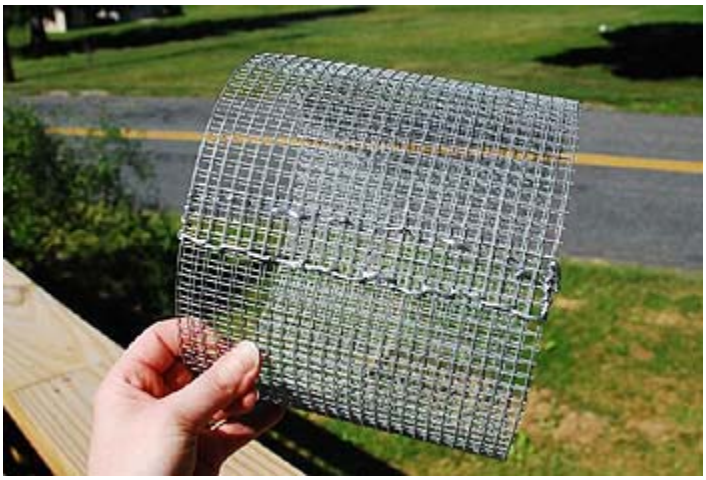
To High Chaparral Ranch Property Owners: November 16, 2016

As an unfortunate bonus to having such a wonderful piece of property, we have a problem with ground squirrels. In order to inform and hopefully create a uniform course of action against them, we are providing you with a publication from the Colorado State University Extension about managing ground squirrels and a list they have assembled of resistant plants. As a brief summary of both documents and our related recommendations, we present the following:

- The ground squirrels that inhabit our area are known as Richardson's or Wyoming ground squirrels. They construct and live in underground burrows, hibernating during the late summer through early spring months.
- In the spring, the first animals to come above ground are males, with the females following one to three weeks later. This is their breeding time, and the young are born after a three- to four-week gestation period with 2 to 10 young per litter.
- Of the several management methods recommended, because we are a residential area, the best alternatives are natural predators, fumigant gas cartridges, trapping, and shooting.
    - We have badgers on the property, which helps some, and there are birds of prey, coyotes and foxes that also feed on the squirrel population.
    - We do not recommend the use of poison bait or the more toxic and dangerous aluminum phosphide fumigant tablets. Poison bait has a possibility of also poisoning the natural predators and our pets. Aluminum phosphide fumigant tablets require a restricted use license and would have to be applied by a professional.
    - Trapping is an option, but is very labor intensive, and then you have to somehow kill them after they are trapped.
    - Shooting them has drawbacks because we are in the town limits and extreme care must be used to not endanger other people, property or animals.
- Our recommendation is to use fumigant gas cartridges to control the ground squirrel population. We will supply any owner with cartridges to use on their property. The best time to use them is in the spring, immediately after the females have emerged from hibernation. We will try to schedule our spring clean-up day during that optimum window so that while everyone is here, owners can apply the cartridges as a group effort, but any time you would like to plan an assault, contact Karen to obtain cartridges. In order to discover which holes are active, we suggest that you fill all the holes with dirt and then see which ones get dug out. It is important to gas the active holes within about 24 hours, because they randomly dig out the holes even if they are not occupied. Repeat the filling and gassing of the holes every 24 hours for a few days.
- The list of "resistant" plants is just that. No plant is totally insusceptible to being eaten by ground squirrels. As a way of protecting individual perennials, a barrier such as a cylinder of ¼" square wire hardware cloth can be effective. Make a cylinder that is about 6" to 8" in diameter and 12" to 14" tall and wire it together with tie-wire. Bury it about 4" deep around each perennial and leave it in place year-round or remove it after they go into hibernation. Use larger cylinders around shrubs, especially when they are young.

If we all work together with a consistent effort, we can keep the population of ground squirrels under control!

Thank you,
High Chaparral Ranch Board of Directors



A very simple wire cage without a bottom can be used for smaller plants such as perennials. Bury it about 4" in the ground and let it stick up out of the ground at least 8" to protect the plants. Be sure to keep the diameter small enough in relation to the size of the plant so that they can't jump inside.

Go to Wal-Mart or a Dollar Store and pick up a few wire or vinyl-coated wire wastebaskets to use as cages. If they are only available in funky colors, apply some brown spray-paint to the above-grade portion to help disguise them.

