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Managing prairie dogs in Colorado

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Quick Facts

Three species of prairie dogs are found in Colorado.

Prairie dogs and their burrows serve as important hosts for numerous other animals.

Prairie dogs can damage rangeland and occasionally carry plague.

Problem prairie dogs can be controlled by shooting, using poison grain bait and fumigation.

Description and Distribution

Three species of prairie dogs in Colorado occupy an estimated 2,000,000 acres of rangeland. The black-tailed prairie dog occupies the eastern plains; the Gunnison prairie dog the southwest one-third of the state; and the white-tailed prairie dog the northwest one-third of the state. Prairie dogs are relatively large burrowing ground squirrels that weigh 1½ to 3 pounds and are 14 to 17 inches long. Prairie dogs are identified by their reddish fur, large eyes, short ears and broad round head.

Biology and Social Organization

Prairie dogs live in colonies commonly referred to as prairie dog towns. Small groups generally composed of one adult male, three adult females and six offspring display territorial behavior toward adjacent groups in the town.

Prairie dogs live in burrows approximately 10 yards apart, 3 to 14 feet deep and 10 feet to over 100 feet long. A crater-like mound 3 to 10 feet

across and 0.5 to 1 foot high found at the entrance of the burrow prevents water from rushing in and serves as a lookout station. A density of 35 black-tailed prairie dog burrows per acre is common, although up to 95 burrows per acre have been reported. The majority of burrow systems have one entrance although some have two or three entrances.

Black-tailed prairie dog densities vary from about five per acre in late winter to 20 per acre after the birth of pups in spring, although spring densities of up to 35 per acre have been reported.

Prairie dogs are active only during the day. White-tailed and Gunnison's prairie dogs hibernate from about October to March, depending on elevation. Black-tailed prairie dogs do not actually hibernate, but they will stay below ground for several days during cold cloudy weather.

Prairie dogs have one litter of three to eight young per year born in March or April. The gestation period is 28 to 34 days.

The pups venture above ground at an age of five to six weeks. Dispersal of year old juveniles and a few adults takes place in late spring usually for a distance of two miles or less.

Economic Importance

Prairie dogs and their burrows serve as important hosts for numerous other animals. In Oklahoma 89 vertebrate species were associated with prairie dog towns. Prairie dogs are an important food source for predators, including the endangered black-footed ferret, badgers, coyotes, foxes, ferruginous hawks, eagles and owls. Their burrows serve as homes for burrowing owls, cottontail rabbits, rattlesnakes and other animals.

The burrowing activity of prairie dogs decreases soil compaction, increases water intake, aerates the soil and promotes soil formation. Prairie dogs also provide recreation for photographers, hunters and naturalists.

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Health Risks

Prairie dogs, which are hosts for fleas, occasionally carry bubonic plague. Plague is transmitted to humans via flea bites. Early symptoms of plague include swollen and tender lymph nodes, chills and fever. Early diagnosis and treatment is imperative. When walking through suspected plague areas, individuals should apply an insect repellent to socks and pant cuffs before tucking pants inside boots.

Effects on Rangeland

The effects of prairie dogs on the reduction of available rangeland forage for livestock currently is unknown. Reduction can be influenced by several factors including geographic location, rainfall, dominant grass species and duration of prairie dog inhabitation. Recent research suggests a wide variety of effects ranging from a 20 percent to 30 percent reduction in available forage to an actual increase in the percent of grass species preferred by livestock.

Black-footed Ferrets

It is illegal to kill a black-footed ferret (Figure 1), which is an endangered species that feeds almost exclusively on prairie dogs. It is estimated that one reproductive female ferret and her young require about 200 prairie dogs for food per year.

Black-footed ferrets seldom are observed because they occur in low densities and are active primarily at night. However, their presence can be determined by the occurrence of ramps (Figure 2) or ferret tracks (Figure 3).

Pending a court decision, new labels, placed on aluminum phosphide tablets and gas cartridges after September 15, 1988, will require a black-footed ferret survey following U.S. Fish and Wildlife Service guidelines before these chemicals can be used for prairie dog control. Two percent zinc phosphide also may be relabeled with the ferret survey requirement in the future.

