



What To Do About Household Ants

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Ants are one of the most common pests in and around homes in the north central states. Ants are social insects and are divided up into three castes: workers, males, and queens (**figure 1**).

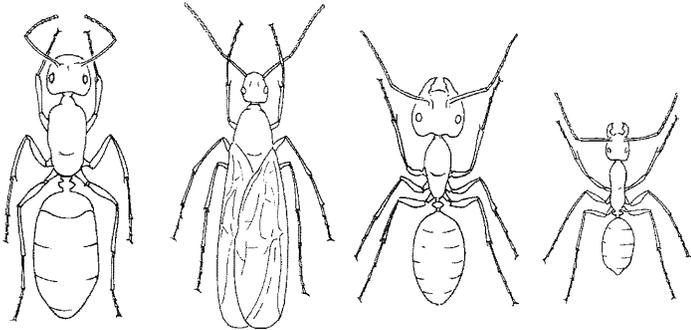


Figure 1. Typical ant castes, from left to right: queen, winged male, major worker, minor worker

Workers are sterile, wingless females which range in size from 1/20 inch long to about 1/2 inch long. The workers of some ant species vary in size and are divided into major (large) and minor (small) workers. Ants vary in color from yellow to red to brown and black and various combinations of these. Like all insects, ants have three distinctive body parts: head, thorax, and abdomen. All ants have a pair of elbowed (bent) antennae on the head and a constricted area between the thorax and abdomen called the petiole. The petiole has either one or two nodes (bumps) (**figure 2**).

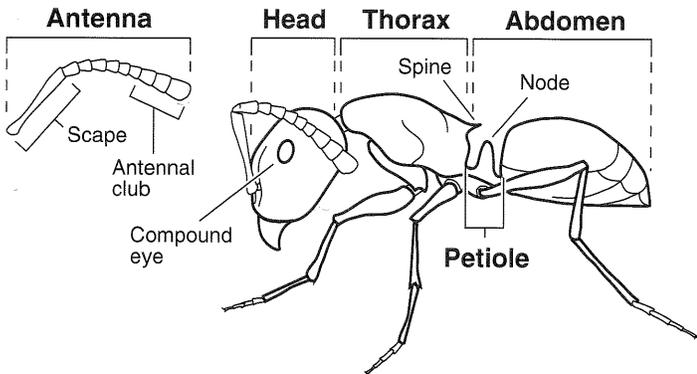


Figure 2. Typical ant body parts

The reproductive members of the colony are the males and queens. Males can be larger or smaller than the workers, are winged, have a small head with proportionally large eyes, and genital sutures protruding from the abdomen. They are produced in older, large colonies and their sole purpose is to mate with the new queens; they die shortly afterwards. Queens are the largest members of the colony, often two to three times larger than workers. Queens possess wings but bite them off after mating. They have

very large abdomens and can live for a number of years. Males and queens will swarm (i.e. fly) from their nest to mate. A given species will mate during a specific time of the year. After mating, the female seeks a proper nesting site and begins a new colony. The presence of swarming winged ants inside buildings is an indication of an ant nest indoors.

Ants are sometimes mistaken for winged termites that are commonly called swarmers. Ants differ from termites by having a narrow, constricted waist, elbowed (bent) antennae, and hind wings shorter than front wings (**figure 3**).

Termites have a more rectangular-shaped body with no constrictions, straight, beaded antennae and four wings of equal size and shape that are much longer than the body (**figure 4**). Termites wings fall off very easily and are usually found on the surface from which the termites have emerged. Ants are commonly seen in the open, as are winged termites when they swarm. But termite workers, which are creamy white and wingless, avoid light and are rarely seen unless disturbed. Contact your local extension office for additional information on termites.

