All About Rats

By DoMyOwn staff

All about the Different Types of Rats, Rat Life Cycle, Identification, Facts & More

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What are Rats?

Rats are the vertebrate masters of adaptation. A highly intelligent rodent that is capable of remembering each path it takes, carrying for others, and working in teams, the rat is one of the most well-known invasive species in the world. They inhabit every ecosystem in the world. They are master scavengers and will eat any food and water resource they can.

The Rattus genus has 64 species worldwide that make up a massive, uncountable population. Rats are from the order Rodentia which are characterized by an uncontrollable urge to gnaw. This is because the rats and others in this order have a pair of upper and lower teeth that grow nonstop, and the gnawing process files back the teeth to a manageable length. If they don't gnaw frequently, the teeth will grow until they starve to death or are too weak to flee a predator.

Rat Taxonomy

- Kingdom: Animalia
  - This is kingdom of all animals on the planet or the multicellular complex organism group
- Phylum: Chordata
  - This is the phylum encompasses the animals that have a bilateral body plan, and at some stage of life has a notochord, dorsal neural tube, pharyngeal slits, post anal tail, and a endostyle
- Subphylum: Vertebrata
  - These animals all have backbones
- Class: Mammalia
  - Means that the animals here have hair, sweat glands, and mammillary glands
- Order: Rodentia
  - This order is characterized by having a pair of constantly developing incisors in each of the upper and lower jaws
  - Known as the gnawing animals, with a constant need to gnaw to keep teeth short.
- Superfamily: Muroidea
- Family: Muridae
- Subfamily: Murinae
- Genus: Rattus

Rat History

Where Do Rats Come From?

The rat phylogeny and history dates back to over thirteen million years ago in the family Murinae. The family continued to slightly transform over several millions of years until major speciation event occurred with the family the first at around 3 million years. At this point in time, speciation gave rise to the *Rattus* genus or the Rats. The *Rattus* genus then began to split once again into two distinct species *Rattus norvegicus* and *Rattus rattus.* The species Rattus norvegicus is known as the Norway rat, and Rattus rattus being the Roof rat.

The two established distinct footholds in the world. Rats are reportedly the most annoying rodent pest in North America. They can be found anywhere from homes, buildings, sewers, gardens, harbors, boats, and any other form of shelter they can exploit.

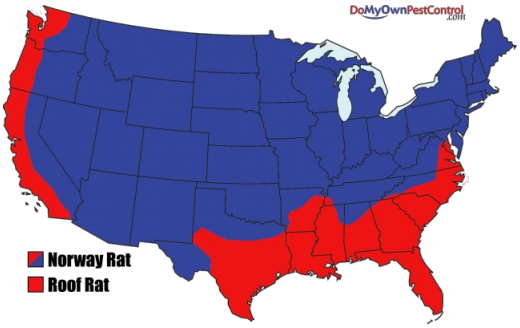
The roof rat species is from the Asian tropics where they spread into the European colonies that eventually spread throughout

the world through various trade routes and explorations.

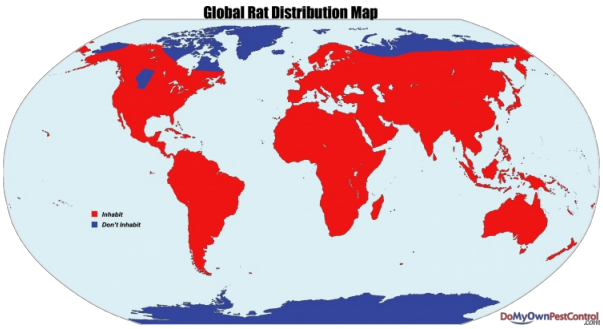
The common house rats are known for taking care of one another, sleeping together, and developing a group to work together. The rats are like wolves they establish leaders and places of rank in the pack. There is always an alpha rat in each pack.

Rat Map

Rat Distribution Map (Rat Locations) in the U.S.



Rat Distribution Map (Rat Locations) Globally



Rats are found in all of the contiguous 48 states. They are also known to inhabit every land mass. They are known to be found at every departure point and various research stations in Antarctica. The rat species is the most prolific invasive species worldwide. There are estimated reports that state there are over 5-6 billion rats, if not more, worldwide. There is said to be over two billion in China alone. In Britain, the rat population matches the amount of people. The French report estimates four rats to one person, and a population of rats at eight million. The true number of rats worldwide is expanding too swiftly too count and is difficult to determine.

The roof rat prefers warmer climates regions. This allows the Norway Rat to dominate the other climate regions. The rats can be found throughout the U.S. but it is more common to find them in their preferred regions as shown in the figure above.

