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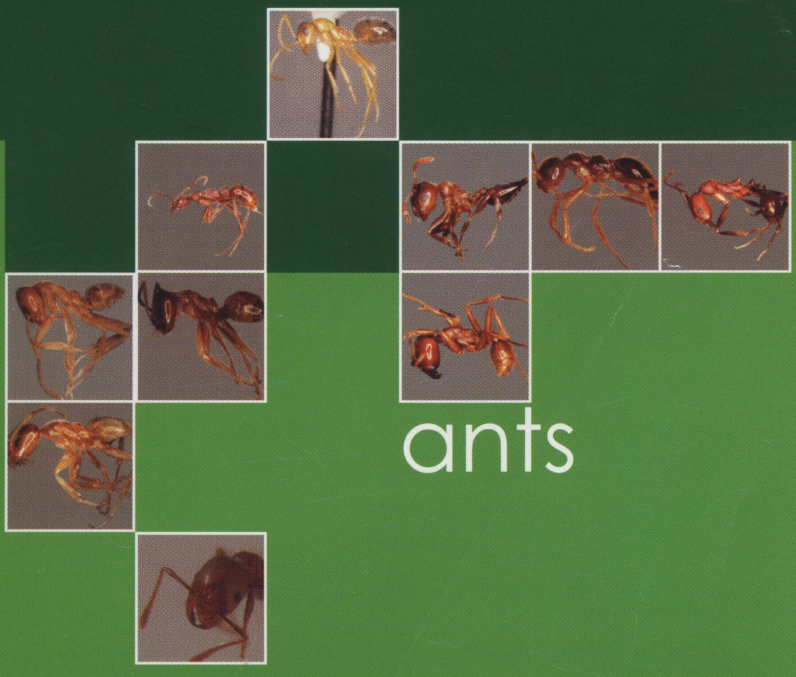
idguide

the Common Ant Genera of Texas



ants

S. Bradleigh Vinson
Professor of Entomology
Texas A&M University
College Station, TX 77843

Dr. Sean O'Keefe
Assistant Professor of Biology
Morehead State University
Morehead, KY 40351

Dr. Jerry Cook
Assistant Professor of Biology
Sam Houston State University
Huntsville, TX 77341-2116

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idguide

introduction

Ants are one of the dominant insect groups in Texas, as well as in most parts of the world. The reason for their dominance is the large number of individuals and their social structure. Ants live in social groups, or colonies, which may contain over a million individuals, including one or more types of worker ants, one or more queen ants, and at certain times contain winged male and female forms in addition to developing ants (eggs, larvae, and pupae). Most ant colonies do not have quite this many members, but all ants live in aggregations of many cooperating individuals. Identification of ants is important because all ants do not have the same role and relationship with humans. Some ants are pests, either as nuisances or dangers to our way of life. Other ants are beneficial, eliminating insect pests and even competing with species of pest ants, and may be affected as non-target organisms in an attempt to control the pest ant(s). Due to these differences, the correct identification of ants is important in order to eliminate those that are pests, while preserving those that are beneficial. The purpose of this guide is to allow the user to identify worker ants commonly found in Texas to the genus level, and provide a discussion of some species most often encountered.

There are just over 10,000 described ant species in the world. This number continues to grow slowly as scientists find new species, and the total number of ant species, if all were described, may actually be near 15,000. Of this large number of ant species, only about 500 are known from the United States. The number of ant species at any locality in the United States increases from north to south. Because Texas is a large southern state, its ant species are numerous (Wheeler and Wheeler 1985). George and Jeanette Wheeler compiled the last checklist of Texas ants in 1985, and reported that Texas had 210 described species. We have updated this checklist (O'Keefe et al. 2000), and the number of species known to occur in Texas is now nearly 300. With such a large number of ant species, it is much easier to work at the level of genus, which groups closely related species. This is a valid way to treat most ants, because ants of the same genus usually have similar habits and thus, the same status as either a pest or beneficial. This publication will help to identify common ants to the level of genus with one exception; we have added a key to fire ant species. In the genus discussion sections some common species are discussed.