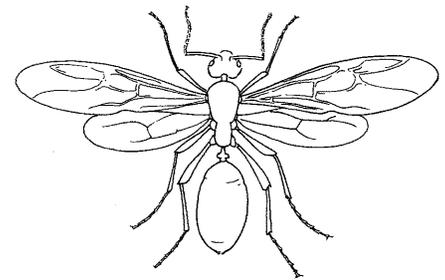


Figure 3. Winged ant

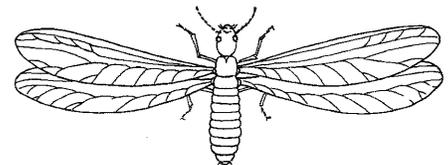


Figure 4. Winged termite

Ants have a wide variety of nesting habits and food preferences. Some ants build nests in soil, producing characteristic mounds while others nest in homes behind moldings, baseboards, countertops, and similar places. Still other ants nest in decaying or moisture-damaged wood. Ants feed on different types of food, including starches, meats, fats, and sweets. Many ants also feed on honeydew, a sweet liquid produced by aphids and scale insects. Knowledge of ant food and nesting preferences is important in selecting and placing baits.

Damage from ants varies. Most are primarily a nuisance and cause little damage. Some, such as Pharaoh ants, may infest food. Others, like carpenter ants, can weaken wood in structures. Generally, there are no disease problems associated with ants. Occasionally in hospitals, Pharaoh ants are found to be able to mechanically transmit several different types of disease organisms, such as *Staphylococcus*.

Control

Knowing what species of ant is present helps to determine the nesting site, food preference, and the best method of control. In most cases, the most effective, permanent solution is to find and treat the nest; queens must be killed to properly control a colony.

Nonchemical control

Trying to discourage ants from invading the home can be frustrating. Proper food storage and waste management will reduce the food that often attracts workers and draws large numbers of ants indoors. Clean all kitchen surfaces, vacuum daily, and rinse recyclable containers before storage. Ant trails can be chemically disrupted with a mild solution of vinegar and water. Sticky barriers using commercially available materials, such as Tanglefoot or Stickem, or water moats containing soapy water can be used to prevent ants from reaching plants or other items. Caulk cracks that ants are using to enter the home.

Outdoors

Many ants enter homes from outside nests as they forage for food. To find their nest, follow the ants. You can encourage foraging by setting out attractive food. Ants usually take regular routes to and from their nest and the food source by establishing a chemical (pheromone) trail. The nest may be found by watching where the ants go; this often works best at night. If the nest is discovered, it can be treated or removed (in the case of rotted wood).

*When treating ant nests in the lawn, choose **one** of the following insecticides:*

- * **carbaryl (e.g. Sevin) as dust or liquid**
- * **chlorpyrifos (e.g. Dursban) as dust or liquid**
- * **diazinon as granules or liquid**
- * **acephate (e.g. Orthene) as liquid or soluble powder**

(Note: liquids work best if drenched in)

Retreatment of nest sites may be necessary if above ground activity resumes after the initial application.

In cases where the nest is not found, ants can be kept out of the house by applying an insecticide barrier around the exterior of the building. Careful observation may reveal the ants are entering only through one area of the house; this would allow a spot treatment of that area. If it is not clear where the ants are entering, then treat a 2 - 4 foot wide area around the entire building. This control method is temporary and retreatments may be necessary.

*When treating the building's exterior, choose **one** of the following insecticides:*

- * **chlorpyrifos (e.g. Dursban) as a liquid**
- * **diazinon as a liquid**

CAUTION: Read all label directions carefully before buying insecticides and again before applying them. Information on the label should be used as the final authority.

Outdoor nests can be very difficult to eliminate without chemicals. Using water to flood nests is usually not effective. Use of gasoline also is ineffective and causes environmental pollution. Repeated drenchings of a nest with an insecticidal soap solution is sometimes effective in forcing an ant colony to relocate. There is no scientific evidence that spearmint gum, red pepper, orange peels, or various herbs repel ants effectively. Remember you must kill or relocate the queen to control an ant colony.