Rat Morphology

Comparable Rat Morphology Between Species

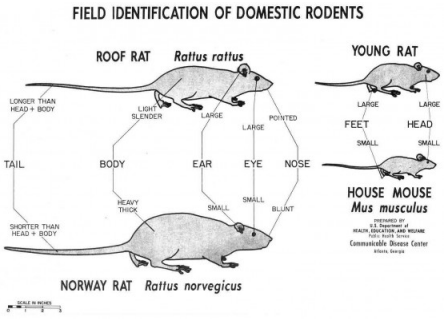


Image source: city-data.com

The two species have many comparable and different qualities. The key to telling the difference can be narrowed down to easily to five features the nose, eyes, ears, body, and tail.

- **Nose**:
  - Thin and pointed in the Roof rat
  - Thick and blunt in the Norway rat
- **Eyes**:
  - Large eyes for the Roof rat
  - Small eyes for the Norway rat
- **Ears**:
  - Large ears on the Roof rat

    - Small ears on the Norway rat
- **Body**:
    - Thin and slender in the Roof rat
    - Thick and bulky in the Norway rat
- **Tail**:
    - Longer than the head & body in Roof rats
    - Shorter than the head & body in Norway rats

The Norway rat or *Rattus norvegieus* is the larger of the two. Norway rats are light brown in color, stocky, and borrowing capable rodents. They are found in homes or buildings on the ground level, basements, or in crawl spaces. This species is common to all 48 contiguous states.

As for the other species the Roof rat is the smaller of the two popular species. Roof rats or Rattus rattus are black or dark brown in color, and have long tails as long as their body. The species likes to climb and nest outside in trees, shrubs, bushes, and any high structures. In the home they can act the same way choosing to nest in the walls an attic spaces.

- Can be located in or around homes/buildings, farms/barns, gardens small and large, and also open fields
- They can enter homes through the tiniest of holes
- Large adult rats can squeeze through quarter size holes.
    - So the younger or smaller they are they can enter in any size holes
        - It would be important to seal any and all openings an holes
- Wild rats actually like to live in colonies

Rat Anatomy

Rats are just like humans and other mammal species when it comes to having a well-developed anatomy. They come complete with the key systems like digestive system, cardiovascular system, nervous system, endocrine system, and reproductive system. They have complete and sharp sensory organs. The ears, nose, eyes, brain, tail and other nervous system organs are modified to be clever and swift. Rats are bilaterally symmetrical.

They come standard like most mammals with teeth, mouth, nose, esophagus, trachea, heart, aortic arch, lungs, diaphragm, liver, stomach, spleen, pancreas, pyloric sphincter, bile duct, duodenum, jejunum, ileum, cecum, descending colon, rectum, and anus. They also have hair, sweat glands, and mammillary glands which they use to feed the live born young. These features classify the rodents in the class with the most evolved class of animals known as the mammalians.

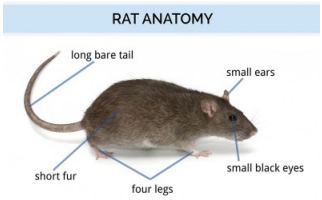


Image source: mycoplasma.weebly.com

Types of Rats

House Rats:

Norway Rat (*Rattus norvegieus*)

- AKA: The Brown Rat
- Life span is commonly 2-4 years in captivity is longer.
- Brown or mixed dark grey color, and the underside a lighter brown to light gray
- Range in sizes 4-10 inches or longer
- The tail matches the length of the body
- Full grown males are capable of weighing in at around 10-18 ounces
- Females are usually around 8-12 ounces
- Blunt nose
- Ears are small and cannot reach eyes
- Nocturnal dweller and great swimmer not to be confused with the muskrat.
- They are also known for being a burrowing species, and have elaborately made tunnel systems.
- 12 teats on female

Roof Rat (*Rattus rattus*)

- AKA: The House Rat, Ship Rat, or Black Rat
- 5-10 ounces in weight
- Body color can be black, light brown, dark brown, and mixed
- Belly can be all white, all gray, or all off white/light tan brown
- Ears are large enough to cover eyes
- Pointed nose
- Tail same length as body
- 10 teats on female

Other Rats

Rice Rats**: (***Oryzomys)*

These rats are well known for their nearly hairless tails, ability to swim, and resemblance to the house mouse. The species is predominately around water.

