WILDLIFE DAMAGE PREVENTION AND CONTROL

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Some wildlife species are always welcome. Some wildlife species are never welcome. Other wildlife species are welcome depending on their numbers and what they are doing. The purpose of this chapter is to provide you with information on how to prevent wildlife damage before it occurs and to give you strategies for controlling wildlife damage. It is important for landowners to understand how to control the troublesome species that may be common on their land; it is also important to be able to prevent damage through exclusion, frightening, the use of repellents or toxicants, habitat modification and other strategies. **Because laws change and are different in various localities, be sure you abide by regulations when implementing control programs**.

RACCOONS

Raccoons can be large animals weighing as much as 50 pounds, although most are between 10 and 30 pounds. Although normally found around water, raccoons can travel quite far from naturally occurring water sources. Raccoons are omnivorous. Their diet consists of fruits, berries, nuts, corn, other grains, crayfish, clams, fish, frogs, snails, insects, eggs, mice, rabbits and the eggs and young of ground-nesting birds. Raccoons leave distinctive, fivetoed tracks. The damage they inflict varies from killing poultry and scattering garbage to devouring sweet corn and preying on ground-nesting birds and waterfowl. Raccoons breed mainly in February and March. After a gestation period of 63 days, three to five young are born. Exclusion, if practical, is usually the best method of coping with raccoons. Electric fencing at the top of a poultry-yard fence will prevent them from climbing, but gates and fencing must be tight to the ground. Raccoons are capable of digging but usually try to gain access in other ways. Electric wire can also be effective in stopping coon damage to melon and sweet corn patches. A single or double hot wire six to 10 inches above the ground works best. Use wire or clamps to keep raccoons out of garbage cans that do not have tight-fitting lids. Place galvanized sheet metal around trees or poles to prevent raccoons from climbing. Reducing raccoon problems by modifying or making changes to the habitat is usually only possible by eliminating food or shelter sources in areas around homesteads. Frightening devices for raccoons have not proven to be effective in the long term. Lights, radios, dogs, pie pans and plastic windmills are only effective temporarily. There are no repellents, toxicants or fumigants

currently registered for raccoon control. Trapping is often the most logical way to stop raccoon damage. They are relatively easy to trap, but because they are extremely strong and persistent, the trap must be sturdy. A cage live trap is the most logical trap to use around homesteads. These traps need to be at least 10 by 12 by 32 inches and well constructed with heavy materials. Bait the trap with a fish-based, canned cat food. Place a thumbnail-sized piece at the entrance, another on the treadle and a larger amount in a paper or Styrofoam cup broken off to one inch. Place the cup in the center of the trap's back section. If the raccoon is to be released, take it at least 10 miles from the trap site. Conibear®, or body-gripping traps, are very effective, as long as there is no risk of capturing a pet or some other animal you don't intend to trap. Place these kill-type traps in trees in a way that makes the raccoon go through the trap to get to the bait. Remember the risks of using body-gripping traps in terms of capturing animals you don't intend to target, and be sure to check regulations before using any type of traps. Foothold traps are an effective way to catch raccoons. Again, be sure you will not trap any animal you do not wish to harm. A number one or one-and one- half size trap works for raccoons. Make a set by placing bait in a small hole and concealing the trap under a light covering of soil in front of the hole.

SKUNKS

Skunks primarily eat animal foods. Insects are their preferred food, but mice make up most of their winter diet. Skunks begin breeding in late February and, after a gestation period of seven to 10 weeks, a litter of four to six is born. The normal home range has a diameter of between one quarter of a mile and two miles. But during breeding season, males may travel four to five miles each night. Skunks are dormant for about a month during the coldest part of winter. Skunks usually live in open lands bordering forests or brushy draws. They become problems when they visit homes. They may burrow under porches or buildings, and they dig in gardens and lawns searching for insects and grubs. They make three- to four-inch cone-shaped holes when digging for grubs. Skunks occasionally kill poultry and eat eggs. They are a primary carrier of rabies. A skunk acting unusually aggressive and active during the day may have rabies and should be approached with caution. Certainly, the most common concern about skunks is their discharge of scent when they confront potential danger. Skunks have distinctive tracks with five toes on both the front and hind feet. Claw marks are usually visible. You can usually identify skunk droppings by the undigested insect parts they contain.

