



## Mice, Voles, Lemmings Family Muridae



**The Mice and Voles and Lemmings are our smallest members of the rodent family.** Like almost all rodents, they breed often and have large litters, providing an ample food supply for our region's many predators. But despite their large populations, these rodents generally stay out of sight. Most are active at night, and most are active year 'round.

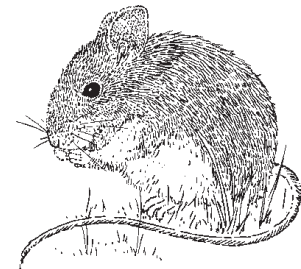
**Pennsylvania is home to two native species of mice, four voles, the bog lemming, two jumping mice, and two species from Europe.** All share the rodent's incisors, two pairs of chisel-shaped teeth perfect for gnawing.

**They may be hard to see, but signs of these rodents abound.** Winter is a great time to find a mouse cache of seeds and nuts stuffed into an abandoned nest or a dark corner of your attic or basement. This is food that has been collected during the previous season in order to sustain them through winter-time, since only the jumping mice hibernate.

**Mice (top right), voles and lemmings are herbivores** feeding on any variety of vegetation, but they will feed on insects, spiders and other small creatures. Some might even prey on a bird egg or another tiny mammals, **but most are prey for other animals.** Even large predators like black bears (at right) and coyotes feed heavily on small rodents.

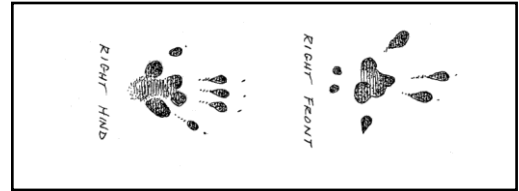
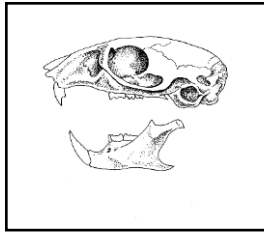
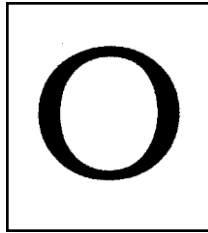
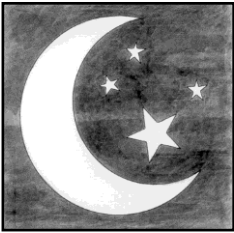
**These species can be found just about anywhere** from our deep forests to open meadows, marshland, cities and in our homes. Some are at home on the surface of the ground, while others need the protection of thick brush, crevices or tunnels.

**Mice and voles generally build round nests made of mounds of leaves and grasses.** Some species are very tolerant of one another, especially in winter, and will huddle together within the nest chamber for warmth. The inside of the chamber is softened with downy plant material they have collected. These chambers are also where many litters of hairless, blind pups will be born. The pups grow very fast, and within only a month the mother is able to give birth again. By the age of one month, the young rodents are ready to fend for themselves. This constant cycle of raising young is how this rodent population grows so big so quickly. **WOW! Did you know the meadow vole can give birth to up to 72 offspring in one year?**





## The Mice



The **Deer Mouse** (*Peromyscus maniculatus*), below top left, is easily recognized by its large dark eyes, perfect for its nocturnal ramblings, for its beautiful tawny-brown coat that is dark above and creamy white below like a deer. They look like the **White-Footed Mouse** (*Peromyscus leucopus*). Both like to live and search for food among the farmer's cropfields, along fence rows and through grassy roadsides. They tolerate dry or wet habitats and can be found in evergreen or hardwood forests. Deer mice are about seven inches long, including their four-inch tail used for balance when running. The white-footed mouse's tail is smaller. They only weigh between a quarter of an ounce to one ounce.

**These mice find most of the food with a sharp sense of smell**, but they can see and hear well, too. They can also swim and run quickly for short distances. Their long tail, which is slightly furred, helps them climb when they wrap it around twigs or branches to steady themselves. **Nests** can be in hollow logs, underneath rocks, in nesting boxes, even high in the trees in an old squirrel or bird nest. The nests are used for both rearing young and for resting during the day.

**During winters, deer mice burrow beneath the snow.** The temperature under the snow is warmer than the air temperature, and the mice have access to previously stored food. The snow offers them protection from many predators, too, although some predators like foxes and owls can hear the mice moving under the snow and will pounce through the snow to grab them.



**Woodland Jumping Mice** (*Napaeozapus insignis*), bottom left, like cool, damp woodlands or forested mountain streams. They like to eat the fungi that grows in those moist habitats, in addition to the normal diet of seeds, berries and occasional insect or worm, **similar in appearance to the deer mouse, but slightly larger**, they are up to nine inches long, including a five-inch, **white-tufted tail**.



**Woodland mice use burrows and trails made by moles and shrews**, but when they travel above ground they can **hop with their long hind legs and can leap up to 10 feet**. If a predator is still closing in, they will dive undercover.