Only twenty or so ant species in Texas are considered pests, and of these, only a few are serious pests. The rest of the ant species are beneficial. These beneficial ants control other insects, including some of the pest ants; scavenge dead insects; and help to aerate and fertilize the soil. Of the species considered as serious pests, most are not native to Texas, but were accidentally introduced by man. These pests include the imported red fire ant (*Solenopsis invicta*) from Brazil and Argentina, the pharaoh ant (*Monomorium pharaonis*) from Africa, the ghost ant (*Tapinoma melanocephalum*) from Africa and the crazy ant (*Paratrechina longicornis*) from either Southeast Asia or Africa. Some carpenter ants (*Camponotus species*) are Texas natives, but some have invaded from other parts of the world.

The purpose of this identification guide is to make as easy as possible for the identification of common Texas ant genera by non-specialists. For best results, dead ants should be viewed with a low-powered (20-40X) stereo microscope. However, most characters were chosen that could be seen with a 16X hand lens. Brief discussions on the collection and preparation of ants for identification and an introduction to ant body structure are included to make the use of the following identification keys easier.

collection and preparation of specimens

Although some ants are large enough to be seen easily or can be readily identified by their behavior or mound structure, most are difficult to identify because they are small or move too fast. Therefore, it is usually necessary to capture and preserve a few specimens for positive identification.

Although most indoor pest ants can only bite, some out-of-door ants in Texas are well equipped to sting. The best way to catch ants is to brush them into a small vial or other container that can be sealed. It is important to kill the ants because, if kept alive, they may damage each other. Once they are inside a container, they can be killed by either pouring rubbing alcohol into the container or putting the container into a freezer overnight. If ants are killed by freezing, then alcohol should be poured into the container before the ants dry out and become too brittle to work with.

Once ants are dead, they can be placed onto a clean sheet of paper or other flat, bright surface and viewed with either a microscope or hand lens. A pair of fine forceps, needle, toothpick, or other tool could be used to move the ant around in order to see the characters needed.

If ants are to be prepared for more detailed study, then it is best to follow standard techniques used by specialists and researchers in museums. This will make identification of the ants easier and also increase the value of the specimens for scientific research. Characters that need to be observed in order to identify ants occur on all parts of the body, and the area around the mouth-parts is especially important for identifying many ants to genus and species. The area of least importance is underneath the thorax. Therefore, the best technique for preparing a specimen is to insert a standard insect pin through the wide end of a small triangular piece of thick paper (see below), and then to glue the ant on the right side of the thorax (using either clear nail polish or white glue).

If you would like confirmation on identifications, you can then send the ants to a specialist at one of the major museums or universities. Before specimens are sent they need to be labeled correctly and packaged properly. Each series of specimens (specimens from a single colony) should have the following information: 1) state and county in which they were collected, 2) enough information on the location of collection for others to be able to find it on a road map, 3) GIS information, if available, 4) the date of collection, 5) the collector's name, 6) the method of collection, and 7) habitat information. An example would be:

Texas, Brazos County
5 miles southeast College Station
Lick Creek Park
June 6, 1998
S. O'Keefe collector
collected from rotten log
Riparian woodland habitat

This information dramatically increases the value of specimens for scientific purposes and greatly helps with establishing distributions of species and retaining the specimens as vouchers in a museum. If ants are to be sent through the mail, then they need to be packaged properly. Vials placed into an envelope and sent through the mail often results in an envelope full of broken glass and ant fragments. The best way of packaging is to completely fill the vial with alcohol, wrap it in bubble wrap, paper towels, etc., place it into a small zip-lock bag, and place that into a small box full of packing material. Specimens sent this way almost always survive the U.S. Postal Service.

organization of species

Closely related ant species are grouped into genera, and closely related genera are grouped into subfamilies. All ants belong to one family, which scientists call Formicidae, and belong to the insect order Hymenoptera, which also contains wasps and bees. The identification of ants can be demonstrated by the following example: There are about a dozen species of carpenter ants in Texas. They are very similar to each other in many ways and scientists have grouped them into a genus, Camponotus. Carpenter ants, as a group, are very similar to field ants, the genus Formica, and are somewhat similar to crazy ants, the genus Paratrechina, and are thus all placed into the same subfamily, the Formicinae. Carpenter ants are quite different than army ants (subfamily Ecitoninae), acacia ants (subfamily Pseudomyrmicinae), fire ants (subfamily Myrmicinae), and Argentine ants (subfamily Dolichoderinae), which is why they are placed into a different subfamily. Grouping ant species into genera and subfamilies makes identifications easier. Although the use of scientific names seems complex and unnecessary to most people, we include them here because scientific names are more accurate (the same ant may have several different common names), and some ants do not have a common name. Where we can, we will use common names in this guide, but also make their scientific name available.

ant structure

We have tried to use a minimum amount of complex terminology in this text. However, a few terms will need to be introduced here in order to be more accurate in the identification portions of this paper.