Exclusion, if practical, is usually the best way to avoid skunk problems. Plug all openings under buildings with wire mesh, sheet metal or concrete. If a skunk is already established under a building, you must take care not to enclose it inside. Sprinkling a layer of baking flour in front of the entrance the night before it is closed off will allow you to observe tracks. Close off the hole if there are no tracks or if the tracks are exiting only. Bury fencing one to two feet into the ground where skunks might gain access by digging. Bending the bottom six inches outward will make the buried fence more effective. Be sure to close doors at night and be sure pet food and garbage are not left out to entice wandering skunks. Cover window wells or similar pits with mesh fencing. Stack lumber at

least two feet off the ground to discourage skunks from using them as shelter. If skunks are attracted to the area while seeking a food source, it may be necessary to initiate a rodent control program. Frightening devices only provide temporary relief from skunks. There are no registered toxicants or repellents for skunks. Mothballs and ammoniasoaked clothes have been used as temporary repellents for skunks. Because of the great amount needed and the necessity to replace often, these are only very temporary solutions. Gas cartridges, available at ag supply stores, can be used to fumigate skunk burrows. The fumigation will suffocate any animal in the burrow. Be sure to follow label directions and take care to avoid fire hazards when using fumigants near structures. You can also remove skunks from an area by trapping them. Because of the odor problems inherent in trapping skunks, cage live-traps are usually preferred to foothold traps. Remember to check regulations before using any type of trap. Canned, fish-flavored cat food is the best bait for skunks. Before setting the live trap, cover it with canvas to reduce the chances of the trapped skunk discharging its scent. Always approach a trap slowly and quietly so you don't upset a trapped skunk. If you plan to release a trapped skunk, take it at least 10 miles from the trap site. Skunks can be euthanized by drowning them while they are still in the cage trap. Skunks that fall in window wells or pits should be allowed to remove themselves by climbing a cleated board. Nail one-inch by two-inch cleats, six inches apart to a board and slowly lower it into the well. Skunks are mild-tempered and very tolerant of activity if it is very, very slow. Before discharging their scent, skunks usually provide a warning by stamping their forefeet and arching their tails over their backs. If a threat occurs, simply retreat quietly and slowly. Obviously, you should avoid loud noises and quick, aggressive actions. The scent discharged by a skunk is persistent and difficult to remove. A solution of tomato juice will work, but a better formula has been developed to neutralize skunk odor. Mix one quart of three percent hydrogen peroxide with one-quarter cup baking soda and one teaspoon of liquid soap. Hydrogen peroxide is available from pharmacies. Soak the area, or pet, to be treated with water, scrub with the mixture and then rinse again in warm water. This solution may cause bleaching. Use cautiously because it may turn your black lab into a chocolate lab. If the scent is discharged in a room or under a building and the yellow discharge cannot be washed away, ventilate the area to speed up dissipation of the scent. Use ventilation fans to improve air circulation.

BEARS

Bears are omnivorous. They feed on a wide variety of plants and animals. They are opportunistic feeders, eating whatever is available. Foods include grass, berries, tubers, insects, mammals and carrion. When food shortages occur because of drought or failure of berry crops, human encounters become more frequent, as do complaints about crop loss and livestock depredation. Damage caused by bears ranges from decimating corn to destroying beehives to threatening humans. Most bear problems are more of a nuisance, such as pilfering from garbage cans, tearing up bird feeders and breaking into unoccupied cabins. The effort you put into preventing problems will be a valuable