Coues's Rat (*Oryzomys couesi)*

- 5 to 5.5 inches head to body length
- Tail is around 5 to 5.5 inches in length
- The back is grizzled warm brown color
- Color of the sides are a yellow brown mix
- The belly a pale orange or beige mixed color
- Tail is same length as the body, nearly naked, and bicolor.
- Found commonly in southern Texas

Marsh Rice Rat (*Oryzomys palustris)*

- 4 to 4.75 inches head to body length
- Tail is around 4 to 4.75 inches in length
- Colors on the back are dark brown, black, gray brown, and a yellow brown
- The sides are a yellow brown or tawny
- Tail is same length as the body, nearly naked, and bicolor.
- Found commonly in southern southern New Jersey, Missouri, and southern Texas

Cotton Rats: (*Sigmodon)*

The cotton rats are a chunky, rounded nosed, short tail built rodent similar to a vole. They love grasslands and are active throughout the day.

Hispid Cotton Rat (*Sigmodon hispidus)*

- 5.5 to 6 inches head to body length
- Tail is around 3.5 to 4 inches in length
- The back is a grizzled dark brown and beige mix
- Overall appearance can be a black or dark brown
- The rats have a grayish white belly
- Rats have
- The tail is faintly bicolored dark on the top lighter on the bottom, and shorter than the body
- Found commonly in Arizona, California, southeastern and south-central United States

Yellow-Nosed Cotton Rat (*Sigmodon arizonae)*

- 4.5 to 5 inches head to body length
- Tail is around 3.5 to 4 inches in length
- The back is grizzled dark brown
- Color of the sides are a paler brown
- The belly is a white or cream color
- Tail is smaller than the body and bicolored
- Found commonly in southeastern Arizona, southwest Texas, and northern Mexico

Tawny-Bellied Cotton Rat (*Sigmodon fulviventer)*

- 5 inches head to body length
- Tail is around 3.5 to 3.75 inches in length
- The back is black and peppered with cream white hairs
- Color of the sides are a paler
- The belly a pale orange color
- Tail is same length as the body, nearly naked, and bicolor.
- Found commonly in southeastern Arizona, southwestern Texas, and western Mexico

Kangaroo Rats: (*Dipodomys*)

These cute little rodents are possibly the most attractive and distinct species characterized by silky golden fur, large eyes, white stripes or markings, and long furry crested tails. The kangaroo rats cannot be mistaken to be any other rodent relative. The kangaroo mouse is the only closest resembling cousin of the rodent order.

Ord's Kangaroo Rat (*Dipodomys ordii*)

- 3.5 to 5 inches head to body length
- Tail is around 5 to 6 inches in length
- Colors can vary from dark gray, gray-tan mix, brown, or light orange.
- The sides are characterized by a light stripe; light tan or yellow color with a white belly
- They also have white spots above and below the eyes
- Also have white spots behind the ears
- Furry tail is characterized by upper and lower tail stripes
- The tip of the tail is a black color

- 1/3 of the tail is crested
- Key difference between other species is it has 5 toes on the hind feet
- Found throughout the Midwest and central United States. Texas, Nevada, California, Arizona, New Mexico, Oklahoma, Washington, Seattle, and the plains states.

Merriam's Kangaroo Rat (*Dipodomys merriami)*

- 3.5 to 4 inches head to body length
- Smaller species
- Tail is around 4.5 to 6 inches in length
- Colors can vary on the back from dark brown, gray brown
- The colors of the rat often vary with the soil of the location it is found
- The sides are characterized by yellow-orange, tan, and gray-yellow colors
- They belly is light white to a cream color , and is most often white
- The rats also have white spots above and below the eyes
- Also have white spots behind the ears
- The species has a shorter furry tail is characterized by upper and lower dark stripes, grizzled with white.
- The tail is also primarily crested over ½ of its length
- It has 4 toes on the hind feet
- Found in south California, Nevada, west Texas, south New Mexico, and into north Mexico

Gulf Coast Kangaroo Rat (*Dipodomys compactus*)

- 4 to 4.25 inches head to body length
- Tail is around 3 to 4.75 inches in length
- Relatively shorter tail than other species
- Colors can vary from dark gray, gray-tan mix, or brown
- The sides are characterized by a light stripe; light tan or yellow color with a white belly
- They also have white spots above and below the eyes
- Also have white spots behind the ears
- Furry tail is characterized by upper and lower tail stripes
- The tip of the tail is a black color
- 1/3 of the tail is crested
- Key difference between other species is it has 5 toes on the hind feet
- Found in southeast Texas

Chisel-Toothed Kangaroo Rat (*Dipodomys microps*)

