

# Moles

## Species' name:

- Hairy-tailed mole, *Parascalops breweri*
- Star-nosed mole, *Condylura cristata*
- Eastern mole, *Scalopus aquaticus*

## Size:

Depending on the species, 1–5 ounces. The hairy-tailed and star-nosed moles are about 5–5½” long, including the short tail, while the eastern mole is about 3 ¼–8 ¾” long. The snout of a star-nosed mole is ringed with 22 small, pink, fleshy projections that make it look like it has a sea anemone on the tip of its nose.

## Signs of their presence:

- Tunnels, or “runs,” in the soil or lawn. (Runs of star-nosed moles are usually deeper and less noticeable than those of hairy-tailed moles, except, at times, in well-watered golf courses.) These tunnels are seen most often in the spring and fall, when the soil is moist, soft, and easy to dig. Moles make two kinds: feeder and travel tunnels. **Feeder runs** look like a long, squiggly, rounded ridge that’s about two inches wide. Feeder tunnels tend to be short and very crooked, because if a mole finds an area that’s full of food, it tends to dig all around, feeding. They’ll abandon these runs when there’s not much food left in them. Dead grass over the run is usually a sign of an old, abandoned run. (Moles don’t eat grass, but they may loosen the roots from the soil, which can kill it). Their **travel tunnels** are usually long and straight and often follow an edge, such as a driveway, fence, or foundation. Look for travel tunnels that continue into wooded areas because these will be the best spots in which to set traps.
- Molehills (also called boils or mounds): small, cone-shaped piles of soil that are usually just a few inches high and anywhere from a few inches to a foot wide. They vary in size. Often seen in the late fall, as the moles prepare for winter by digging deeper tunnels that are under the frost line. At that depth, the moles can’t toss up the soil as they go, which is what they do when they’re near the surface. So they’ll usually dig forward for a while, then stop, and carry the soil up to the surface where they dump it, creating the molehill. Moles also dig deep tunnels in the summer when the soil is dry. Then, they’re following the earthworms, one of their favorite foods.
- It’s unlikely you’ll see or hear moles, or find scat or tracks because they spend their time underground. Although they feed and travel in the shallow, surface tunnels described above, they find shelter and

raise their young in deeper tunnels that could be 6–24” below ground.

- Moles are often accused of crop damage that was actually caused by voles. Although moles rarely eat roots, their tunnels may damage them. So how do you tell a mole from a vole?

### MOLES have:

very small eyes

no external ears

a naked, pointy snout

large front feet that are turned sideways,

and big claws. (Excellent shovels).

### VOLES have:

small eyes

small, but definitely noticeable ears

furry noses

small, mouse-like feet

## Diet:

Mostly insects. Grubs, beetle larvae, earthworms, and some carrion. Occasionally, frogs and mice. Star-nosed moles may catch minnows. They must eat 70–100 percent of their body weight each day to have enough energy to burrow. Occasionally, they’ll eat seeds, roots, or bulbs.

## Typical activity patterns:

*Social style:* Hairy-tailed moles are solitary, except briefly while mating. Star-nosed moles are thought to live in colonies.

*Daily activity:* Moles are most likely active throughout the day and night. They need to eat a lot to keep up their energy levels.

*Hibernator?* No. They simply move deeper into the soil, tunneling below the frost line.

*Migrates?* No.

## Where found:

*Distribution in NY and the Northeast:* The hairy-tailed and star-nosed moles are found throughout the region, but the eastern mole is found mostly in the Hudson Valley of southeastern New York.

*Habitat:* Lawns, meadows, orchards, and woods with moist, loose soil. Hairy-tailed moles prefer loamy, sandy soils well covered with plants and avoid wet, dry, or heavy clay soils. Star-nosed moles prefer swamps, bogs, and low, wet meadows (they’ve even been seen swimming under ice in the winter) but can manage in somewhat drier locales.

*Territory and home range:* Territorial. Two moles usually fight when they meet, except during the mating season. The home ranges of male and female moles overlap,

but the home ranges of the females do not seem to overlap with those of other females. Some tunnels overlap territories and are used like highways by two or more moles. The males range over about 2 acres, females over a half-acre.

### Breeding habits:

*Pair bonding style:* Polygamous. Female raises the young alone in an underground nest chamber lined with leaves and grasses. The nest chamber is usually found in a deeper tunnel, perhaps as far as two feet underground.

*Breeding dates:* Late February to March. Gestation takes about 42 days.

*Birth period:* April to May.