The insect body consists of three major regions, head, thorax, and abdomen (see pg 8). The head is the front-most region that contains the appendages for feeding and sensory systems, and contains several important features for identification. Unfortunately, a microscope is usually needed to see these structures. In our identification systems, we will try to minimize the use of very small features. The most important, and most obvious, structures on the head are the antennae. Key features for the identification of some ants are the number of segments of the antenna, the relative length of the first segment, the scape, and whether or not the end two or three antennal segments are expanded into a club-shape. Also of importance is the size, shape, and number of teeth on the mandibles, or jaws, and whether or not a long groove, the antennal scrobe, is present on the face of the head to hold the antennae. Fortunately, characters of the mandibles and antennal scrobes are mostly used for identifying uncommonly encountered ants or identifying ants to species, most of which are not covered by this guide. One region of the head that is often referred to in identifications is the clypeus, a plate on the lower section of the front of the head above the mandibles and below the antennae, which we can call upper lip. Another head feature used to identify some major groups of ants are the eyes. Army ants (Ecitoninae) are easily identified by their reduced or absent eyes and Acacia ants (Pseudomyrmicinae) are identified by their relatively large eyes.

The thorax, the anterior part of the middle region that contains the legs and wings (if any) for movement, is correctly termed mesosoma. For our purposes, there are very few features of the thorax that are needed for identifying ants. One feature found in most ants of the subfamily Formicinae is the metapleural gland, a small slit located on the side of the propodeum immediately above the hind leg and below the propodeal spiracle, a small circular opening about halfway up the propodeum. Another feature, important in identifying many of the ants of the subfamily Myrmecinae is the presence of a pair of spines on the propodeum.

The abdomen is the posterior region of the body that contains many vital organs. The first part of the abdomen that is attached to the thorax is the propodeum. The constricted parts are called the petiole and postpetiole (if there are two, although some ant species have only a petiole), and each usually appears as a raised node lying between the propodeum and the enlarged, remaining part of the abdomen, the gaster. For simplicity, we will use the term thorax for the mesosoma, the term abdomen for gaster, and the term nodes for the petiole and postpetiole. The postpetiole is only found in the three subfamilies: Myrmecinae, Pseudomyrmecinae, and Ecitoninae (it is also found in the rare Cerapachynae, which are not treated here). The enlarged abdominal region at the end of the body is the gaster. For our purposes, there are only two features of the gaster that need to be mentioned: the acidopore and the sting. The acidopore is a small nozzle-like structure surrounded by a ring of hairs at the apex (back end) of the gaster. This structure is found only in ants of the subfamily Formicinae. The sting, the infamous structure of fire ants, is present in all groups except the subfamilies Formicinae and Dolichoderinae. Often, the sting can be seen projecting from the apex of the gaster, especially in ants of the subfamily Ponerinae. However, the sting is usually only visible with the aid of a microscope or good hand lens.

nest structure

Often ants can be readily identified by their nest structure. Unfortunately, some ants, such as army ants, do not build permanent nests and others, such as the cryptic Cyphomyrmex fungus ants, have colonies so small that their nests are very difficult to locate in the soil. Fortunately, some of the more common ants build prominent nests either in dead wood or in soil. Ants that build nests in dead wood are often referred to as cavity or crevice nesters. Some ants build prominent soil nests, which are classified into either craters or domes, depending on whether the nests are like a funnel with a hole at the base, or a mound. Some ants, like pharaoh ants, primarily nest indoors in cracks, crevices, and void spaces

this manual

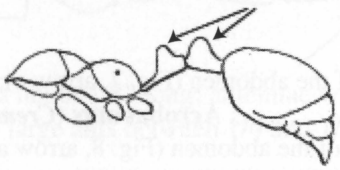
The objective of this manual is for you to be able to identify workers of the common genera of ants occurring in Texas. For a comprehensive key to all genera of ants occurring in North America, see Identification Guide to the Ant Genera of the World by Barry Bolton (1994). The only book that has identification keys to all known species within the United States was written by Creighton in 1950. Although his book is older and slightly out of date, for many genera of ants it is the most recent treatment. MacKay and Vinson (1989) list other publications that help in the identification to species. Articles written after 1989 that have identification keys are mentioned where appropriate.