RABBIT/GROUND SQUIRREL/DEER RESISTANT PLANTS

Irene Shonle

In general, animals are discouraged by:
~ *Very aromatic plants*
~ *Prickles and spines*
~ *Tough, leathery leaves*
~ *Toxic plants*
~ *Milky sap*

No list is foolproof --a hungry animal will eat just about anything, including poisonous plants. Plant deterrent plants surrounding the more delectable plants.

Newly transplanted plants are more likely to be eaten –especially those just bought from nurseries, but even those recently moved within a garden. Bigger plants are more able to withstand nibbling.

Cultural controls such as removing brush piles or other protective cover where rabbits and ground squirrels hide and nest may help. Provide open areas in the landscape – small mammals tend to avoid open spaces that make them vulnerable to predators.

Many odor repellents are ineffective with rabbits, so read labels carefully before buying them. Something that works for deer may not work with rabbits. Some products are labeled for both. What works in one persons' yard may not work in another person's yard.

Fencing with chicken wire fencing, hardware cloth or flexible netting at least two feet high, buried 4-8 inches under is fairly effective against rabbits. Deer can be prevented with fencing at least 8 feet high. Raised beds with hardware cloth (1/4" squares or less) tacked to the bottom can keep pocket gophers out of gardens. Encircle trees and shrubs with hardware cloth (buried an inch or two under the ground) to prevent voles from girdling the trees.

CRITTER RESISTANT PERENNIALS AND BULBS

Alliums, *Allium spp.*
Sagebrushes, *Artemisia frigida and ludoviciana*
Basket of Gold , *Aurinia saxatilis*
Bee balm, *Monarda spp.*
Black Eyed Susan , *Rudbeckia hirta*
Blanketflower, *Gaillardia spp.*
Bleeding Heart , *Dicentra spectabilis*
Blue Flax , *Linum lewisii*
Clustered bellflower, *Campanula glomerata*
Catmints, *Nepeta spp.*
Chives, *Allium schoenoprasum*
Cleome, *Cleome serrulata*
Columbine (marginal), *Aquilegia spp* (especially bad when newly planted!)
Golden smoke, *Corydalis aurea*
Creeping Oregon Grape Holly , *Mahonia repens*
Creeping Phlox , *Phlox subulata*
Creeping baby's breath, *Gypsophila repens*
Daffodils * , Narcissus spp.
Delphinium , *Delphinium spp.* '
Dianthus, *Dianthus spp.*
Dragon's head , *Dracocephalon spp*

Engelmann Ivy, *Parthenocissus quinquefolia engelmannii*
Golden Banner, *Thermopsis divaricarpa*
Goldenrod, *Solidago spp.*
Hardy Geraniums, *Geranium spp*
Hummingbird Flower , *Zauschneria garrettii*
Iceland Poppy , *Papaver nudicaule*
Jacob's Ladder , *Polemonium caeruleum*
Kinnikinnick , *Arctostaphylos uva-ursi*
Lily-of-the-Valley , *Convallaria majalis*
Locoweed, *Oxytropis*
Lupine , *Lupinus spp.*
May Night Salvia , *Salvia sylvestris x 'Mainacht'*
Mexican Hat , *Ratibida columnifera*
Monkshood , *Aconitum spp.*
Oriental poppy, *Papapever orientale*
Pearly everlasting, *Anaphalis margaritacea*
Penstemon , *Penstemon spp.*
Piqsqueak , *Bergenia spp.*
Poppies, *Papaver spp.*
Prince's Plume, *Stanelya*
Purple Flowering Sage , *Salvia nemorosa*
Pussytoes , *Antennaria*
Sage , *Artemisia*
Sea Pink , *Armeria maritima*
Sedum, *Stone Crop*
Siberian Iris , *Iris sibirica*
Showy daisy, *Erigeron spp.*
Snow-in-Summer , *Cerastium tomentosum*
Soapwort , *Saponaria ocymoides*
Sulphur flower, *Eriogonum umbellatum*
Tansy aster, *Macaeranthera tanacetifolia*
Thyme, *Thymus species*
Veronica, *Veronica spp.*
Yarrow, *Achillea spp.*

