



VARMANT GUARD®

ENVIRONMENTAL SERVICES INC.



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Common Name: **House mouse**

Scientific Name: **Mus domesticus (previously Mus musculus)**

HOUSE MOUSE



Introduction. The house mouse is the most commonly encountered and economically important of the commensal rodents, the Norway and roof rats being the other two. House mice are more than a nuisance; they damage personal property by gnawing, eat and contaminate stored food, and are of human health importance as disease carriers. It is thought to be of central Asian origin, but is now of worldwide distribution and found throughout the United States.

Recognition. The house mouse adult has a head and body length of 2 1/2 to 3 1/2 inches and a tail length of 2 3/4 to 4 inches. It weighs about 1/2 to 1 ounce, has smooth fur and is usually dust-gray, brownish to dark gray or gray above and light gray or cream colored on the belly. House mice have a pointed muzzle, small eyes, un-grooved incisors, large ears and short, broad feet. The tail is uniformly dark, scaly and semi-naked. Adult droppings are 1/8 to 1/4 inches long, rod-shaped, with pointed ends and containing small hairs (unlike American cockroach droppings which have ridges and lack hairs).

Signs of Infestation.

1. Gnaw marks: New gnawings or holes tend to be rough; whereas, old gnawings are smooth from wear.
2. Droppings: Fresh droppings are dark, soft and moist, whereas old droppings are dull and hard. A house mouse's dropping is about 1/8 to 1/4 inch long, rod shaped, and with pointed ends.



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3. Tracks/footprints: The front foot is 4-toed and the hind print has 5 toes. Fresh tracks are clear and sharp; whereas, old tracks are at least partially obscured by dust.
4. Rub marks around passageways (from oils on hair) are usually less noticeable and smaller in size than those of rats.
5. Burrows: Indoors, mice often nest in various materials such as insulation. If active, burrows are free of dust and cobwebs. The entrance is usually packed with nesting material; rub marks are sometimes visible.
6. Runways: House mice frequently use the same paths, usually along walls, stacked merchandise, etc., and to interior objects. Active runways are free of dust and cobwebs and are littered with fresh droppings. Tracks may or may not be visible.
7. Damaged goods: Seeds, nuts, cereals, granola, candy bars and bread.

Similar Rodents. (1) The juvenile Norway rat (*Rattus norvegicus*) has a blunt nose, large head and large feet (disproportionately large for body size). (2) The deer mouse (*Peromyscus maniculatus*) is very similar in size and weight but has large eyes, large ears, a distinctly bicolor tail (tawny brown above, white underneath and a distinct line evident where the 2 colors meet. It is an insect and seed feeder. (3) The meadow vole (*Microtus pennsylvanicus*) is larger, has a blunt nose, small eyes, small ears, a short hairy tail, and is solid gray or brownish-gray in color. Meadow voles rarely get indoors and never infest the upper levels or structural voids of buildings.

Biology. House mice are prolific breeders. They reach sexual maturity in 35 days. Pregnancy lasts an average of 19 days (range 18 to 21). The young are blind and naked except for vibrissae (long whiskers), and are weaned at about 3 to 4 weeks. The average litter size is 6 (range 5 to 8), with about 8 litters per year, but averaging 30 to 35 weaned per female, per year. Therefore, a female can have a new litter about once every 40 to 50 days. More than 1 litter may be present in the nest at one time. Under ideal conditions, a mated female house mouse can give rise to 36 to 72 (average 48) offspring per year. Under ideal conditions, a mated female house mouse can give rise to 36 to 72 (average 48) offspring per year. Life expectancy is normally less than 1 year, but mice have been known to live as long as 6 years.

Mice have keen senses, except for sight because they cannot see clearly beyond 6 inches and are color blind. They are excellent climbers and can run up most roughened walls. Mice can swim but prefer not to do so. They can jump 12 inches high and can jump down from about 8 feet high without injury. Mice can survive and thrive in cold storage facilities at 14° F. They can run horizontally along pipes, ropes, and wires. A mouse requires about 1/10 ounce of dry food and 1/20 ounce of water (normally obtained from food) each day and produces about 50 droppings each day. Over a 6-month period, a pair of mice will eat about 4 pounds of food, produce



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about 18,000 droppings and void about 12 ounces of urine. The most common way mice transmit disease organisms is by contaminating food with their droppings and/or urine.

The most threatening organism spread by mice is *Salmonella*, a cause of food poisoning, spread via droppings. Other transmittable organisms include tapeworms via dropping, rat-bite fever via bites, infectious jaundice, leptospirosis, and Weil's Disease via urine in food or water, a fungus disease (*Favus*) of the scalp either by direct contact or indirectly via cats, plague and murine typhus via fleas, Rickettsial pox via the mite *Liponyssoides sanguineus* (Hirst), lymphocytic choriomeningitis via droppings, and possibly poliomyelitis (polio). Another problem is house mouse mite dermatitis, which is caused by these mites when they feed on humans. Fortunately, many of these transmissible ailments are not prominent in the United States at the present.

Habits. Mice are very social. Related males and females are compatible, but unrelated male mice are typically aggressive toward one another. Social hierarchies with one male dominating lower-ranking males result in the maintenance of territories, which may include a large number of females as well as lower-ranking males, most of which will be related. All mature mice tend to show aggression towards strangers of either sex that enters their territory, which is marked with urine. Territory size varies but it is usually relatively small. If food and shelter are plentiful, they may not travel more than 4 to 5 feet from their nests.

Mice are inquisitive. During the daily territorial patrol, they will explore anything new or changed, and establish new travel routes if needed. Mice are nibblers and eat only small amount of food at any one time or place. Although mice will eat many kinds of food, seeds are usually preferred. There are 2 main feeding periods, at dusk and just before dawn, with many other mini-feeding times in between. They will sample new foods but return to the old food unless the new food is preferred. Required moisture is normally obtained from their food but they will take free water when available, especially when feeding on high-protein food. When given a choice, they prefer sweetened liquids to plain water.

Their preferred nesting sites are dark, secluded places where there is abundant nesting material nearby and little chance of disturbance. Nesting materials include paper products, cotton, packing materials, wall/attic insulation, fabrics, etc. Mice are nocturnal in habit. They require an opening of greater than 1/4 inch to gain entry to buildings.

Cultural Control & Preventative Measures. The key to any house mouse control program is pest identification, sanitation (trash and dumpster management), harborage elimination (good landscape and clutter management practices), and rodent-proofing the building (using exclusion materials such as mortar patch mix, construction putty, copper gauze and silicone sealer). Control is based on the behavioral habits of the house mouse. Some of the most important things to remember are:

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1. Mice defecate somewhat indiscriminately within their territories but mostly where they feed. Mouse droppings serve as an indication of their presence and where control efforts should be concentrated.
2. Mice will travel 15 to 25 feet (usually less) for food along established runways and usually with their vibrissae in contact with vertical surfaces. Look for rub marks and clean runways.

Professional Control. A Varmant Guard technician will determine where mice may be entering the structure (e.g., gaps larger than 1/4 inch) and either make recommendations for exclusion or perform the exclusion if contracted to do so. A toxic baiting program will be employed indoors (e.g., beneath kitchen sinks, behind large appliances, in attached garages, attics, crawlspaces, basements), and possibly outdoors where mice are active along foundation walls and under decks. Tamper-resistant bait stations will be used to contain rodenticide baits, except in attics. Rodenticide tracking powder may be sparingly used in infested structural voids. Small snap traps may be utilized to capture mice if baiting alone is inadequate to eliminate an infestation expediently.