

ANTS & RODENTS

COMMON HOUSEHOLD ANTS

Throughout the United States, ants are a major household pest. Certain species of ants also damage the wood members of structures. It is very important to have accurate ant identification in order to determine the best method of control.

COMMON NAME	SCIENTIFIC NAME
Acrobat Ant	<i>Cremastogaster lineolata</i> (Say)
Allegheny Mound Ant	<i>Formica exsectoides</i> Forel
Argentine Ant	<i>Linepithema humile</i> (Mayr.)
Carpenter Ant	<i>Camponotus</i> spp.
Cornfield Ant	<i>Lasius alienus</i> (Foerster)
Crazy Ant	<i>Paratrechina longicornis</i> (Latrielle)
False Honey Ant	<i>Prenolepis imparis</i> (Say)
Larger Yellow Ant	<i>Acanthomyops interjectus</i> (Mayr.)
Lawn Ant	<i>Iridomyrmex pruinosus</i> var. <i> analis</i> (E. Andre)
Little Black Ant	<i>Monomorium minimum</i> (Buckley)
Odorous House Ant	<i>Tapinoma sessile</i> (Say)
Pavement Ant	<i>Tetramorium caepitum</i> (Linn.)
Pharaoh Ant	<i>Monomorium pharaonis</i> (Linn.)
Thief Ant	<i>Solenopsis molesta</i> (Say)

COLLECTION AND SPECIATION

In order to correctly determine ant species, several specimens should be collected in a watertight vial. Isopropyl alcohol (not water) should be added to the vial. Many ants are extremely small and similar in appearance. The ants need to be viewed under magnification in order to properly determine the species.

SIZES AND COLORS

There are several kinds of ants that may occur in and around the home ranging in size from about 1/32 to 3/4 inch long.

Colors include yellowish, light brown, reddish-brown, brownish-black or jet black.

BODY PARTS

Ants have three body parts, head, thorax and abdomen. Most ants are wingless, but there may be confusion between swarming, winged ants and swarming, winged termites.

ANT CHARACTERISTICS

Ants can be easily distinguished from termites by several characteristics:

- Ant bodies appear constricted or pinched in at the waist, while termites do not have the waist constriction.
- Ants have elbowed antennae, while termites have straight, bead-like antennae.
- The forewings of ants are much larger than the hindwings. Termites wings are equal in size and shape.
- Ant wings are firmly attached, while termite wings are easily removed or shed (fall off).

LIFE CYCLES AND HABITS

Ants are social insects that live in colonies or nests usually located in the soil near the foundation of a house, under concrete slabs, in crawlspaces, in structural wood, in the yard or garden, in trees and in other protected places.

ANT CASTES & FUNCTIONS

Ants have three castes: queens, males and workers. Queens and males are the reproductives. Workers are sterile wingless females. New ant colonies are started by a single fertilized queen that lays eggs and tends her brood (larvae and pupae) that develop into worker ants. Tending of the brood is then taken over by the worker, which may shift the brood from place to place as moisture and temperature fluctuate in the nest. When workers forage for food for the queen and her young, they often may enter houses and become a nuisance by their presence and contaminate food.

ACROBAT ANT

These ants may invade the home for food (sweets and meat). They feed on sweet juices such as honeydew of aphids, nectar, plant sap, etc. They build nests of plants or earthen material over aphids, which they tend. Workers are about 1/8 to 1/4 inch long, light brownish-yellow, and are recognized by a heart shaped abdomen, flattened on the upper surface and curved below.

They have a two node petiole attached to the upper part of the abdomen and a pair of spines on the thorax. When disturbed, they elevate their abdomens, directing them forward in an acrobatic manner and bite fiercely. They nest under wood, such as stumps, under boards, in hollow trees, under trash, rocks, in windows and door frames. They have an objectionable odor.

ALLEGHENY MOUND ANT

This ant normally lives outdoors with nests consisting of huge conical mounds, sometimes measuring nearly three feet high by six feet in diameter. Undoubtedly, some enter homes occasionally since they are fond of sweets, but normally attend honeydew-secreting insects on plants and are predaceous on other insects.

