Rodent Biology

Rats and mice each have unique characteristics. By properly identifying the rodent species, you can select rodent control products and strategies appropriate for that particular species.

Although they are
size as many inse
droppings contain
have pointed end

House Mouse

A family of 6 mice in a cluttered garage c
grow to 50-60 mice in only 90 days.

Droppings have blunt ends

ACTUAL SIZE

SMALLER EARS

SHORTER TAIL

BLUNT NOSE

Norwa
Rat

A Norway rat
can gnaw through
a lead pipe.

Droppings have pointed ends

ACTUAL SIZE

LARGER EARS

Roof R

Extra pads and longe
digits on their paws
enable roof rats to be
excellent climbers.

The SUSPECTS

Norway Rat
" The Burrower"

Roof Rat
" The Climber"

House Mouse
" The Invader"

Scientific Name:	Rattus norvegicus	Rattus rattus	Mus musculus
Color:	Brownish Red	Dark Gray	Black, Dusty Gray
Weight:	10-17 oz.	8 oz.	3/4 oz.
Length: *(including tail)*	12-18 inches	13-17 inches	6-7 inches
Body:	Thick body, blunt nose	Thin body, pointed nose	Small head & body
Sexual Maturity:	2-3 months	2-3 months	1-1 1/2 months
Gestation Period:	23 days	22 days	19 days
No. of Young:	6-12 per litter	6-8 per litter	5-6 per litter
No. of Litters:	Ave. 4-7 per year	Ave. 4-6 per year	Ave. 8 per year
Diet:	Meats, fish, grains, almost anything	Fruits, vegetables seeds, grains	Grains, cereals meats, fish etc.
Daily Food:	1-3 oz. food	1 oz. food	1/10 oz. food
Water Consumption:	1 oz. water	1 oz. water	1/20 oz. water
Length of Adult Life:	18 months	18 months	15-18 months
Feces:	Blunt ends	Pointed ends	Pointed ends

ENEM

Rodent Senses

1. Sight

- Rodents are nearly blind and use their sense of touch for guidance
- Rodents use their limited eyesight to seek darker areas

2. Taste

- Rodents can taste up to 250 parts per billion
- Newborn rodents can taste their mother's diet through her milk and favor those foods when they mature
- Rodents react negatively to foods that made them feel ill – and it only needs to happen once for them to remember
- If deprived of a certain nutrient, rodents learn which foods fill that need and prefer those until that need is met

3. Smell

- Approximately 1% of rat's genes are involved in their sense of smell
- They produce & release pheromones to communicate information with other rodents (i.e. colony status, reproductive behavior, etc.)
- Rodents use their sense of smell to find food

4. Touch

- Rodents' long whiskers, or vibrissae, are located all over the body, but are most prominent on the face. These hairs are used for guidance as they move along walls and other objects. Because of this, rodents rarely travel in open spaces, so place bait and/or traps accordingly.
- Rodents have sensory pads on their feet so metal bait stations should be avoided as they could become too hot or cold

5. Sound

- Rodents can communicate with each other through ultrasonic frequencies (in the form of squeaks, clicks and whines) that humans cannot perceive
- Rodents aren't great at pinpointing the location based on sound

6. Kinesthetic Sense: Detects bodily position, weight, or movement of the muscles, tendons, and joints

- Rodents display memorized muscle movement in which they essentially memorize their surroundings
- They create memory of the environment and how to move through it without looking
- Develops when the rodent gets very comfortable and used to its environment

Rat teeth

- Rats can chew through almost anything - their teeth are very hard and can bite six times per second
- Incisor teeth grow at a rate of 5 inches per year
- Rats can exert a force up to 7,000 pounds per square inch

PROFILE

General Behavior

Rodents are nocturnal

- Mode of self defense for rodents as most of their enemies are inactive during night hours
- Rodents typically feed at night; daytime activity is a sign of a large infestation

Feeding habits

- Commensal rodents are omnivorous and opportunistic foragers; they eat a variety of food items (grains, meats, fish, fruits, etc.) and take advantage of the food items they encounter
- Rats hoard enough food to last them weeks
- Rodents will hoard food in places where they feel comfortable to feed

Travel behavior

- Corners are used for grooming, eating & nesting
- Runways are used for following lines & pheromone trails

Hierarchy

- There is a hierarchy that rodents develop where the more dominant rodents get to feed first and receive the best nesting areas. If abundant food and harborage exist, less dominant rodents can also survive, but are likely to be seen feeding during the day.

Did you know?

Rodents are the second most successful mammals on earth:

No. 1. **Homo sapiens**
No. 2. **House Mouse**
No. 3. **Norway Rat**

Mice are:

- Prevalant and exist in all climates
- Found both indoors and out
- Curious
- Nervous nibblers
- Likely to groom often

Rats are:

- Neophobic (they tend to dislike anything new)
- Mammals that will consume a lot of food once they feel comfortable
- Likely to groom once or twice a day, in their burrow
- Norway rats are natural burrowers and will burrow near their food and water supply in areas that provide harborage
- Roof rats are excellent climbers and will nest in high places

Capabilities of Rats

- From a standstill, rats can vertically jump nearly 2 ft. When running, they can jump horizontally 3-5 ft. on average

ELIMINATE Conducive Condition

Eliminate rodent
shelter & harbor

Harborage Reduction

- Eliminate the rodents' food and water source.
- Identify harborage areas and recommend to the customer how to eliminate them indoors and outdoors.
- Keep grass and vegetation cut short; tall grass protects rodents from predators.
- Keep overhanging trees cut back, overhanging trees provide dark shadowy areas where rodents feel safe and protected.
- Piles of debris should be removed from the exterior of the structure. Garbage and clutter around the perimeter provide food harborage areas for rodents.
- A 2-foot wide barrier of cement or crushed rock should be established around the structure.

Improve Sanitation Practices

Rodents are opportunistic feeders who will consume any food discarded by humans. Dumpsters are one of the most common rodent problem zones around commercial establishments.

Dumpsters should...

- Be large enough to prevent spillovers

RODENT PROOFING

Identify areas in need of rodent proofing during the inspection process. Do not proceed with rodent proofing until knock-down of the rodents has been achieved.

Build Rodents Out

- Close all holes in exterior & interior walls.
- Permit no openings over 1/4", particularly around doors & windows.
- Install self-closing devices on frequently used doors.
- Install vinyl, rubber or bristle sweep seals under garage doors to eliminate any gaps.
- Seals around pipes, drains and vents need to be tight.
- Chimneys need to be capped and in good condition.

1/2"

Rats can fit through a 1/2 inch opening, or the diameter of a thumb

1/4"

Mice can fit through a 1/4 inch opening, or the diameter of a little finger

Recommended Rodent Proofing Materials

- Copper Mesh
- Hardware Cloth
  - 19 gauge or heavier
- Perforated Metal
  - 24 gauge thickness
- Sheet Metal (galvanized)
  - 26 gauge thickness or heavier
- Cement Mortar
  - 1:3 mixture or richer