investment. In addition to the severe damage caused by their sheer strength, you may know a bear has been on your property by tooth marks, hair, droppings and tracks that look like a human palm with five toes. Most bear damage around houses can be avoided by eliminating the attraction. Garbage, pet food and bird feeders must be removed or made inaccessible once a wandering bear discovers them. Bears will normally return to places where they find food and they can be very persistent in looking for additional sources. A bear that becomes accustomed to humans can be a severe nuisance and a potential danger. If a bear acts in a threatening manner or if it repeatedly visits an area after all food has been removed, you should notify the local game warden. If the behavior is not too extreme, it may be possible to trap and transplant the bear. Few bears kill livestock. But once this behavior develops, it usually persists. Bears leave deep tooth marks on livestock and usually attack from above, biting the neck and upper back area. On large livestock there will usually be claw marks on the shoulder and sides. Bears usually cover or attempt to cover their kill. Although electric fencing has been successfully used to protect livestock corrals and pens from bears, you will need to consider the expense and scope of the project when deciding if electric fencing is appropriate. Four strands of electric wire powered with a high-output fence charger must supply a minimum of 4,000 volts to the 36-inch high fence. Grounding may be increased by laying grounded poultry wire around the outside perimeter of the fence.

Human safety is certainly a concern in areas occupied by bears. Black bears are usually quite wary of humans and, unless they are used to humans and associate them with food, they will almost always flee when they encounter a human. Grizzly bears are more likely to be aggressive toward humans. But even grizzlies will usually avoid human encounters if they can. Grizzly bears have a dished face and a hump on their back and black bears have a flat muzzle and no hump. The greatest threat today is from bears that have caused problems and were then captured and transplanted. When these bears move out to areas near the release site, they may encounter homesteads and unsuspecting tenants. When a human confronts a bear, the actions of the human may dictate the outcome. If you see a bear from a distance, make a wide detour to avoid it. Keep upwind so your scent allows the bear to determine you are human. If you encounter a bear at close range, stay calm and assess the situation. A bear on its hind legs is usually trying to get a better look. If its head is moving side to side, it is trying to pick up your scent so it can identify you. Speak in a soft voice and remain still or slowly move away. Do not run! Quick motions may provoke an attack. If possible, back toward a climbable tree. A tree offers only limited safety from a black bear because they are good climbers, but you can defend yourself in a tree with branches or your boot heel. Adult grizzlies do not climb, but they can reach 10 feet off the ground. Sometimes bears will bluff a charge. Stand your ground, and the bear may perceive you as too big a threat and leave the area. Black bears may be frightened off if you act aggressively. Do not play dead if a black bear is stalking or attacking you. Use sticks, rocks or any other method of fighting a black bear. A grizzly bear that is attacking is seldom deterred by your actions, and, in fact, is usually provoked by aggressive actions. If attacked by a

grizzly, play dead. Drop to the ground and get into a tight fetal position with your hands locked on the back of your head. It takes courage to be still, but resisting an attacking grizzly is usually useless. Bear sprays containing capsaicin have been effective in repelling bears at close range. Some people are more comfortable carrying a firearm for bear protection.

COYOTES

Coyotes are opportunistic feeders with a diet that includes mice, rabbits, fawns, insects, fruit, berries and other vegetative matter. Landowners become concerned when coyotes prey on livestock. Livestock loss is usually greater in the spring and summer because the demands on coyotes are greater due to pup-rearing and the fact that wild prey are not as vulnerable as they were in deep snow conditions. During this time, young livestock are most vulnerable. Just because coyotes are present or you see them feeding on carcasses does not mean they are preying on your livestock. Coyotes are frequent scavengers, so landowners must look for evidence before making conclusions. Look for signs of a struggle and blood around the site. Look for blood hemorrhage under the skin at the point of attack. Bites to a dead animal do not hemorrhage because the heart is not pumping blood. Coyotes usually kill by biting the throat and compressing the trachea of sheep-size animals. Their prey usually dies of strangulation, but there is a great deal of damage under the skin in the throat area. Coyotes usually begin feeding at the flanks or behind the ribs, consuming the liver, heart and lungs first. Coyotes usually kill calves by attacking the hind end. Coyotes can be kept out of corrals or livestock pens by a net-wire fence attached tightly to the ground. You can prevent climbing by adding a charged wire to the top of the fence. You can discourage digging by placing barbed wire at ground level or burying a wire apron. Electric fencing has met with limited success as a coyote barrier. In addition to being expensive, the 10 to 13 strands of wire become difficult to maintain. Coyotes pass under the fences at low spots. If the fence is tight to the ground, it may cause a short. Many ranchers minimize coyote predation by reducing the exposure of vulnerable animals. For example, shortening lambing or calving periods may reduce predation. Keeping lambs and calves close to the house or hiring a herder until the young gain some size has worked for some producers. Confining sheep at night is one of the most effective means of reducing losses to predation. Removing dead sheep and cattle is an important practice that eliminates attractions for coyotes and keeps them from getting accustomed to feeding on livestock. A study in Canada showed that removing livestock carcasses significantly reduced over-winter coyote populations and shifted coyote distributions out of livestock areas. Frightening devices work for short periods of time. These devices are primarily useful to deter coyote predation until other practices can be put into place. Lights over corrals are one of the most effective short-term frightening devices. Radios tuned to stations with human voices rather than music will temporarily deter coyotes. A parked vehicle will deter coyotes, especially if it is occasionally moved. When coyotes get used to it, it makes a comfortable coyote hunting blind. Propane exploders scare coyotes, as will lights and sirens, but they must be placed in such a way they are not too disruptive to livestock. If they are properly selected