Notify the Colorado Division of Wildlife or the U.S. Fish and Wildlife Service when black-footed ferrets are known to be present in an area.

Control Methods

Several alternatives for prairie dog control are available to landowners, who may wish to conduct the control method themselves, hire a commercial firm or get assistance from the Division of Animal Industry, Colorado Department of Agriculture, 700 Kipling, Lakewood, Colorado 80215; (303) 239-4157.

Intensive shooting of small prairie dog colonies, when conducted during February and March, sometimes will control their numbers because it disrupts reproductive activities and removes individual animals. However, shooting may induce bait shyness. The Colorado Division of Wildlife or Colorado State Cooperative Extension wildlife specialist may be able to provide names of people who will control prairie dogs by this method.

Toxicants for prairie dog control must be used with caution because poison grain baits placed outside burrows kill a wide variety of birds and mammals, and fumigation kills all wildlife in the burrows. Prairie dog control materials may be purchased through commercial vendors and the Colorado Department of Agriculture.

Poison grain baits legal for prairie dog control in Colorado contain 2-percent zinc phosphide. Poison grain baits must be used with caution, because bait placed outside burrows can kill non-target birds and mammals.

Zinc phosphide is a slow-acting toxicant that can be absorbed in small amounts through the skin of humans. Poison grain baits are classified as restricted use pesticides, which means that landowners must obtain private certification from the Environmental Protection Agency before they can purchase or use these products. Certification information is available from local Cooperative Extension offices.

Poison grain baits are effective only when the prairie dog's most desirable food, green grass, has become dry and dormant. Fall baiting generally is most successful because prairie dogs actively eat grass seeds to build fat reserves for the winter. Spring baiting generally is unsuccessful for several reasons; pregnant females often are not found above ground, unsettled weather is common, and bait acceptance is poor when grass starts to turn green.

Poison grain baits for prairie dog control are most effective during clear settled weather when temperatures are moderate. Rain will wash the toxicant from most baits.

Zinc phosphide application is restricted to a period from July 1 through December 31; however, it is most successful when applied between September and November.

Prebaiting with untreated oats, preferably steam-rolled oats, two to three days prior to baiting will increase the acceptance of treated bait and result in significantly better control. Both prebait and bait should be applied by hand on the edge of each mound where bare soil and grass interface. Do not place bait on top of the mound or down the burrow. The treated bait should be thinly scattered in a 6-inch bait spot, preferably during early morning. Avoid placing treated bait in piles that may endanger livestock. Apply treated bait only after all or most of the prebait has been eaten and only to burrows where the untreated bait was consumed. If most of the prebait is not consumed after one day, application of both the prebait and bait should be postponed.

The amount of poison grain should not exceed one heaping teaspoon (4 grams) of zinc phosphide bait per mound. A typical prairie dog town requires about 1/3 pound of zinc phosphide bait per acre. Application of excess bait will not improve control but will increase the risk to non-target animals.

Poison grain bait should be applied only once per season because survivors of the first treatment tend to become bait-shy.

Because zinc phosphide is poisonous to all animals it should be stored away from humans and pets. Rubber gloves should be worn to avoid contact with the chemical and extra care must be taken to avoid breathing zinc phosphide dust.

When poison grain baits are applied according to direction, they usually result in an 80 percent to 90 percent reduction in prairie dog numbers. Unsuccessful control generally is associated with the presence of green grass or failure to prebait.

Fumigants are used when additional control is required. Gas cartridges and aluminum phosphide are the two fumigants legal to use for prairie dog control in Colorado. Trade names for aluminum phosphide include: Phostoxin, Rotox, Fumitoxin, and Gastoxin. Aluminum phosphide is classified as a restricted use pesticide and gas cartridges are classified for general use. Aluminum phosphide emits a poisonous gas, whereas gas cartridges produce a suffocating gas primarily composed of carbon monoxide. Because fumigants are expensive, laborious to apply and hazardous to wildlife, they should be used only on small acreages, as a follow-up to poison grain baits on large acreages and where grain baits are prohibited by label.

