



School IPM Fact Sheet

Managing Rodents

The most persistent rodent pests in schools are the house mouse, roof rat, and Norway rat. White-footed, deer mice, and voles (meadow mice) may also be troublesome. Rodents damage stored items, consume and contaminate food, and serve as reservoirs of several diseases. Most rodent problems can be prevented with landscape maintenance, good sanitation, pest-proofing, and monitoring with traps to catch them before they become an invasive pest. Rodenticides are not generally recommended except to reduce very high populations. Rodenticides may only be used in locked bait boxes serviced by a licensed applicator.

Monitoring, sanitation, and landscaping

- Inspect for evidence of rodents—droppings, gnawed food packages, greasy rub marks along walls.
- Use a flashlight to check behind and under equipment, furniture, sleeves, etc. especially where food is stored or eaten, including classrooms, teachers rooms, kitchens, cafeterias, and pantries.
- Inspect the grounds for food sources. Remove edible plants, fallen fruit and nuts, and animal feces.
- Use snap traps, glue boards, or other non-poisonous rodent traps to monitor rodent activity.
- Keep lids on trash cans and close dumpsters at night. Cover the drainage holes in dumpsters with wire mesh to keep rodents out. Locate dumpsters as far from buildings as possible.
- Remove debris, lumber piles, firewood, trash, and discarded items to reduce shelter for rodents.
- Trim vegetation at least 3 feet from buildings to decrease cover for runways and prevent hidden access.
- Break up long stretches of dense vegetation that allows rodents to travel long distances under cover.
- Keep grass and weeds mowed.
- Avoid planting ornamentals favored by rodents such as euonymus, nut and fruit bearing plants, etc. Contact Cooperative Extension for planting recommendations.

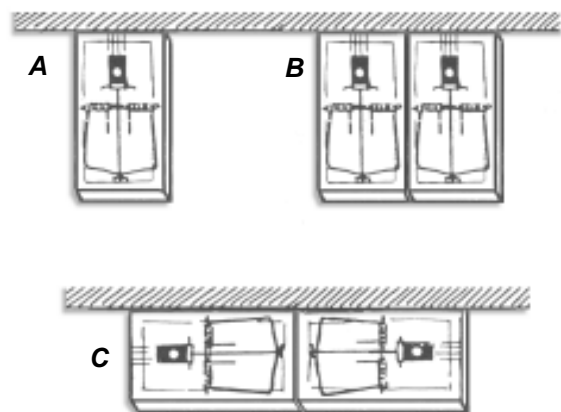
Rodent proofing

Rodent proofing involves tightening a structure to exclude rodents. A young rat can squeeze through an opening as small as $\frac{1}{2}$ inch; $\frac{1}{4}$ inch will admit a mouse. Inspect and seal doors, door sweeps, weather-stripping, cracks, gaps, and other openings where rodents may enter a building.

Traps

Traps are essential for monitoring rodent activity. School staff do not need a license to use mechanical traps for rodent control. Traps also avoid the odor problem from rodents that die in inaccessible places.

Rodents prefer to run along edges and they routinely follow the same runways. Identify runways by sprinkling a fine layer of flour or baby powder in suspected areas to observe tracks. Place traps along walls and runways, 6-10 feet apart. Take advantage of



Place snap traps in secure areas, along a wall or rodent runway. A) trap triggers should face a wall. B) two traps next to each other increases the chance of success. C) two traps may also be placed in line, the triggers to the outside.

fixtures that might guide them into the trap. Roof rats and Norway rats usually fear newly placed items and avoid them for several days. Keep all rat traps in place for at least 1 week before moving them. Traps should be checked daily. Traps and other surfaces contaminated with rodent urine or feces should be properly disinfected or disposed of.

Non-poisonous baits. The bait depends on the rodent. House mice and deer mice prefer peanut butter, gum drops stuck to the trigger, or rolled oats or bird seed sprinkled on the trap. When food is abundant, nesting material, such as a cotton ball tied to the trigger, can be effective. Roof rats prefer peanut butter, pieces of fruit, or shelled nuts. Norway rats prefer raw or cooked meat, fish (sardines are excellent), or peanut butter. Voles may be attracted using peanut butter, oatmeal, or apple slices.

Snap traps. Both the classic wooden trap and the newer pinch-designs kill trapped animals quickly. Traps should be placed in locked rooms or other areas not accessible to children or in locked, tamper-resistant containers securely attached to a surface so that the container cannot be moved.

Live traps. Several types of live traps are available. Some catch a single rodent, others reset themselves to capture several. The traps may be expensive and the live animals must be disposed of—living rodents should not be released into the wild. Regularly check live traps to avoid odor problems. Because rodents often die of dehydration in live traps, animal welfare experts consider snap traps more humane.

Glue boards are most effective against juvenile mice in dry, dust free areas. Captured rats can often pull themselves free. Fix glue boards to ledges, pipes, or rafters. Do not set them near open flames, above carpet, or where children and pets can contact them. Although they are not toxic, an encounter with a glue board can create a frustrating mess. Clean hands with room-temperature cooking oil. Clean hard surfaces with paint thinner or mineral spirits.