id guide

This guide consists of series of numbered two-way choices. Each pair of choices lists features that should be examined on the ant you wish to identify. The most important feature is listed first, then other features may be included to help identify the ant.

Begin with the first set of choices, compare the features listed and any figures mentioned, examine those features on the ant you wish to identify, then select the choice that seems right. Each set of choices leads either to the name of genus of ant, or another set of choices.

1. Two nodes present between thorax and abdomen (Fig. 1, arrows)..... step 2
   Only one node present between thorax and abdomen (Fig. 2, arrow) .....step 14



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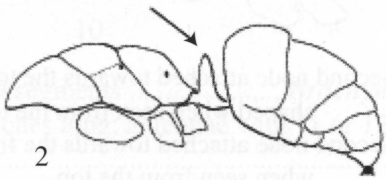
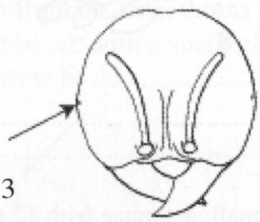


2

2. Eyes either very small or can not be seen (Fig. 3); antennae attached almost at the edge of the mouth..... **Army ants (*Labidus*)** (p.21)
   Eyes present, and easily seen (Fig. 4); antennae attached away from the edge of the mouth.....step 3



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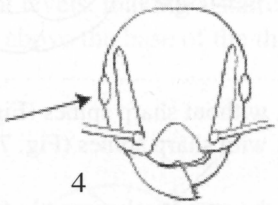
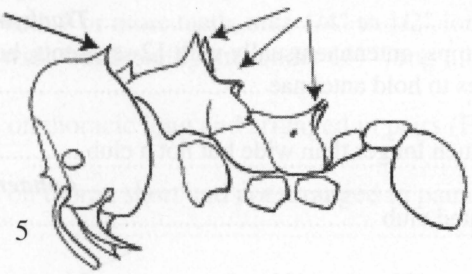


4

3. Head with sharp spines (Fig. 5, arrow); thorax with 3 pairs of sharp spines (Fig. 5, arrows) ..... **Leaf-cutter ants (*Atta*)** (p.28)
   Head without sharp spines (Fig. 6); thorax with 1 pair or no spines .....step 4



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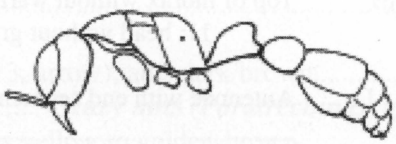


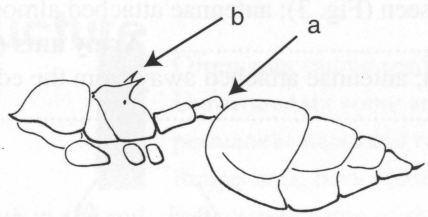
6

4. Body slender, elongate; eyes very large (Fig. 6) ..... **Acacia ants (*Pseudomyrmex*)** (p.23)
   Body more robust; eyes normal to reduced .....step 5

5. Antennae with 10 segments, the last 2 enlarged to form a club-shape .....step 6
Antennae with 11 or 12 segments, if the end segments form a club-shape, it is of 3 segments .....Step 7

6. Larger (>1/8") reddish-brown and black ants with normal sized eyes.....
..... **Fire ants (*Solenopsis*)** (p.34)
Smaller (< 1/8") yellow ants with very small eyes ..... **Thief ants (*Solenopsis*)** (p.36)

7. Second node attached towards the top of the abdomen (Fig. 7, arrow a); abdomen heart-shaped when seen from the top ..... **Acrobat ants (*Crematogaster*)** (p.29)
Second node attached towards the front of the abdomen (Fig. 8, arrow a); abdomen oval when seen from the top .....step 8