Indoors

When possible, find the nest and treat it with an insecticide. When the nest is concealed, e.g. behind a wall, it may be necessary to drill small holes, about 1/8-inch diameter, and apply an insecticidal dust (be sure it is labelled for indoor use). These products may come in ready-to-use applicators. If not, use a plastic squeeze bottle or some type of flexible plastic container with a tube tip to apply the insecticide. Fill the container about 1/3 or 1/2 full and squeeze a small amount of dust into the desired location. Return the unused insecticide back to its original container and thoroughly clean the applicator.

*When applying a dust into a wall void, use **one** of the following products:*

- * **bendiocarb (e.g. Ficam)**
- * **chlorpyrifos**
- * **boric acid (e.g. Roach Prufe)**

Another tactic is the use of baits. Workers feed on the bait and take it back to the nest where they share it with the rest of the colony. An advantage of baits is that it is delivered into inaccessible areas that insecticide sprays cannot reach. However, baits act slowly and may take up to several months to eradicate a colony. Also, not all ants are equally attracted to baits. Baits sold in stores for the public are generally most effective against sweet feeding ants (Terro II). There are a few effective protein baits sold in stores for the public (Raid Max, Combat Ant Traps). It is important to identify what ant species is present so the appropriate bait can be used.

A homemade bait can be made by mixing 2 parts boric acid to 98 parts of a food attractive to the ants (e.g. 1/4 teaspoon boric acid to about 4 tablespoons of food attractant). If the ants really go for a particular food, try it in the bait. Baits should be placed on small jar lids, pieces of cardboard, in straws, or something similar and set where ants are most commonly found. **CAUTION: Do not set baits where small children or pets can reach them.**

*When using a bait, use **one** of the following products:*

- * **borax (e.g. Terro II)**
- * **chlorpyrifos**
- * **hydramethylnon (e.g. Maxforce)**
- * **propoxur [may be listed as 2-(1-Methylethoxy) phenyl methylcarbamate]**
- * **sulfluramid (e.g. Raid Max)**
- * **boric acid and an appropriate attractant (homemade)**

Spraying foraging ants is only temporary and has little impact on the nest. Spraying may be useful for seasonal ant problems, when ants enter from outside nests.

*When spraying a nest or foraging workers, use **one** of the following aerosol ready-to-use products:*

- * **chlorpyrifos (may also be found in liquid ready-to-use products)**
- * **diazinon**
- * **permethrin**
- * **propoxur (e.g. Baygon)**
- * **cyfluthrin**
- * **fenvaleate [may be listed as cyano(3-phenoxyphenyl) methyl 4-chloro alpha-(1-methylethyl) benzeneacetate]**
- * **tetramethrin**

CAUTION: Read all label directions carefully before buying insecticides and again before applying them. Information on the label should be used as the final authority.

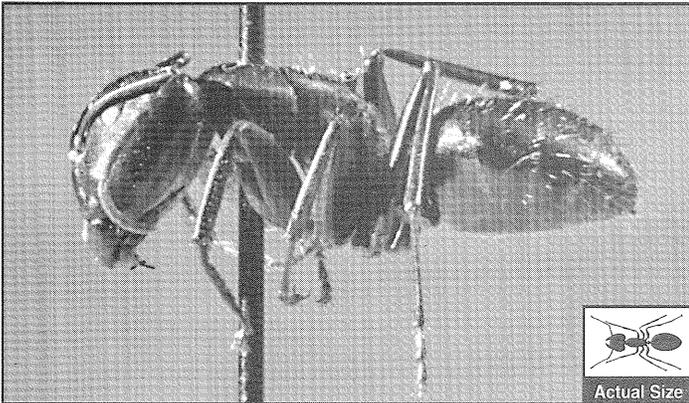
Pest control operators have the training and experience to deal with household ant problems. Contact a reputable pest control company if you want to have your ant problem handled by a professional.

