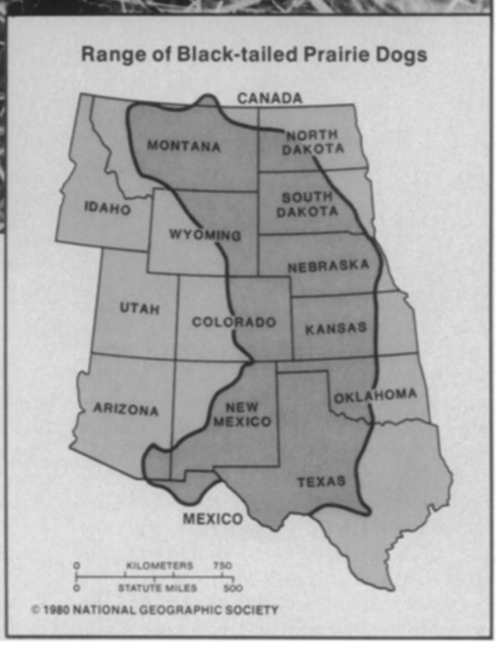
It's a Prairie Dog's Life

Barbara S. Moffett/National Geographic Society

Prairie dog's diet of above-ground vegetation exposes it to predators. Organized social structure provides warning of predators. This animal, marked by spots of hair dye, is under observation in a Kansas project.



The community interactions of prairie dogs are just being mapped, but that social solidarity is not enough to protect the animals from the encroachment of humans

BY JULIE ANN MILLER

Infinite numbers of "prairy dog" were reported by Lewis and Clark on the Great Plains in 1804. As a somewhat more conservative estimate, millions of the animals, which are actually a type of squirrel, are now thought to have shared with bison the plains from Saskatchewan to the Rio Grande. The number of prairie dogs has since fallen drastically with the advance of farms, ranches and cities, and today most prairie dogs live in remote areas, usually in National Parks or on other protected land.

In their remote towns, and in zoos where they are easily kept, the lively social life of prairie dog communities still fascinates observers. The animals kiss in greeting, leap exuberantly in the air with a yip, and use a series of whistling barks to warn community members to be ready to dive into their burrows when predators are near.

While many of the prairie dog behaviors appealingly, if unwittingly, mimic the finest of human interactions, recent observations suggest, in addition, that prairie dogs also show some of humankind's less exemplary behaviors. "Here's a lowly rodent that is nepotistic ... and is adulterous," says John Hoogland, a Princeton University biologist who has spent thousands of hours during the past seven years observing a 16-acre black-tailed prairie dog colony at Wind Cave National Park in South Dakota. During the mating season, inconveniently timed for late winter, Hoogland and co-workers spend 12 hours each day (beginning at 7 a.m. before the prairie dogs emerge) huddled in sleeping bags scanning the colony with binoculars from observation towers.

The 200-member prairie dog town Hoogland watches is just a whistle-stop of a community. Colonies often contain thousands of animals in a collection of elaborate burrows that cover hundreds of acres. In the past century when prairie dogs were more numerous, even larger colonies probably thrived. A report just 79 years ago, for instance, described a single Texas colony housing 400 million animals and covering more than 25,000 square miles.

Whatever the size of the prairie dog town, its basic unit is a family group called a coterie. This unit consists of a male,

several females and their young living together in a labyrinthine burrow. Hoogland has marked each of the animals in the town with a dyed number for identification, and he reports that females stay for their entire lives in their native coterie territory, while males move from their birth coterie after their first year.

The coterie is the basic unit for reproduction, as well as for residency. Hoogland says that the departure of the young males apparently acts to prevent incest. By vigilant field observation during the breeding season, Hoogland and co-workers keep track of which animals mate. When a male and female go into a burrow together during the day and stay more than two minutes, and the observers hear the special call that a male makes only before or after mating, they know mating has occurred. Analysis of blood samples of baby prairie dogs is used to confirm the mating records. "We're using blood samples like a lawyer would for paternity exclusion," Hoogland says.

The extent of promiscuity among the prairie dogs was a surprising finding. Not only does each male mate with more than one of the females in his coterie, but 30 to 40 percent of the females mate with more than one male. That finding leaves Hoogland with troubling questions about the male prairie dog as stepfather. He wonders why the male allows back into the coterie a female that has mated with another male and whether the male can distinguish which offspring are his own.

In other aspects of social life, the prairie dogs seem generally to put their own family first. The investigators tallied the time the animals spent in various behaviors with relatives and non-relatives. Friendly behavior includes kissing, playing and grooming; unfriendly behavior consists of fighting and stereotyped displays in which one prairie dog presents its rear to another, while its tail flares, its anal glands inflame and its teeth chatter loudly. Hoogland finds that the prairie dogs tend to be friendly and helpful to relatives but generally uncooperative toward others, including prairie dogs of a neighboring coterie. Even the seeming community duty of the prairie dogs may be founded on the need to look out for relatives. Hoogland reports that prairie dogs without relatives are less likely to give an alarm call when a predator is nearby than is an animal with an extensive family.

The prairie dog colonies promise to enlighten investigators about animal social interactions, but to realize that potential the colonies must survive: The elaborate social network that protects the animals from their natural predators is insufficient against people with guns, traps and poison. Prairie dogs are considered pests by ranchers, who say the rodents force cattle off valuable grazing territory, and the U. S. Fish and Wildlife Service gets requests for help in eradication from every state that has prairie dogs. Last winter, a research project at a wildlife refuge in central Kansas was threatened when someone shot about a third of the prairie dogs that Zuleyma Halpin of the University of Missouri had identified and marked.

U.S. Department of the Interior, Fish and Wildlife Service

Two young black-tailed prairie dogs pose at an entrance to their burrow.

Only one of the four U. S. species of prairie dog is now considered endangered, but populations of the still-common black-tailed prairie dog are in a precarious situation. "You can have a town of 2,000 prairie dogs this year and it can be gone the next, lost to a new farm or urban expansion," Halpin says. "Prairie dogs are only found in North America, so if they disappear here, that's it for the species," she adds. □