

Controlling Pocket Gopher Damage to Lawns, Gardens, and Golf Courses

Pocket gopher mounds are unsightly irritants on lawns, gardens, and golf courses. The gophers' habit of eating vegetables, flower bulbs, and pruning roots—and girdling small shrubs and trees—does not endear them to the home gardener. Solving these damage problems is not easy and requires persistent effort, but it can be done, usually by baiting or trapping.

Pocket gophers are small- to medium-sized rodents (5 to 12 inches long) that dig and spend most of their lives in underground burrow systems. They have short, stout bodies, powerful shoulders, and blunt, rounded heads. Eyes and ears are small, and the tail is short and sparsely haired or naked. The large external fur-lined cheek pouches or "pockets" give the animal its name and are used to transport food and nesting materials.

Although the many dirt piles or surface mounds that an active gopher pushes up suggest a colony of several animals, the pocket gopher is solitary except during the brief mating season and when the female is rearing her young. Territories sometimes overlap, but each animal fiercely defends its own living area and burrow system.

Gophers have many natural enemies, including dogs, cats, hawks, owls, foxes, coyotes, badgers, weasels, and snakes. When not digging, gophers usually keep all entrances to their burrow system tightly plugged to keep out such intruders and to help regulate temperature and humidity within. A single animal may excavate as much as 800 feet of tunnel in a network covering an acre or more.

Young are born in April and May. Single litters averaging five to eight are probably the rule in most Oregon habitats. In areas with long growing seasons and extremely

favorable food supplies, a second litter may be produced. The young mature quickly; by 6 weeks of age, they are on their own, and they move out to establish new territories or take over abandoned burrow systems.

Gopher damage

Pocket gophers feed on a wide variety of plant materials, including roots, bulbs, leafy weeds, grasses—even bark or twigs girdled or clipped from trees and shrubs. Gophers store food in enlarged sections of their burrow systems, but they often don't return to use it. Although surface activity and mound building may stop during extremely wet or cold weather, gophers do not hibernate.

In areas where deep winter snow cover persists, they often move above ground to burrow in the packed snow and girdle or clip trees and shrubs above ground level. Gophers fill the snow tunnels with excess soil from below; following the spring thaw, these earth quarters remain scattered like worm tracks on the soil surface.

Losses caused by the gophers' eating habits are important, but much additional damage results from their burrowing and mound-building activities. Examples are the damage and disfigurement of lawns, flower beds, and golf courses by the mounds; creation of readymade homes for meadow mice, ground squirrels, or other rodents; exposure of plant roots to drying and disease; and acceleration of erosion on hilly ground or other areas subject to washing.

Identify the pest

The first step in controlling any rodent pest is proper identification. This is particularly true for the pocket gopher,

which is not often seen and which you must usually identify on the basis of its mounds and burrows.

Because the mole is also a burrower and mound-builder, misidentification is common in areas where both occur. Control techniques for the two are not interchangeable, so incorrect identification means little or no control.

Pocket gophers extend lateral (side) tunnels to the surface from their deeper main tunnels and push out the excess soil in flattened or fan-shaped mounds. These vary from 12 to 24 inches in diameter and are 6 or more inches high.

Gophers then plug the surface opening through which they have pushed this soil, leaving a noticeable dent or plug at one end of the pile (figure 1). The entire lateral may be back-filled to the main tunnel.

Mole mounds are the result of repeated eruptions from below. They simply continue to grow or enlarge until the mole has disposed of the excess soil and moved on. Mole mounds are higher than gopher mounds and look more like miniature volcanoes.

No hole on the side of the mound is evident. However, if you place your finger in the middle of the mound and push it down in a circular fashion, you will discover the mole's hole is in the middle rather than on the edge of the mound.

The pattern of mounds helps to distinguish gopher from mole activity. Gopher mounds tend to be clumped in tight groups; mole mounds tend to be spaced in a line as single mounds (figure 2).