The following descriptions, biologies, and control tactics of ants you may encounter should help you to identify and understand their proper management. Ant identification can be challenging; if you encounter an ant that you cannot identify, submit it to the University, your local county extension office, or someone knowledgeable in ant identification. Use figure 2 as a reference for identifying ant body parts.

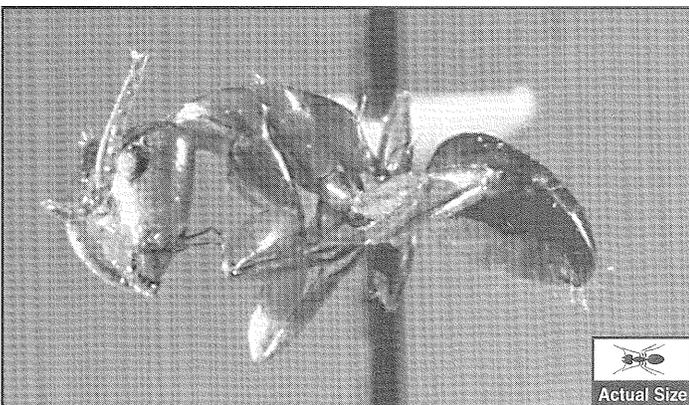
Common Household Ants

Carpenter Ants, *Camponotus* spp.

Description: Carpenter ants are among the largest ants in the north central states. They are black, or red and black; workers range in size from 3/16 to 1/2 inch. Colonies consist of major and minor workers. Carpenter ants have the following characteristics: 1) petiole with one node and 2) a thorax with an evenly rounded upper surface (workers only) [compare with field ants].



Carpenter ant, *Camponotus pennsylvanicus*



Carpenter ant, *Camponotus noveboracensis*

Foods: Other insects, both living and dead. They also feed on meats or sweets, including honeydew, syrup, honey, sugar, jelly,

grease, and fat. Carpenter ants **DO NOT** eat wood; they chew wood into sawdust in the process of creating galleries and tunnels.

Nesting Sites: All types of moist or rotting wood, including trees or tree stumps, indoors behind bathroom tiles; around tubs, sinks, showers, and dishwashers; under roofing, in attic beams, and under subfloor insulation; and in hollow spaces such as doors, curtain rods, and wall voids. Carpenter ant tunnels are clean and look very smooth, making the wood appear that it has been sandpapered. In contrast, termite tunnels are not clean looking, but are packed with dirt-like material.

Mating Swarms: April through June. Occasionally swarms may come out earlier during late winter on warm, sunny days.

Best Pest Management Methods: The best control is to apply an insecticide directly into the nest. It is also important to replace damaged or decayed wood, and if possible to eliminate any moisture problems.

For additional information, contact your local extension office for a separate fact sheet on carpenter ants .

Cornfield Ants, *Lasius alienus*

Description: Cornfield ants are very abundant outdoors. They are light to dark brown; workers are about 1/10 inch long. Cornfield ants have the following characteristics: 1) petiole with one node, 2) thorax is uneven in profile (workers only), 3) relatively large eyes compared to head, and 4) first antennal segment (also called scape) is not considerably longer than head [compare with false honey ants].



Cornfield ant

Foods: Sweets, including honeydew (they are sometimes found feeding on honeydew from insects infesting houseplants) and live and dead insects.

