

# Burrowing animals: Determining species by burrows & damage

Fact Sheet No. 6.521

Natural Resources Series | Wildlife

By Sharon Bokan, Karen Crumbaker, Travis Hoesli, Deborah Lester and Irene Shonle\*

## Introduction

There are many burrowing animals (pocket gophers, prairie dogs, voles and Wyoming ground squirrels) in Colorado that can cause damage to lawns, gardens, and pastures. The first step to resolving the problem is to identify which animal (or animals) caused the damage. Once this has been determined, refer to the appropriate fact sheet for management information: 6.507 Managing Voles in Colorado, 6.515 Managing Pocket Gophers, 6.505 Managing Wyoming Ground Squirrels, or 6.506 Managing Prairie Dogs.

The four main kinds of small burrowing animals likely to cause damage in Colorado are voles (8 species), pocket gophers (4 species), prairie dogs (3 species), and Wyoming ground squirrels. Moles (*Scalopus aquaticus*) are rarely found in Colorado, and only on the eastern plains (see distribution map below).

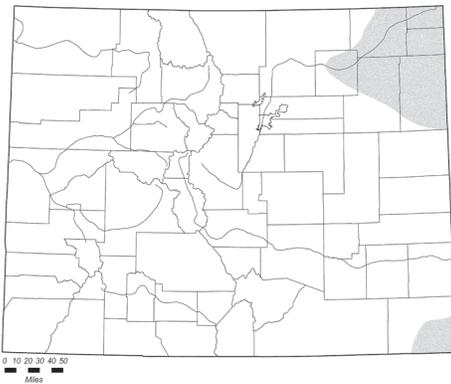


Figure 1: Moles only occur in Colorado's northeastern plains along the Lower South Platte (Logan, Sedgewick, Phillips, Morgan, Washington and Yuma counties) (*Scalopus aquaticus ssp caryi*) and in the Cimarron watershed in southeastern Colorado (Baca County) (*Scalopus aquaticus ssp intermedius*).<sup>1</sup>

If you are outside that area, the species causing damage is likely one of the other four. Moles are 5-6" long with a cylindrical body and a slender, hairless, pointed snout, and short, sparsely haired tails. Moles construct shallow tunnels below ground. These tunnels can be confused with tunnels of the pocket gopher, but moles do not leave mounds of soil.

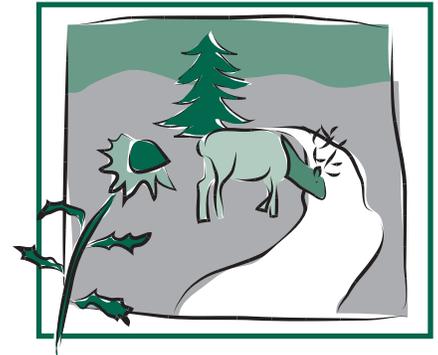
## Voles (*Myodes*, *Microtus*, *Lemmyscus* and *Phenacomys*)

Voles cause several types of damage. They gnaw on tree and shrub bark, sometimes girdling the trunk entirely and causing tree and shrub death. Most damage occurs in the winter when voles move through their grass runways under the protection of snow. The greatest damage seems to coincide with years of heavy snowfall when snow cover persists for longer periods.

Vole damage to trees and shrubs is characterized by girdling and patches of irregular patterns of gnaw marks about 1/16 to 1/8-inch wide. Gnawed stems may have a pointed tip.



Figure 2: Vole damage on lilac. Notice small, irregular tooth marks, all under what was the snow line.



## Quick Facts

- The four main kinds of small burrowing animals likely to cause damage in Colorado are voles, pocket gophers, prairie dogs, and Wyoming ground squirrels.
- Moles occur only in specific areas on the eastern plains of Colorado. Damage blamed on moles is most likely done by another species.
- Damage can be reduced by habitat modification, exclusion, repellents, trapping, and poison grain baits.

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\* S. Bokan, Small Acreage Coordinator Boulder County; K. Crumbaker, Ag and Natural Resources Agent Larimer County; T. Hoesli, Grand County Extension County Director; D. Lester, Park County Extension County Director, and I. Shonle, Gilpin County Extension County Director. February, 2016.