ORNAMENTAL GRASSES

Blue Fescue (Festuca glauca) *
Blue Avena Oat Grass (Helictotrichon sempervirens) *

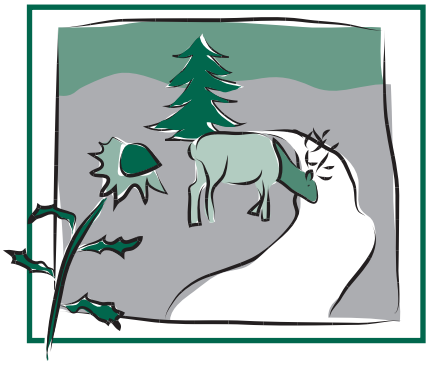
DECIDUOUS SHRUBS

Alpine Currant (*Ribes alpinum)*
Apache Plume (*Fallugia paradoxa)*
Boulder Raspberry (*Rubus delicious)*
Curl Leaf Mountain Mahogany (*Cercocarpus ledifolius)*
Cotoneaster (*Cotoneaster lucidus)*
Gambel Oak (*Quercus gambelii)*
Potentilla (*Potentilla spp.)*
Rabbitbrush (*Chrysothamnus nauseosus)*
Snowberry (*Symphoricarpos albus)*
Tall Western Sage (*Artemisia tridentata)*
Three Leaf Sumac (*Rhus trilobata)*
Golden Currant (*Ribes aureum)*

Colorado State University
Extension

Managing Wyoming Ground Squirrels

Fact Sheet No. **6.505** Natural Resources Series | **Wildlife**



by W.F. Andelt, S.N. Hopper*
Revised 3/16**

The Wyoming ground squirrel (*Urocitellus elegans* formerly *Spermophilus elegans*) is one of six species of ground squirrels found in Colorado. Formerly called "Richardson's ground squirrel," the Wyoming ground squirrel averages 10 to 15 inches long and weighs 9 to 14 ounces as an adult. Its fur is generally a brownish smoke-gray, with a dappled pattern of cinnamon-buff. The underside of the tail is buff.

The animals are not nearly as large as prairie dogs but are sometimes mistaken as such. Wyoming ground squirrels have an underground burrow without the larger mounds, and most often what one sees is the ground squirrel darting into the hole for safety during the morning hours.

Wyoming ground squirrels are found in Colorado, southern Wyoming, western Nebraska and Utah. The species occupies areas from 5,000 feet to above timberline in the north central and northwestern sections of Colorado. It prefers open sagebrush, grasslands and subalpine meadows. This has garnered them the nickname of "high mountain prairie dogs," because they can tolerate high elevations and will flourish if predators are absent.

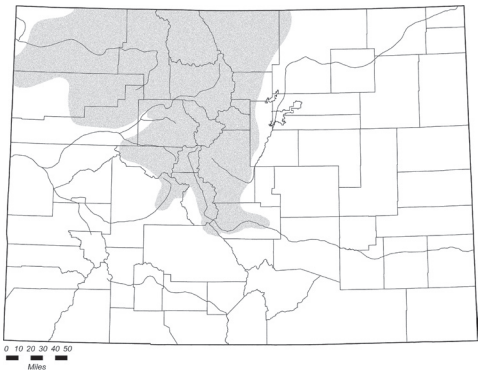


Figure 1: Wyoming ground squirrel distribution***

*W.F. Andelt, Colorado State University professor emeritus, fish, wildlife and conservation biology; S.N. Hopper, consultant. *Marvin Reynolds, CSU Extension area director, range & natural resources, SLV Area. 7/2014 Revised S. Bokan, Small Acreage Coordinator Boulder County; K. Crumbaker, Ag and Natural Resources Agent Larimer County; T. Hoelsi, Extension County Director Grand County; D. Lester, Extension County Director Park County and I. Shonle, Extension County Director Gilpin County, 3/16

Food Habits and Biology

Wyoming ground squirrels prefer green foliage, such as grasses, but also eat forbs and shrubs. When green vegetation becomes scarce, the squirrels eat dry grasses and seeds. They also eat insects, including grasshoppers, crickets and caterpillars, and eggs from ground-nesting birds.