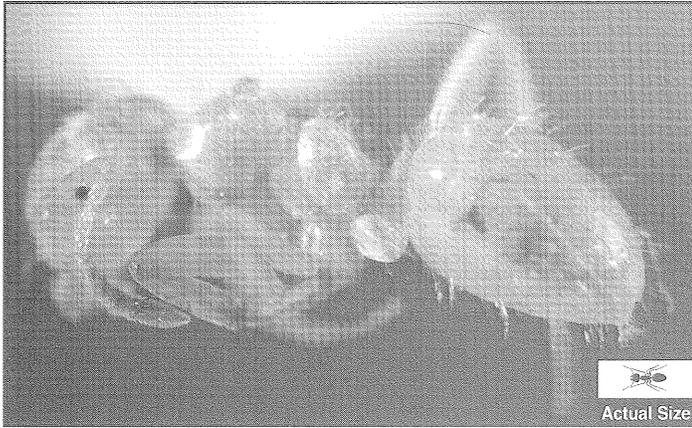
Nesting Sites: In soil, forming small craters, especially in lawns. They also nest in soil under stones, bricks, sidewalks and other concealed sites. They can nest in rotting logs and stumps. They rarely nest in homes.

Mating Swarms: July through September, especially on sunny afternoons.

Best Pest Management Methods: Check for and treat nests in the lawn and other nearby areas. If nests are not obvious, treat the perimeter with a residual spray. Commercial baits available to the public may be effective. A mixture of boric acid and peanut butter and honey or other similar foods containing sweets and grease may also be attractive.

Larger Yellow Ants, *Acanthomyops interjectus*

Description: These ants give off a pleasant citronella or lemon smell when crushed. Yellow ants are yellowish to reddish brown; workers are about 3/16 inch long. Workers are usually not seen by home dwellers. Yellow ants are more commonly noticed when the winged forms are swarming. Queens are about 5/16 inch long and often reddish and darker. Yellow ants have the following characteristics: 1) petiole with one node, 2) thorax is uneven in profile (workers only), and 3) compound eye is small in proportion to head.



Larger yellow ant

Foods: Sweets, especially honeydew.

Nesting Sites: In soil under stones, logs, bricks, patio blocks, concrete and other concealed areas. They also can nest in rotting wood. Yellow ants can nest in and around foundation walls and in soil under buildings on slab construction. Workers may be seen throwing out dirt or cement particles, but they do not damage masonry or wood.

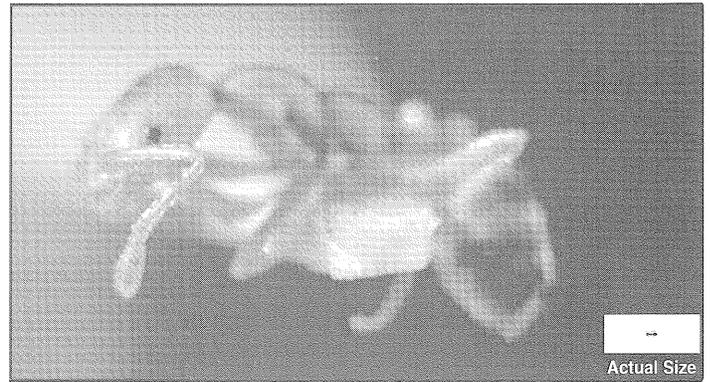
Mating Swarms: April through August. Swarms are also common during winter if ants are nesting under heated concrete slabs.

Best Pest Management Methods: Control winged yellow ants by physical means, e.g. with a vacuum, or by hand. Large numbers can be controlled with an application of an insecticide that is labelled for flying insects, such as pyrethrins; these products are found in aerosol ready-to-use containers. Detection of yellow ants nesting under concrete slabs is difficult and control is rarely practical or justified.

Pharaoh Ants, *Monomorium pharaonis*

Pharaoh ants are an imported species, probably from the tropical regions of Africa. They have readily spread through the world along commerce routes. Although they can nest in any heated building in the north central states, Pharaoh ants are most commonly found in hospitals, nursing homes, schools, and apartments. Seeing persistent numbers of very small ants during winter suggests Pharaoh ants.

Description: Pharaoh ants are light yellow to red with their thorax darker colored; workers are about 1/16 inch long. Pharaoh ants have the following characteristics: 1) petiole with two nodes, 2) thorax lacking spines, 3) 12 segmented antennae, 4) antennal club composed of 3 segments, and 5) normal-sized compound eyes in proportion to the head [compare with thief ants].



