● ALTERNATIVES

# MANAGING MOLE PROBLEMS WITHOUT PESTICIDES

BY CAROLINE COX

Moles are beloved. Remember the friendly *Wind in the Willows* character in the black velvet smoking suit who abandoned the spring cleaning of his underground home for the freedom of life on the river? And yet moles are also hated, especially when their mounds pop up in a newly planted garden or next to prized roses. Whatever your feelings about moles, hate or love, pesticides are not a necessary part of solving mole problems. Here's the information you need to manage moles without poisons.

## Northwest Moles

Three species of moles cause problems for lawns and gardens in the Pacific Northwest.[1] The broad-footed mole is found in southwestern Oregon and California; the coast mole in Washington, Oregon, and northern California; and the Townsend's mole in western Washington, western Oregon, and northwestern California.[2] The same procedures are used for managing all three[1] so you don't need to identify which mole is in your yard.

## Mole Facts

Moles are digging machines. Their bodies are streamlined, and they have powerful forelimbs for moving soil. They even have large lungs and special blood to help them survive the oxygen-poor conditions underground.[3]

Moles stay underground most of their lives, except when juveniles need to look for a new home. They return home if they're moved; moles have crossed canals, paved roads, and even a river in order to get home.[3]

Moles eat mostly earthworms and insects along with small amounts of plants, especially grasses.[2]

Washington State University Extension

A Townsend's mole.

A single mole can build many mounds: one Oregon mole built over 300 mounds in 11 weeks.[2]

## Benefits

Moles are significant contributors to soil ecosystems: "their tunneling and mound-building activities aerate and mix soil layers and provide drainage. Moles also eat large numbers of insects, insect larvae, and other pests."[2]

## Moles or Gophers?

Pocket gophers are often confused with moles, and require different management techniques. Examine the mounds in your yard to be sure that they were made by moles. Mole mounds are volcano-like, circular, and usually made of cloddy soil. Gopher mounds are flatter, fan-shaped with dirt thrown in one direction, and are made of finer soil.[4] In the Northwest, moles are more common west of the Cascades[4] and in areas of California with moist soils.[5]

## Live with Moles

Since moles have an important ecological role, it's often worth trying to live with them. In a yard with few moles, or in a relatively small yard, a team of British biologists suggests simply raking away the mole mounds whenever they are formed.[6] This means that they aren't detracting from the appearance of your yard, and that there's less chance of weed seeds germinating on the disturbed soil.[6]

## Don't Encourage Moles

Moles appear to prefer grassy areas over areas with lots of broad-leaved plants. The team of British biologists mentioned above tried removing grass to see if the number of mole mounds in a grassland would change. They found that moles built fewer mounds in plots where they had removed grass than in grassy plots. This kind of experiment has not been done with Pacific Northwest moles, but it suggests that you might want to try planting something different if you have a lawn with persistent mole problems.

For lists of native ground covers that can be used as replacements for grass look at http://gardening.wsu.edu/nwnative/ (for western Washington) or http://eesc.oregonstate.edu/agcomwebfile/garden/gardening/

USDA/APHIS

A mole mound.

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natives.html (for western Oregon).