Wyoming ground squirrels construct and live in underground burrows. In brushy country, Wyoming ground squirrel burrows often are identified by a substantial pile of debris (sticks, rocks, sagebrush leaves) that covers the area downslope from the burrow entrance. Squirrels stay in their burrows at night and during the warmest part of summer days. The burrow is the center of a ground squirrel's activity.

The squirrels enter their burrows in late July or early August and hibernate until the following March or April. Males usually come above ground one to three weeks before the females. Breeding takes place one to four days after females emerge from hibernation. The young are born after a three- to four-week gestation period with two to 10 young per litter. Only one litter is produced each year. The young are weaned at five weeks and are foraging above ground by June. Density of Wyoming ground squirrel populations can range from two squirrels per acre before young are born in the spring, to 20 or more animals per acre in early June when juveniles and adults are active.

Quick Facts

- The Wyoming ground squirrel is one of six species of ground squirrels found in Colorado.
- Wyoming ground squirrels compete with livestock for forage and can destroy food crops.
- Wyoming ground squirrel burrowing can damage hay fields, grasslands, golf courses, and lawns.
- Wyoming ground squirrels can be controlled by shooting, trapping, poison grain baits and fumigation.

www.ext.colostate.edu

Health Risks

Ground squirrels are hosts for fleas and may act as carriers for 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, apply an insect repellent to socks and pant cuffs before tucking pants inside boots.

Ecological Value

Predators of the Wyoming ground squirrels include bullsnakes, rattlesnakes, coyotes, foxes, badgers, weasels, bobcats and raptors.

Figure 2: Wyoming ground squirrel burrow has a fanned out low mound. The hole entrance is at an angle and remains open. Usually ground squirrel burrows have several entrances.

Figure 3: A newly formed Wyoming ground squirrel mound. Note the fanning similar to pocket gopher holes. Wyoming ground squirrel holes remain open.

Management Methods

Several alternatives are available for Wyoming ground squirrel management. Landowners should use multiple methods for squirrel management such as habitat modification, predators, exclusion, trapping and shooting. For the average high mountain homeowner, unfortunately, the remedy is not a quick nor easy one. The goal is not to eliminate the entire population, but to keep the population under control. A Wyoming ground squirrel population of over 8-10 per acre is a growing problem for any homeowner that won't simply take care of itself. When using rodenticides, always read and follow label instructions and other local regulations for proper use to minimize or eliminate off target harm to children, pets and wildlife.

Wildlife Predators

Utilizing natural predators of Wyoming ground squirrels is an easy management method. Many of the high mountain areas are home to a variety of hawks, foxes, badgers, and coyotes that are natural predators of the squirrels.

Unwanted Predators

In higher mountain areas, homeowners may find themselves with increasing Wyoming ground squirrel populations with a "not so friendly" badger. Although badgers can help manage the ground squirrels, they can also create new challenges. While most badgers prefer to remain out of sight and eat during the dark night hours, badgers have been known to attack people when threatened and with their medium size of 40-55 pounds (mature weight) should be considered dangerous with their "bad tempers" and fierce claws. If you encounter a badger, vacate the area as quickly as possible.

Most badgers will burrow a large hole, 8-10" in diameter or more. While they help with the ground squirrel problem, they create a new problem to horse and large livestock owners, as these animals can fall into these large holes and injure themselves.

Badgers will only be drawn to your property if Wyoming ground squirrels are abundant. The badger will often move on, when the food source is no longer plentiful. If badger encounters persist, contact your local Colorado Parks & Wildlife officer and they may be able to help you relocate the badger.

Economic Damage

High concentrations of Wyoming ground squirrels can pose a serious pest problem. They compete with livestock for forage and can destroy food crops. The mounds of dirt that squirrels excavate to build burrows in hay fields can damage haying equipment and take fields out of production. Burrowing activity also can damage grasslands, golf courses and lawns.

Canine & Feline Predators

Dogs and cats can in fact be very helpful in reducing ground squirrel populations. Dog breeds that are quick hunters such as the Terriers, especially Jack Russells, and the Australian Shepards are the best breeds for decreasing squirrel populations. Cats can be effective if quick and agile enough to catch a scurrying Wyoming ground squirrel.

Shooting

Small, isolated colonies of Wyoming ground squirrels can be effectively controlled by shooting. Shooting lowers the population by removing individuals and disrupting their life cycle. However, if there are other colonies of ground squirrels nearby, individuals from those populations will migrate into the area where squirrels are being removed. For effective management of problem ground squirrels, a population must be kept under constant shooting pressure.