Workers are about 1/4 inch long with a blackish-brown abdomen and legs, while the head and thorax are rust red. New colonies are founded by the extension of or breaking off from existing colonies when workers migrate away with one or more queens. Related field ants may be brown, black, red or of various combinations of these colors.

ARGENTINE ANT

These ants can usually be found in the top six feet of soil. They can live in moist soil underneath buildings and by sidewalks. Boards can also be used as shelter. Sometimes colonies develop in potted plant soil. Nests can be made of rocks, twigs, dirt, etc. Argentine ants relocate their nests frequently.

This ant is about 1/16 of an inch long. It is light to dark brown in color, and has 6 legs. They have 12 segments in their antennae. The thorax joins the abdomen by a thin pedicel, a thin stalk. There is no smell if one ant is squashed alone, but if many are there, there is a musty, greasy smell.

CARPENTER ANT

These ants are the largest found in Ohio and rank number one in inquiries over all other ants. They are a nuisance by their presence when found in parts of the home such as the kitchen, bathroom, living room, and other quarters. They do not eat wood, but remove quantities of it to expand their nest size, sometimes causing structural damage. Winged males are smaller than winged queens.

Wingless queens measure 5/8 inch, winged queens 1 3/4 inch, large major workers 1 1/2 inch and small minor workers 1 1/4 inch. Workers have some brown on them, while queens are black. Workers have large heads and a small thorax while adult swarmers have a smaller head and large thorax. The petiole has one node and the profile of the thorax has an evenly rounded upper surface (workers only).

CORNFIELD ANT

Nests are very commonly found in fields, lawns, between bricks in the walk, beneath rocks, in pavement cracks, etc. Numerous mounds of its nests are commonly seen in the lawn. They invade the home for sweets. They live on nectar of flowers, live and dead insects and are very fond of honeydew. They collect eggs of corn root aphids, storing them in burrows during the winter, and then in the spring, carry young to the roots of the corn.

Yellowish, retarded corn and the presence of anthills around the injured corn plants are evidence of this dependent relation between the ant and aphids. They also transport strawberry root aphids to the crowns and roots of strawberries. Workers are about 1/10 to 1.4 inch long, light to dark brown, soft bodies, robust, one node petiole (long pointed segment), 12-segmented antennae, without an antennal club, with the anal opening at the end of the abdomen, circular, and surrounded by a fringe of hairs. They have large eyes on the head and, when crushed, emit a strong odor.

CRAZY ANT

These ants will feed on sweets and kitchen scraps, but prefer to feed on animal matter and insects such as fly larvae and adults. Ants present the appearance of running aimlessly about a room and, thus, named crazy ants. Workers are about 1/10 inch long, with slender long legs, dark brown to black in color, one node petiole, the profile of the thorax not even rounded, and the abdomen tip has a circular fringe of hairs.

FALSE HONEY ANT OR SMALL HONEY ANT

These ants, sometimes called false honey or small honey ants normally nests outdoors in the soil, but occasionally can be found in kitchens feeding on food and beverages. They forage along scent (pheromone) trails on counter tops with 12 or more ants in a line.

Workers vary from light to dark brown (almost black) in color, are very shiny, have a triangular abdomen and are about 1/6 inch long. The petiole has one node, the profile thorax is uneven and the first antennal segment (scape) is longer than the head.

LARGER YELLOW ANT

These ants are often mistaken for winged termites since the winged adults swarm through cracks in basement walls or floors, crawl around and are attracted to lights. They live in the soil next to the building foundation, under basement floors, in concrete voids or in rotting wood, and feed on honeydew of subterranean aphids and mealy bugs, which live on the roots of shrubs planted near residences.

