



VARMET GUARD®

ENVIRONMENTAL
SERVICES INC.



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Common Name: **Norway rat**
Scientific Name: **Rattus norvegicus**

NORWAY RAT



Introduction. The Norway rat is the largest of the commensal rodents and the most common commensal rat in the temperate regions of the world. It damages materials by gnawing, eats and contaminates stored food, and it is also of human health importance as a carrier of diseases. It is thought to be of central Asian origin, but is now of worldwide distribution and found throughout the United States.

Recognition. The adult Norway rat has a combined head and body length of 7 to 9 1/2 inches and a length of 6-8 inches. It typically weighs about 7 to 18 ounces but may weigh up to 20 1/2 ounces. The fur is coarse, shaggy and brown with scattered black hairs; the underside is gray to yellowish-white. It has a blunt muzzle, small eyes, small ears and a scaly, bicolored tail (darker above) that is shorter than the head and body combined. The adult droppings are up to 3/4 inch long, capsule-shaped, and have blunt ends.

Signs of Infestation:

1. Gnaw marks: New gnawing of holes tends to be rough whereas, old gnawing is smooth from wear and old holes are often greasy.
2. Droppings: Fresh droppings are soft and moist with a shiny finish; whereas, old droppings are dried and hard with a dull finish; adult rat droppings are about 3/4 inch long with blunt ends.
3. Tracks/footprints: The front foot print is 4-toed and the usually longer hind print has 5 toes. Fresh tracks are clear and sharp whereas, old tracks are at least partially obscured by dust.
4. Rub marks: Rats leave dark, greasy markings on vertical surfaces around entry/passage holes.



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5. Burrows: Ejected soil and debris surrounds the coffee cup-sized holes found in earthen banks, under concrete slabs, and under walls. If active, burrows are free of dust and cobwebs. The main opening usually has hard packed soil and rub marks may be visible.
6. Runways: Rats consistently follow the same paths, usually along walls, stacked merchandise, etc. Active runways have a greasy appearance, free of dust and cobwebs, with fresh tracks and/or droppings.
7. Damaged goods: Norway rats prefer meat, fish, and cereal (dry dog food an favorite).

Similar Rodents. The roof rat (*Rattus rattus*) and hooded rat (*Rattus* species – often kept as a pet) both have a pointed muzzle, large eyes, large ears and an almost naked tail that is uniformly colored and longer than the head plus body. The droppings are spindle-shaped with pointed ends. Roof rats are not reported to be a problem in Ohio. The house mouse (*Mus domesticus*; a.k.a. *Mus musculus*) has a pointed muzzle, large ears, and a tail about as long as the head, plus body, and is small (about 1/2 to 1 ounce). The house mouse is much shorter than the Norway rat (ie., the mouse head, body and tail total 5 to 7 1/2 inches long). The droppings are 1/8 to 1/4 inches long and rod-shaped with pointed ends.

Biology. Norway rats reach sexual maturity in 2 to 5 months. Pregnancy lasts an average of 23 days (range 21 to 25). The young are blind and naked at birth. Hair appears in about 7 days and the eyes open in 12 to 14 days. They are weaned at about 3 to 4 weeks. The average number of litters is 3 to 6 per year (range 3 to 12), each containing an average of 7 to 8 young (range 6 to 22), but averaging about 20 weaned per female per year. Adults live an average of 6 to 12 months, but much longer in captivity.

Norway rats have rather poor vision and are color blind, but their senses of hearing, smell, touch, and taste are keenly developed. Touch is via their long whiskers (vibrissae). They are good runners, climbers, jumpers, and swimmers. A Norway rat requires 3/4 to 1 ounce of food and 1/2 to 1 oz of water each day, with the water coming from a nonfood source. This results in about 30 to 180 droppings and 1/2 ounce of urine produced each day.

Historically, the disease most commonly thought of involving rats (roof rat primarily) is plague which is transmitted via rodent fleas leaving an infected rat and attacking man. Fortunately, plague has not been found in rats in the United States for many years. Other transmittable diseases include murine typhus via fleas (also possibly via droppings and urine), infectious jaundice, leptospirosis, Weil's Disease via urine in water or food, rat-bite fever via bites, trichinosis via undercooked pork, and food poisoning or Salmonellosis via droppings. Another problem is tropical rat mite dermatitis, which is caused by these mites when they feed on humans.



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Habits. Norway rats are primarily nocturnal in habit and they are cautious. Although they constantly explore their surroundings, they shy away from new objects and changes. Outdoors, Norway rats prefer to nest in burrows in the soil along railroad embankments, stream and riverbanks, piles of rubbish, under concrete slabs, etc.

The burrow will have at least 1 entrance hole and at least 1 bolthole or emergency exit, which is often hidden under grass, dense vegetation or debris. Rats are social animals and often many burrows will be located within a given area. An opening of greater than 1/2 inch is required for entry into buildings. Indoors, Norway rats usually nest in basements and the lower portions of buildings in piles of debris or merchandise as long as it is not disturbed. Although Norway rats prefer the ground or lower levels of buildings and sewers, on occasion they may be found in attics, on roofs, and in other high places.

Although they will eat practically anything, Norway rats prefer meat, fish, and cereal. If the food material eaten proves to be disagreeable, they are quick to develop food shyness. Once they find a preferred food, rats tend to eat their fill at one place and will return time after time. They almost always require a nonfood or separate source of water. Norway rats will travel about 100 to 150 feet from their harborage for food and/or water. They will gnaw through almost anything to obtain food and/or water, even plastic or lead pipes.

Once established, Norway rats tend to follow the same pathway between their harborage and food and/or water sources. As often as possible, they follow vertical surfaces, which their vibrissae or long whiskers can contact. Runways along vertical surfaces will usually include dark rub marks on the vertical surfaces where their oily fur makes contact. Their runways will be free of debris, and outdoors, the grass will be worn away to the bare soil.

Cultural Control & Preventative Measures. The key to any rat control program is pest identification, sanitation (trash and dumpster management), harborage elimination (good landscape and clutter management practices), and rat-proofing the building (using strong exclusion materials such as mortar patch mix and galvanized steel passage guards). Control is based on the behavioral habits of the Norway rat. Some of the most important things to remember are:

1. Rats defecate somewhat indiscriminately within their territories but mostly where they feed. Rat droppings serve as an indication of their presence and where control efforts should be concentrated. Nontoxic tracking powders (e.g., talcum) can also be used to determine where they are most numerous.
2. Rats will travel 100 to 150 feet for food and/or water along established runways and usually with their vibrissae in contact with vertical surfaces. Look for rub marks and clean runways.



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Professional Control. A Varmet Guard technician will determine where rats are entering the structure and either make recommendations for exclusion or perform the exclusion if contracted to do so. A toxic baiting program may be employed indoors as well as outdoors where rats are active along foundation walls and near burrows. Tamper-resistant bait stations will be used to contain rodenticide tracking powder, if used outside of burrows and structural voids. Large snap traps may be utilized to capture rats if baiting alone is inadequate to eliminate a rat infestation expediently.