- 4 to 4.25 inches head to body length
- Tail is around 6 to 6.5 inches in length
- Colors can vary on the back from pale sandy brown, pale tan, pale yellow, or gray-brown mix
- They also have light to heavy clack grizzle with sides that are yellow/tan-gray mixture, and white belly
- Prominent white spots at the base of whiskers, above eyes and behind ears.
- Ears are bicolored
- Tail is a brown color on the top & bottom
- The tail has also a white stripe in the middle on each side
- Tip of the tail is a dark brown or blackish color with a touch of white hairs at the end
- This rats feet are also white on the top
- Key difference between other species is it has 5 toes on the hind feet

Panamint Kangaroo Rat (*Dipodomys panamintinus*)

- 4 to 4.75 inches head to body length
- Tail is around 6 to 7 inches in length
- Colors can vary on the back from dark brown, gray brown,
- The sides are characterized by yellow-orange, tan, and gray-yellow colors
- The belly is light white to a cream color colored, and is most often it is white
- The rats also have white spots above and below the eyes
- Also have white spots behind the ears
- The species has a long furry tail is characterized by upper and lower dark stripes, grizzled with white.
- The tip of the tail or tuft is a dark brown to black color with white spots at the tail
- Key difference between other species is it has 5 toes on the hind feet
- Found in eastern California, and western Nevada

Banner-Tailed Kangaroo Rat (*Dipodomys spectabilis*)

- 5 to 5.75 inches head to body length
- Tail is around 7 to 7.25 inches in length
- Noticed best by being large and strikingly marked
- Colors on the back are dark gray brown mix, sides a faded orange, and belly white
- There are white spots above the eyes, on cheeks, and just below the ears
- Tail is long, striped half the length of the tail, all black, and a white tip
- It has 4 toes on the hind feet
- Found commonly in Arizona, New Mexico, and Texas

California Kangaroo Rat (*Dipodomys californicus*)

- 4 to 5 inches head to body length

- Tail is around 6 to 7.5 inches in length
- This species is fairly large and darker colored
- Colors of this species can be dark gray or orange-brown with irregular grayish grizzle
- The sides are paler orange-brown, belly, and rear line are white
- There is a white spot above the eye, cheeks are paler color, small spot below ear, and no white above the ear like other species
- This species has 4 toes on the hind feet
- The tail of this rat has broad black stripes with thin white stripes, and the tip of the tail is white
- Commonly found in southern Oregon and northern California

Heermann's Kangaroo Rat (*Dipodomys heermanni*)

- 4 to 4.5 inches head to body length
- Tail is around 6.5 to 7 inches in length
- This species is best known as medium sized in comparison
- Colors of this species on the back can be yellow gray mix, yellow brown mix, and a dark blackish brown mix
- The sides are dull tan, yellow, orange brown, or dark orange
- The belly of this species is white
- There are faint spots around the eyes, and behind the ears
- This species has 5 toes on the hind feet
- The tail of this rat is long with dark stripes and light stripes
- The tip of the tail is black
- Commonly found in southern Oregon and northern California

Ord's Kangaroo Rat (*Dipodomys ordii*)

- 4 to 4.75 inches head to body length
- Tail is around 4.5 to 6 inches in length
- Colors can vary on the back from dark brown, gray brown,
- The sides are characterized by yellow-orange, tan, and gray-yellow colors
- They belly is light white to a cream color colored, and is most often it is white
- The rats also have white spots above and below the eyes
- Also have white spots behind the ears
- The species has a shorter furry tail characterized by upper and lower dark stripes, grizzled with white.
- The tip of the tail, or tuft, is a dark brown to black color with white spots at the tail
- Key difference between other species is it has 4 toes on the hind feet

Texas Kangaroo Rat (*Dipodomys elator*)

- 4 to 4.75 inches head to body length
- Tail is around 7 to 7.75 inches in length
- The rat has a dark brown, tan brown, or yellow brown back
- The sides of the rat are a yellow-orange or gray yellow, and the belly is white
- Rat also has small white spots above and below the eyes
- 2/3 of the tail is striped gray brown above and below
- It is all black with a white tip the last 1/3
- It has 4 toes on the hind feet
- Found in northern Texas and southwestern Oklahoma
- The species is also threatened, and protected by Texas parks and wildlife

Stephens's Kangaroo Rat (*Dipodomys stephensi*)

- 4 to 4.50 inches head to body length
- Tail is around 6 to 6.5 inches in length
- Fairly large species of the Kangaroo Rats
- Colors can vary on the back from dark brown, gray brown,
- The sides are characterized by yellow-orange, tan, and gray-yellow colors
- The belly region is white
- The rats also have white spots above and below the eyes
- Also have white spots behind the ears
- The species has a furry tail is characterized by a long black crest
- The tip of the tail or tuft is a dark brown to black color with white spots at the tail
- It has 5 toes on the hind feet
- Found in southwest California
- This species is endangered
- Protected by the USFWS