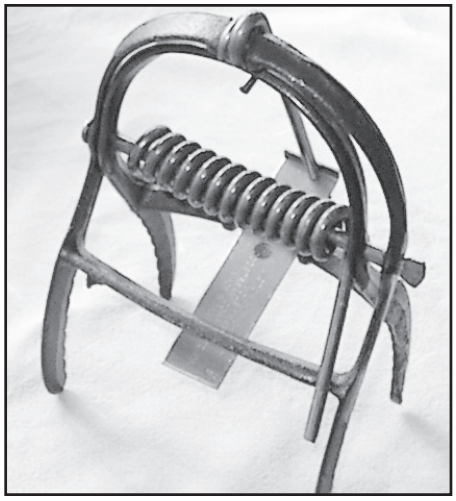
## Trapping

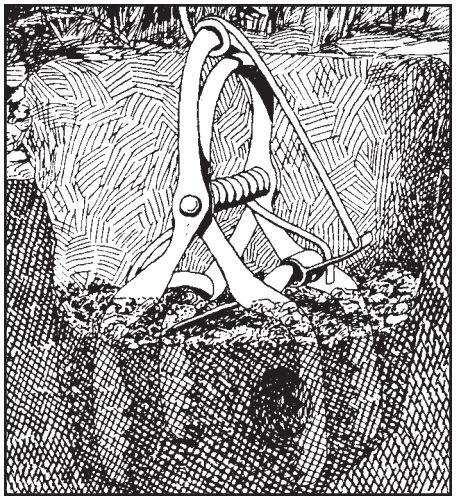
"Where moles are a definite problem, the only sure way to control them is by trapping,"[1] according to the Oregon and Washington master gardening program. The University of California Statewide Integrated Pest Management Program agrees, describing trapping as "the most dependable method of mole control."[7]

Of course there are other opinions about trapping. Imperial College (U.K.) biologists wrote about "the danger and inhumaneness"[6] of trapping. In Washington, a 2000 initiative regarding "the humane treatment of wildlife and pets"[8] prohibited the use of mole traps.

Consider how you feel about these issues if your mole problem seems to warrant trapping. If you decide you want to trap your moles, you'll need to follow a few recommendations:

- Use a scissor-jaw trap.[1]
- Trap in a main tunnel. Main tunnels are usually about eight inches below the soil surface. A tunnel between two fresh mounds is usually a main tunnel.[1]
- Trap near an active hill. If you tamp down mole hills and runways, by the next day active sections will be pushed back up.[7]
- The trap should be set 6 to 18 inches away from a mound.[4] Use a long screwdriver or a steel rod as a probe to locate a deep tunnel.[4]
- Prepare the trap location by using a trowel or small shovel to remove sod and soil above the tunnel you have selected. You need to remove a section slightly wider than the width of the trap.[1]
- Next, build a soil plug in the center of the runway that's the right size to fit under the trap's trigger.[4] The mole will dig through this plug to reopen its tunnel and spring the trap.[1]
- Place the set trap, with the safety catch set, into the tunnel. (See drawing, above right.) The trap's jaws should straddle the tunnel, but not protrude into it.[1] The trigger should sit snugly against the top of the plug. Make sure no rocks block the trap's operation.[4] Then release the safety catch.[1]





A scissors-jaw mole trap (left), and its placement in a mole tunnel (right).

- You can sift loose soil over the trap so that light doesn't enter the part of the tunnel you dug out. You can also cover the trap with a bucket to protect children and pets.[4]

## Repellents

NCAP does not recommend the use of pesticides. However, there are plant-based castor oil mole repellents that, according to the U.S. Environmental Protection Agency, do not pose known health or environmental hazards.[9] Castor oil is extracted from seeds of the castor oil plant and is used as a medicine. The seeds are highly toxic because they contain toxic ricin lectins. The oil contains small amounts (0.1 to 0.7%) of these lectins.[10]

Castor oil is an effective repellent for eastern moles, but has not been tested for Northwest moles.[4]

Information about two 100 percent castor oil mole repellents is available at www.scootproducts.com and www.havahart.com.

## Ineffective Methods

Mole plants, chewing gum, mothballs, household lye, broken bottles, and flooding are homemade remedies for mole problems that have not been proven to be effective.[1,4]

Electromagnetic devices to frighten moles have also not been shown to be effective.[1]

Fumigants are not effective in most soils. Hard, pellet poison baits also are not effective because moles don't like to eat them.[4]

## Conclusion

Remember that moles are an important part of soil ecosystems. Try to live with them. If your mole problem exceeds your tolerance for them, pesticide-free techniques for killing moles are effective.

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