Winged forms are dark brown or blackish-brown with brownish, somewhat clouded wings and bodies measuring 3/8 to 1/4 inch long to the wing tips. Workers are pale yellowish-brown, about 5/32 to 3/16 inch long. They cluster around cracks and crevices and, when crushed, give off a strong odor, smelling like or a certain kind of toilet soap. They are smooth, shiny, quite hairy, have 12 segmented antennae, one node petiole (long, pointed segment), small eyes on the head, uneven thorax profile and the anal opening at the end of the abdomen is circular surrounded by a fringe of hairs. Workers stay underground during the day and forage at night.

LAWN ANT

This ant nests in well-drained, clay or gravelly soil and makes the well-known small anthills with a central entrance. Workers are about 1/4 inch long, yellowish in color occurring in lawns, golf courses, pastures, under walks or stones and on trees. The abdomen is light tan with a darker brown band on each segment on the under and hind region. The head, thorax and legs are slightly darker orange-brown than the abdomen.

LITTLE BLACK ANT

These are the common house ants which nest in woodwork, masonry, soil and rotted wood. They feed on sweets, meats, vegetables, honeydew and other insects. Workers are about 1/8 inch long, slender, shiny black, sometime dark brown with two nodes in the petiole and a 12-segmented antenna with a three segmented club. Nests in the ground are detected by the very small craters of fine soil.

ODOROUS HOUSE ANT

These ants occasionally forage indoors for sweets and other foods. They give off an unpleasant odor when crushed, smelling like a rotten coconuts. Workers are brown to dark-brown in color, about 1/10 inch long. They petiole has one node (hidden by the abdomen) and the profile of the thorax is uneven.

PAVEMENT ANT

This is one of the most common tiny house-invading ants with nests usually found outdoors under stones, in pavement cracks, along the curb edges and in crevices of masonry and woodwork. Pavement ants may forage in the home throughout the year, feeding on grease, meat, live and dead insects, honeydew, roots of plants and planted seeds. Workers are sluggish between 1/12 to 1/4 inch long, light to dark brown or blackish, hairy, 12-segmented antennae with a three segmented club, a pair of short spines at the rear of the thorax, two nodes in the petiole, pale legs and antennae, and the head and thorax furrowed with parallel lines or grooves running top to bottom. In winter, nests may be found in the home near a heat source.

PHARAOH ANT

This ant is a serious nuisance in hospitals, rest homes, apartment dwellings, hotels, grocery stores, food establishments, etc. They feed on jellies, honey, shortening, peanut butter, corn syrup, fruit juices, soft drinks, greases, dead insects, and even shoe polish. They have been found in surgical wounds, I.V. glucose solutions, and sealed packs of sterile dressing in hospitals.

These ants are capable of mechanically transmitting diseases, Staphylococcus and Psuedomonas infections in hospitals. Workers are very small about 1/16 inches long, light yellow to reddish-brown colored with the hind portion of the abdomen somewhat darker. The petiole has two nodes and the thorax is spineless. The antennae have 12 segments with the antennal club composed of three segments.

THIEF ANT OR GREASE ANT

These ants are prevalent around kitchen sinks and in the cupboards, feeding on grease, oils, cheese, meat, dead insects, etc. They don't seem to feed on sweets. Workers are very small ants, about 1/32 to 1/20 inch long, smooth, shiny, yellowish to bronze colored with two nodes in the petiole, a 10-segmented antennae with a two segmented club, thorax without spines and small eyes on the head. It nests in the soil or wood, robs the food and brood of other ants, hollows out seeds for the oil content and may feed on dead rodents.

RODENTS

NORWAY RAT (BROWN RAT, SEWER RAT) *RATTUS NORVEGICUS*

IDENTIFICATION AND RANGE

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 rodents 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. 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.

ROOF RAT (BLACK RAT) *RATTUS RATTUS*

IDENTIFICATION

The roof rat (*Rattus Rattus*) is one of two introduced rats found in the contiguous 48 states. The Norway Rat is the other species and is better known because of its widespread distribution. 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. A third rat species, the Polynesian rat, is present in the Hawaiian Islands but not on the mainland.