Narrow-Faced Kangaroo Rat (*Dipodomys venustus)*

- 4 to 5 inches head to body length
- Tail is around 7 to 7.5 inches in length
- Colors can vary on the back from dark-gray brown or gray brown
- The sides are orange brown or orange tan mix color
- The belly region is white
- The rats also have white spots above the eyes
- Also have tiny white spots behind the ears
- The species has a furry tail is characterized by a long black crest

- The tip of the tail or tuft is a dark brown to black color with white spots at the tail
- It has 5 toes on the hind feet
- Range is found in southwest California

Big-eared Kangaroo Rat (*Dipodomys venustus* (subspecies) *elephantinus*)

- This species is considered to be a separate species from the*venustus*
- 4 to 5 inches head to body length
- Tail is around 7 to 7.5 inches in length
- Colors can vary on the back from dark-gray brown or gray brown
- The sides are orange brown or orange tan mix color
- The belly region is white
- The rats also have white spots above the eyes
- Also have tiny white spots behind the ears
- The species has a furry tail is characterized by a long black crest
- The tip of the tail or tuft is a dark brown to black color with white spots at the tail
- It has 5 toes on the hind feet
- Range is found in southwest California

Agile Kangaroo Rat (*Dipodomys agilis)*

- 4 to 4.75 inches head to body length
- Tail is around 6 to 7 inches in length
- Fairly large, and has longer ears that the Stephens's Kangaroo Rat
- Color characteristics for this rat are a dark reddish brown, sides orange, and a white belly
- The rats also have white spots above and below the eyes
- Also have white spots behind the ears
- The species has a furry tail is characterized by a long black crest
- The tip of the tail or tuft is a dark brown to black color with white spots at the tail
- It has 5 toes on the hind feet
- Commonly found in southern California

Dulzura Kangaroo Rat (*Dipodomys simulans)*

- The Dulzura and Agile Kangaroo rats are closely related
- 4 to 4.50 inches head to body length
- Tail is around 6 to 6.5 inches in length
- Ears relatively large in comparison to other species
- Colors can vary on the back from dark brown, gray brown
- The sides are characterized by yellow-orange, tan, and gray-yellow colors
- The belly region is white
- The rats also have white spots above and below the eyes
- Also have white spots behind the ears
- The species has a furry tail is characterized by a long black crest
- The tip of the tail or tuft is a dark brown to black color with white spots at the tail
- It has 5 toes on the hind feet
- Commonly found in southern California and Baja California

San Joaquin Kangaroo Rat (*Dipodomys nitratoides*)

- AKA: The Fresno Kangaroo Rat
- 3 to 4 inches head to body length
- Tail is around 4.5 to 5.5 inches in length
- Smaller species of Kangaroo Rat
- Colors on the back are gray-brown, faint or dull yellow, orange-brown
- The sides are dull orange to orange tan mixture or ocher
- The belly of the rat is white
- Small white spots are found around the eyes, and at the base of the ears
- Tail is long with a pale brown stripe down the middle, and white under the tip
- There is a dark brown crest that proceed to the white tip
- It has 4 toes on the hind feet

Desert Kangaroo Rat (*Dipodomys deserti*)

- 5 to 5.25 inches head to body length
- Tail is around 7 to 7.75 inches in length
- Fairly large, and very pale
- Colors on the back are pale sandy brown, belly and lower sides white.
- White spots are present around the eye and ear
- Ears are a pinkish color
- Tail is long with a pale brown stripe down the middle, and white under the tip
- There is a dark brown crest that proceed to the white tip
- It has 4 toes on the hind feet
- Found commonly in Nevada, southeast California, Arizona, and northeast Mexico

Giant Kangaroo Rat (*Dipodomys ingens*)

- This species is the largest Kangaroo rat

- 5.5 to 6 inches head to body length
- Tail is around 7 to 7.25 inches in length
- The colors on the back are yellow gray mixture, sides are tan to a sandy yellow, and belly is white.
- White spots are found around the eyes and behind the ears
- Tail is long the tip is black with intermittent white
- It has 5 toes on the hind feet
- Found commonly in southwest San Joaquin Valley California
- This species is endangered and protected by the USFWS
- The species habitat is being threatened by agriculture and petroleum development.

Woodrats:

These rats span from the family Neotoma. They resemble larger versions of deer mice. The difference between woodrats and house rats is that they are well-haired and have a bicolored tail. This nocturnal or cloudy rainy day species likes to forage in the cover of darkness like the rest of its relatives. The woodrats create large nests or large houses of sticks characterized by all sorts of junk. This is where the term “pack rat” comes from, and they fit the description. The woodrat is also a solitary species not known for large groups.