Aluminum phosphide is classified as a flammable solid. Transportation of aluminum phosphide is governed by the U.S. Department of Transportation rules and regulations. Individuals transporting aluminum phosphide are required to comply with the title 49 Code of Federal Regulations for motor carrier safety and transportation of hazardous materials. These regulations require individuals to place placards on their vehicle, carry shipping papers, keep the aluminum phosphide in the original canister and box, follow designated routes, keep a log book if transporting aluminum phosphide over 100 miles, carry a fire extinguisher, pass a Department of Transportation written exam and physical, have a vehicle safety inspection before or after the trip, have \$1,000,000 of insurance if transporting aluminum phosphide in a vehicle greater than 10,000 pounds gross vehicle weight, and the driver must be over 21 years old.

When using a fumigant as a follow-up to a baiting program, treat only active mounds. This will greatly reduce the amount of fumigant used. To identify active mounds, shovel or blade the soil or place a dry cow chip over all holes. It is important to begin treatment the next day after plugging holes because one prairie dog will uncover several holes in three or four days. Fumigants are most effective when the soil moisture is high.

To use the gas cartridge, punch at least 5 or 6 holes in one end with a nail or ice pick. Insert the sharp point part way and rotate it to loosen the contents so the cartridge will burn more rapidly. Insert and light the fuse. Once the fuse is burning well, gently roll the cartridge as far back into the burrow opening as possible. Immediately plug the opening with moist soil or a plug of sod placed grass-side down to form an air-tight seal. Do not cover or smother the cartridge. As a general rule, gas cartridges will not give satisfactory control if the soil is dry.

To use aluminum phosphide, insert two tablets as far back into the burrow as possible. Then, insert a wadded newspaper and cover as noted before. The wadded newspaper, placed in the burrow after application of the aluminum phosphide tablets, will prevent the fumigant from being covered and may deter prairie dogs from digging out before they die.

Aluminum phosphide appears to provide the best control when soil temperatures are above 60 degrees Fahrenheit. When applied properly, aluminum phosphide routinely provides greater than 90 percent control.

The hydrogen phosphide gas produced by aluminum phosphide tablets is toxic to all forms of animal life. Exposure through inhalation produces symptoms such as a pressing sensation in the chest, dizziness, nausea, vomiting and a rapid onset of stupor. Affected persons should be exposed to fresh air and receive immediate medical attention.

Avoid using fumigants in burrows occupied by black-footed ferrets, burrowing owls, rabbits and other non-target wildlife. Burrows occupied by burrowing owls are identified by the white droppings, pellets and feathers found around the burrow opening.

Prairie dog control materials may be purchased through commercial vendors or the Colorado Department of Agriculture (303-239-4157).

Black-footed Ferret Surveys

A black-footed ferret survey, following U.S. Fish and Wildlife Service guidelines, is required before aluminum phosphide tablets or gas cartridges can be used for prairie dog control. A nighttime survey using spotlights should be conducted from July 1 through October 31 and is required less than 30 days before using a fumigant. Surveys only can be conducted by biologists that have been trained in black-footed ferret survey techniques. The U.S. Fish and Wildlife Service can be contacted for a list of certified biologists. Their phone numbers are: Grand Junction (303-243-2778) and Denver (303-231-5280).

A landowner may be exempt from conducting a survey if any of the following conditions exist. First, a previous survey was conducted and no ferrets were found. Second, there are less than 80 acres occupied by black-tailed prairie dogs or 200 acres occupied by white-tailed prairie dogs within a 4.3 mile radius of the control site. Finally, the control is conducted in an urban area. The U.S. Fish and Wildlife Service should be contacted (see above phone numbers) to determine if the area can be exempted from a survey.

Effects of Extermination

Extermination of prairie dog populations does not guarantee the recovery of productive rangeland. Additional steps must be taken to rehabilitate the evacuated dog towns. Mounds should be leveled with a land plane, blade or offset disc set just above the ground surface to speed recovery. To allow the grass and root system to recover,

exclude livestock from the dog town with an electric fence for at least one growing season and reseed the area with native grasses. Because prairie dogs do not thrive in tall grass, careful management of grass can discourage reinvasion by prairie dogs.