Other rodents, including field mice, commonly take advantage of the readymade burrow systems of gophers after the original



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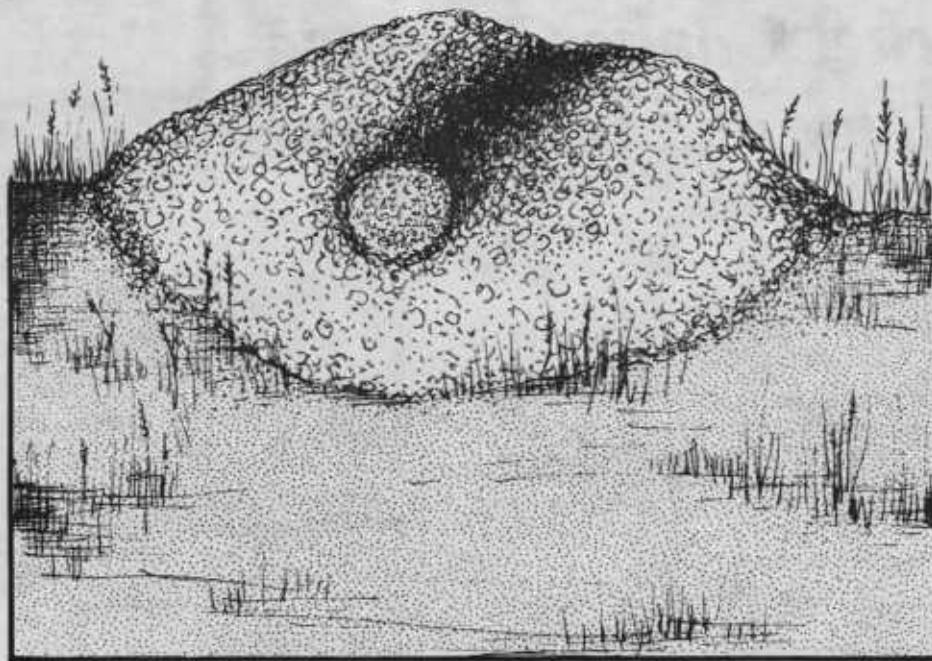


Figure 1.—Pocket gopher mound

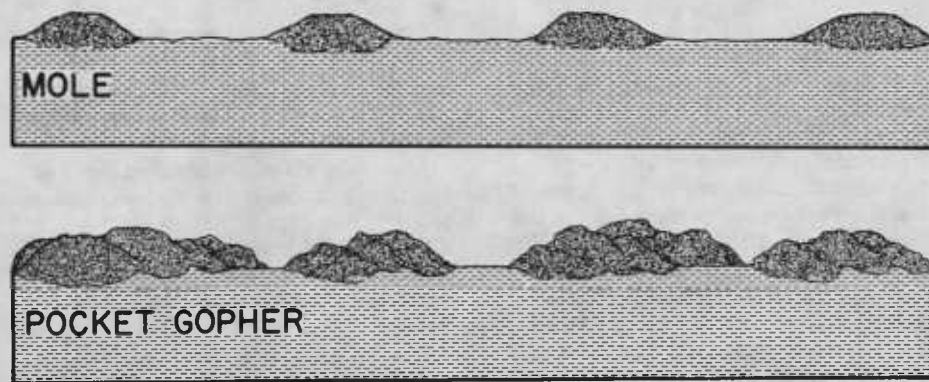


Figure 2.—Mound patterns, mole and pocket gopher



Figure 3.—Victor or Macabee gopher trap (above); cinch trap (below)

owner has moved out or been eliminated. In such cases, there are usually several open holes about the size of a 50-cent piece leading into the deeper tunnels left by the pocket gopher. Numerous well-worn small surface tunnels or trails interconnect the smaller holes.

Control methods

You can control pocket gophers by proper use of traps and poison baits, or by a combination of both methods. In home gardens, lawns, and other small areas where a limited number of animals is present, traps may be preferred.

However, because a certain amount of technique is required to trap gophers, many homeowners find baiting with properly prepared commercial baits quicker, easier, and more effective. On larger areas, such as golf courses, the speed of poison baiting may make it the preferred technique.

Trapping. The cinch trap (figure 3) with each trap jaw approximately $3\frac{1}{2}$ inches long, is recommended for catching the larger pocket gopher that inhabits the Willamette Valley area. Holes made by the pocket gopher usually are over 3 inches in diameter.

Either the Victor or the Macabee gopher trap (figure 3) is effective for catching the smaller varieties of pocket gopher that have holes usually less than 2 inches in diameter.

