



## SUMMIT COUNTY PUBLIC HEALTH

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### NORWAY RAT

**Identification:** The Norway rat (*Rattus norvegicus*) is a stocky burrowing rodent, unintentionally introduced to North America by settlers who arrived on ships from Europe. First introduced into the United States about 1775, this rat has now spread throughout the contiguous 48 states. The Norway rat is found generally at lower elevations but may be found wherever humans live. Also called the brown rat, house rat, barn rat, sewer rat, gray rat, or wharf rat, it is a slightly larger animal than the roof rat. The nose is blunt, the ears are small, close set and do not reach the eyes when pulled down. The tail is scaly, semi-naked and shorter than the head and body combined. When distinguishing the Norway rat from the Roof rat, pull the tail back over the body. The tail of the Roof rat will reach the nose. The tail of the Norway rat will not reach beyond the ears. Adult Norway rats weigh an average of about 1 pound. Their fur is coarse and usually is brownish or reddish-gray above, and whitish-gray on the belly. Blackish individuals occur in some locations.



**Habitat:** Norway rats live in close association with people. They burrow to make nests under buildings and other structures, beneath concrete slabs, along stream banks, around ponds, in garbage dumps, and at other locations where suitable food, water, and shelter are present. On farms they may inhabit barns, granaries, livestock buildings, silos, and kennels. In urban or suburban areas they live in and around residences, in cellars, warehouses, stores, slaughterhouses, docks, and in sewers. Although they can climb, Norway rats tend to inhabit the lower floors of multi-story buildings.

**Food Habits:** Norway rats will eat nearly any type of food. When given a choice, they select a nutritionally balanced diet, choosing fresh, wholesome items over stale or contaminated foods. They prefer cereal grains, meats and fish, nut, and some types of fruit. Rats require 1/2 to 1 ounce of water daily when feeding on dry foods but need less when moist foods are available. Food items in household garbage offer a fairly balanced diet and also satisfy their moisture needs.

**General Biology, Reproduction and Behavior:** Norway rats are primarily nocturnal. They usually become active about dusk, when they begin to seek food and water. Some individuals may be active during daylight hours when the rat population is high, when disturbed (weather change, construction, etc.) or when their food source is threatened.

The territories of most rats are between 50 and 150 feet radius of the nest. In populations where there are many rats and abundant food and shelter, the territories will be towards the lower end of the range. If need be, however, rats will travel 300 feet or more daily to obtain their food and water. In urban areas most rats remain around the buildings and yards which provide their necessities, and unless they are disturbed, they do not move great distances.

Rats have poor eyesight beyond three or four feet, relying more on their hearing and their excellent senses of smell, taste and touch. Norway rats are very sensitive to motion up to 30-50 feet away. They are considered essentially colorblind.

Rats use their keen sense of smell to locate food items and apparently to recognize other rats. Norway rats rely on their sense of smell to recognize the odors of pathways, members of the opposite sex who are ready to mate, differentiate between members of their own colonies and strangers, and to tell if a stranger is a strong or weak individual.

Norway rats use hearing to locate objects to within a few inches. This highly developed sense (combined with their touch sensitivity) can pinpoint someone rolling over in bed to a six inch area. The frequency range of their hearing (50 kilohertz or more) is much higher than that of humans (about 20 kilohertz.)

Norway rats have a highly developed sense of touch due to very sensitive body hairs and whiskers which they use to explore their environment. Much of a rodent's movement in a familiar area relies heavily on the senses of touch and smell to direct it through time-tested movements learned by exploration and knowledge of its home range. Rodents prefer a stationary object on at least one side of them as they travel and thus commonly move along walls, a fact which is very useful when designing a control program.

Their sense of taste is excellent, and they can detect some contaminants in their food at levels as low as 0.5 parts per million. This highly developed taste sensitivity may lead to bait rejection if the rodent baits are contaminated with insecticide odors or other chemicals.

Norway rats usually construct nests in below-ground burrows or at ground level. Nests may be lined with shredded paper, cloth, or other fibrous material.

Litters of 6 to 12 young are born 21 to 23 days after conception. Newborn rats are naked and their eyes are closed, but they grow rapidly. They can eat solid food at 2 1/2 to 3 weeks. They become completely independent at about 3 to 4 weeks and reach reproductive maturity at 3 months of age, sometimes as early as 8 weeks.

Female Norway rats may come into heat every 4 or 5 days, and they may mate within a day after a litter is born. The average female rat has 4 to 6 litters per year and may successfully wean 20 or more offspring annually.

**Elimination:** When eliminating Norway rats, remember that glue boards are not very effective on large rodents. Snap traps and live traps will work. The most effective control method for these rats is the use of weather proof bait blocks.