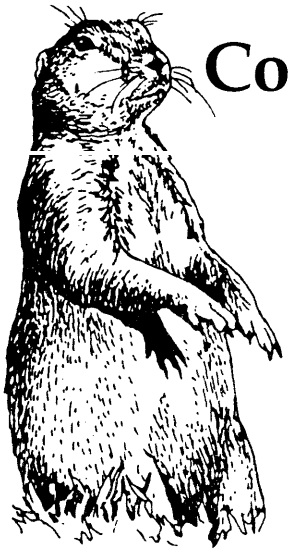

Controlling Prairie Dog Damage

Originally, all parts of Kansas supported grasses that tended to restrict the prairie dog populations. This was prior to the influences of non-Indian people. Proof of this taller growth can be seen in parks, cemeteries, railroad right of ways, road ditches, conservation reserve areas, and in rangelands where deferred grazing is a common practice.

Originally, prairie dogs thrived only in places overgrazed by native animals. It is believed prairie dog populations began to expand when changes, brought on by European people, occurred. The prairie dog populations started to decrease during the time the buffalo were wiped out and before the range was stocked with domestic livestock. Over the years, ranges were fenced, ponds constructed and large areas of rangeland were plowed. The remaining rangelands were overgrazed and prairie dogs increased to an estimated 2 million acres by the early 1900s. At that time, large prairie dog reduction programs were started and laws were enacted (some of which remain in effect today).

Currently, prairie dogs occupy an estimated 75,000 acres of rangeland in Kansas, less than 1 percent of the available habitat where prairie dogs could thrive. There is ample habitat for prairie dogs to increase in Kansas.

Since 1900, prairie dog populations have been greatly reduced. This reduction was achieved by increased cultivation of rangelands, organized control programs, and improved grassland management. In recent years, prairie dog populations in Kansas have been more or less stable and are being held at a low population levels.

Description Distribution

Four species of prairie dogs exist in the United States; however, only the black-tailed prairie dog is found in Kansas. Black-tailed prairie dogs are relatively large, 1½ to 3 pounds, 14 to 17 inches long, burrowing ground squirrels found in the western two-thirds of Kansas.

Biology and Social Organization

The black-tailed prairie dog is highly gregarious and lives in colonies termed 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 to over 100 feet long. A crater-like mound, 3 to 10 feet across and 1 foot or more in height, found at the entrance to the burrow prevents water rushing in and serves as a lookout station. A density of 35 burrows per acre is common although up to 100 burrows per acre have been reported. The majority of burrow systems have one entrance, although some burrows have two or three entrances.

Prairie dogs are active only during the daytime. They are not true hibernators; however, they may stay below ground for several days during cloudy and cold winter weather which is common by late November.

Prairie dogs usually have one litter of three to eight young per year born from March to April following a gestation period of 28 to 34 days. The young venture above ground at an age of 5 to 6 weeks, usually by early May.

Prairie dog densities vary from about 5 per acre in late winter to 20 per acre after the birth of young in spring, although spring densities of up to 35 per acre have been reported.

Dispersal usually occurs in late spring. Prairie dogs can increase by one-third of their population per year. The fact that these animals disperse and are prolific are two reasons for the continuing need for control.

If control efforts were to be stopped, prairie dogs would continue to increase to a point where control efforts would cost a great deal of money and the rate of toxicant use would increase greatly.

Economic Importance

Prairie dogs and their burrows serve as important hosts for numerous other animals. Eighty-nine vertebrate species were found associated with prairie dog towns in Oklahoma. The prairie dog serves as an important food source for predators including endangered black-footed ferret, badgers, coyotes, foxes, eagles, prai-

rie falcons, hawks, owls, and possibly bobcats, mink and long-tailed weasels. Their burrows serve as homes for burrowing owls, cottontail rabbits, rattlesnakes and other animals. Prairie dogs also provide recreation for photographers, hunters, and nature observers.

Burrowing by prairie dogs decreases soil compaction, increases the intake of water, aerates the soil, and promotes soil formation. On a typical town with 25 mounds per acre, the amount of soil exposed on the mound and adjacent areas is less than 3 percent of the total area. This denudation probably does not normally cause severe soil erosion.

Health Risks

Bubonic plague may be a possible health risk for individuals involved in prairie dog control programs. Although a few cases of human plague occur in the western United States each year, there have not been any recent cases of humans contacting bubonic plague in Kansas.

Bubonic plague is transmitted to humans through bites of fleas that inhabit wild rodents infected with plague. Most cases of plague in humans are related to direct contact with wild rodents. Early symptoms of plague include swollen and tender lymph nodes, chills, and fever. Early diagnosis and treatment of plague are imperative.

