



Integrated Pest Management of Rodents in Child Care Settings

The most common rodent pests are the roof rat, the Norway rat, and the house mouse. These rodents can damage buildings, food, clothing, and documents by gnawing, urinating, defecating and nesting activities. They are responsible for the spread of diseases and can cause fires by damaging electrical equipment. Mice are more common and more difficult to control than rats.

Rats bite more than 4,000 people a year, mostly children younger than five. Rats and mice may also trigger asthma attacks. House mice may spread lymphocytic choriomeningitis, a viral disease that causes inflammation of the membrane that surrounds the brain and spinal cord. The disease can be transmitted from pregnant women to their unborn infants, and is an under-recognized cause of hydrocephalus (a buildup of fluid in the brain) in newborns. To protect the health of children and staff in Early Childhood Education (ECE) settings, we need strong integrated pest management programs (IPM) to manage rats and mice.

Why are Rats and Mice a Problem?

Rats often live in packs, so if you see one, there may be many. Rats can reproduce every 2-4 months, bearing many offspring at a time. By three months of age, the young rats are capable of reproduction. If not properly managed, a rat infestation will rapidly increase. Mice are even more common than rats in indoor environments.

Rats and mice are nocturnal animals, which means they are active at night. The first sign of rodents is often strange noises in the evening coming from the attic, inside walls or in ceilings. If you observe rats during the day, you likely have a serious infestation. Rats and mice gnaw on hard objects as a means of keeping their constantly growing incisor teeth cut back. For example, they like to gnaw through plastic electrical junction boxes, which is a cause of electrical fires.

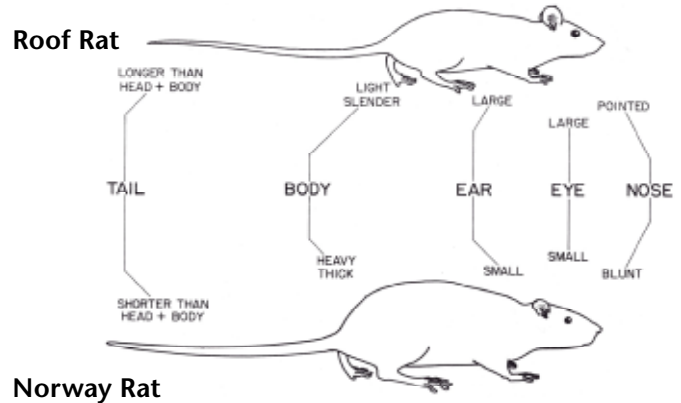
Managing Rodent Infestations:

Many people use poisons to get rid of rodents, but this will not solve a rodent problem unless a comprehensive integrated pest management plan is put into place.

If rodents are killed but their habitat and food are still available, it is very likely that other rodents will move in to replace the dead ones. The most important strategy for preventing and controlling rodents is to stop providing them with food, water and shelter.

IPM Strategies to Control Rodents Include:

- **Careful inspection:** Observe the environment for signs of rodents: rodent droppings around animal food dishes or other sources of food, burrows in the ground, evidence of nests under firewood or behind stored items in the garage, evidence that rodents are feeding on fruit or nuts that are in or falling from the trees in the yard.



- **Identify whether you have roof rats or Norway rats** in order to place traps or baits in the most effective locations.

Roof rats are slightly smaller than Norway rats. Unlike Norway rats, their tails are longer than their heads and bodies combined. Roof rats are very agile climbers and usually live and nest above ground in shrubs, trees, and dense vegetation such as ivy. In buildings, they are most often found in enclosed or elevated spaces in attics, walls, false ceilings, and cabinets. The roof rat prefers to live in warmer climates and areas near the ocean.

Norway rats are stocky, burrowing rodents that are larger than roof rats. Their burrows are found along building foundations, beneath rubbish or wood-

piles, and in moist areas in and around gardens and fields. Nests may be lined with shredded paper, cloth, or other fibrous material. When Norway rats invade buildings, they usually remain in the basement or ground floor.

- **Regular monitoring** of the environment
- **Garbage management:** In most areas, garbage is the main source of food for rats.

Store food waste in sealed plastic bags; place bags in rodent-proof containers.

Clean garbage cans and dumpsters frequently to prevent the build-up of food waste.

Keep dumpsters on a hard impermeable surface as far away as possible from the building.

- **Rodent-proofing:** the simplest approach to rodent control is to prevent rodents from getting into buildings. Mice can fit through a hole as small as ¼-inch. Rats fit through a hole as small as ½-inch. Rodents access buildings through holes in walls, around pipe entries, through sewer outlets, and under doors.

Use metal flashing, hardware cloth and copper wool to seal floor drains, vents, holes, and gaps around pipes.

Install a doorsweep under each exterior door. A doorsweep doubles as weatherstripping and inexpensive, easy-to-install rodent exclusion.

- **Trapping** is an important component of an IPM program to control rodents in ECE settings.

Place traps with the baited end perpendicular to walls so rodents will be caught approaching from either direction.

Rats are trap-shy and will avoid traps. Rat traps can be pre-baited to improve their effectiveness: put the traps out with bait, but do not set them for several days until the rats are used to them.

Place traps in front of openings rats and mice are using to access buildings and between walls and equipment to improve chances of trap contact. Make sure that traps are placed out of reach of children.

Empty and reset traps daily until no more rodents are captured; then check them weekly.

Always wear gloves when handling traps for protection from diseases

- **Baits:** If the rodent infestation is severe, baiting may be necessary, and should be done by a licensed pest control operator trained to use these poisons safely.

Baits must be placed in locations out of the reach of children, pets, domestic animals, and wildlife or in tamper-resistant bait stations.

Bait stations must be resistant to destruction by dogs and by children under 6 years of age and must be constructed in a manner that prevents a child from reaching inside the trap and grabbing the bait.

Baiting may cause a rat or mouse to die behind a wall. In hot weather, the stench of a dead rodent can be unbearable and may require cutting a hole in the wall to remove the carcass. Also, fleas and mites often leave dead rat carcasses and may infest the entire house or building if the carcass is not removed promptly.

Preventing rodent infestations is the best strategy for avoiding those situations that require the use of baits or poisons.

According to the Healthy Schools Act, parents and staff must be notified of any application of pesticides, and warning signs must be posted.

Cleaning up After Rodents:

Do not sweep or vacuum rodent droppings, urine, or nesting materials; they can carry diseases. Sweeping or vacuuming will stir up dust and increase a person's chances of inhaling the virus. Use gloves and spray the urine and droppings with a mixture of bleach and water and let soak 5 minutes. The recommended concentration of bleach solution is 1 part bleach to 10 parts water. Use a paper towel to pick up the urine and droppings and dispose of them in the garbage. Mop floors with a bleach solution. Remove gloves and wash hands.

Resources

California Department of Pesticide Regulation, School IPM website www.cdpr.ca.gov/schoolipm/main.cfm

University of California Statewide IPM Program, Pest Notes: Rats www.ipm.ucdavis.edu/PMG/PESTNOTES/pn74106.html

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