Eastern Woodrat (*Neotoma floridana)*

- 8.5 to 9 inches head to body length
- Tail is around 6 to 6.25 inches in length
- The colors on the back are yellow gray mixture, and sides are tan to a sandy yellow
- The base of the throat or neck down under the belly are white
- The ears are large, and whiskers are long and thick
- The tops of the feet are white
- Tail is moderately haired with bare skin or scales present
- Found in Nebraska, eastern Colorado, southern North Carolina, eastern Texas, and Florida.
- The isolated population in Key Largo, Florida is endangered and protected by the USFWS known as the Key Largo Woodrat (*Neotoma floridana smalli)*

Eastern White-throated Woodrat (*Neotoma leucodon)*

- Studies in mitonchiondrial DNA have separated the two White-throated woodrats that are separated by the Rio Grande in New Mexico and Texas.
- 6 to 7 inches head to body length
- Tail is around 5.5 to 6.25 inches in length
- The colors on the back are yellow gray mixture sometimes darker
- Sides are faded or washed beige
- The throat, chin, chest, and belly is white with a slight mix of gray
- Tail is shorter than the body, bicolored, and has short hair on it
- This species is found commonly in southeast Colorado, eastern New Mexico, and west to Rio Grande

Allegheny Woodrat (*Neotoma magister)*

- This woodrat has the closest resemblance to the House Rat and is often confused with it.
- 8 to 8.75 inches head to body length
- Tail is around 6 to 6.5 inches in length
- The colors on the back are dark brown to black, the sides are light brown or beige
- The base of the throat or neck down under the belly are white
- The ears are large, and whiskers are long and thick
- The tops of the feet are white
- Tail is moderately haired dark brown top and bottom is white
- Found commonly in the Appalachian Mountains, Pennsylvania, northeast New England, New Jersey, north Alabama, and Tennessee

Desert Woodrat (*Neotoma lepida)*

- 5.5 to 6.5 inches head to body length
- Tail is around 5 to 5.5 inches in length
- The colors on the back are gray to a gray brown mixture
- Sides are a pale orange or tan color
- The belly is white to an off white color
- Tail is shorter than the body and covered with short fur
- This species is found commonly in southeastern Washington, southwestern Idaho, Utah, Nevada, California, and Baja California

Southern Plains Woodrat (*Neotoma micropus)*

- 8 to 8.5 inches head to body length
- Tail is around 5.5 to 6 inches in length
- Large rat weight around ¾ or more of a pound
- The colors on the back and side are steel gray, blue gray, and with a white belly
- The base of throat, neck, and chest are white.
- Gray at the base of the belly
- Tail is shorter than head & body, bicolored, and reasonably haired.
- Range is through southeast Colorado, southwest Kansas, New Mexico, Texas, and northeast Mexico.

Arizona Woodrat (*Neotoma devia)*

- Known to be strikingly similar to the Desert Woodrat
- 6 to 6.5 inches head to body length
- Tail is around 5 to 5.25 inches in length
- The colors on the back are a more pale beige orange mixture with a dark grizzle
- The color of the species can vary depending on the habitats color
- Sides are faded or washed beige
- The belly is a pale orange or creamy color
- Tail is shorter than the body, bicolored, and has short hair on it
- This species is found commonly in western Colorado, Utah, western Arizona, and northern Sonora, Mexico

Stephens's Woodrat (*Neotoma stephensi)*

- Fairly small
- 6 to 6.5 inches Head to body length
- Tail is around 5 to 5.25 inches in length
- The colors on the back are a buffy orange with a dark gray grizzle
- Rats belly is a pale orange or cream color
- Fur on this rat is thick and soft
- The fur on the throat to the base is usually a gray white and sometimes white at the base
- Tail is shorter than the body, bicolored, thickly haired almost bushy
- This species is found commonly in southern Utah, Arizona, and western New Mexico

Bushy-tailed Woodrat (*Neotoma cinerea)*

- Is much larger than a close look alike the Stephens's Woodrat
- 6 to 7 inches Head to body length
- Tail is around 5.5 to 6.25 inches in length
- The colors on the back are faded orange tan to a dark gray with a dark grizzle
- Rats belly is a pale orange or cream color
- Fur on this rat is thick and soft
- The fur on the throat to the base is usually a gray white and sometimes white at the base
- Tail is shorter than the body, bicolored, thickly haired almost bushy, but tapers from base to tip so to make the tail more bushy in appearance

Mexican Woodrat (*Neotoma mexicana)*

- Relatively small species
- 6 to 7 inches Head to body length
- Tail is around 5 to 5.5 inches in length
- The colors on the back are a yellow gray mixture
- The sides are a washed yellow orange and the belly is white
- Tail is shorter than the body, bicolored, and has short hair on it
- This species is found commonly in Colorado, Utah, Arizona, and Texas

