



for the Gardener

UCSC FARM & GARDEN
Center for Agroecology
& Sustainable Food Systems,
UC Santa Cruz

Controlling Small Animal Pests

It's a joy to garden and farm in Santa Cruz and Monterey Counties. The temperate climate with its long, dry summers and mild winters makes for a year-round abundance of vegetables, fruit and flowers.

Often, though, just when you've planted your seeds and seedlings and things seem under control, you realize something is wrong. That perfect row of seeds is now riddled with tunnels and holes, or those seedlings that looked so good when you lovingly planted them are now just stems. Even worse, that bare root apple tree you planted in the dead of winter is listing to one side and shows no sign of budding out.

As you probably have guessed, you're a victim of one or more of our local animal pests. It's not personal—these animals are just trying to make an honest living. Don't get angry; get calm, get determined and get some help.

GARDEN THERAPY

First, identify the symptoms and the animals that cause them, beginning with various holes and mounds –

- A hole somewhere around the garden, about the size of a golf ball, probably belongs to a gopher. If there are several other holes nearby, accompanied by small mounds with the faint outline of the hole in the top of the mound, gophers are a certainty.
- Mounds without any sign of a hole, accompanied by raised tunnels, indicate moles.
- Irregularly shaped holes about the size of a softball, with no mounding, are caused by rats, probably the local wood rat.
- Voles are the likely cause of tunnels on the surface, in the grass or in dense, weedy vegetation.
- Finally, large tunnel entrances with mounds suggest ground squirrels.

Now let's look at the corresponding damage –

- Gophers are the most common and persistent garden and farm pests; they cause damage by gnawing on roots, bulbs and seeds.
- Moles are carnivorous, and usually won't cause garden damage. They can even be beneficial by eating grubs of pest insects and worms. Moles do leave mounds in lawns that damage grass and turf, but raking out the mounds as soon as they are found can minimize this problem.
- Rats dig out freshly planted seeds, and are infamous for going into your greenhouse or coldframe and digging up seeds in seedling flats or pots.

- Voles feed on the surface, gnawing on plant stems and the woody trunks of young trees.
- Ground squirrels usually wait for crops to mature and then try to beat you to the harvest.
- Birds are often the culprits when you find freshly planted seedlings denuded. White droppings by stripped plants are a sure clue to bird damage.
- One last common pest worth noting—those cute little bunnies that seem to be everywhere you look. Bunnies like to chew on stems of herbaceous plants, especially fresh plantings, and will eat almost anything, including carrots.

EIGHT CONTROL OPTIONS

Now, the advice you've been patiently waiting for. Read through these eight time-tested solutions and create a plan that works for your garden or farm.

1. Fence them out

The first line of a good defense is a fence. If you have a deer problem, in addition to small animal pests, this is even more important. The white-tailed deer, our local species, is more likely to crawl under a fence than to jump over it. I recommend a tall fence (at least 8 feet for deer); secure the lower edge by staking it, or even better, burying it. For small areas such as garden plots, add a 3-foot section of aviary wire, or use gopher wire to keep out night-migrating gophers, squirrels, rabbits, and maybe moles if the wire is buried about a foot deep. This will only deter ground squirrels slightly, and rats will get around or over it no matter what you do.

You can also protect individual plants, perennials such as rose bushes and citrus, and even trees from gophers and moles by planting in wire baskets. Make your own baskets or buy ready-made ones; Diggers Company of Soquel, California, is an excellent source for heavy-duty gopher wire and ready-made baskets, and many hardware stores sell their products.

Gophers come out of their burrows at night to graze, mate and disperse from a nest. In larger areas, fencing for gophers and other small animals becomes extremely labor intensive, and other management techniques are more efficient.

2. Disgust them

Most small animal pests can be repelled by spraying plants or drenching soil with foul-smelling—and even worse-tasting—liquids. Many of the discouraging liquids available are castor-oil based. To combat gophers, which are vegetarian, try making suitably disgusting offerings to their homes; fish heads, rotten meat, blood meal and fish emulsion work

well. Be persistent and eventually the message will sink in. Concentrate your efforts around the plants you value most. You can also protect foliage by spraying it with diluted fish emulsion, rotten egg solutions or hot pepper sprays.