Effects of Range

The amount that prairie dogs reduce rangeland forage availability to livestock depends on geographic location, rainfall, dominant grass species, and other factors. Recent research reports suggest a wide range of effects of prairie dogs on rangeland vegetation. The reported effects range from a suggested 20 to 40 percent reduction in forage availability to livestock, no obvious destructive effects, to increasing the percent grass species preferred by livestock.

Black-Footed Ferrets

The black-footed ferret (Figure 2-A) is an endangered species that feeds on prairie dogs. These animals have been scarce since the first one was discovered in 1851. It was 25 years before anyone found another ferret. Black-footed ferrets are thought to be extinct in Kansas.

The endangered ferret weighs 1½ to 3 pounds, measures 21 to 23 inches in length, has short legs, and is characterized by a black mask, black feet and legs to the shoulder, and a black tipped tail. The remaining pelage is a pale-yellow buff becoming lighter on the underparts of the body, almost white forehead, muzzle, and throat. The top of the head and middle of the back are brown. It should not be confused with the domestic European ferret (which has longer and darker fur on the back and an entirely black tail), the mink (which is usually uniformly dark brown), or the long-tailed weasel (which is smaller, has a chocolate brown body with a yellowish underside and no black feet).

It is illegal to kill a black-footed ferret. They are seldom observed because they are usually found in low densities and are primarily active at night. However, their presence can be determined or strongly suspected from the presence of ramps or ferret tracks found in the snow (Figure 2-B). The ramps are 3 to 5 inches wide and 1 to 10 feet long (Figure 2-C). Before control is initiated, a thorough check for evidence of ferrets inhabiting a prairie dog town should be made; notify your county Extension agent or conservation officer if you suspect black-footed ferrets are present.

Control Methods

Methods for reducing prairie dog populations and/or preventing increases in their numbers include deferred grazing, shooting, poison grain baits, and burrow fumigants.

Deferred Grazing

Research in Barber County, Kansas, has shown that the number of prairie dogs can be reduced in mid-grass prairies by restricting grazing to the September-April period which subsequently increases the height of grasses. It is currently unknown if deferred grazing on the short grass prairies of extreme western Kansas can, in itself, decrease prairie dog numbers. However, prairie dog control should include proper livestock stocking rates and other range management practices to prevent overgrazed conditions which serve as prime habitat for prairie dogs.

Shooting

Intensive rifle shooting during the breeding season (February) has been shown to disrupt prairie dog reproductive activities. However, it is not likely that shooting prairie dogs will ever be considered a successful control alternative. In order to derive income from prairie dogs, ranchers can encourage sportsmen to shoot prairie dogs on their land.

Toxicants

It is hoped that someday studies will be made, seeking more selective ways of artificially reducing number of prairie dogs in areas where they are not wanted. Until such a method is available, persons who wish to artificially reduce populations of prairie dogs may try the following suggested procedures.

Toxicants that are legal for prairie dog control in Kansas are grouped under two general categories, poison grain baits and fumigants. These toxicants should be used with caution because poison grain baits placed outside burrows kill a wide variety of birds and mammals and fumigation kills all wildlife found in the burrows. Only toxicants that are labeled for prairie dog control are legal for that purpose. Read and follow all label directions.

Prairie dog control methods resulting in non-target deaths is a concern to many different people. The term "non-target" is defined as animals that die directly or indirectly as a result of eating poisoned bait or poisoned prairie dogs. Aside from endangered species such as the black-footed ferret, other non-endangered animals are abundant over a wide area and local reductions in their populations do not have long-term effects on the entire populations.

Poison Grain Baits

The only poison grain baits for prairie dog control are 2 percent zinc phosphide oats and ZP Rodent Bait AG. Zinc phosphide is a relatively slow acting toxicant that can be absorbed in small amounts through the skin of humans. These poison grainbaits are Restricted Use Pesticides, requiring the applicator to have either private or commercial certification from the Kansas State Board of Agriculture.

Controlling prairie dogs with poison grain bait is most effective during clear settled weather (rain washes the toxicant from some baits) and is only effective when their most desirable food (green grass) has become dried and dormant. Fall baiting is successful because prairie dogs are actively eating grass seeds to build up fat reserves for the winter. Baiting is restricted to the July through January period and is most successful from September to November.

