

# MOLES

*and  
Their Control*



## INTRODUCTION

Moles belong to the mammal family Talpidae, order Insectivora; the latter meaning, literally, insect-eater. Their presence may be detected by the low ridges pushed up as they move just under the surface of the ground or by mounds of soil which are pushed up from the tunnels below. The star-nose mole is particularly noted for the latter habit.

These small mammals may be identified by their broad front feet, with palms usually facing outward, that are highly specialized for digging in soil. The eyes, which are of pinhead size or smaller, are covered by a thin skin in some species. There are no external ears and the fur is soft and thick.

Moles become pests when their foraging for food takes them into lawns and gardens. Their food consists chiefly of earthworms and white grubs, including those of such pest species as Japanese beetle, Asiatic garden beetle, the northern and southern masked chafers, and the green June beetle. In addition, they also use other soil-inhabiting insects, snails, and small invertebrate animals as food. Occasionally, they may feed on seeds and the fleshy parts of plant roots and bulbs. This type of injury occurs very infrequently. Most damage of this nature is done by mice which utilize mole tunnels.

There are several species of moles in the United States. The most common and widespread is the eastern mole, *Scalopus aquaticus*, which is present throughout most of the eastern half of the country. Other species of moles with more restricted ranges occur in both the Atlantic and Pacific coastal regions. They do not occur in the Rocky Mountains or the

Great Basin. There are three species that occur in West Virginia.

### HAIRYTAIL MOLE (*Parascalops breweri*) (see front cover)

This species is distributed statewide.

**Recognition:** Head and body 4½-5½ inches; tail 1-1½ inches; weight 1½-2 1/3 ounces. Fur slate color, with sheen. Smallest of the eastern moles. Front feet as broad as long; nose pointed; eyes not apparent; tail distinctly haired.

**Habitat:** Sandy loam with good vegetative cover preferred, not heavy wet soils.

**Habits:** Active day and night. Feeds chiefly on insects and earthworms; may consume three times its own weight in 24 hours. Burrows near surface as well as deep down (about 18 inches). Nests in deep tunnels; tunnels may be used for eight years or more by successive generations. Home range about 1/5 acre; populations to 11 per acre, usually fewer. Longevity four to five years.

**Young:** Born early May; usually four; gestation period probably four weeks; one, possibly two litters a year. Naked, remain in nest about one month; sexually mature at ten months.

**Economic status:** Beneficial except when in lawns, gardens, and golf courses; destroys many insects.

### STARNOSE MOLE (*Condylura cristata*)

This species ranks second in distribution in West Virginia. It inhabits roughly the eastern 2/3 of the State on a northeast-southwest axis.

**Recognition:** Head and body 4½-5 inches; tail 3-3½ inches; weight 1 1/5-2 4/5 ounces. Dark brown or black. This is the only kind of mammal that has end of nose surrounded by

fingerlike, fleshy projections (22 tentacles), giving appearance of a star. Eyes small but apparent; front feet as long as broad. Tall hairy, constricted near body.

**Habitat:** Low, wet ground near lakes or streams preferred.



**Starnose  
Mole**

**Habits:** Active day and night. Pushes up mounds of black dirt as much as 12 inches or more in diameter. Often appears above ground or in water; good swimmer. Tunnels not usually visible as ridges on surface of ground; may use same tunnels as eastern mole. Eats worms and insects, many aquatic. Detects food with sensitive tentacles on snout, but sense of smell poor. Underground spherical nest of grass and leaves. Often gregarious; populations of ten or more to an acre are common.

**Young:** Born April-June; three to seven; one litter a year. Independent at three weeks; mature at ten months.

**Economic status:** Neutral. Occasionally does damage to lawns or golf courses; destroys many insects; aerates soil. Fur of some value.

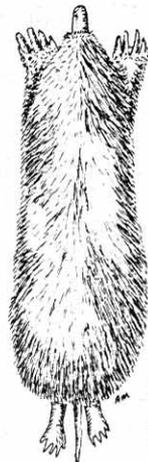
## **EASTERN MOLE (*Scalopus aquaticus*)**

This species is limited in its distribution to roughly the eastern 1/3 of the State on a northeast-southwest axis.

**Recognition:** Head and body  $4\frac{1}{2}$ - $6\frac{1}{2}$  inches; tail  $1-1\frac{1}{2}$  inches; weight  $2\frac{2}{5}$ -5 ounces. Front feet broader than long, palms turn outward; snout pointed, and naked, nostrils open upward; tail naked; no external ears; tiny eyes covered with thin skin. Fur with a silvery sheen, slate color.

