

Mice

Species' names:

- House mouse, *Mus musculus* (an exotic species)
- Deer mouse, *Peromyscus maniculatus* (native)
- White-footed mouse, *Peromyscus leucopus* (native)

Size:

Under one ounce. Body is 2–3½" long, excluding the 3- to 4-inch-long tail. The best way to tell these mice apart is to capture them. The house mouse has grayish brown fur and a nearly naked tail. Both wild mice are two-toned, with reddish-brown backs and white bellies. They have furry tails (also two-toned).

Signs of their presence:

- Sounds: Squeaking, scuttling, or gnawing inside the walls, ceilings, or between floors of buildings.
- Scat: 1/8–1/4" long, slender. Found in kitchen cabinets, drawers, and corners; on counters, under sinks, and near food. Urine stains on the woodwork can be seen with an ultraviolet light. If you notice a musty odor, the urine was from a house mouse.
- Trails: Mice use the same route over and over. Eventually, a faint, dark "trail" of body oil and dirt may be noticeable on baseboards. Look as well for smooth, worn paths in insulation. Their burrow holes, often seen in baseboards, corners, walls, and foundations, are usually about an inch in diameter. They can fit through a dime-sized hole.
- Nests: A loosely woven ball of shredded fibers, such as clothing or paper, about 5" in diameter. Deer and white-footed mice line their nests with fur, feathers, cloth, and other fine materials. Will often see droppings, seeds, and pet food near the nest. If possible, mice will choose to nest near food.
- Damage to household goods and buildings: toothmarks on packaged goods, electric cables, baseboards, door and window casings, and cabinets. (Their teeth grow constantly, so they gnaw to keep them trimmed.) Piles of wood chips or shavings.

Diet:

Mice are primarily herbivorous although during the summer, they may eat mostly insects. The house mouse will sample everything in your larder, including your lard—and your perfumed bar soap, too. They prefer seeds, grains, and grain products, like bread but are happy with cheese, peanut butter, bird seed, potatoes, and pet food. They'll eat chocolate, bacon, and other foods high in sugar, protein, or fat. Deer and white-footed mice are mostly seed-eaters. If they get in your walls, they're more likely to bring in acorns, the scales

of pine and spruce cones, and beech nuts to stash between the studs.

Typical activity patterns:

Social style: House mice are generally solitary, except female with young. Mated pairs of deer and white-footed mice usually stay together during the breeding season.

Daily activity: Nocturnal, with peaks at dawn and dusk. Daytime activity is seen.

Hibernator? No, but mice living outdoors may den up for a few days in very cold weather.

Migrates? No.

Where found:

Distribution in NY and the Northeast: Everywhere.

Habitat: The house mouse prefers a house, cabin, garage, barn, attic, shed, office, warehouse or similar locale. Deer and white-footed mice prefer forested or brushy areas. White-footed mice spend a lot of time in trees, and will take over abandoned bird or squirrel nests. Other preferred nest sites include small pre-existing burrows, brush piles, knotholes of trees, under rocks or logs, and in bird boxes and attics.

Territory and home range: House mice tend to stay close to their food, ranging up to 10–30 feet in diameter. In contrast, the wild mice tend to forage outside, ranging from 1/3–4 acres, but will nest indoors, when such shelter is available. Deer and white-footed mice are probably territorial around their nests, and avoid contact with each other within their home ranges, although they nest together in family groups during the winter. They may establish a dominance hierarchy. Males' home ranges may overlap; females' apparently don't. Females in mixed habitats tend to have smaller but better-quality home ranges, and those females can be larger than males.

Breeding habits:

Pair bonding style: Mice are polygamous. Female raises the young alone.

Breeding dates: Indoor residents may breed year round, but wild mice tend to breed in the spring and fall. They may have 4–10 litters per year. Gestation takes about 23 days. Females may breed again within a day or two of giving birth. Mice are sexually mature at 6–10 weeks old.

Litter size: 3–5. May see as few as two or as many as eight. A female house mouse can produce over 40 young in a year.

Weaning dates: Between 2–4 weeks of age.

Amount of time young remain with parents beyond weaning date: not long!

Common nuisance situations:

Time of year: Any time of year.

What are they doing?