and trained, guardian animals such as llamas, donkeys and dogs can successfully protect sheep from coyotes. The protective nature of dogs makes them effective. Donkeys and llamas usually have an inherent dislike of dogs and other canids, including coyotes. Donkeys respond to intruding coyote by braying, baring teeth, kicking and biting. Several lethal methods of coyote control are available. The only toxicants available are registered for use in devices that are quite target specific. The M-44 is a device that expels sodium cyanide into the mouth of a coyote as it pulls on a baited capsule. Livestock protection collars are placed on the neck of sheep or goats. The collars contain a bladder filled with Compound 1080 solution. A coyote's bite to the neck of a sheep punctures the collar and the coyote ingests a toxic dose of the 1080 solution. Users of the M-44 and livestock protection collar must take specific training in those states that allow its use. The most common method of controlling a coyote population is probably through foothold traps or snares. Landowners should contact an experienced trapper if they employ these methods because there are complex and detailed techniques that will make these traps more effective. If you're going to trap, taking time to learn how to properly trap or snare coyotes is a worthwhile undertaking. Coyotes may respond to predator calls. This method of coyote control may be the most practical for landowners that only have occasional coyote problems. In its simplest form, coyote calling takes advantage of a coyote's response to a dying rabbit sound. When the coyote comes to investigate, you can shoot it. **Be sure to check state regulations relating to various types of coyote control.**

DEER

Most landowner concerns related to deer involve deer damaging ornamental plants and bushes around homes. Damage to gardens and orchards may also reach unacceptable levels. When deer find haystacks as a reliable source of food, they are often difficult to discourage. When you plant vegetation around your home, it is valuable to know which plant species are more likely to suffer deer damage. Before you select ornamental plantings, study the accompanying table, adopted from work by Cornell Cooperative Extension Service. This list considers not only which plants are preferred by deer but also which plants can tolerate browsing.

Ornamental plants, listed by susceptibility to deer damage.

Plants Seldom Damaged

Barberry; Common barberry; Common boxwood; Russian olive; Colorado blue spruce; European white birch; American bittersweet; English hawthorn; Honey locust; Chinese junipers (green); Chinese junipers (blue); Norway spruce; White spruce; Austrian pine; Mugo pine; Scots pine; Common lilac.

Plants Occasionally Damaged

White fir; Red maple; Red osier dogwood; Silver maple; Sugar maple; Common horsechestnut; Downy serviceberry; Trumpet creeper; Cotoneaster; Cranberry cotoneaster; Rockspray cotoneaster; Smooth hydrangea; Panicle hydrangea;

Eastern red cedar; Virginia creeper; Sweet mock orange; Eastern white pine; Bush cinquefoil; Sweet cherry; Douglas fir; Bradford callery pear; Common pear; Staghorn sumac; Rugosa rose; Willows; Anthony waterer spiraea; Bridalwreath spiraea; Persian lilac; Japanese tree lilac; Late lilac; Greenspire littleleaf linden; Basswood Eastern hemlock; Leatherleaf viburnum.