Unlike other burrowing animals, the Wyoming ground squirrel is considered a small game species in Colorado, allowing licensed hunters to harvest them year-round without a limit.

Always use good hunter safety practices and follow local laws and regulations when using fire arms to depopulate. Don't shoot within ¼ mile of any roadway. Always know your target and beyond.

Source of Supplies

Rodenticides for controlling Wyoming ground squirrels are available through commercial vendors in Denver, a few farm supply stores outside Denver, and the Animal Health Division, Colorado Department of Agriculture, (303) 869-9130. Traps can be purchased or ordered at hardware stores.

Trapping

For small populations, wire-mesh cage traps can be set anywhere that squirrels frequent. Place traps on level ground within a few feet of burrows or other high-activity areas. Bait for several days with the door wired open to get squirrels accustomed to visiting the trap and unafraid of it. Wooden snap-type rat traps and modified pocket gopher traps also can be used.

Bait the traps with rolled oats, peanut butter, fruit such as apples, or grain, depending on what works best in your area and the time of year. If corn is used as bait, it should be cracked.

Conibear #110 body traps are useful early in the season when the squirrels have plenty of green forage available and are not easily enticed to baited traps. The problem is that most of the burrows are on hillsides or at least uneven ground, making it difficult to set traps effectively. Set the trap directly over the burrow opening to capture the squirrel as it emerges. The trap should fit directly over the entrance and not allow the squirrel to walk around the edge of the trap. This method would be most effective in smaller areas where populations are 2-6 per acre.

Product labels vary among manufacturers and with time. Carefully follow current label directions.

Rodenticide safety

When dealing with any rodent problem, utilize all management techniques to resolve the problem and do not rely solely on rodenticides. Set realistic goals such as minimizing the rodent number on your property by using exclusion methods, eliminating desirable habitat or food sources. You'll never eliminate all ground squirrels. When using any rodenticide always read and follow the label and guidelines and be sure you understand them prior to use to minimize off target (i.e. raptors, dogs, and cats) poisoning. Rodenticides are meant to kill rodent species but will also kill other animals if used improperly.

Steps for safe use of rodenticides*

-Positively identify the pest and determine all techniques that can be used to deter the pest such as habitat modification and exclusion.

-Decide what your threshold limit is. Set realistic goals such as minimizing rodent numbers. Do not expect to eliminate them completely.

-Choose the most effective, least toxic rodenticide to minimize potential non-target poisoning.

-If you choose to use a rodenticide,

oRead and follow the label.

oAbide by any limitation of use (for example: use only between Nov. 1 and March 30) and other label restrictions

o Wear proper protective clothing and equipment.

o Don't smoke or eat while mixing or applying a rodenticide, and wash thoroughly after application.

o Mix and apply only the quantity you need.

*Reference: EPA Citizen's Guide to Pesticide Safety http://www.epa.gov/safepestcontrol/citizens-guide-pest-control-and-pesticide-safety

o Always store rodenticides away from pets, children and wildlife.

oAlways locate rodenticides so that off-target species cannot access them (for example: children, pets, wildlife). Use enclosed bait boxes or make sure rodenticide is deposited deep in the tunnel or locate rodenticides in locked areas inaccessible to children, pets or wildlife.

oNever store rodenticides near food items for human, pet or livestock.

oFollow the label instructions on carcass surveillance.

Poison Grain Bait

Product labels vary among manufacturers and with time. Carefully follow current label directions.

When using poison grain baits follow the label to minimize or eliminate poisoning off-target species. Poison grain bait is the most practical method for controlling large numbers of Wyoming ground squirrels. Baiting is most effective at two points during their annual cycle: early spring, or late June to early July.

In a year of average rainfall, begin poison grain control early in the spring, about one to two weeks after squirrels emerge from their burrows. Continue for one month or until vegetation turns green. Early control is enhanced by cold weather and minimal vegetative growth that makes bait more desirable to ground squirrels.