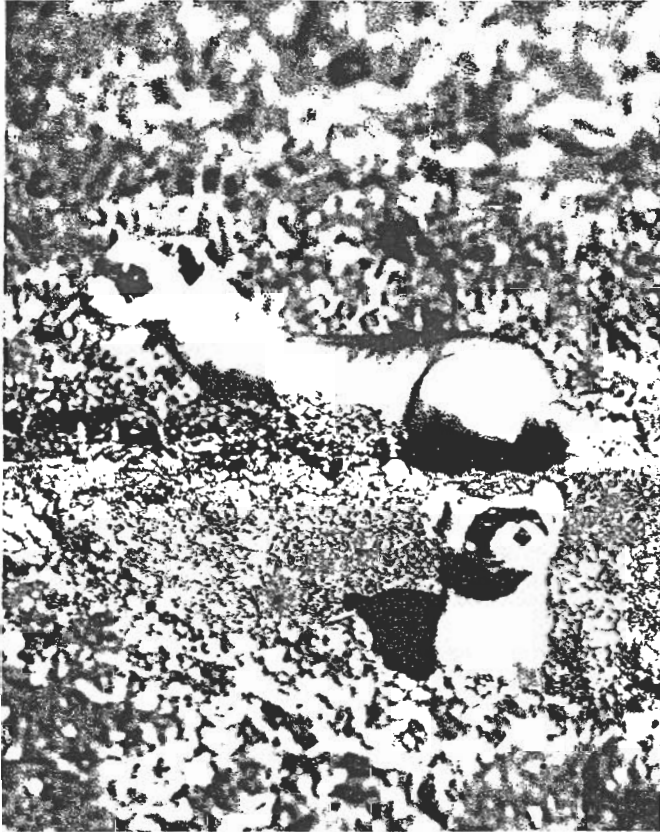


Figure 1: The black-footed ferret weighs between 1½ to 3 pounds and is 21 to 23 inches in length. It is characterized by a black mask, black feet and legs and a black-tipped tail. The remaining pelage is a pale yellow buff that is lighter on the underside of the body, almost white on the forehead, muzzle and throat and brown on top of the head and middle of the back. The black-footed ferret should not be confused with the European ferret, which has longer and darker fur on the back with an entirely black tail; the mink, which usually is uniformly dark brown; or the long-tailed weasel, which is smaller and has a chocolate brown body with a pale yellow underside. (Photo by F. Robert Henderson.)

Resources

Part of this bulletin was adapted from *Managing Prairie Dogs* (1984) by William F. Andelt, Cooperative Extension, Kansas State University, Manhattan, KS.



Figure 2: Before initiating prairie dog control, look for ferret ramps. Black-footed ferrets are the only animal known to leave a soil ramp after digging in a prairie dog burrow. These ramps are 3 to 5 inches wide and 1 to 10 feet long. (Photo by Walt Kittams.)

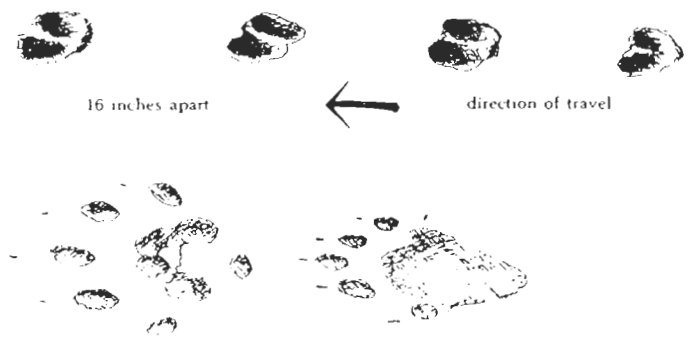


Figure 3: (Top) Ferret tracks in the snow; (Bottom) ferret tracks made by front and back feet. (Illustration by Vivian Drewien.)