

In the United States there are three rodents of concern: the **Norway rat** (*Rattus norvegicus*), the **roof rat** (*Rattus rattus*), and the **house mouse** (*Mus musculus*). These three rodents are considered commensal, meaning they live close to humans and their activities. 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 plenty of hiding places and easy access to food. The roof or black rat is an agile climber and generally prefers sheltered or covered habitats, and is attracted to lush landscapes, dense vegetation and fruit trees. As a result, properties with heavy shrubbery, woodpiles, and storage boxes are more prone to roof rat infestations. House mice can become established in both homes and offices. They are well adapted to life without a steady water supply and are able to survive long periods on just cereals and food scraps. All three rodents can be found on military installations in the United States and overseas.

Why are commensal rodents a problem?

Rodents are both a health and safety hazard. Rodents and their fleas can spread several diseases to humans including murine typhus (flea-borne typhus), leptospirosis, lymphocytic chorio-meningitis, salmonellosis, and rat bite fever. These diseases can infect humans directly by rodent bites or by contact with rodent feces, urine, or saliva. Rodent diseases can also be spread to humans indirectly through the bites of ticks, mites, or fleas that have fed on an infected rodent. Rodents consume and contaminate stored food and animal feed and will also gnaw on wiring (posing a fire hazard), chew on wood, and tear up insulation for nesting material (structural damage). Rats will also feed on home-grown fruits and vegetables and damage young trees by feeding on the bark.

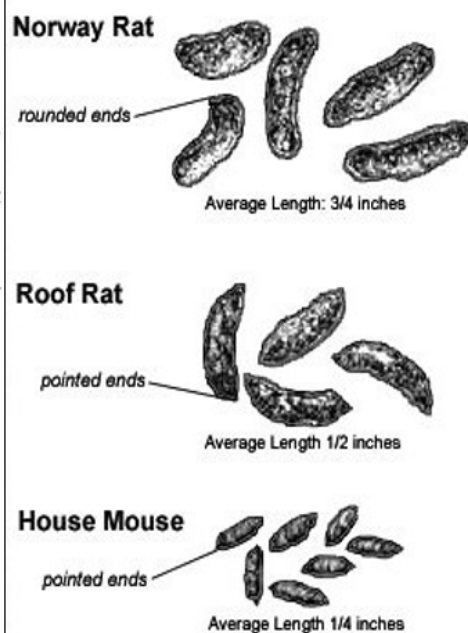
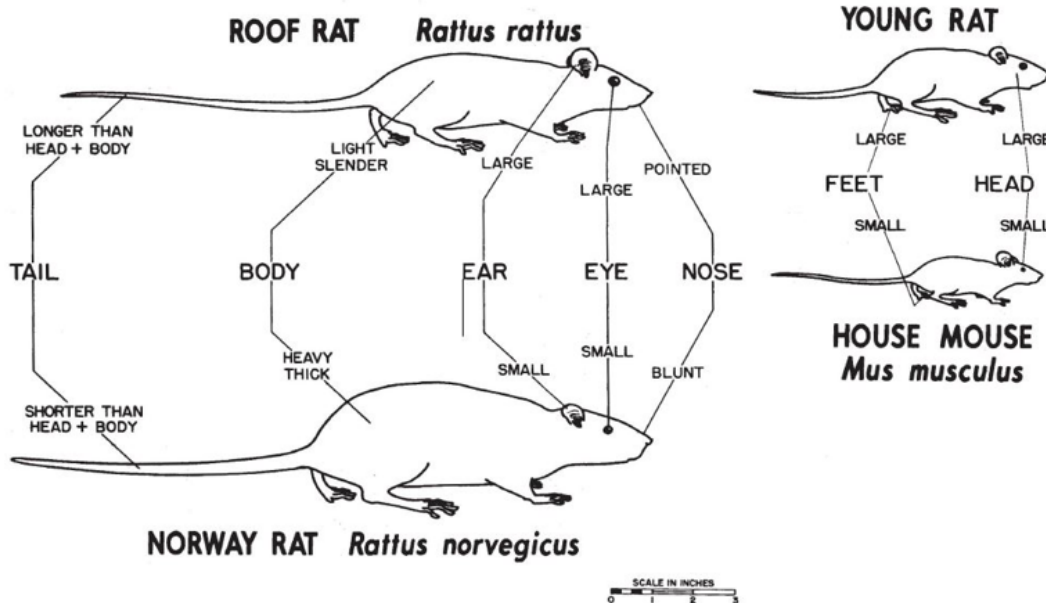
How can these rodents be identified?