Plants Frequently Damaged
Balsam fir; Fraser fir; Norway maple; Atlantic white cedar; Clematis; Winged euonymus; Wintercreeper; English ivy; Apples; Cherries; Plums; Hybrid tea rose; European mountain ash; Yews; English yew; Japanese yew; English/Japanese hybrid yew; American arborvitae.
In situations where you expect deer to be a problem on a regular basis, exclusion by fencing them out is the best option. Haystacks and gardens are continual attractions and permanent fencing is usually recommended over repeated temporary remedies.
• A seven-wire electric fence is the minimum to deter deer in most situations. A fence 72 inches high is sufficient to repel deer. Alternating charged and grounded wires should begin eight inches off the ground.
• The fence should be powered sufficient to maintain 4,000 volts on the charged wires.

Cost is usually the biggest benefit to using an electric fence to repel deer. However, attention to maintenance is critical or the fence will be ineffective. Unless you are committed to regularly inspecting and repairing an electric fence, you should consider spending a little more and constructing a net wire fence that is 72 inches high. Frightening devices to repel deer are temporary measures. You cannot depend on exploders, shell crackers, fireworks, gunfire, spotlights or radios to be effective in the long term. These methods are useful for repelling deer during times when crops are most susceptible to damage or while you're developing more permanent remedies.
Taste repellents and area repellents have limited effectiveness in limited situations. Area repellents claim to repel deer by odor alone. Predator urines are examples of area repellents. Generally, these are only effective for a short time, if at all. Ultrasonic repellents have not proven to be effective, despite manufacturers' claims. Taste repellents have various ingredients, from putrid eggs to soaps to capsaicin (hot sauce). Various studies have shown them to be effective until they are washed off by rain or until the plant grows enough that untreated new growth can be browsed. Thiram is a fungicide that is a taste repellent for deer and rodents. It is sold under various trade names and is generally effective. Again, this will only be effective if it is reapplied after weather events and plant growth.

GROUND SQUIRRELS
The ground squirrels typically found in the Rocky Mountain states are the Richardson, Columbian, Townsend and Washington varieties. They eat grasses, forbs and seeds. Ground squirrels live in extensive underground burrows with

many entrances. Ground squirrels hibernate during the coldest part of winter, but they store large quantities of food in burrow caches. Males become active in early spring, one to two weeks before females. Breeding takes place immediately after females emerge from their burrows, and two to 10 young are born after a four- to five-week gestation period. Densities of ground squirrels can range from two to 20 or more per acre. It is important to know the difference between ground squirrels and pocket gophers. Although these two species look very different, there is some confusion because ground squirrels are sometimes called “gophers.” Pocket gophers spend 99 percent of their life underground feeding on roots and tubers. Ground squirrels feed above ground. Pocket gophers plug their tunnel entry tightly with soil. Ground squirrels have an open entrance to their tunnel system. Ground squirrels look like squirrels, and pocket gophers have cheek pouches, external incisors and look more like short-tailed rats. Damage from ground squirrels includes reducing or eliminating vegetation, damage to irrigation systems from burrows and damage to equipment from mounds.

Ground squirrels are generally unprotected, but because some protected species are associated with them and could inadvertently be harmed, be sure to check regulations and label restrictions before using lethal control measures.

Flooding hay fields and pastures will prevent ground squirrels from flourishing. They will, however, concentrate in the higher areas around the field. Frequent tilling also discourages ground squirrels. You can remove small populations of ground squirrels with traps. For example, body-gripping (also knows as Conibear®) traps can be placed over the hole. Several to dozens of the No. 110 size traps should be used to be sure that all entrances to a given burrow system are covered. Trapping can begin on one side of the colony and progress across the area. You can use fumigants in small areas of ground squirrel infestations if the soil is dense and moist. If soils are loose and dry, the gas will dissipate before it can be effectively concentrated in the system. Gas cartridges and aluminum phosphide are fumigants registered for use in ground squirrel control. Aluminum phosphide is a restricted use pesticide and requires a Private Applicator’s License to purchase and apply. Toxicants registered for ground squirrel control include anticoagulant and zinc phosphide baits. Anticoagulant baits, such as Rozol®, cause internal hemorrhage and require that an animal ingests them multiple times to be effective. After initial placement, a second treatment is required two to three days later. Advantages to anticoagulant baits are that they are more readily eaten by ground squirrels because their taste is acceptable and the risk to nontarget animals is reduced because of the need for multiple feedings. Zinc phosphide is a single lethal-dose poison. One feeding is enough to kill ground squirrels. However, because zinc phosphide is distasteful, it is necessary to prebait the area with clean, untreated oats to ensure the squirrels will readily accept the poisoned grain. Distribute the poisoned bait two to three days after prebaiting. Zinc phosphide is a Restricted Use Pesticide. Timing is of primary importance when using toxicants to control ground squirrels. Early