Pharaoh ant

Foods: They feed on a wide variety of foods, especially those containing grease or fats. They also feed on many types of sweets, dead insects, toothpaste, soap and other foods that other ants rarely attack.

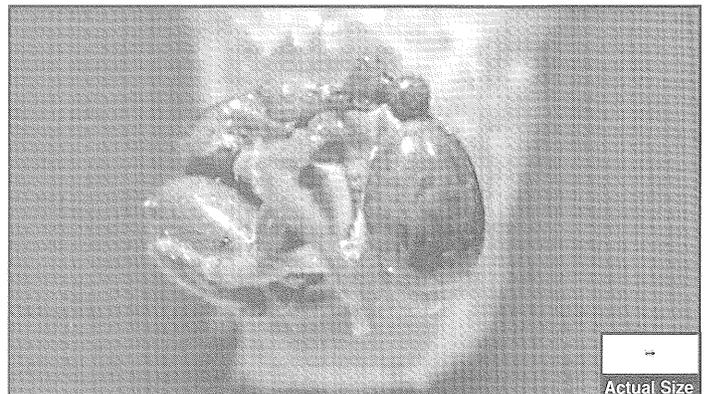
Nesting Sites: Pharaoh ants nest strictly indoors in the north central states; because of their tropical origins, they do not survive outdoors. They take advantage of their small size and nest in a wide variety of small spaces, cracks and crevices, including countertops, baseboards, wall voids, and many other small voids. They often nest near dark, warm sites and near sources of moisture. Pharaoh ant nests are very difficult to find.

Mating Swarms: Pharaoh ants, unlike most ants, do not have a mating swarm but produce new nests through a process called budding. When the colony becomes too large or is under stress, a group of workers take brood (i.e. larvae and pupae) and move to a new site. One or more queens often go with them to the new nest.

Best Pest Management Methods: Control of Pharaoh ants is often difficult and usually requires the service of an experienced pest control company. Insecticides and household cleaning products can cause Pharaoh ants to bud, creating new colonies. The use of baits is preferred. Baits available to the public usually are not effective against Pharaoh ants. Professional pest control services have the experience and access to effective baits to successfully control Pharaoh ants.

Thief Ants, *Solenopsis molesta*

Also referred to as grease ants, thief ants are the smallest household ants in the north central states. Thief ants are so named because of their habit of nesting near the nests of larger ants and stealing their larvae. They often have well-defined trails.



Thief ant

Description: Thief ants can be confused for Pharaoh ants and identification is very important before pest management steps are taken. Thief ants are yellow to light brown; workers measure about 1/20 inch long. They have a tendency to curl up when they die. Thief ants have the following characteristics: 1) petiole with two nodes, 2) thorax lacking spines, 3) 10 segmented antennae, 4) antennal club composed of 2 segments, and 5) small compound eyes in proportion to their head [compare with Pharaoh ants].

Foods: Greasy foods, such as meats, cheese and peanut butter, and dead and live insects.

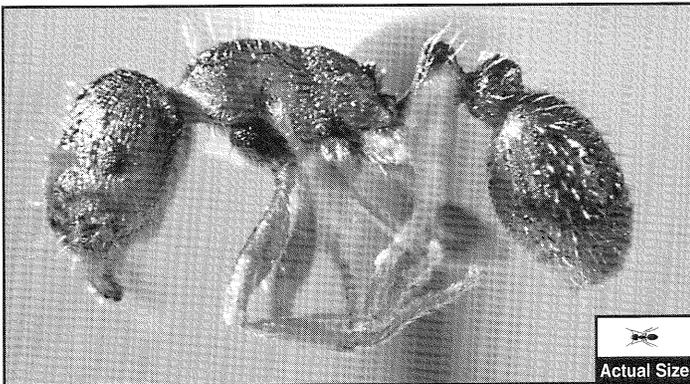
Nesting Sites: Thief ants commonly nest in soil and rotting wood. They can nest indoors in small spaces, such as under countertops, in wall voids, cabinet voids, behind baseboards. Nests are often difficult to find.