**Habitat:** Prefers moist sandy loam; lawns, golf courses, gardens, fields, meadows; avoids extremely dry soil.

**Habits:** Active day and night in burrows, all seasons. Feeds on worms, insects, and some vegetable matter, chiefly in ridge-covered burrows just below the surface which it makes by pushing through the soil with its piglike snout and spadelike forefeet. Grass-lined nest in burrow 18 to 24 inches below surface.



**Eastern  
Mole**

**Young:** Born in May; four to five; gestation period probably about six weeks; one litter a year. Naked at birth; independent at one month; do not breed until one year old.

**Economic status:** Damages lawns and gardens, but destroys many insects and aerates soil where not cultivated.

## CONTROL

When needed, several alternatives for control of moles in localized situations are available to choose from.

**Trapping:** The "harpoon" or "prong" type trap and the choker trap are the most common types used for catching the species that occur in West Virginia. These traps are carried by hardware and garden supply stores and by some mail order houses. Directions for setting the different kinds of traps are generally furnished by the manufacturer.

The best time to trap moles is early in the spring, as soon as the first ridges are noted, or after the fall rains. The selection of a main or frequently used runway is of prime importance. The conspicuous ridges made by hairytail and eastern moles are primarily feeding tunnels and may be used only once. To determine which runways are active, stamp down a short section of each runway. Observe daily for several days and re-stamp down any raised sections. If a tunnel is raised daily, it is an active runway, and a trap should be set at this location. Move any trap that fails to catch a mole within one or two days.

As previously noted, the starnose mole does not usually leave surface ridges, but its presence can be detected by mounds of dirt pushed up from its underground runways. It is necessary to set traps in a run connecting the mounds; therefore, some digging is required to locate the underground tunnels.

**Barriers:** Sometimes limited areas

such as seedbeds or small gardens sustain persistent mole damage. For areas like these, the installation of a barrier made of sheet metal or hardware cloth may be justified. Such a barrier should begin at the ground surface and go to a depth of at least 12 inches and then bend outward at a 90 degree angle for an additional ten inches. All connections in the barrier must be secure if it is to be effective.

**Food supply reduction:** In lawns that are persistently invaded by unwanted moles, subsurface insect proofing of the area with an approved lawn insecticide can be effective by reducing their food supply. While this method may take time to become effective, its benefits will persist as long as the number of grubs, etc., is kept at a low level. Diazinon (Spectracide Granular Lawn and Garden, Spectracide 6000, and the Spectracide Lawn and Garden) will provide effective control of grubs when properly used. Best results are obtained when applied in August and September. Follow label directions for white grub control and heed precautions.

**Poisons:** Generally, poisoned baits are not satisfactory. It is obviously difficult to imitate live insects or small soil-inhabiting animals in a bait, and consequently, baits may be ignored by moles. However, poisoned raw peanuts labeled for mole control are available from hardware stores and garden supply centers. If this method is attempted, these preparations should be used with extreme caution. Directions for their use are given on the product label.

**Doing nothing:** In suburban wooded and rural areas, lawns are invaded by foraging moles primarily in the wetter months (late fall, winter, and early spring) of the year. Since their presence may be more tolerable

during this period, you may find that control measures are entirely unnecessary by late spring. As the season progresses and the generally unshaded lawn soil becomes drier, the invader will often retreat to the more moist soil of surrounding woodland or fields and meadows with heavier vegetative cover from whence it came. It is then a relatively simple matter to restore the lawn surface by compressing the tunnel ridges by walking over them or using a lawn roller.

#### **PUBLICATIONS USED IN COMPILING THIS LEAFLET**

Burt, W. H., and R. P. Grossenheider, **A Field Guide to the Mammals** (The Peterson Field Guide Series), Houghton Mifflin Company, Boston, 1964, pp. 15-22.

Schread, J. C., **Ground Moles and Their Control** (Circular 195), The Connecticut Agricultural Experiment Station, New Haven, 1955, 4 pp.

**Controlling Mole Damage**, U.S. Department of the Interior, Fish and Wildlife Service, Division of Wildlife Services, 1973, 2 pp.

**The use of trade names in this leaflet is for purposes of clarity and information only. No endorsement is made or implied of any product, nor is it implied that similar products are less effective.**

Author  
Charles C. Coffman, Entomologist  
and Wildlife Biologist  
Illustrations by Alan Miller, Forest  
Entomologist  
Plant Pest Control Division  
W.Va. Department of Agriculture