**Both the woodland and meadow jumping mouse hibernate** from October to late April. Curled into a tight ball in an underground nest, the mice may hibernate alone or in pairs. In late June or early July, a litter of 3–6 pups is born with a second litter usually in August.

**Meadow Jumping Mice** (*Zapus hudsonius*), at right, have **big feet, long hind legs and a furred tail longer than its body.** They look as if they are all tail. Almost six inches of their nine-inch body is the tail! Their fur is orange-brown, they have white feet a white belly and a dark stripe running down their back.



**Meadow jumping mice like to live in meadows!** No surprise there. But despite their name, they rarely jump. They are nocturnal and eat a normal mouse diet.

**They nest under loose boards, in grassy tufts or in hollow logs,** usually bearing two litters of young each year.

**Jumping mice are the only mice that hibernate.** In fall, they start to fatten up to prepare for their winter slumber. Their hibernaculum can be found about 18 inches below ground, where the mouse curls around its body. Like a true hibernator, its breathing and heart rate slow down, and its body temperature drops to only a few degrees above freezing. There it will stay, snuggled tight, until it awakes and emerges from its hollow in late April or early May.



The **House Mouse** (*Mus musculus*), left, is found almost everywhere **people live.** Like the Norway and black rats, the house mouse is an Old World species inadvertently brought to North America by European settlers. Ever since, they have permeated every human settlement and have adapted perfectly to living among people. They will eat just about anything associated with us and our trash and are considered a nuisance and expensive pest.



**Their eyes are small** compared to the large doe-eyes of their wild cousins. Their coats vary in shades of gray, and their bodies can be up to eight inches long, including a three-inch, scaly tail.

**Active year-round,** they usually live just beyond our own living spaces in wall crevices, attics, basements, barns, outbuildings and more. They are prolific breeders, producing up to 125 young each year among eight litters.

## Southern Bog Lemming

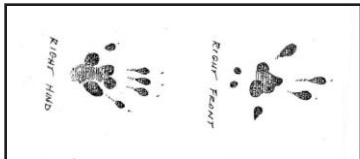
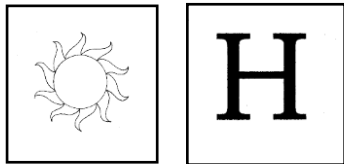
*Synaptomys cooperi*



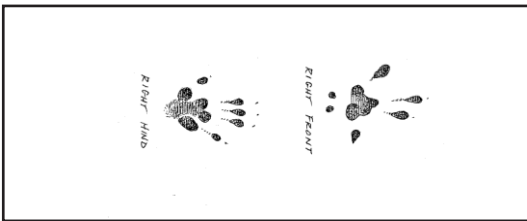
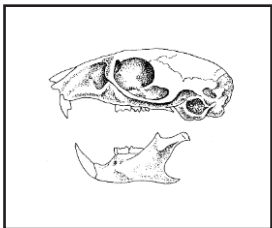
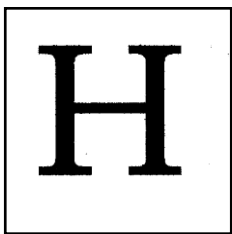
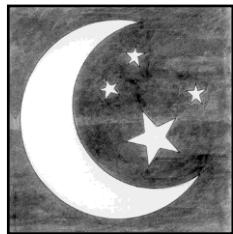
**Southern Bog Lemmings** customarily cut and feed on low-growing plants. This feeding habit creates runways beneath the matted dead grasses they create, and these runways are where the lemmings live. Lemmings also eat stems and seeds from many kinds of grasses and sedges, berries, fungi and mosses. **They are small and stout with a blunt, rounded head and body.**

**Lemmings like grassy habitats** and don't really live in bogs. In addition to the grasses they live among and eat, lemmings like mosses, fungi and berries and inhabit old meadows where crabapple trees and locust and hawthorns grow. And while they may be hard to spot since they like to forage underground, **you can identify a bog lemming by its green scat.** That's right. Their poop is green. Lemmings do not digest the green chlorophyll pigment in plants. Instead it passes through their body and turns their droppings bright green.

**Lemmings and meadow voles look alike** but the lemming is slightly shorter and slightly heavier. Still they only weigh about one and a half ounces. Their fur is a chestnut brown above with silver-gray sides and belly. They have several litters each year and live in the same areas inhabited by meadow voles and white-footed and deer mice.



## The Voles



The **Southern Red-backed Vole (*Clethrionomys gapperi*)** is a **typical-looking vole**, a fairly **small, plump rodent rounder than a mouse but with a much shorter tail.** The red-backed is about six inches long with a two-inch tail. Barely heavier than an ounce, these voles have a red band down their back and a pale gray belly. Voles like to move about beneath the leaf litter or through mole and shrew burrows. Red-backed voles can also climb low-growing trees. They are usually found in and among mossy logs, stone walls, overgrown meadows or in forests where it is cool and damp. They are herbivores feeding on seeds, nuts, berries, green plants, plant roots and fungi. Breeding season lasts from spring through the fall, and nests are found in cavities or abandoned nests of other creatures.

