



Dealing With Moles -- 2007

With the passage of I-713 in November 2000, which amended 77.15 RCW, we must re-think our mole management strategies. As of December 7, 2000, **ALL** traps that hold an animal's body in any way, **EXCEPT** for "*common rat and mouse traps*", are outlawed for use in Washington State. This includes **all** commercially available mole and gopher traps. You may still legally purchase these devices but you may not use them. "Common rat and mouse traps" were specifically exempted in the Initiative but they are ineffective for catching moles.

Interestingly, the State has chosen NOT to pursue law-breakers who ignore this particular law. Nevertheless, it is still a gross misdemeanor to use mole traps and WSU cannot endorse this method.

There have been several attempts, including one under consideration now (02/07) in Olympia, to change the RCW, but none have been successful. In the meantime, what legal options remain for dealing with moles?

The least-troublesome solution may be choosing to live with these interesting native insectivores. They sometimes actually help soil conditions by improving water absorption and by mixing the soil. They also eat large numbers of cranefly larvae, small slugs, cutworms and other soil invertebrates.

Most people, however, dislike the appearance of mole activity in their yards and gardens. The mole-mounds are usually considered unsightly and the tunneling activities can make the yard surface uneven. Furthermore, tunneling around plant roots can stress the plants and allow avenues for invasion by root-eating meadow voles. Although moles are insectivores and eat little, if any vegetable matter, voles are rather strict herbivores and readily feed on roots and bulbs of many kinds, often causing severe damage to vegetables, ornamentals and fruit trees.

What **won't** be effective against moles? Unfortunately, to date, no chemical or physical repellents, mole baits or "live traps" have **PROVEN** effective on our western moles. There are many materials on the market and you can certainly try them, but none have been shown to be consistently effective. There are a couple recently available mole baits that **MAY** be effective but more testing is needed.

There are also **MANY** "home remedies" that have been suggested in the past for dealing with moles but none of these that we have tested have caused any reduction of mole activity when applied in a controlled manner to a monitored western mole population. Such home remedies can not be recommended by WSU unless there is research to support it's effectiveness. Some of these materials/treatments include human hair, pet droppings, chewing gum, cigarette butts, mole plants, mothballs, rose canes, wind-mills, electronic gadgets, pit-fall traps, etc. Applying pesticides such as "mothballs" is contrary to label direction and, therefore, illegal.

One thing you **SHOULDN'T** do is try to kill earthworms in an attempt to reduce mole activity. Trying to remove the moles' food source is

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sometimes used as a control method. Unfortunately, our western moles feed mostly on earthworms and there are **NO** pesticides registered for earthworm control. Most lawn pesticides are relatively harmless to earthworms when applied at legal rates. Applying them at more than recommended rates isn't permissible and they do have negative environmental effects.

So, what are we left with? The **ONLY** readily available treatments that approach the effectiveness of lethal trapping are:

- Underground barriers. This method entails digging a ditch 24 to 30 inches deep and burying "fences" of aluminum sheeting or 1/4-inch mesh galvanized hardware cloth. Bend the bottom 6 inches outward and allow 6 inches to extend above the ground surface before back-filling. Of course, this method **ONLY** works if moles are not present inside the fence perimeter.
- Manual elimination. During peaks of mound-building activity one sometimes can be quite successful by flattening all the molehills and waiting for the mole to return to re-build the mounds. When the mole begins pushing up soil, the animal can usually be dug out with a spade if one is quick. Sometimes the mole can be encouraged to surface by flooding the runways with a hose but this is usually only effective in heavy soils or when the soil is already saturated (water just leaks through on sandy soils).

Legal treatments that **MAY** help..... (Note: **MG's** may **ONLY** recommend "home use" products)

- Castor-oil repellents There are many liquid formulations on the market (Mole-Med, Scoot-Mole, etc.) as well as a granular formulation (Mole-Med Dry). Castor oil is apparently effective in repelling Eastern Moles but has shown no effect in our limited tests. The granular material has not been tested. There is also a registered blood meal based repellent (Uncle Ian's Mole & Gopher Repellent) but we have no data on efficacy.
- Mole Baits There are many "mole & gopher" baits on the market. Most contain the poison, zinc phosphide, and there is one (Mole Patrol) that uses the anti-coagulant chlorophacinone. In our limited tests on local moles, we have

not seen any sign of control with these products. There are now also several warfarin-based "gel baits" available. Scimetrics' "Kaput Mole Gel Bait", Bonide's "Moletox Baited Gel", and "Adios Mole Killer in a Gel" are registered in Washington but they have not been proven effective on our western species. The latest mole bait is Bell Lab's "Talpirid", with bromethalin as the active ingredient. Bell says they have tested this bait on western moles with good results but it is quite expensive at this time. This bait is also sold as "Motomco Mole Killer" and "Tomcat Mole Killer"

WHERE DID THAT HOLE COME FROM?

Moles (*Scapanus spp.*) are usually detected by the typical "mole hills" pushed up by the animals while digging. Mole hills may be as small as a couple inches in diameter or as large as a couple feet. In loose soil or in areas where moles have been at work for a long time, there may be no hills at all.

Many other animals can make holes in our yard as well. The only way to solve what may become an on-going problem is to identify the hole-maker. This can sometimes be a frustrating experience, since many diggers are nocturnal. By noting the characteristics of the holes, we can usually tell who made them

SIX-INCH HOLES

The largest holes one finds in Western Washington lowland yards are those of the mountain beaver (*Aplodontia rufa*). This tunneling rodent makes 5 - 8 inch diameter holes. There may be a mound of earth at the entrance. Mountain beavers usually dig shallow tunnels in brushy areas, seldom in lawns and gardens.

TWO- TO THREE-INCH HOLES

Norway rats (*Rattus norvegicus*) are very accomplished burrowers and will often dig holes about 2 inches in diameter around foundations, decks, woodpiles, etc. Rat burrows seldom have a mound of soil at the entrance. Native chipmunks (*Tamias townsendii*) also dig holes about this diameter, but usually away from houses, and they are active during the day.

Raccoons, opossums and skunks will also dig 1 or 2 inch holes in lawns while searching for worms and crane fly larvae. These hunting holes are only a couple inches deep and scattered about the lawn. In newly-laid turf, raccoons will sometimes roll up the lawn in search of food.

ONE INCH HOLES

Meadow mice (*Microtus spp.*) burrow in fields with tall grass and they will sometimes invade yards and gardens. In loose soil they will often leave open holes about one inch in diameter. Meadow mice commonly invade gardens and orchards, where they feed on root crops, tree roots and flower bulbs.

ONE HALF TO ONE QUARTER INCH HOLES

Nightcrawlers (*Lumbricus terrestris*) are commonly found in lawns and are occasionally quite numerous. These worms make permanent vertical tunnels throughout the yard, leaving small piles of droppings at the entrances.

European Crane Flies (*Tipula paludosa* & *T. oleracea*) will make ¼ inch holes when they come out at night to graze.