spring, after all the animals are active but before green-up occurs, is the target period for control. After green-up occurs, the grasses and forbs are much more palatable than grain, and ground squirrels will be reluctant to accept baits.

Additionally, control measures used in the spring prior to the birth and emergence of young ground squirrels, will be much more efficient. Bait stations are another control method. Place approved anticoagulant baits, such as Ramik Green®, in containers and distribute them throughout the area to be controlled. One bait station per acre is recommended. Ground squirrels are then able to eat the bait throughout the day. You can make a bait station out of three pieces of three-inch PVC or drain field pipe. Connect the pieces with a tee and cover the long part of the tee with a cap. Attach one standing bait station every 50 yards to a fence post or posts driven into the ground. Remove the cap and fill the tube with bait labeled for bait stations. It may be desirable to first put clean, untreated oats in the bait station to allow ground squirrels to get used to it. Then, fill it with the anticoagulant bait once the squirrels are readily eating the oats. Ground squirrels enter the bait station through the horizontal pipes and eat the bait which is made available as it drops down from the capped vertical pipe. Be sure to keep the bait station filled and to follow all label directions on the rodenticides.

POCKET GOPHERS

Pocket gophers get their name from the fur-lined pockets in their cheeks. The large front incisors on the outside of their lips are another identifying characteristic. Pocket gophers have a twoinch tail that is very sensitive and guides them when they move backward through their tunnel. They have large, well-developed front claws used for digging and pushing soil. Surprisingly, pocket gophers are sometimes confused with ground squirrels, which are sometimes referred to as “gophers.” The two species are extremely different. Ground squirrels feed above ground and are very active above ground. Pocket gophers spend 99 percent of their time underground, venturing to the surface only to deposit dirt from their burrow system. Ground squirrels eat vegetation and seeds. Pocket gophers eat roots and tubers. Ground squirrels look like squirrels, whereas pocket gophers look something like a short-tailed rat. The entrance to ground squirrel tunnel systems is always open, whereas pocket gophers plug the entry to their tunnels. Pocket gophers leave a characteristic fanshaped mound of dirt on the surface. This fan shape is made as the pocket gopher quickly pushes dirt out of the hole and then backs down the hole. After excavating all dirt from that tunnel section, the pocket gopher plugs the hole tightly with soil to keep intruders out. The tunnel system is composed of a main runway. Coming off the main runway are numerous lateral runways that are used for excavating dirt. Pocket gophers seldom return to the lateral runways unless the dirt plug is opened.

During winter, they deposit soil in runways under the snow, leaving elongated mounds of soil on the ground when the snow melts. Pocket gophers are very territorial. Except during breeding and when raising their young, they aggressively exclude other gophers from their system. Although many dirt mounds may be evident above ground, there may be only one pocket gopher

making them. A single gopher usually occupies about 2,000 square feet. Depending on the quality of the habitat, density of pocket gophers can be from one to 20 per acre.