As soon as green vegetation becomes available, bait is less accepted. To achieve successful control in early spring, apply bait when the entire ground squirrel population is active. If part of the population is still hibernating, baiting is not effective. Since females emerge one to two weeks after males, do not start baiting at the first sign of activity. Baiting also is not effective late in the gestation period or shortly after the young are born because females are rarely above ground at that time. Check the activity level of the population by trapping or shooting 10 or more animals and checking the ratio of males to females. A 1-to-1 ratio usually means that females are active and baiting is appropriate.

Baiting in mid-summer is common in Colorado. Bait after green vegetation is dry and dormant (sometime in June or July) but before squirrels disappear into their burrows to hibernate in late July to early August. Bait acceptance is high in June and July because Wyoming ground squirrels are eating to build fat reserves for winter. In a very dry spring, control can continue from April until July because of the scarcity of green vegetation.

Two percent zinc phosphide is the only legal grain bait for control of Wyoming ground squirrels in Colorado. Bell Laboratories' ZP Rodent Bait AG™, Liphatech's Ridall-Zinc™ and Hacco's Zinc Phosphide Oat Bait and Pellets™ are 2 percent zinc phosphide baits labeled for use in Colorado. Zinc phosphide baits are

The hydrogen phosphide gas produced by aluminum phosphide tablets is toxic to all forms of animal life. Expose affected people to fresh air and provide immediate medical attention.

labeled for use on rangelands, non-crop areas such as lawns, ornamentals, golf courses, parks and nurseries, and non-crop rights-of-way. Liphatech's Ridall-Zinc™ is not registered for use on ornamentals and parks, and Bell's ZP Rodent Bait AG™ and Hacco's Zinc Phosphide Oat Bait and Pellets™ are not registered for use on non-crop rights-of-way.

Zinc phosphide baits are classified as restricted-use pesticides. This classification means that landowners must obtain private certification from the Colorado Department of Agriculture (www.colorado.gov/apps/cda/pesticide/applicator/licensing/welcome.jsf) 303-869-9064, before they can purchase or use these products. Obtain certification information from your local Colorado State University Extension county office.

Prebaiting with untreated, steam-rolled oats, barley or cracked corn two to three days before baiting improves bait acceptance. On rangelands, apply prebait and bait by hand in a 6-inch bait spot near each active burrow. Place no more than 1 teaspoon (4 grams) of bait per spot. Do not place bait in the burrows because squirrels forage above ground and are wary of any food found in the burrow. Apply bait only after all or most of the prebait is eaten, and only in areas where prebait is consumed.

In non-crop areas, apply prebait and bait by hand near each active burrow or runway. Place bait (no more than 1 teaspoon per burrow) on the grass and allow it to fall to the ground. Do not put treated bait in piles.

Two percent zinc phosphide manufactured by Liphatech can be broadcast on non-crop rights-of-way. Prebait with rolled oats, barley, or cracked corn at a rate of 4 pounds per acre two to four days prior to baiting. Broadcast bait in 20-foot swaths (this varies depending on the bait being used) using hand or ground-driven equipment. Do not broadcast near homes or water, or on roads.

Zinc phosphide is a slow-acting toxicant that can be absorbed in small amounts through the skin. Wear rubber gloves to avoid contact with the chemical. Take extra care to avoid breathing zinc phosphide dust.

Because product labels vary among manufacturers and change with time, carefully follow current product labels. Bell Laboratories' ZP Rodent Bait AG™ is approved for use from July through December on rangelands but doesn't have a seasonal restriction on other areas. Liphatech's Ridall-Zinc™ is recommended for use from April through June on rangelands and when broadcast on non-crop rights-of-way. All other uses are permitted year round. Hacco's Zinc Phosphide Oat Bait and Pellets™ do not have a seasonal use restriction.

Apply poison bait only once per year. Surviving squirrels from the first treatment sometimes become ill after eating bait. Consequently, these animals will become bait-shy and further treatments will be unsuccessful.

Use of poison baits according to label directions usually results in an 80 to 90 percent reduction in Wyoming ground squirrel numbers. Poor results after baiting usually are due to improperly placed bait, failure to prebait, presence of green vegetation, or inactivity of a portion of the ground squirrel population.

Diphacinone (Ramik Green™), strychnine, and 1080 grain baits are no longer legal for use on Wyoming ground squirrels in Colorado.