Dusky-footed Woodrat (*Neotoma fucipes)*

- Large and dark
- 8 to 8.25 inches Head to body length
- Tail is around 7 to 7.75 inches in length
- The colors on the back are dark brown
- The sides are a brown or orange brown mixed color and the belly is white
- Tail is lightly haired, shorter than the body, and all dark
- This species is found commonly in Colorado, Utah, Arizona, and Texas

Western White-Throated Woodrat (*Neotoma albigula)*

- 6 to 7 inches Head to body length
- Tail is around 5.5 to 6.25 inches in length
- The colors on the back are yellow gray mixture
- Sides are faded or washed beige
- The throat, chin, chest, and belly is white with a slight mix of gray
- Tail is shorter than the body, bicolored, and has short hair on it
- This species is found commonly in southwestern Colorado, southern Utah, south California, and western New Mexico

Big-eared Woodrat (*Neotoma macrotis)*

- Similar to the Dusky-footed woodrat but the species are separated by skull morphology
- 8 to 8.25 inches Head to body length
- Tail is around 7 to 7.75 inches in length
- The colors on the back are dark brown
- The sides are a brown or orange brown mixed color and the belly is white
- Tail is lightly haired, shorter than the body, and all dark
- This species is found commonly in Colorado, Utah, Arizona, and Texas

Rat Reproduction

The rat is capable of having an average of 3 to 8 young every litter. The offspring are born around 20-21 days after conception. They become adults in as little as 5 to 6 weeks.

Norway rats are ground burrowers, so they will nest deep in the underground channels they have created. The average female Norway rat has 4 to 6 liters per year and can successfully wean 20 or more offspring annually.

Roof rats prefer to nest in locations off the ground and rarely dig burrows for living quarters if above-ground sites exist. The average number of litters a female roof rat has per year depends on many factors, but generally it is 3 to 5 with 3 to 8 young in each litter.

The newborn rats are usually given birth to around 20-25 days after reproduction occurs. The rat babies are referred to as pups, kittens or pinkies. The young rat pups are then raised in a nest made by the adult rats. Each rat pup is born hairless and eyes shut for a short time period. The litter can have up to eight or nine pups. The rat pups grow extremely quick within the first five to eight days. The following week the pups begin to open their eyes. The pups will nurse up to four to five weeks old. The rat pups then begin to explore the nesting area and search for food. In the following weeks the pups are weaned and begin eating mainly solid food. At this time in development the pups have learned what is suitable to eat by mimicking the mother's actions and habitats. The young rats are usually more independent at one month old but will linger around for at least another month or two. The young rats at 3 months are completely grown and independent. Not only are the rats full grown but reproductively mature as well. The new adult rats will breed and the season to do so varies from locations. Rats in the tropics and semi tropics regions are capable of mating nonstop and throughout the year. Breeding season is most common during the fall and spring seasons.

Reproduction happens anywhere from three to five times a year, and varies between habitats. The number of litters a female can have depends on if the area has suitable habitat needs in which the rats can thrive. The factors that make up a habitat are climatic range, food sources, and number of total rat populations in the area. The last major factor that affects litters is how old the female is. On average the female rat will have anywhere from 3-5 litters in a single year.

Rat Life Cycle

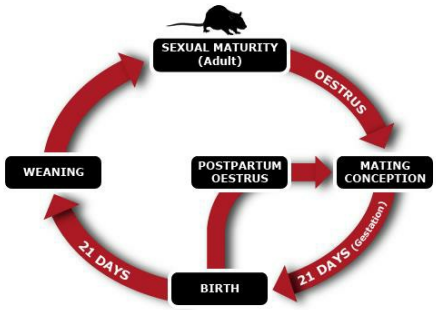


Image source: 007pestcontrol.co.uk

- The offspring are born around 20-21 days after conception
- The rat pups are nursed for a month in a half and weaned
- Independence and sexual maturity for the rat is around three months
- Reproduction can occur three to five times a year
- Rats can live up to 8 years or longer

Rat Habits and Rat Behavior

One of the main reasons many people have problems with rats, and therefore need toget rid of rats, is because of the inherent nature rats have to overtake shelters they did not make themselves. Since rats are predominately a nocturnal species, they take shelter during the day hours in man-made shelters, burrows, homes, stacks of lumber, trees, or untended piles of debris.