Pocket gophers breed from March through June. After a 20-day gestation period, three to six young are born. From midsummer to late summer, the young disperse to establish their own burrow system. In rangeland and forest situations, water flowing into pocket gopher tunnel systems is a benefit to land managers. The tunnel system can help reduce runoff and incorporate moisture into the soil. Likewise, bringing dirt to the surface helps mix and aerate soil and provides disturbed soil for new seedbeds. However, these same factors are not welcome in an agricultural situation or when the gopher activity occurs on your lawn. Pocket gophers damage alfalfa by feeding on the roots and by covering surface vegetation with their dirt mounds. Some studies have shown pocket gophers can reduce alfalfa production by 20 to 40 percent. Cutter blades may be damaged by plowing through dirt mounds. This results in increased harvest cost and time, as well as decreased harvest efficiency. In areas that are flood irrigated, pocket gophers are forced to use field edges rather than the flooded areas. Frequent tillage that removes vegetation discourages pocket gophers. Pastures and rangelands that lack forbs and primarily contain grasses have fewer pocket gophers because their preferred food is absent. Because there are typically very few pocket gophers in any one area, trapping can be an effective and economical way to control them. Many golf courses have found this is true. Some pocket gopher traps are designed to be set in the main runway. This requires probing with a rod to locate the main runway, digging a hole to access the main runway, placing a trap in each direction and then covering the hole so the gopher doesn't cover the trap with dirt while trying to seal off the tunnel system. A better pocket gopher trap has been developed. This one is placed in a lateral runway after opening the plugged entrance at a fresh mound. When the gopher pushes dirt to plug the open tunnel system, the trap is triggered. This DK-1 Gopher Trap is available from the P-W Manufacturing Co. [(918) 652-4981.] Gas cartridges and aluminum phosphide are registered fumigants for pocket gopher control. Because gophers often plug portions of their system, it is difficult to get good results using fumigants. Poison baits, such as milo or oats treated with strychnine, are registered for underground pocket gopher control. Landowners can hand-place the bait by probing to find the main runway and using a funnel to put a measured amount of bait into the hole. It is important to avoid knocking dirt onto the bait after you place it and to plug the access hole when you're done. A mechanical device called a "burrow builder" is sometimes used when large areas need to be treated. As the burrow builder is pulled behind a tractor, it makes an artificial burrow that intersects the natural tunnel system. When pocket gophers investigate the new tunnel system, they encounter strychnine bait piles, which were automatically deposited as the artificial tunnel system is made. Contact your county extension agent to see if a burrow builder is available for loan in your area. When using any rodenticides to control pocket gophers, be sure to read and follow label instructions.

PRAIRIE DOGS

Prairie dogs live in colonies called towns. There are about two million acres of prairie dog towns in North America, down from an estimated 700 million in the early 1900s. Prairie dogs live in a tunnel system that is three to six feet deep and 15 feet long. They breed in February and March and, after a 34-day gestation period, one to six pups are born. Adult prairie dogs may live five to eight years. Prairie dog colonies attract a wide variety of wildlife. One study found that more than 140 species of wildlife were associated with prairie dog towns. Despite recent claims by some groups, bubonic plague is the primary mortality factor effecting prairie dog towns. For more than 50 years, this disease has sporadically appeared across the prairie dog range and totally eliminated populations from infected towns. In recent years, prairie dogs have received increased attention. Once totally unprotected and managed solely as a pest, states have now prepared prairie dog management plans and imposed seasons on prairie dog hunting. Some of this attention relates to genuine concern about the reduced prairie dog populations from historic levels and the effect these reductions have on associated wildlife species, some of which are endangered. Some of the attention, however, is from groups attempting to use the prairie dog as a tool to support other agendas, such as controlling grazing on public land, prohibiting mineral extraction and reducing hunting activities. Prairie dogs can have a significant effect on the vegetation in and around their towns. The mix of vegetative species is very different on prairie dog towns than on surrounding rangelands. Species that grow well on prairie dog towns are usually high in protein and preferred by antelope and other selective grazers. The amount of important livestock forage, such as grasses, is reduced on prairie dog towns. Overall, prairie dogs may remove 18 to 90 percent of the available forage through their activities.

Before implementing any prairie dog control program, be sure to contact local wildlife authorities regarding prairie dog status and the allowable control procedures.

