

Space Invaders

Rats and mice have enjoyed the benefits of man's shelter and food for centuries. Once they find a way in, its like that brother-in-law that won't leave. Only these rodents bring some baggage with them that can cause public health concerns.

The House Mouse

The house mouse (*Mus musculus*) is one of the most frequently encountered rodent pests found near people and buildings. It quickly can establish itself in your home. This mouse is believed to be the second most populous mammalian species on Earth, after *Homo sapiens*. Mice nest in any undisturbed location, often in wall cavities, behind cabinets and in attics and garages. Their nests are made of shredded fibrous material such as cloth or paper.



The house mouse usually weighs no more than one ounce. Its body is 2-3½" long with a tail measuring 3-4". Mice are primarily nocturnal, meaning they are active and feed mostly during the night. They get the water they need from the food they eat but will drink water when they find it. They'll eat many foods, but prefer seeds and cereal grains. On average, a mouse ventures only 10-30 feet from its nest. Mice can jump over 12" high, climb up the sides of buildings, and cross cables and wires. They also swim.

Mice have litters of 3-14 young. The unborn mice develop in 19-21 days. One female can have 5-10 litters per year. The newborn are blind and furless. Females reach sexual maturity at about 6 weeks and males at about 8 weeks, but both can breed as early as 35 days. House mice usually live under a year in the wild.

Two Different Rats

In Northern California two rats commonly invade our homes.

Roof rats (*Rattus rattus*) are usually gray to slightly brown in color. Adults are typically 8 inches long, with a 9 inch long tail. The tail is long, dark, and scaly. Roof rats get their name because they spend about 90% of their time above ground. They live in trees, run on power lines, the tops of fences, and love to set up shop in attics. They live within a range of



300-500 feet, sometimes frequenting several homes in a neighborhood. Like the house mouse, roof rats are also nocturnal. Females have 4-6 litters per year, with 6-8 young per litter. They are fully weaned within a month, and sexually mature in as little as two months. After three months of life, they are independent and on their own. They seldom live more than a year.

The Norway rat (*Rattus norvegicus*) can



grow to twice as large as the roof rat. They have a thicker, heavier body, a shorter tail and a more blunt snout. They are usually more brown in color than roof rats. Norway rats prefer to live at ground level, hence their presence in the sewers. They range 50-150 feet in their search for food and shelter. Females produce 6 to 12 young in each litter and have 4 to 6 litters per year. Like all rats, they have poor vision, and rely primarily upon their sense of smell and their highly specialized senses of feel and balance to survive.

Rodent Damage

As with all rodents, their teeth grow continuously. They gnaw on many different surfaces to wear down their teeth. They can chew through almost any material including masonry, steel, plastic, electric cables, water pipes, etc. posing a threat of flooding or fire.

Rodents urinate, continuously contaminating everywhere they go. A rat



expels up to 5.5 liters of urine per year. Rats produce about 40 droppings per day, mice about 80.

Eliminating Rodents

Cutting off sources of food and water for rodents is the first step towards elimination. Store food, bird seed, pet food, garbage, compost, and recyclables in secure metal, glass, ceramic, or heavy-duty plastic containers with tight-fitting lids. Feed pets at scheduled times. Put unfinished food in the refrigerator. Promptly clean up spills and crumbs. Keep bird feeding areas clean of spilled seed. Move firewood, garbage cans and debris piles away from the house.

Next, entry points need to be identified and sealed off. Poke steel wool or wire mesh into entry holes with a screwdriver. Prune branches away from the roof. Seal openings underneath and behind appliances with latex caulk. Seal gaps around water, gas, and heating pipes, heat registers, air ducts, electrical boxes, and false ceilings.

Trapping

Rats tend to be very shy and cautious animals. When confronted with a new object in their environment, such as a trap, they will often avoid it for days until they are used to its presence in the area. They have poor eyesight so they leave behind a strong pheromone odor telling them where to run. Set traps at night, when mice and rats are most active, and check or remove them in the morning. A dab of crunchy peanut butter on the trigger is an enticing lure. Live trapping with box traps or glue boards may be used for monitoring and for removal. It's better to trap intensively for a few days than to set only a few traps for a long time. Snap traps can be attached to rafters with nails and to pipes with wire. The trigger should snap towards the wall.

Rodenticides

Rodenticides are sold in many different forms, including pellets, powder, blocks, and meal. They are very effective in eliminating domestic rodent pests. If you choose this option, follow the manufacturer's label carefully or work with a professional. Pesticides can be hazardous to children, pets, and wildlife. In addition, animals that eat poisoned mice could be poisoned themselves. Poisoned rodents may die inside walls and subfloors where they cannot easily be removed. Their slow decomposition creates foul odors and attracts other pests, such as flies and beetles.

Handling and Disinfection

While cleaning rodent droppings, urine, or nest materials wear rubber gloves and a face mask with a HEPA filter. Ventilate the area. Don't stir up dust by sweeping or vacuuming. Instead, thoroughly wet contaminated material with a 10% chlorine bleach solution (1 1/2 cups bleach in 1 gallon of water) or household disinfectant. Wipe up the mess with a damp sponge.

Spray dead rodents and nests with disinfectant, then double-bag and dispose of them. Disinfect toys, silverware, or other items that may have been contaminated. Discard contaminated foods, drinks, napkins, paper plates, cups and used clean up materials.

Disease

Both rats and mice carry a number of potentially dangerous diseases, viruses and parasites. These cause a range of illnesses many of which can have serious consequences, most commonly food poisoning.

Hantavirus pulmonary syndrome (HPS) is a deadly disease transmitted by infected rodents through urine, droppings, or saliva. Humans can contract the disease when they breathe in aerosolized virus.

Murine typhus occurs worldwide and is transmitted to humans by the bite of rat fleas.

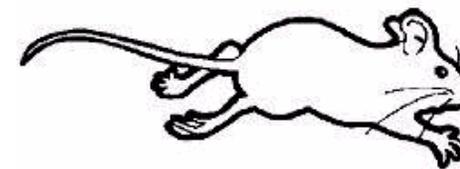
Rat-bite fever (RBF) is a systemic bacterial illness caused by *Streptobacillus moniliformis* that can be acquired through the bite or scratch of a rodent or the ingestion of food or water contaminated with rat feces.

Salmonella causes a typhoid-like disease in mice. In humans *S. typhimurium* does not cause severe disease. The disease is characterized by diarrhea, abdominal cramps, vomiting and nausea, and generally lasts up to 7 days.

Leptospirosis is a bacterial disease that affects humans and animals. Humans become infected through contact with water, food, or soil containing urine from these infected animals.

Eosinophilic meningitis is an infection of the brain. In a complex life cycle between rats, slugs and snails, humans become infected by accident when they eat an infected snail or food that has been contaminated by slugs or snails, particularly salads.

Rats and Mice



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