Prebait with untreated oats (preferably steam-rolled oats) one to two days prior to baiting. Prebaiting is essential because: (1) it will increase the acceptance of treated bait which will result in significantly better control, (2) it gives more predictable results than without prebaiting, and (3) it is required by the label. Apply both prebait and bait on the edge of each mound where the bare soil and grass interface (Figure 1); do not place on the top of the mound or down the burrow. Watch the weather; apply bait only on clear, sunny days when moisture is not predicted. Bait should be applied during the early morning to allow time for the daytime active prairie dogs to eat the bait; bait applied during late afternoon is often consumed by other rodents that are primarily active at night. Livestock should be removed from the pasture when prairie dog control using poison grain is being conducted. Livestock can be returned two weeks following bait application or when bait has been eaten by prairie dogs. The bait should be thinly scattered in a 6-inch bait spot; avoid placing the bait in piles which 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, usually two days after prebaiting. Application rate should not exceed 1 heaping teaspoon (4 grams) per bait when using 2 percent zinc phosphide oats or ZP Rodent Bait AG. For a typical town, about 1/3 pound of zinc phosphide bait per acre is required. Application of excess bait will not improve control, but will increase the risk to non-target animals.

Do not apply poison grain baits more than once per season because prairie dogs surviving the first treatment usually become bait-shy. Do not breathe zinc phosphide dust or fumes and avoid contact with skin — wear rubber gloves. Since zinc phosphide is poisonous to all animals, it should be stored away from humans or pets.

Poison grain baits, if applied according to label directions and the above recommendations, may reduce prairie dog numbers by about 90 percent. Unsuccessful control is generally associated with the presence of green grass, lack of prebaiting, poor weather conditions and/or moisture present when baiting or soon after baiting occurs. If additional control is needed, poison bait can be followed with a fumigant.

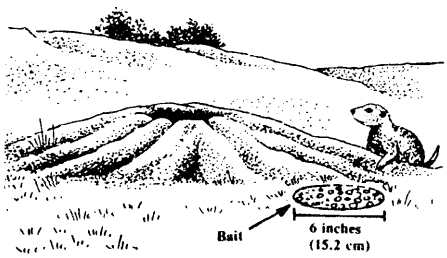

Figure 1
Scatter prebait, and later toxic bait in a bait spot about 6 inches across, at the edge of each prairie dog mound.

Fumigants

Fumigants that are legal for prairie dog control in Kansas include gas cartridges, magnesium phosphide and aluminum phosphide. Aluminum phosphide emits a poisonous gas while gas cartridges produce a suffocating gas primarily composed of carbon monoxide. Fumigants should be used only as a follow-up to poison grain baits because fumigants are expensive, laborious to apply, and pose an extreme hazard to the black-footed ferret and other desirable wildlife species that occupy the burrows. A permit is required from the Kansas Department of Wildlife and Parks to use any burrow fumigant, and only certified burrow applicators can legally apply magnesium or aluminum phosphide.

Fumigants are most effective when soil moisture is good. It is only necessary to treat active mounds when following up a baiting program with a fumigant. To identify active mounds, shovel, blade, or place a dry "cow chip" over all holes three or four days prior to treatment. Treat only the holes that have been reopened by the prairie dogs. This procedure will greatly reduce the amount of fumigant needed.

Magnesium or aluminum phosphide

and gas cartridges should be applied in the following manner: (1) Place 2 tablets or 10 pellets of magnesium or aluminum phosphide as far down into the burrow as possible. Do not touch the tablets — wear rubber gloves; (2) Using a nail or ice pick, punch 5 or 6 holes in one end of the gas cartridge. Insert the nail part way and rotate it to loosen the contents, allowing the cartridge to burn more rapidly. After the fuse is inserted, lighted, and burning well, gently roll the cartridge as far down in the burrow as possible. After placing any of the above fumigants into the burrow, immediately plug the opening with moist soil or a plug of sod placed grass side down to form an air-tight seal. Do not breathe the air containing fumes. Take care not to cover and smother the fumigant. As a general rule, fumigants will not give satisfactory control if the soil is dry.

Avoid using fumigants in burrows that are occupied by burrowing owls. Burrows that are occupied by burrowing owls can be recognized by the presence of white droppings, pellets, and feathers around the burrow opening.

Simply exterminating the prairie dog population will not return the range to good productive condition. Additional steps should be taken to rehabilitate the "evacuated" dog towns. The mounds should be leveled with a land plane, a blade, or an offset disc set just above the ground surface to help the area of mounds "heal over" faster. To allow the grass and root system to recover, it is usually beneficial to exclude livestock from the dog town with an electric fence, defer grazing for at least one growing season, and possibly reseed the area with native grasses. By continuing with good grazing management practices, the rancher can return the range area to a high level of productivity again, and make it difficult for other prairie dogs to become re-established.

Figure 2

Figure 2-B. **Black-footed ferret tracks**

***Figure* 2-A. Black-footed ferret**

Figure 2-C **Before conducting prairie dog control, look for ferret ramps as shown here.**

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