Figure 3: Vole runways in lawn after snow melt in spring.



Figure 4: Vole burrow and runway in clay soil.



Figure 9: Fan-shaped mound with closed burrow is typical of pocket gophers.



Figure 5 and 6: Examples of vole holes. They often burrow near a rock.



Other signs of vole damage include: runways 1 to 2 inch-wide through matted grass with open 1-2 inch holes and spongy soil from burrowing activity. Long-tailed voles do not make well-defined runways. It is common to see evidence of voles, as they are active all year round, and are frequently above ground.

### Pocket gophers (*Geomys bursarius*, *Thomomys talpoides* and *bottae*, and *Cratogeomys castanops*)

Pocket gophers rarely appear above ground, spending most of their lives in burrows. Prairie dogs and Wyoming ground squirrels, on the other hand, are frequently seen above ground. Pocket gophers are solitary with only one gopher per burrow except during breeding season. Prairie dogs and Wyoming ground squirrels both live in colonies.

The main signs of damage from pocket gophers include mounds of soil (with no apparent entry hole), eskers



Figures 7 and 8: Two examples of eskers. These soil mounds are seen only as the snow melts, and result from burrowing activity under snow cover. Eskers are soil that is excavated during burrow building that is pushed into the overlying snow.



(solid tubes of soil) above ground when the snow melts in the spring, and suddenly wilting plants (due to root damage). If you walk across an area inhabited by pocket gophers, your foot will frequently break through into their tunnels. The tunnels are usually 2.0-3.5" in diameter, and are usually found in the top 4-18" of soil. The mounds pocket gophers create are fan-shaped to round and usually have closed entrances, unlike those of prairie dogs and Wyoming ground squirrels.



Figure 10: Prairie dog burrow

### Prairie dogs (*Cynomys ludovicianus*, *Cynomys gunnisoni*, *Cynomys leucurus*)

Prairie dogs are not related to dogs (*Canis*) but are large ground squirrels (*Cynomys*). There are 3 prairie dog species (black tailed, Gunnison and white tailed) in Colorado but the most common along the Front Range and Eastern Plains is the black-tailed prairie dog (*Cynomys ludovicianus*). Prairie dogs live in coterries (family units) within the larger colony.

Prairie dogs cause damage to pastures by removing vegetation. The damage first appears as holes 4 – 8" in diameter with the vegetation clipped back away



Figure 11: A crater mound formed in moist soil. Note the nose prints made in side of mound when the prairie dog compacted the soil.



Figure 12: Prairie dog burrow and mound from the holes. Over time the prairie dogs build a mound around the holes. Mounds may be dome or crater shaped. They clip and consume the vegetation around the holes partly for forage and nesting material, but also to provide better predator detection. They will also dig holes to consume plant roots. They live in colonies so their damage extends beyond the single holes to cover the whole colony.

It is common to see prairie dogs when they are present, as they are active all year round, and are frequently above ground. Periods of prolonged rain or snow cause the prairie dogs to retreat to their burrows.

## Wyoming ground squirrel (*Urocitellus elegans*)

This species of ground squirrel was formerly known as Richardson's ground squirrel. Wyoming ground squirrels can be confused with prairie dogs, especially Gunnison's prairie dog. Wyoming ground squirrels usually live at higher elevations (6,000 – 12,000') than black-tailed prairie dogs (3,315 – 7,200). They are found primarily in central to northern Colorado, west of the Front Range. The Wyoming ground squirrel is diurnal, emerging from its burrow shortly after sunrise and returning before sunset. The ground squirrel lives in colonies but the individuals may not be related. Ground squirrels hibernate in the winter unlike black-tailed prairie dogs.



Figure 13: Weedy area around mound where previously existing vegetation was removed by the prairie dogs.



Figure 14: A newly formed Wyoming ground squirrel burrow and mound. Note the similar fanning to pocket gopher holes. Wyoming ground squirrel burrows remain open.

<sup>1</sup>Distribution Maps: 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.