Fumigants

Prior to using a fumigant, read, understand and follow the label. Follow all label instructions for personal protective equipment, application timing, carcass surveillance and other instructions. When using fumigants, follow the label to minimize or eliminate affecting off-target species. Use fumigants when additional control is required. Aluminum phosphide and gas cartridges are registered for use in Colorado. Trade names for aluminum phosphide include Phostoxin™, Gastoxin™ and Fumitoxin™. Aluminum phosphide is classified as a restricted use pesticide and gas cartridges are classified for general use. Aluminum phosphide emits a poisonous gas (hydrogen phosphide), whereas gas cartridges produce a suffocating gas primarily composed of carbon monoxide. Fumigants are most effective when used in moist soils in early spring.

Aluminum phosphide is classified as a flammable solid. Transportation of aluminum phosphide by commercial firms is governed by U.S. Department of Transportation rules and regulations. These regulations are subject to change. If you have any questions, call Hazmat (Colorado State Patrol Hazardous Materials Section) at (303) 273-1900.

To use aluminum phosphide, follow the label recommendation for number of tablets to use per hole. Insert the number of tablets the label recommends as far back into the burrow as possible. Then insert a wadded newspaper and plug the opening to the burrow with moist soil or a plug of sod placed grass-side down to form an airtight seal. The wadded newspaper prevents the fumigant from being covered and may delay ground squirrels from digging out before the tablets activate. Aluminum phosphide appears to provide the best control when soil temperatures are above 60 degrees F.

To use the gas cartridge, punch at least five or six 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 slide the cartridge as far back into the burrow opening as possible. Immediately plug the opening with moist soil or a piece of sod placed grass-side down to form an airtight seal. Do not cover or smother the cartridge. As a rule, cartridges do not give satisfactory control if the soil is dry.

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. Expose affected people to fresh air and provide immediate medical attention.

After Wyoming ground squirrels have been exterminated, reinvasion may be slowed by deep ripping with a tractor and ripping blade. After successful control of California and Belding ground squirrels, 18-inch-deep ripping of individual burrows or the entire area significantly reduced recolonization. Ripping did not reduce ground squirrel numbers on sites where control was unsuccessful. Weigh negative aspects of ripping, such as cost, against the

potential benefits of slower recolonization and reduced frequency of rodenticide use.

Transportation Regulations

Place placards on all four sides of vehicle being used to transport fumigant.

Carry shipping papers containing the following information: proper shipping name (aluminum phosphide), hazard class/division number (4.3), material identification number (UN1397), packing group designation (PG 1), subsidiary hazards (poison 6.1 inhalation hazard), and amount of product in quantity and total gross weight.

Keep the aluminum phosphide in the original canister and box.

Keep a log book if transporting aluminum phosphide over 100 air miles. The log book is a record of duty for the day, recorded in 15 minute intervals. If transporting under 100 air miles, only a time record must be kept. This includes name of person transporting, date, time started on duty, and time going off duty.

Carry a fire extinguisher with a rating of 10B:C.

Prior to transporting aluminum phosphide, the driver must be satisfied that the vehicle is in safe operating order. At the end of the day that the material was transported, the driver must prepare a written inspection report. The following parts and accessories should be inspected and reported on: service brakes including trailer brake connections, parking (hand) brake, steering mechanism, lighting devices and reflectors, tires, horn, windshield wipers, rear vision mirrors, coupling devices, wheels and rims, and emergency equipment.

The report should identify the vehicle and list any defects or deficiencies found. If none are found the report should so indicate. Correct any defects or deficiencies before operating the vehicle again and note the corrections in the report. The report should be signed by the driver. Make two copies of the report. Keep one copy in the vehicle until the next time an inspection report is required, and keep one copy at the driver's place of business for at least three months from the date the report was prepared.

In addition to these pre- and post-trip inspections, a more in-depth annual inspection is required. Information pertaining to this inspection may be obtained by calling Hazmat at (303) 273-1900.

Have $1,000,000 insurance if transporting aluminum phosphide in a vehicle with a greater than 10,000 pound gross vehicle weight rating or if transporting over a state line.

The driver must be over 21 years old.

***Distribution Map: Armstrong, David M., James P. Fitzgerald, and Carron A. Meaney. 2011. *Mammals of Colorado* 2nd ed. Colorado: Denver Museum of Nature & Science and University Press of Colorado.