3. Annoy them

Some gardeners succeed in frightening or annoying pests until they go away, using one of the sonic and ultrasonic devices on the market. I've never had a lot of faith in this method, so I advise starting out with the least expensive ones and work up to the high-tech models if you're getting good results. Choose from a spectrum of "annoyance tools" ranging from twenty-five cent pinwheels, wooden clackers and other spinning and hammering noisemakers to electronic devices you pound into the ground that emit beeps and buzzes.

4. Flood them

Flooding or gassing these critters in the tunnel system can be effective for gophers and ground squirrels, but moles have too many blockages in the tunnels for this technique to work. Find a very fresh gopher or ground squirrel mound or burrow and either flood it with a hose or insert a sulfur gas bomb (available at most hardware stores), light the fuse and seal up the entrance. To determine success, monitor the tunnels and check for fresh mounds the next day.

5. Trap and release them

If you can't exclude, frighten or discourage animal pests, try trapping. You have many options here, with a multitude of traps available. Live trapping can be very successful for above-ground pests such as voles, squirrels, rabbits and rats. The downside: What to do with a trapped pest? I don't think your neighbor or even the guy two miles away wants to inherit your problem. Releasing them on public or protected lands such as parks and reserves is illegal and risks a stiff fine. Rats and squirrels, like the dogs and cat in Disney's *Homeward Bound* movie, can even find their way home over long distances. So if you catch them live, you are stuck with them, and may find yourself in the very unpleasant role of executioner.

6. Use lethal traps

Traps that kill might be simpler and easier on your psyche than live trapping. Some of those designed for gophers, including the box trap, the Black Hole and the Macabee brands, require that you locate the main burrow, dig down to it, and set a pair of traps, one facing each way in the run. Others, such as the Cinch and Easy Set brands, take advantage of a gopher's need to always plug up its hole when not feeding; simply place the traps in the burrow entrance after it is unplugged. Moles also fall victim to the many traps that are placed along the surface runs. Voles and rats still fall for the standard Victor brand rat trap but there are also new electric traps that work well.

Ground squirrels are extremely hard to trap using lethal traps; they are very wary, and the types of traps that do

work are often dangerous to other animals. Ground-squirrel trapping is best done with cage-type traps such as the Havahart or Tomahawk brands. Then you must either drown the squirrels, dispatch them with an air rifle or find some humane way to finish the job.

7. Net them

Bird damage is often hard to control in a large area, but row covers or bird netting works well in a garden bed or even in rows in a field. Row covers are very light, sheer fabrics that breathe, allow moisture to enter and leave, and help to retain heat. They also protect young plants from insect damage.

8. Attract natural predators

The common barn owl can help with gopher and vole control. This wonderful, silent night hunter has a diet that consists largely of gophers, field mice and voles, and can eat up to 1,000 prey items a season. Installed in late winter or early spring, a nestbox is all that's needed to attract a barn owl family that will stay in the area long after the fledglings have learned to hunt on their own. Remember, however, that barn owls range up to two miles searching for food—I've seen them leave a gopher alone right below the nestbox. Your nestbox will help reduce pest numbers overall, not just in your garden.

The Monterey Bay region is lucky to have gopher snakes. These very calm and easy-to-handle snakes should be rescued from roads and encouraged to work in fresh gopher holes. Interestingly, if you try to put them into a stale gopher hole they will refuse, but if you put them near a fresh one they will go right in.

These time-tested tips should help you be confident that there are many ways to approach the problem of small animal pests in the garden and on the farm. Remember that eradication is impossible as long as we live in the middle of a thriving ecosystem. Your goal should be to protect your crops and keep the natural system intact.

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This information is produced, and distributed by staff of the Center for Agroecology and Sustainable Food Systems at the University of California, Santa Cruz.

The Center manages the Alan Chadwick Garden and the UCSC Farm on the UCSC campus. Both sites are open to the public daily from 8 am to 6 pm. For more information, call 831.459-3240, write UCSC, CASFS, 1156 High St., Santa Cruz, CA 95064, or see casfs.ucsc.edu