Your county extension agent or local game warden will also know about any precautions you must take to protect endangered species, such as the black-footed ferret. Controlling prairie dogs should begin by understanding which factors help prairie dog towns become established or grow. Prairie dogs do not tolerate tall vegetation well and they avoid brush and timbered areas. Once established, prairie dogs can maintain their habitat by clipping any undesirable vegetation that grows. Landowners should consider brush and livestock management practices as tools to deter prairie dogs. Leaving a barrier of sagebrush or other woody species will inhibit prairie dogs from expanding into new areas. In addition, managing grazing so that tallgrass rangelands thrive makes it difficult for prairie dogs to establish a colony. It may be useful to place an electric fence a short distance around a prairie dog town to keep livestock off the area. This will allow the vegetation to grow and discourage the colony from expanding. After conducting population control programs, you may discourage prairie dogs from recolonizing by dragging or disking towns and establishing vegetation. Body gripping traps, such as Conibear® No. 110 traps, can be placed

over burrow entrances. This is most practical with small populations or when prairie dogs are making burrows along dikes, ditches, dams or other undesirable places. Shooting prairie dogs allows the landowner to be very selective and prevents nontarget wildlife from being damaged. Although usually not practical as a serious control measure, shooting can remove 65 percent of the population in a year. However, prairie dogs become wary after extended periods of shooting. Gas cartridges and aluminum phosphide are registered fumigants for prairie dog control. Aluminum phosphide reacts with moisture in the sealed burrow to form toxic phosphine gas. Aluminum phosphide is a restricted use pesticide. Gas cartridges are general use pesticides, which produce carbon monoxide and carbon dioxide when ignited and placed in a sealed burrow. Be sure to follow precautions and label directions on these and all pesticides. Zinc phosphide is labeled for use to control prairie dogs. This product is usually applied to grain. To be effective, the area to be treated must be prebaited with clean, untreated grain of the same type. Zinc phosphide can only be applied for prairie dog control from July 1 through January 31. As with other toxic baits, zinc phosphide is most readily accepted when there is no green forage available. Because prairie dog poisoning is not allowed before spring green-up, late summer and fall are the best times to poison prairie dogs. Be sure to follow label instructions to ensure safe and effective application of zinc phosphide.

BEAVER

Beaver are aquatic rodents that can weigh from 35 to 50 pounds or more. They have large front incisors that grow throughout their lives. Webbed feet and large, flat tails are adaptations that allow beaver to thrive in their aquatic environment. Breeding begins in December. After a gestation period of about 128 days, three or four young are born. Beaver may live in dens along rivers or in lodges built in natural lakes or ponds that are created when streams are dammed. Beaver prefer certain woody tree species, such as aspen, cottonwood and willows. However, they will eat the leaves, twigs and bark of almost any woody plant. They also eat a wide variety of aquatic plants. Through their activities of pond building, brush clearing and tree felling, beaver create fish, waterfowl, furbearer, shorebird, reptile and amphibian habitat. They also play a role in creating wet meadows and establishing water tables. Beaver activities play an important role in natural systems. Beaver activity can, however, be viewed as a nuisance and cause significant economic impact in some situations. Most of the damage caused by beaver is the result of dam building, bank burrowing, tree cutting or flooding.

In most states, the beaver is a protected furbearer, so be sure to check regulations before attempting to control them or destroy their lodges or dams. Excluding beaver from a large area is almost impossible. However, individual trees or groups of trees can be protected by encircling them with hardware cloth, woven wire or other metal barriers. Culverts can sometimes be fenced in a manner that allows removal of the fence for cleaning. When pond outlets are continually plugged, causing flooding, a submerged intake can be placed in deep water with PVC pipe passing through the dam to an outlet. An elbow and standpipe can be used at the pond outlet if maintaining a water level in the pond

is an objective. In some cases, removing beaver may be the only solution. Suitcase traps were used in the past to capture beavers alive for transplanting. Because of the difficulty in finding suitable, unoccupied habitat where beaver are welcome, this option is seldom viable any longer. If a landowner recognizes beaver control may be an ongoing effort, it may be possible to find a local trapper willing to remove beaver from the land on a regular basis. This option is sometimes the most practical, given the time commitment and skill required to trap, prepare and market beaver pelts. Most beaver trapping is done with a Conibear® No. 330 trap. This is a body-gripping trap that kills the beaver when it tries to swim through. The trap is usually placed in a shallow runway beaver are using, although some trappers use it at lodges, bank dens and dams. Leg-hold traps are also used to trap beaver. These traps are often used in conjunction with a lure to attract beaver to the bank, where they step in the submerged trap. The chain of the trap is connected to a drowning attachment. The trapped beaver head for deep water where the other end of the drowning attachment is connected to a weight.