**Rock Voles (*Microtus chrotorrhinus*)** are considered rare in Pennsylvania, found in a small area of the northeastern part of the state. Similar to the common meadow vole, rock voles have an orange nose. Preferring to live in the thick cover of boulders and ferns in hemlock or birch forests, **these voles fall prey to predators like timber rattlesnakes** and copperheads who like to inhabit the same areas. Litters are small with two to three litters each year. Some litters only have one young.



**Meadow voles (*Microtus pennsylvanicus*) are our most common vole.** They are most at home in meadows and fields as opposed to the woody preferences of the other voles. But they will make a home in a wooded clearing. Attracted to both damp meadows or grassy fields, meadow voles can swim and can scurry quickly. Meadow voles are active throughout the year beneath thick vegetation or snow. In this hidden, secretive world they feed on grasses, seeds, roots and other vegetation, much of which they have cached away. They may also gnaw on the inner bark of trees, a habit that can girdle the tree and kill it.

Nests are found in thick grass or underground in burrows. Voles are found in abundance, often producing up to ten litters a year. Their populations will rise and plummet depending on the availability of food. **In winter they will cluster together for warmth.**



### **The Relationship Between Meadow Voles & Barn Owls**

Small rodents like voles provide food for many, many other animals. Birds like herons, crows and gulls will often prey on them. So will foxes, skunks, weasels, opossums, coyotes, bears and even aggressive, tiny predators like shrews. Snakes take their share too, and because voles will swim, even larger fish like pickerel and bass will eat them. But, by far, the predators with the closest food-web relationship with voles are the hawks and owls. In fact, **the survival of threatened species such as barn owls, short-eared owls and northern harriers, is closely tied to the cyclical presence or absence of the voles.**

**Woodland Voles (*Microtus pinetorum*) are our smallest voles.** Less than six inches long, their small tail is only one inch in length. Woodland voles are also called pine voles, although their habitat is not restricted to evergreen forests. These glossy reddish-brown/gray-bellied voles also inhabit deciduous forests, overgrown meadows, farm fencerows, edge habitats or orchards.

**Living in the soil underneath the leaf litter, they break through the soil using their front feet, incisor teeth and their head.** The loose soil is then piled outside their burrow in cone-shaped piles, helping to identify their presence. Woodland voles are rarely seen above ground and maintain a very small territory, as small as one hundred feet in diameter. They cache their food, including flower bulbs, tree bark and potatoes in caches nearly a foot and a half underground. They nest beneath logs, tree stumps or rock piles, bearing four or less litters each year.



## A Simple Review of Mice, Voles & Lemmings

**Deer mice** have fur that looks a lot like deer fur, and that's how they get their name. The similar-looking **white-footed mouse** has a smaller tail. These mice can be found in almost any natural habitat from fields, meadows, and forests, to pasture and croplands, where they can find lots of seeds and nuts to eat. They love to nest in hollow logs or even up in trees in old bird nests. Their very large eyes help them see in the dark. **Since they are nocturnal, they sleep in their nests during the day.** Their nests are used to raise their young and protect them from bad weather. Sometimes these mice will come indoors. But if they do, they like quiet places away from family activity, like your attic.

On the other hand, the **house mouse** loves to live in our houses. They are the most common rodent pest in the world. **They eat just about anything**, including our food and trash. A house mouse will eat meat and dairy products, too. **They will even eat their own droppings.** The bacteria in their guts provides extra nutrients they can use. And they breed a lot! A female house mouse can have as many as a dozen babies every three weeks. That's 150 babies a year!

The best way to keep these mice out of your home is to keep your home clean and put all food away in the refrigerator or in containers with lids. Empty kitchen and household garbage on a regular basis, and seal any small holes and cracks where they can enter your house.

**Voles** are as common as mice, but most people never notice them. They rarely get into our homes because they can't climb very well, and they spend most of their time living in thick grasses. They might remind you of a chunky mouse because they have rounder bodies, blunt noses, small furry ears and a pretty short tail with no fur.

If you have a garden, you may be more aware of voles than you realize. **Voles are the creatures that love to eat the bulbs of your flowers** or gnaw on the bark of your trees or chew on tree roots, all of which can cause a lot of damage.



**Lemmings** look like very fat hamsters. During winter they will live in burrows in the snow. These snow tunnels help keep them safe from predators and frigid weather. The snow acts as insulation. Each underground burrow has a bedroom, bathroom and nesting rooms. Lemming nests are made from grasses with some feathers and fur mixed in.



**All small rodents provide food for the predators** in our state (like barn owls, left). Animals like weasels, owls and coyotes may have even more young during the year if the rodent population is high that year. During years when the rodent population is low, the predators will have fewer young. So, many rodents actually help control our predator populations.