Although designed to kill quickly and humanely, these smaller traps may sometimes catch the gopher by a front foot or a fold of skin and not kill it. Fasten *all* gopher traps by a thin wire or a stout cord to a stake to prevent the trapped gopher from pulling the trap back into its deeper tunnel or to prevent scavengers from carrying the gophers and trap away.

All gopher traps work on the same principle. Set them in open lateral or main tunnels; they spring when the gopher pushes loose soil against the trigger while attempting to plug the open burrow. To insure maximum success, locate the freshest burrows and trap only those. You can identify fresh burrows by flattening all mounds in an area of recent activity, coming back in a day or so, and locating those mounds that have been rebuilt.

To use the cinch trap, select a freshly opened lateral or recently plugged mound and remove or push aside the loose surface soil. Using a probe or iron rod (figure 4), locate the direction of the lateral or tunnel leading into the main underground runway.

With a trowel or a long-handled iron spoon, clean out or remove most of the loose soil from the lateral. Bed the trap firmly in the lateral by working it back and forth in the soil. You can sprinkle a bit of loose soil from the mound in front of the trigger loop to partially cover and conceal the trap wires and jaws. The open trap should fit snugly against—but should not

extend into—the open burrow system (figure 5).

To trap the smaller gophers, follow the same general procedures, using the Victor or Macabee traps. However, you can also set traps in the main runway. Use two traps, one in each side as shown in figure 6.

Anchor these small traps to a stake and flag the stake to speed up trap location and save time searching for trap sets.

You may wish to replace some soil or use a large handful of coarse vegetation or piece of sod to partially block the open runway after you have set the traps. This will diffuse the light and partially conceal the trap in open tunnels.

Leaving too large an opening may cause gophers to push a greater than usual amount of soil, which will plug or spring the trap before the gopher gets within the open trap jaws.

Gopher traps require no bait. If they do not spring in a day or two, move them to new locations, where fresh mound building indicates an active animal.

Poison baiting. The most practical and efficient method of controlling large numbers of pocket gophers (such as on golf courses) is to place toxic baits by hand in active burrow systems. Proper baiting requires that you place the baits beneath the ground in main runways—so they are not exposed to children, pets, or nontarget species. *Never* place gopher baits on the surface.

Tests have indicated that extremely low hazards exist to nontarget animals, including scavengers, when baits are placed underground. Gophers almost always die underground, so there is little hazard to nontarget animals from poison baiting.

Of the rodenticides that are currently available, strychnine alkaloid is one of the most effective toxicants. Baits containing various anticoagulants have been tested experimentally; however, they are less effective and usually require a longer period of time, and repeated baitings are required to gain control.

By law, persons who want to prepare their own baits can no longer obtain strychnine. Commercially prepared baits containing between 0.25 and 0.5 percent strychnine are generally available at seed, feed, and garden supply stores.

Baits containing more than 0.5 percent strychnine must carry a restricted-use label, and only persons certified to use restricted-use chemicals can purchase and use them. Anyone can buy and use baits containing less than 0.5 percent strychnine.

Use an iron rod or probe to locate the main runway. Probe the area between two freshly made mounds or directly into a freshly plugged lateral to locate the main runway. Once you have pushed the probe into the main tunnel from above, rotate it to enlarge the opening, then drop a spoonful



Figure 4.—Locating the direction of the lateral runway by inserting a probing device



Figure 5.—Bedding the trap firmly in the entrance to the gopher burrow

of bait through the hole to the floor of the main tunnel.

Plug or cover the hole with a clod or a piece of sod; take care not to let loose dirt fall onto the bait. Two or three bait stations in the area of freshest mound-building are sufficient.

If you have trouble locating the main tunnel by probing, dig directly into a freshly plugged lateral with a long-handled iron spoon or narrow garden trowel until you reach the junction where the lateral joins the main tunnel.