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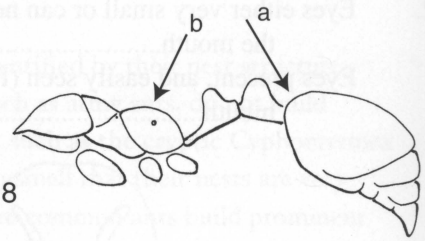

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8. Thorax without sharp spines (Fig. 8, arrow b)..... step 9
Thorax with sharp spines (Fig. 7, arrow a).....step 10

9. Top of thorax entirely smooth; frontal lobes small; antennae with 12 segments.....
..... **Little black and pharoah ants (*Monomorium*)** (p.31)
Top of thorax with several rough bumps; frontal lobes large; antennae with 11 segments
..... **Fungus ants (*Cyphomyrmex*)** (p.30)

10. Top of thorax with warty bumps; antennae with 11 segments; head with grooves to hold antennae..... ***Trachymyrmex*** (p.38)
Top of thorax without warty bumps; antennae usually with 12 segments, but sometimes 11; head without grooves to hold antennae .....step 11

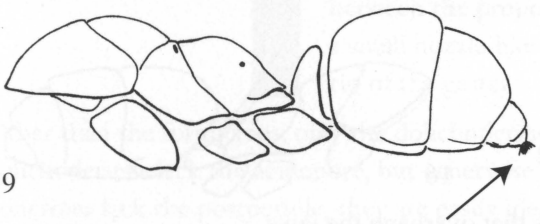
11 Antennae with end segments much longer than wide but not a club .....
..... ***Aphaenogaster***(p.27)
Antennae ending in a 3-segmented club .....step 12

12. Workers in 2 sizes; larger workers with enlarged heads .....
..... **Big-headed ants (*Pheidole*)** (p.32)
Workers all 1 .....step 13

13. Underside of head with long hairs; usually 1 color, either reddish or black.....
..... **Harvester ants (*Pogonomyrmex*)** (p.33)
Underside of head without long hairs; head and thorax brownish-red, gaster black
..... **Pavement ants (*Tetramorium*)** (p.32)

14. Sting present ..... ***Leptogenys*** (p.25)
Sting absent .....step 15

15. Circle of hairs at end of abdomen (Fig. 9, arrow) .....step 16
Without circle of hairs at end of abdomen (Fig. 10, arrow) .....step 20



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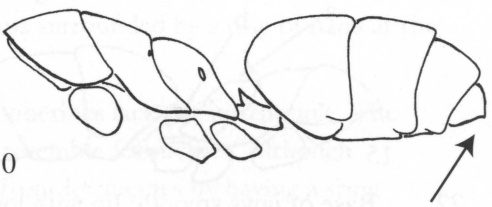
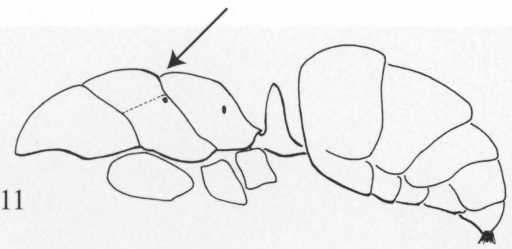


10

16. Tiny ants about 1/8" long; antennae with 9 segments ..... ***Brachymyrmex*** (p.10)
Small to large ants between 1/4 and 1/2 inches long; antennae with 11 or 12 segments
.....step 17

17. When seen from the side, thorax smoothly rounded (Fig. 11, arrow); no small gland opening above the base of the third pair of legs.....
..... **Carpenter ants** ***(Camponotus)*** (p.11)
When seen from the side, thorax with different levels, making a staircase-like step (Fig.12, arrow a); with a small gland opening above the base of the third pair of legs (Fig. 12, arrow b) .....step 18



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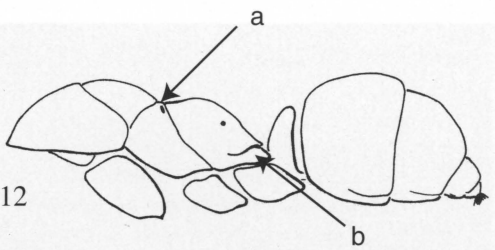