Rattus Rattus is commonly known as the roof rat, black rat or ship rat. Roof rats were common on early sailing ships and apparently arrived in this country by that route. This rat has a long record as a carrier of plague.

Three subspecies have been named, generally identified by their fur color:

1. The black rat, *R. Rattus Rattus* Linnaeus, is black with a gray belly.
2. The Alexandrine rat, *R. Rattus alexandrinus* Geoffroy has an agouti (brownish streaked with gray) back and gray belly.
3. The fruit rat, *R. Rattus frugivorus* Rafinesque, has an agouti back and white belly.

Crossbreeding between subspecies has often occurred, resulting in unreliability in identification by color. However, Roof rats do not cross with Norway rats.

RANGE

Roof rats range along the lower half of the East Coast and throughout the Gulf States and upward into Arkansas. They also exist along the Pacific Coast and are found on the Hawaiian Islands. The roof rat is apparently not quite as adaptable as the Norway rat, which is one reason it has not spread throughout the country. Its geographic distribution suggests it is more suited to tropical and semi-tropical climates. Occasionally isolated populations are reported from areas not within their normal distribution range; however, these instances are rare. Most of the Great Plains states are free of roof rats but infestations can occur.

HABITAT

Roof rats are more aerial than Norway rats in their habitat selection and often will live in trees or on vine covered fences. Landscaped residential or industrial areas provide good habitat, as does vegetation of riverbanks and streams. They will often move into sugarcane and citrus groves. Roof rats are sometimes found living in or around poultry or other farm buildings as well as in industrial sites where food and shelter are available. Being agile climbers, Roof rats frequently enter buildings from the roof or accesses near utility lines which they use to travel from area to area. They have been found in sewer systems, but this is not very common.

FEEDING HABITS

The food habits of roof rats resemble those of tree squirrels, since they both like a wide variety of fruit and nuts. They also feed on a variety of ornamental and native plant materials. Like the Norway rat, they are omnivorous and will feed on most anything if necessary. Roof rats usually require water daily, though their local diet may provide an adequate amount if high in water content.

REPRODUCTION AND DEVELOPMENT

Born in a nest about 21 to 23 days after conception, the young rats are naked and their eyes are closed. The 5 to 8 young in the litter develop rapidly, growing hair within a week. When they are 9 to 14 days old, their eyes open and they begin to explore for food and move about near their nest. In the third week they begin to take solid food.

The number of litters depends on the area and varies with nearness to the limit of their climatic range, availability of nutritious food, density of the local rat population and age of the rat. The young may continue to nurse until 4 or 5 weeks old. Young rats generally cannot be trapped until about 1 month old. At about 3 months of age they are completely independent of the mother and are reproductively mature. In tropical or semitropical regions, the breeding season may be nearly year-round. Usually the peaks in breeding occur in the spring and fall.

FEEDING BEHAVIOR

Roof rats usually begin searching for food shortly after sunset. If the food is in an exposed area and too large to be eaten quickly, yet not too large to be moved, they will usually carry it to a hiding place before eating it. Many rats will cache or hoard considerable amounts of solid food, which they may or may not eat later.

When necessary, roof rats will travel considerable distances for food. They can often be seen at night running along overhead utility lines. They may live in trees or attics and climb down to a food source. This is important from the standpoint of control, for traditional baiting or trapping on the ground or floor may intercept very few roof rats. Roof rats have a strong tendency to avoid new objects in their environment and this can influence control efforts. These rats may take several days before they will approach a bait station or trap.

SENSES

Rats see poorly, relying more on smell, taste, touch and hearing. They are considered to be colorblind, responding only to the degree of lightness and darkness of colors. Roof rats also have an excellent sense of balance. They use their tails for balance while traveling along overhead utility lines and are very agile climbers.

ROOF RAT ELIMINATION

Although spring traps (snap traps,) glue boards and live traps will work when eliminating Roof rat populations, the most effective control for this small rat is with the combination of glue traps and weather proof bait blocks.