*Litter size:* 3–7.

*Weaning dates:* Between 4–5 weeks of age.

### Common nuisance situations:

*Time of year:* Spring (April - May) and fall (September - November), when surface soil is moist and easy to dig, and grubs and worms are nearest the surface. You may receive a few calls as soon as the snow melts, which reveals old damage, but should wait to see if there are still moles present.

*What are they doing?*

- While helping rid lawns, gardens, and golf courses of grubs, moles create unsightly runs. Their tunnels disfigure lawns and can wreak havoc in a garden.
- Disease risks: almost none.

*De-bunking myths about moles:*

- Moles are often mistaken for voles, mice, and shrews. If in doubt, check your field guides.
- Many people believe that there's a mole in every tunnel they see. The good news is that even though you may see dozens of tunnels, there are probably only a few moles in the yard. Possibly only one or two. Really! Moles dig fast: about 18 ft./hour. They may be able to tunnel 100 feet a day or more, depending on soil conditions. You may think your lawn is full of moles, when it's just the home of a few, very busy little guys.

### Legal status in New York:

Unprotected.

### Best practices

First, decide whether this is really a problem or not. Moles eat a huge number of grubs that damage lawns and gardens. Is the sight of the tunnels tolerable? If not, trapping is currently considered most effective, but repellents, exclusion, and habitat modification techniques may also contribute to an effective strategy, and be preferred by some of your customers.

*Protect vulnerable plants and lawns:*

- Small areas can be fenced with hardware cloth or sheet metal. The fence should be two feet high, buried a foot deep, with the bottom edge bent outward into a "L"-shaped shelf that sticks out a foot. This should form a 90° angle. This keeps the moles from burrowing under the fence.
- NWCOs with a commercial pesticide applicator license: there are repellents registered for moles in New York. Bulbs can be dipped in a repellent (20% thiram) before planting. This may protect them for a few weeks, or until the first heavy rain. There are several repellents for treating lawns. The repellent must be watered into the soil to work effectively. It must be reapplied after heavy rains, and every 3–4 weeks.

*Make the area less attractive for moles:*

Moles prefer wet, low areas that are rich in grubs. Moles follow their food sources, so if there are fewer grubs, the moles may move on—just remember that moles eat worms and other foods, too.

- Don't overwater your lawns.
- Improve soil drainage and try to eliminate low spots.

### Trapping strategies:

*Lethal traps:*

- There are several effective lethal traps for moles, including harpoon-shaped or scissor-jawed traps. A newer model, the NoMOL® trap, doesn't contain a spear or heavy springs so you may find it easier to use.
- Trap in the spring or fall, when the soil is moist and the moles are closer to the surface.
- If the lawn is so dug up that you can't tell the feeder tunnels from the travel tunnels, roll it flat (if it's small, *walk* it flat). Flag the area so you can find it easily, then watch for a few days. If the flattened area is raised again, you're looking at an active run.
- Watering a dry lawn will entice worms and moles closer to the surface, where the moles will be easier to catch.

- Set multiple traps. If you can't choose between locations, set traps in both.
- Set locations: Best: an active travel tunnel that extends into a wooded area. Good: any active travel tunnel, or a molehill. Questionable: feeding tunnels. The moles may not return to them.
- Place two traps in each tunnel, one in each direction.
- Homeowners can help you by checking lawns daily for new damage.
- Check traps frequently. If the mole is still alive, remove the stake carefully and grasp the wire to pull out the trap. Use a spare NoMol® trap to kill the mole. Slide the trap's arms so that the jaws are just behind the mole's front feet, then release the tongs.

### **Preferred killing methods:**

- A lethal trap.

### **Acceptable killing methods:**

- Pesticides (gel bait and grain-based baits), for those NWCOs with a commercial pesticide applicator licenses.

### **Control strategies that don't work particularly well:**

- Chewing gum, mothballs, thumpers, ultrasonics, windmills, and flooding the tunnels—none have proved effective.
- Grub treatments (insecticides) may get rid of the grubs in your lawn, but there will still be plenty of worms for the moles to eat. And the insecticides may not work well in heavy, clay soils, anyway. It's just not a good strategy for discouraging moles.
- Grain-based baits (containing zinc phosphide) don't work that well because moles don't normally eat grain. If they aren't attracted to the bait, they're not likely to ingest the poison.
- Borders of marigolds are thought to repel moles but haven't been tested.
- Castor-oil based repellents haven't been well-studied yet, so their effectiveness is unknown.