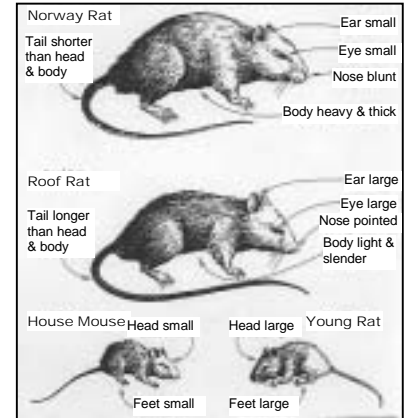


The three important urban rodents are Norway rats, roof rats and house mice. The Norway rat, also called the brown, wharf or sewer rat, can be found virtually everywhere humans live. They are attracted to areas that provide a wealth of hiding places and easy access to food. The roof rat, an agile climber, is more at home in the city, with its wires and tall buildings. House mice can establish long-term residence in homes and offices. They are well adapted to life without a steady water supply, and are able to survive long periods on cereals and food scraps.



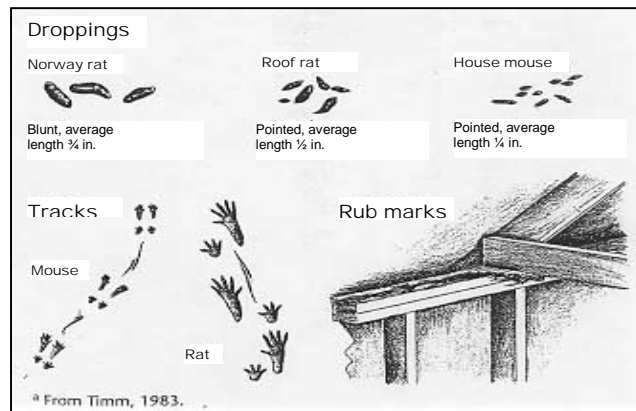
Identification & Lifecycle

	Norway Rat	Roof Rat	House Mouse
Scientific name	<i>Rattus norvegicus</i>	<i>Rattus rattus</i>	<i>Mus musculus</i>
Common names	Brown, wharf or sewer rat	Black, ship or house rat	
Adult weight	11 oz.	7 oz.	½ oz.
Fur colors	Brown with black, shaggy	Grey to black, smooth	Light brown to grey
Droppings	Capsule-shaped	Spindle-shaped	Rod-shaped
Climbing ability	Can climb	Active climber	Good climber
Habitats	Underground burrows near damp places such as garbage dumps	Nests in blackberry bramble, pyracantha bushes, ivy, palm trees, and other evergreens in the city	Nests in underground burrows and holes inside buildings
Litter size	8 to 12	6 to 8	6 to 7
Litter per year	7	6	8 to 10

Monitoring

The sight of a rat running across an open space is often the first sign of an infestation. However, because rodents are secretive and are active at night, more detailed inspection of the sites is required to confirm actual rodent infestation.

- Look for scattered rat droppings near common pathways, feeding locations, or shelter.
- Look for scratches and sharp gnawing marks on the bottoms and corners of doors, on ledges, in corners of walls, and on stored material.
- Look for dark, greasy rub marks caused by the rat's fur oil coming in repeated contact with painted surfaces or wooden beams.
- Check for tracks and tail draglines on dusty surfaces indoors and in loose soil and mud outdoors.



IPM Approaches to Rodent Management

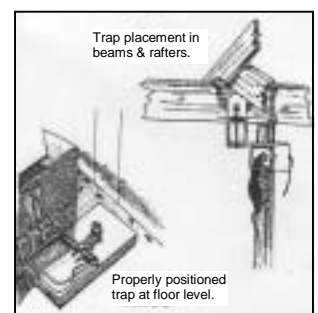
Preventive maintenance, good sanitation, exclusion and trapping are the best protection against rodent invasion and establishment in homes and office buildings.

Preventive Maintenance	Sanitation	
Mice can enter a building through exterior openings less than ¼ inch in diameter.	INDOORS:	OUTDOORS:
Rodent-proofing is the best way to deny these unwelcome pest accesses to your home and office.	Clean out debris in attics, basements, closets, lockers, and lounge areas.	Stack woodpiles and lumber 18 inches off the ground and 12 inches away from walls.
Seal small holes with ¼-inch galvanized hardware cloth or copper mesh and caulk.	Store foods in tightly closed metal, glass, or plastic containers.	Trim all shrubs and grass away from buildings to create a 12-18 inch space of open ground. Algerian ivy, oleander, bougainvillea, and other
Check for gaps around exterior doors and seal with weather stripping. Door sweeps can be used to prevent rodent entry.	Store bags of grass seed, dry pet food, and other similar items in rodent-proof containers.	thickly matted plants should be periodically thinned and trimmed well away from roofs, walls, fences, and utility poles.
Inspect and repair damaged air vents, louvers, vent pipes and shafts, tile roofs, and gaps around the chimney.	Never leave uneaten pet food outside overnight.	Pick up all ripe fruits and vegetables.
Install a pea gravel barrier to separate landscaping from the building foundation. Rats dislike burrowing in loose gravel.	All food waste from the kitchen, cafeteria, and other areas should be drained and stored in sealed plastic bags.	Repair leaky faucets and eliminate any other unnecessary standing water.
	Rinse all cans, bottles, and plastic containers before recycling or discarding.	
	Make sure garbage can and dumpster lids seal tightly when closed.	

- Place traps in areas where they are inaccessible to children and pets.
- Use effective baits; for Norway rats, use a piece of bacon or a slice of hot dog; for roof rats, raisins and nuts; for mice, gumdrops and raisins. Since rats are sensitive to changes in the environment, traps should be pre-baited. Place baited traps out for several days without setting the trap. Check traps daily to see if bait is being taken. Once rats take the bait, add fresh bait and set the trap.
- Set three traps side by side at right angles to the wall with the triggers facing the wall. Alternatively, set two traps, end-to-end, parallel to the wall with the trigger facing out.
- Place traps for roof rats on tree limbs, under vegetation, on backyard trellises and fences, and at other above-ground sites.
- Traps should be inspected daily, and stale baits should be replaced.

Graphics modified from **Common-Sense Pest Control**, Olkowski, Daar and Olkowski (Taunton Press, 1991).

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Ridding an Area of Rodents

Prevention is by far the best way to deal with rodents, because once they infest an area, they must be killed, and there is no fool-proof method that produces a quick, painless death. Here are some of the non- and less-toxic approaches to rodent destruction. All have their plusses and minuses.

Live Rodent Trapping

Live traps can be used to catch rats and mice. Once caught, the rodent can either be killed or released. Relatively humane ways of disposing of a live rodent are by drowning or freezing: To drown, confine the rodent inside a heavy-duty paper bag, then submerge the bag in a bucket of water held down with a heavy object such as a brick. To freeze, place the bag inside a larger plastic garbage bag, seal it and place it in the freezer for a couple of hours. The rodent will lose consciousness before it freezes. IPM practitioners do not recommend the release of rodents in fields or vacant lots since they find their way back again.

Spring-Loaded

When rodents are instantly killed with a trap, this is possibly the most humane method of control. Unfortunately, they are not always killed outright, or at all. If using a trap, use expanded-trigger traps whenever possible.

Chemical Control Options

Use poison baits only when trapping and rodent-proofing have failed to solve the problem. A word of caution when using poison baits: Rodents poisoned by baits will take several days to die. There is a chance that a mouse or a rat will die within walls and become inaccessible to remove. A decaying rodent can create foul odors and presents a health hazard.