Mating Swarms: July through September.

Best Pest Management Methods: Thief ants are especially common during mid- to late summer when they enter homes from outside nests. Locating and treating nests is not practical. Treat the perimeter when thief ants are foraging into buildings from outside nests. When nests are indoors, baiting is the most effective control method. Use baits that contain boric acid, peanut butter, and honey or other similar foods containing protein.

Pavement Ants, *Tetramorium caespitum*

Description: Pavement ants are reddish-brown to black; workers are about 1/8 inch long. Pavement ants have the following characteristics: 1) petiole with two nodes, 2) head with furrows (lines) running vertically (top to bottom), and 3) a pair of spines on the posterior portion of the thorax [compare with acrobat ants].



Pavement ant

Foods: Greasy foods, including meats and pet food, and sweets.

Nesting Sites: In soil under sidewalks, driveways, stones, logs and other concealed sites. Also commonly found under homes with concrete slab construction; ants enter homes through cracks in the concrete.

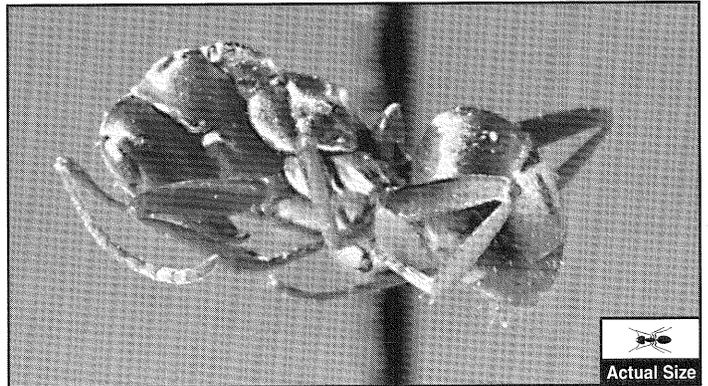
Mating Swarms: May through July. When the nest is under a heated slab foundation, swarms can occur at other times of the year, including winter.

Best Pest Management Methods: Look for and treat outdoor nests. When the nest is not found, treat the perimeter with a residual spray. When pavement ants are nesting under heated concrete slabs, baiting is the most effective control tactic. Use boric acid mixed with peanut butter, meat grease, or similar protein or fat-based food.

Less Common Household Ants

Field Ants, *Formica* spp.

Description: Field ants can easily be confused with carpenter ants but they are not as likely to forage indoors. They are black, brown, red, or combinations of these colors. Workers range in size from about 1/8 to 1/4 inch long. Colonies consist of major and minor workers. Field ants have the following characteristics: 1) petiole with one node, 2) thorax is uneven in profile (workers only), and 3) distinct simple eyes (ocelli) on top of its head [compare with carpenter ants].



Field ant

Foods: Household sweets and honeydew. They also eat live and dead insects.

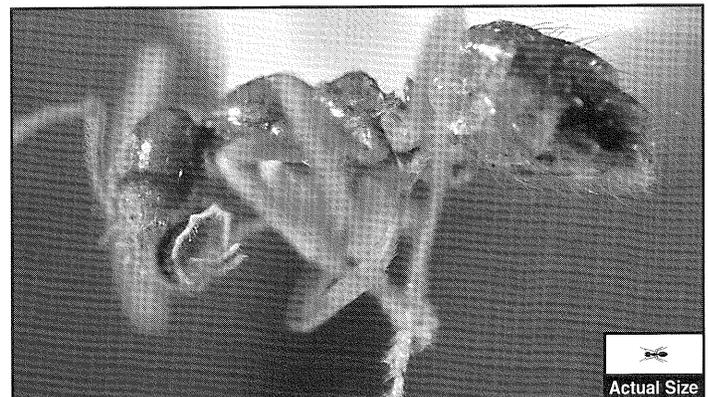
Nesting Sites: In soil in exposed nests or concealed under concrete, stones, etc.; some species make extremely large mounds. Some may nest under concrete slabs and enter buildings through cracks. They do not nest inside buildings.