- Mice can damage buildings and household goods as they seek food and nest sites. They'll gnaw through or foul woodwork, aluminum siding, sheetrock, insulation, plastic food containers (including garbage cans), papers, packaged goods, clothing, mattresses, furniture, even lead or copper pipes. Indoors, they nest in walls, kitchen cabinets, attics, basements, garages, sheds, barns, under appliances. Outdoors, they'll nest in thick vegetation, wood or rock piles, and junk.
- Their nests might block a vent, causing a fire hazard.
- They also chew on wires, which in addition to creating a fire hazard, could also short-circuit electrical systems, causing failures of alarm systems or refrigeration.
- Mice eat many human foods but prefer seeds and cereal grains. In barns and outbuildings, they get into stored grains, corn, feeds, and seeds. They'll raid bird feeders and pet dishes. They damage much more than they eat because they tend to nibble and discard foods.
- Scurry about at night. The noise may drive you and your pets to distraction.
- May dig up recently planted seeds in home gardens, agricultural fields, and areas that were supposed to be reforested.
- Contaminate stored foods, especially grains. They ruin a good chunk of the world's food supply.
- Foul items stored in warehouses, museums, libraries, and other sites.
- Disease risks—among the possibilities are
all three species: Lyme disease, salmonellosis (food poisoning), leptospirosis (Weil's disease), typhus, rat bite fever, ringworm, tapeworms
deer and white-footed mice: hantavirus pulmonary syndrome
house mouse: lymphocytic choriomeningitis (LCM) virus, rickettsial pox

Legal status in New York:

Unprotected.

Best practices

The best way to deal with a mouse infestation is to clean up, get rid of the mice, and keep them from finding a way back in. Keep three words in mind: sanitation; eviction; and exile.

Safety tips (for contact with mice, their droppings, urine, or nest materials)

- Wear rubber gloves and a proper respirator.
- Ventilate the area, if possible.
- Don't stir up dust by vacuuming or sweeping. The dust could contain hantaviruses, LCM virus, or other airborne disease organisms.
- Instead, thoroughly wet the materials with a 10% bleach solution (1 part bleach in 9 parts water) or household disinfectant. Wipe up with a damp sponge.
- Spray dead mice and their nests with disinfectant, then double-bag for disposal.
- Disinfect toys, silverware, or other items that may have been fouled. Throw away any contaminated foods, drinks, napkins, paper plates, or cups.
- For more information, refer to chapter four and the resource list.

Remove artificial food sources (garbage, compost, bird seed, pet food):

- Store food, birdseed, pet food, garbage, compost, and recyclables in metal, glass, ceramic, or heavy-duty plastic containers.
- Promptly clean up spills and crumbs.
- Feed pets at scheduled times, and then put unfinished food in the refrigerator. (Relax, with a proper trapping and exclusion program, you won't have to do this too long).
- Keep the area around bird feeders clean, especially of spills underneath the feeder.
- Clean garbage cans, dumpsters, and garbage chutes regularly. Screen dumpster drainage holes with hardware cloth.
- Elevate compost heaps or enclose with 1/4-inch hardware cloth or welded wire mesh.

Remove their nesting sites:

- Keep stored items off the floor and away from walls. In a warehouse, paint a 12" white band on the floor all the way around the room to make inspections easier, and to remind people to keep items away from the walls.
- Reduce clutter and remove cardboard boxes.

- Move firewood, debris piles, and garbage cans away from the house.
- Maintain a foot-wide gravel border around the foundation that's free of vegetation (best), or keep the foundation plantings well trimmed. Don't stack anything (such as firewood) against the foundation.

Prevent entry into building:

- Close the door! (Use screen doors.)
- Install door sweeps and weather-stripping (garages, too).
- Repair holes in walls and screens. Poke steel wool, wire mesh, or flexible aluminum "gutter guard" into holes then caulk, or spray expanding foam (such as Great Stuff®) over it to strengthen the barrier.
- Plug gaps around water, gas, and heating pipes, heat registers, air ducts, electrical chases, and false ceilings with latex caulk.
- For large holes around pipes, use galvanized metal pipe chase covers, sheet metal plates, mortar, plaster of paris, or cement.
- Seal openings beneath and behind sinks, stoves, and dishwashers with latex caulk.
- Check vents (sewer, stove, clothes dryers, roof, ridge-line, soffit, furnace ducts, attic fans). If it's damaged or dicey, replace the vent with an animal-proof design, or screen it with 1/4" hardware cloth. End caps on ridge vents may loosen, providing access to the attic. Soffit vents are best protected with metal louvers.
- White-footed and deer mice are excellent climbers. They will often enter buildings through holes in the roof, even on two- or three-story buildings. Inspect thoroughly.