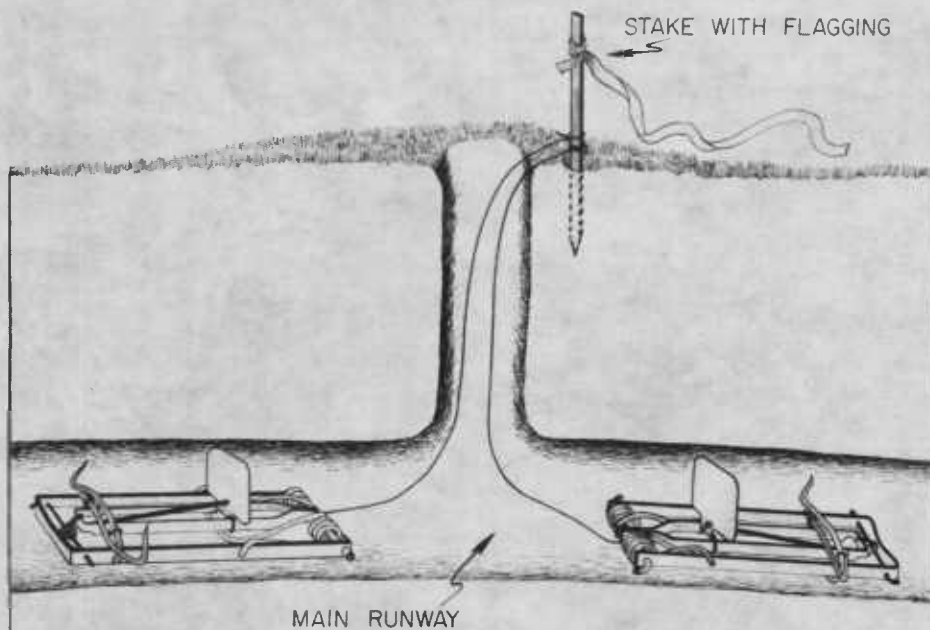


Figure 6.—Two gopher traps, one on each side of a gopher burrow's main runway

Remove most of the loose soil from either side of the exposed main tunnel; with your spoon, place baits going in either direction in the tunnel. Plug with clumps of sod, soil, or vegetation; refill the hole with soil.

Remember: when baiting a gopher hole, plug it; when trapping, leave the hole open.

Failure to control pocket gophers with poison bait can usually be traced to improper baiting technique rather than bait failure. Getting the baits into the main tunnel system is very important. When using a probe, be sure your probe and bait aren't placed *below* the level of the burrow. Baiting unused or plugged sections of burrow systems is also ineffective.

Even when you do a proper job and eliminate the resident gopher, reinvasion into the same burrow system by gophers from neighboring untreated areas is rapid, occurring sometimes within several days. Control of pocket gophers in adjacent areas is important if you expect overall success for any period of time.

Other control. The use of poison gases, gas bombs, or other fumigation methods is rarely effective for controlling pocket gophers. Burrow systems are extensive, vary considerably in length, and contain many segments that are wholly or partially blocked.

Soil conditions also vary greatly—and are seldom ideal for equal penetration or equal concentration of gases. Gophers are quick to take defensive action and plug off sections of burrow systems at the first whiff of any foreign material.

Flooding is usually equally ineffective, as you can seldom fill burrow systems completely with water. Even then, few gophers drown, but simply move to higher ground until the water recedes.

Repellents, helpful for controlling some rodents, are generally wasted on pocket gophers. The idea that gophers can be kept out or driven from an area by planting castor beans or other plants is false.

Also false is the belief that vibrations in the soil or noises on the surface caused by whirling plastic sunflowers, vented bleach bottles on sticks, or other similar devices will cause pocket gophers to leave. The telltale gopher mounds around road

shoulders of super highways or next to runways at airports prove that gophers quickly adjust to vibrations in their soil environment or noises on the surface.

Not long ago, the market was flooded with a variety of "electromagnetic repeller" devices guaranteed to control pest animals by disrupting the life processes while being harmless to nonpest species such as earthworms.

These devices have been thoroughly field tested on gophers and other field rodents and have been found to be completely worthless. Fortunately, most if not all of these gadgets have now been withdrawn from public markets and advertising by the EPA.

Persistence pays

Pocket gophers are mobile weeds. Keeping them in check is a maintenance problem generally requiring seasonal or annual repetition. To control gophers, you must first learn to properly identify them—usually by their mound systems—and then carefully apply or use the recommended traps or bait, often in combination.

Persistent effort with probe, trowel, shovel, or spoon will pay off. There are no easy methods or magic wands to make them go away. Only persistent efforts on an annual basis will insure that your lawns, gardens, and golf courses are kept free from the damage caused by pocket gophers.

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