Mating Swarms: July through September.

Best Pest Management Methods: Look for and treat outdoor nests. Multiple treatments may be necessary. When the nest is not found, treat the perimeter with a residual insecticide. When field ants are nesting under homes, baiting is the most effective control tactic. Commercial baits available to the public can be effective. A mixture of boric acid and honey or syrup is also effective.

False Honey Ants, *Prenolepis imparis*

Description: False honey ants are light to dark brown; workers are about 1/8 inch long. False honey ants have the following



False honey ant

characteristics: 1) petiole with one node, 2) thorax is uneven in profile, looks 'pinched' (workers only), and 3) first antennal segment (also called scape) is considerably longer than head [compare with cornfield ants].

Foods: Prefer sweets, especially honeydew.

Nesting Sites: In soil in open, well-shaded sites. Their nests are rarely concealed under logs, stones, etc. They do not nest indoors.

Mating Swarms: April through May. Sometimes they may also be found during winter.

Best Pest Management Methods: Check for ant mounds in open, shaded areas and treat. If nests aren't found, treat around the perimeter with a residual spray. False honey ants are attracted to commercial baits available to the public. A mixture of boric acid and honey or syrup is also effective.

Odorous House Ants, *Tapinoma sessile*

Description: Odorous house ants give off an unpleasant smell when crushed; some people compare it to rotten coconuts. Odorous house ants are brown to dark-brown; workers are about 1/10 inch long. Odorous house ants have the following characteristics: 1) petiole with one node; node is hidden by abdomen, and 2) thorax is uneven in profile (workers only).



Odorous house ant

Foods: Sweets, especially honeydew, and insects. When honeydew is in short supply, odorous house ants can forage indoors for sweets and other foods, including meats.

Nesting Sites: In soil under stones, boards, patio blocks, and nearly any other object laying on the ground. They can nest in homes in walls voids and under floors. Odorous house ants do not cause structural damage to buildings.

Mating Swarms: June through July.

Best Pest Control Methods: Check for outdoor nests, especially under stones, firewood, bricks, and other objects; treat any that are found. If nests are not located, treat the perimeter with a residual spray. Commercial baits available to the public are effective. A mixture of boric acid and honey or syrup is also attractive.

Acrobat Ants, *Crematogaster* spp.

Acrobat ants get their name from their habit of holding their abdomen over their thorax, especially when they have been disturbed.

Description: Acrobat ants range in color from yellow-brown to black; workers are about 1/8 inch long. Acrobat ants have the following characteristics: 1) petiole with two nodes; the petiole is attached to the top of the abdomen, 2) head lacks distinctive furrows (lines), 3) a pair of spines on the posterior portion of the thorax, and 4) heart-shaped abdomen [compare to pavement ants].



Acrobat ant

Foods: A wide variety of food, including sweets, meats, and insects.

Nesting Sites: Dead or rotted wood, including logs, stumps, dead tree branches. They occasionally nest in soil under stones. Indoors they nest in wall voids and rotted wood, especially window frames. They do not cause structural damage to buildings.

Mating Swarms: July through September.

Best Pest Management Methods: Check for nests, especially in rotted wood. Remove and destroy infested wood when possible. Nests can also be treated with an appropriate insecticide (do not treat firewood). If the nest is not obvious, treat the perimeter spray with a residual insecticide. For acrobat ants found indoors in voids, inject an insecticidal dust. When possible, replace rotted wood and correct moisture problems.

Phyllis Petersen, editor. Photographs by Don Breneman, design and graphics by John Molstad, Educational Development System, Minnesota Extension Service.

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