Protect valuable trees and shrubs:

- Commercial tree wrap or hardware cloth will protect young trees.
- Plant seedlings instead of seed.

Trapping strategies:

The house mouse is an exotic species, so please do not release any into the wild (chapter two explains why). Deer and white-footed mice, which are native to New York, can be live-trapped and released. If their entry points have been sealed they shouldn't be able to get back inside the building.

- To increase your success, trap intensively for several days. More is better.

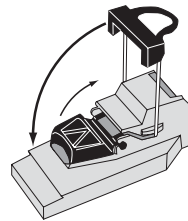
- Place the traps in their runways, in corners, near food sources, nests, or holes—wherever the mice are most active. You may be able to lift some ceiling tiles to place traps in a dropped ceiling. Set traps at night, when mice are most active and check them in the morning.

Live traps:

- Various models of small cage and box traps, such as Sherman traps.
- Multiple-capture traps, that shunt them into a holding compartment.
- Set live traps parallel to the wall.

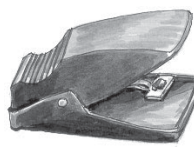
Lethal traps:

- The familiar mouse trap is a type of body-gripping trap called a "snap-back trap." There are many designs.



- The Quick Kill Mouse Trap made by Victor has a lid over the bait cup. Only animals that are motivated to seek the bait will lift that lid—and that's what fires the trap (the "lid" is actually the trigger). This means that an animal can accidentally step on the lid without setting off the trap.

There's another advantage to this design. The bait cup is located to position the mouse in the perfect strike position. So this trap is both more selective and more effective than the traditional mouse trap. It also has a safety catch and will not fire if it's picked up.



- Other snap-back traps have expanded "triggers" (properly, it would be called the "pan") or a clothespin design (shown). These features make the traps easier to set than traditional mouse traps.

- Place traps right against the wall, every 5–6 feet.
- Set snap traps in pairs. This is much more effective. Two sets work well:
 - Side-by-side, perpendicular to the wall, with the trigger snapping towards the wall
 - Parallel to the wall, with the triggers snapping to the outside (not into the center)
- Traps may be attached to rafters with nails, or to pipes with wire or "Velcro" strips.
- Bait with peanut butter, bacon, dried fruit, nutmeat, chocolate candy. Or tie a cotton ball to the trigger (it's enticing nesting material).

- To protect young children, place lethal traps inside a cage trap with 1" mesh, or a coffee can with both ends cut out, or in PVC pipe. (Make sure the trap will still fire.)
- In severe situations, glue boards may be needed as an additional tool to knock down mouse populations quickly. In general, snap-back traps are preferred; they are often as effective and are more humane. If using glue boards, set them in protected areas, such as within a dropped ceiling. Check them frequently (at least every 12 hours) and kill any captured mice by stunning them. Do not leave dead mice to rot on the glue boards because the carcasses will stink and likely attract other pests.
- Wildlife rehabilitators may appreciate donations of mice, which are used to feed some snakes, birds of prey, and other animals. If you're going to do this, don't spray the mice with disinfectant and be sure that no poisons (rodenticides, poisonous tracking powder) have been used in the building during previous control efforts. You can double-bag the mice and freeze them.

Other lethal techniques, for NWCOs with a commercial pesticide applicator license:

- Poisons (in various forms, such as baits, fumigants, and tracking powder) can be effective and may be warranted in some situations. Rodenticides can be hazardous to children, pets, and animals that eat poisoned mice. The mice may die in walls and stink, while providing a fine breeding place for flies. Trapping is often a better solution.
- There's a fair amount to consider when using rodenticides. You'll learn the details during your pesticide applicator training, and can also refer to the mice chapters in *Prevention and Control of Wildlife Damage* (for full citation, see the resource list).

Preferred killing methods:

- Lethal trap
- Cervical dislocation
- Stunning, and if necessary, chest compression
- Carbon dioxide chamber (use a small chamber)

Acceptable killing methods:

- Pesticides (for those with proper license)

Control strategies that don't work well or aren't legal in New York:

- In the long run, ultrasonics don't work against mice. (Loud or unusual noises will frighten them and may drive them off for a short time.)
- Electromagnetic devices don't work, either.
- Mothballs and ammonia don't do much, either. Ammonia isn't a registered pesticide in New York, and mothballs can only be used by NWCOs who also have a commercial pesticide applicator license.
- Cats may kill some mice, but a single female house mouse can bear up to 40 young in a year. The mice also travel in places that a cat can't reach, so don't expect too much.