Chemical control

In situations where trapping and pest-proofing do not resolve rodent problems, anticoagulant poison baits are usually effective. Because rodenticides may be highly toxic to humans, they should only be used in secure locations and contained in tamper-resistant bait boxes. As with all pesticides, it is a violation of state law for unlicensed persons to use rodent poisons in schools. Be sure your pest control professional adheres to the following guidelines for using rodent poisons.

- Use rodent bait stations that are locked and firmly anchored.
- Place bait stations in areas inaccessible to children.
- Place rodenticides in the baffle-protected feeding chamber of the box. Never place bait in the runway.
- Monitor and service bait stations regularly; remove promptly when rodents are no longer using them.
- Ask your licensed applicator to provide a map showing locations of all traps and dates of service.

Anyone making pesticide applications on school property must be licensed by the Board of Pesticides Control. See “Standards for Pesticide Applications and Public Notifications in Schools”.

House mice are the most common rodents found in schools. They are inquisitive, good climbers, and actively explore anything new. House mice are gray-brown with a lighter belly and small, black eyes. House mice feed primarily on seeds, grain products, and dried foods. They are nocturnal and secretive and tend to nibble on many small meals each night. They have a small home range, usually staying within 10-30 feet of their nest. Nests usually are built in structural voids, undisturbed storage or debris, or in outdoor burrows. The presence of mice is usually indicated by actual sightings, damage caused by gnawing into food containers, or the presence of droppings.



White-footed and deer mice have white feet, usually white undersides, and brownish upper surfaces. They have larger eyes and ears than house mice and most people find them more “attractive.” These mice are seed eaters. They also consume fruits, insects, fungi, and possibly some green vegetation. They are uncommon in urban or suburban areas unless there is considerable open space nearby. They are mostly nocturnal with a home range of $\frac{1}{3}$ to 4 acres.

The signs they leave are similar to those of house mice, although white-footed and deer mice have a greater tendency to cache food supplies. They also lack the characteristic mousy odor of house mice. They will enter structures where they can cause considerable damage to materials that they use for nest building. White-footed mice may harbor hantavirus.



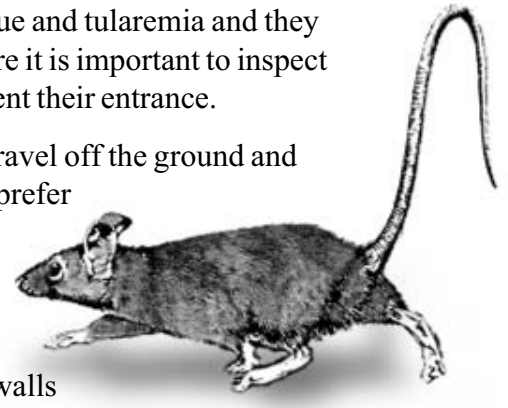
Voles, also called meadow mice or field mice, are compact rodents with stocky bodies, short legs, and short tails. They prefer wet meadows and grassland habitats and eat a wide variety of plants. Their home range is variable but usually $\frac{1}{4}$ acre or less. Voles do not hibernate, they are active day and night, year round. Large population fluctuations generally peak every 2 to 5 years but the cycles are not predictable. During population eruptions, extremely high population densities may be reached.



Voles create an extensive system of surface runways 1-2 inches in width with numerous burrow openings. A single burrow system may contain several adults and young. Vegetation near well-traveled runways may be clipped close to the ground. Feces and small pieces of vegetation are found in the runways. During winter the only evidence of activity in and around buildings may be odors associated with droppings and urine in the walls. The droppings can be abundant and moist, unlike dry pellets produced by other rodents. They can also be quite active in greenhouses where they will eat plants.

Voles are capable of carrying disease organisms, such as plague and tularemia and they sometimes inhabit and defecate in the walls of buildings. Therefore it is important to inspect building perimeters in the fall and make necessary repairs to prevent their entrance.

Roof rats, or black rats, are excellent climbers. They like to travel off the ground and enter buildings from nearby trees or along power lines. Roof rats prefer fruit, but will eat any type of food. They have a large home range and may travel more than 50 yards to reach food or water. They often nest in attics, wall voids, and hollow trees. The presence of roof rats is determined by gnawing damage, droppings, sightings, sounds of scratching, squeaking, or gnawing in walls or ceilings, and characteristic dark, greasy rub marks along frequented paths along walls and rafters.



Norway rats are strong burrowers, good climbers, and excellent swimmers. They are more common in sewers and buildings than the roof rat. They strongly prefer meat and fish, but will do well on any type of human or pet food. Their home range may be more than 50 yards in radius. These rats usually dig burrows along building foundations and under debris piles. The Norway rat is very aggressive and may drive roof rats out of an area or they may share a building: Norway rats in the basement and roof rats in the attic. The signs they leave are similar to those of roof rats.