Rodents can be identified directly using body characteristics, or indirectly by the droppings they leave behind. Use the charts below for specific characteristics to help with identification.



The roof rat (*Rattus rattus*) is a common rodent pest in the US. Photo: CDC

DOMESTIC RODENT FIELD IDENTIFICATION Robert Z. Brown



Domestic Rodent Field Identification: Robert Z. Brown, CDC Pictorial Keys

What are the signs of a rodent infestation?

The most common signs of rodent infestation include the following:

- Droppings are the most common sign of rodent activity. The droppings are randomly scattered and will normally be found close to a rodent runway, feeding location, or shelter.
- Greasy rub marks left when the rodent's oily fur touches surfaces along their route.
- Seeing live or dead rodents.
- Damaged or partially eaten foods.
- Burrows in secluded areas like inside furniture, wall voids, unused equipment, or dug in the ground.
- Signs of gnawing on plastic, wood, cardboard, or rubber materials.
- Sounds (gnawing, scampering, squeaking, etc.) from attics, subfloor areas, and wall spaces.

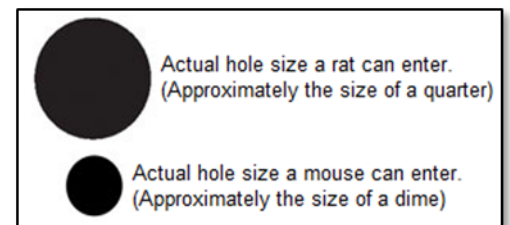
How do you get rid of rodents in and around homes or offices?

Effective rodent control in and around homes can be achieved by eliminating food and water sources, sealing entryways into the building, and eliminating rodents already in the building. On-post residents should ask installation pest management to inspect their home to determine if rodent control is needed. If living off-post, contact your local Cooperative Extension or a pest control professional to help with any of the steps below:

1. Habitat modification (clean up): Rodents need three things to live and reproduce: food, water, and shelter. Removing the rodents' basic needs will help keep them away from buildings.

- Rodents can rapidly chew through plastic lids and cardboard boxes to access food. Keep quickly-consumed food sealed in plastic bags or boxes and store food that is maintained for extended periods of time (bulk food, baking ingredients, pet food, bird seed, etc.) in rodent-proof containers, such as thick plastic or metal canisters. Regularly remove trash and keep rodents out of trash cans with tightly fitted lids. Immediately clean up all spilled human food and animal feed, and do not leave pet food out. Rodents are also attracted to compost piles.
- Eliminate debris around buildings, which creates hiding places for rodents and protects them from predatory animals. Store items at least 12 inches off the ground and 18 inches away from walls or fences. Keep landscaping trimmed and grass cut.
- Fix water leaks in or around buildings to eliminate water sources for rodents.

2. Exclusion (seal up): Rodent-proofing permanently and effectively prevents infestations and keep rodents from reentering buildings. Mice can enter through holes as small as $\frac{1}{4}$ inch, so sealing even small holes and cracks is important. To seal holes, use heavy-duty materials that resist gnawing, such as steel lath screen or galvanized (non-rusting) 19-gauge hardware cloth with small mesh (less than $\frac{1}{4}$ -inch). Install escutcheon plates to seal the openings around pipes. Steel wool can be used to temporarily fill holes until they can be covered with permanent solutions. Eliminate gaps under doors by installing door sweeps, and ensure that windows and screens are in good working condition. Always keep exterior and garage doors closed when not actively using them.



3. Population reduction (trap up): Rodent populations can be reduced by trapping or using rodenticides. Rodent traps and baits are species-specific, so it is important to correctly identify the type of rodent infestation you have before trying to control it. If using rodenticides for control, read the label completely and follow all the manufacturer's directions. Remember that a poisoned rodent can die anywhere and may cause an unforeseen odor problem. Rodent bait and rodents poisoned by rodent baits may pose a risk to children, pets, and other non-target animals that may consume them.

**To eliminate or minimize contact with rodents and their droppings follow the rule:
CLEAN UP, SEAL UP and TRAP UP!**

Where can I get more information on rodent control?

- Armed Forces Pest Management Board (AFPMB) Technical Guide (TG) 48, Contingency Pest and Vector Surveillance: <https://extranet.acq.osd.mil/eie/afpmb/cac/techguides/tg48.pdf>
- Centers for Disease Control and Prevention: <http://www.cdc.gov/rodents/index.html>
- U.S. Environmental Protection Agency: <http://www2.epa.gov/rodenticides>