Rats will eat anything available to them from seed, fruits, vegetables, nuts, grains, insects, worms, spiders, and various meats. Rat activity begins in the cover of darkness or cloudy dark conditions. All of the rodent species prefer to forage in the cover of night fall. They will work together to move large quantities of food to safe locations to be eaten. Rats will also collect and store the spoils of the foraging trips. They will hoard numerous amounts of trash and solid foods to be eaten at a later date. House rats will store these items in wood piles, wall voids, attics, boxes, and other coverings where they feel safe.

Roof rats will trail over 100 meters to find food from their nests. They will also stay with other rats on their foraging journey to exploit certain food sources. They will travel from tree to tree, and even climb power lines or fence lines to travel safely. They will make nests in trees near gardens or near the food sources they value. They favor palm trees and other high elevated locations. Roof rats are smart and will avoid changes to their environment and are scared of them. They are neophobic, which is the fear of new things or experiences. Talk about creatures of habit. Neophobia is more distinct in roof rats than in the close cousin Norway rats. Some roof rat packs will even modify trails and routes to avoid frequently disturbed paths and areas.

The roof rat's eating habits resemble the diet of tree squirrels. The diet persists of a variety of fruits and nuts. Though the rats like fruits and nuts they will also eat any vegetative part of ornamental and native plants.

Norway rats are omnivorous like most rodents, but will eat anything to survive. They like to forage in food packaging plants and storage facilities. The only thing different from the roof rat is that its diet is far less controlled and they will eat any food that they can get ahold of. Though they may have preferences, it varies from pack to pack. They enjoy eating feed for domestic

animals like, chickens, dogs, cats, horses, cattle, and swine. There is often a draw to dog food for most rats, so pet food and outdoor pets attract Norway rats.

Roof rats like to have a steady source of water and fresh fruits and nuts. The roof rats like to establish homes near these resources making it common to find them in those conditions.

Norway rats

- Burrowing causes damage building foundations
    - Also gaining them access to gnaw on all types of secure underground materials like copper, lead, plastic, and wood.

Roof rats

- Like to nest in higher elevations such as attics
    - Allows them to damage the attic space, building nests and gnawing on any materials in the area
- They also destroy garden crops and ornamental plants

Effects of Weather and Climate on Rats

The roof rat favors the warmer climates and heavily populates them. They are far more dominant in the tropical climates throughout the world than the Norway rats. The roof rat is far more modified and adapted to survive the warmer climates only, making it less frequent in colder locations. The Norway rat takes to burrowing and the colder climates throughout the world and is far more numerous. The northern US is almost free of roof rats do to the colder climate. They are more likely to inhabit ships in the northern climates.

The Roof rat species prefers the elevated habitat over the grounds like the Norway rat. In the spring and summer, the habitats they choose are riverbanks, streams, parks, natural ponds, artificial ponds, reservoirs, gardens, rice fields, sugarcane fields, citrus groves, apple orchards, poultry farms, and other heavy favored thriving food sources.

During the winter and fall months they move to warmer climates, or seek out suitable homes in barns, industrial sites, storage centers, warehouses, and other warm sources of shelter.

It is actually common to have both the Norway and roof rat inhabiting the same building. The roof rat will gain access through the roof with utility lines. They will inhabit and make a home in the attic or top floor. The Norway rats will come in through the ground level and remain there establishing a nest in the basement or ground floor.

Rat Facts

- A rat can go longer without water than a camel
- It can fall some five stories without injury. They can survive large doses of radiation, swim for half a mile across open water, and survive by treading water for 3 days. Over generations, they tend to build up certain immunities to poisons. Camels can typically go without water from a week to up to 2 months. If they do drink water they only need .5-1 ounce a day.
- In the eighteenth and nineteenth centuries in Europe, Norway rats were captured and used for food during times of famine. Rat-catchers were hired to exterminate rats and capture live ones for rat fights, rat coursing, and rat pits. Rat-catchers captured and housed wild rats in cages as well (Matthews 1898). During this time, naturally occurring albino, black, and hooded Norway rats may have preferentially captured or chosen from litters of captive rats for their distinctive appearance
- Rats' tails help them to balance, communicate and regulate their body temperature.
- Rats take care of injured and sick rats in their group.
- Without companionship, rats tend to become lonely and depressed.
- Rats have excellent memories. Once they learn a navigation route, they won't forget it.
- The rat is the first of the twelve animals of the Chinese zodiac. People born in this year are thought to possess characteristics which are associated with rats, namely: creativity, intelligence, honesty, ambition and generosity
- Rats are extremely social and affectionate animals. They enjoy the company of other rats and domestic rats love being with humans too.

Citations: Reid, Fiona. *A Field Guide to Mammals of North America North of Mexico* Boston: Houghton Mifflin, 2006. Print.