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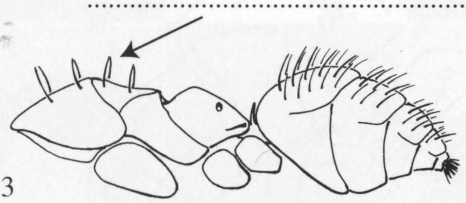
18. Jaws with 7 or more teeth; ants 1/4" to 1/2" long ..... **Field ants** ***(Formica)*** (p.12)
Jaws with 4 or 5 teeth; ants under 1/4" long .....step 19

19. Hairs on thoracic long and arranged in pairs (Fig. 13, arrow); ants dark brown.....
..... **Crazy ants** ***(Paratrechina)*** (p.13)
Hairs on thorax short and not arranged in pairs, ants yellow to golden-brown.....
..... **False honey ants** ***(Prenolepis)*** (p.14)



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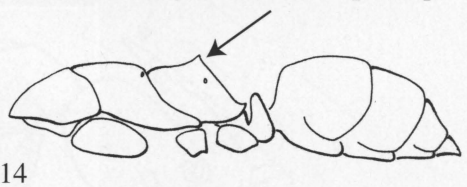
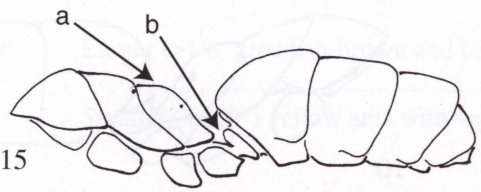


14

20. Thorax with a cone (Fig. 14, arrow)..... **Pyramid ants** ***(Dorymyrmex)*** (p.16)
Thorax without a posterior cone (Fig. 15, arrow a).....step 21

21. Node very small, flat, and hidden by abdomen (Fig. 15, arrow b)..... **Ghost and Odorous house ants *(Tapinoma)*** (p.19)

Node pointed and can be seen (Fig. 16).....step 22



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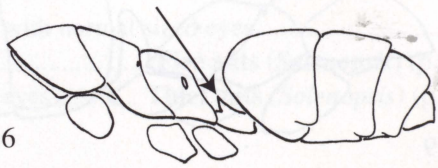


16

22. Base of jaws smooth; lip with long hairs that overhang the jaws ..... **Cheese ants *(Forelius)*** (p.17)

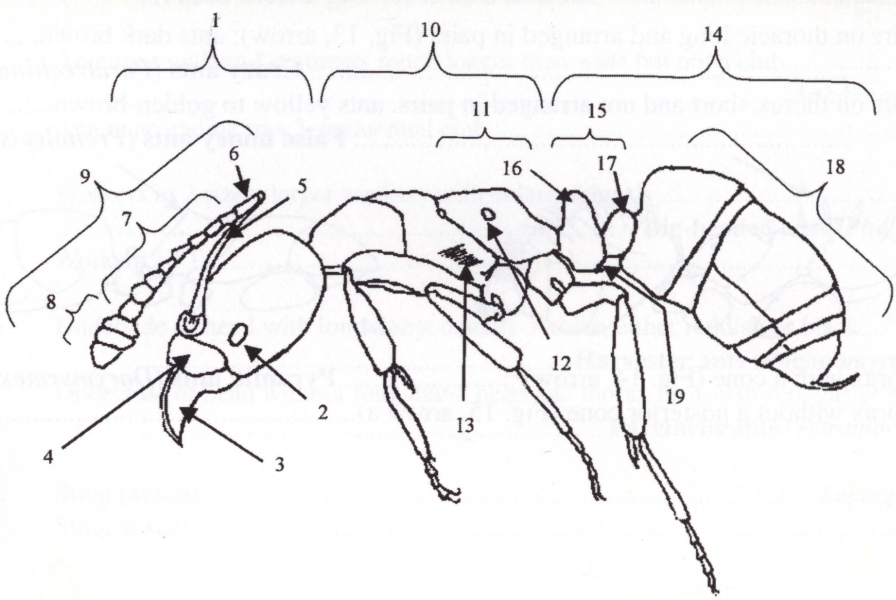
Base of jaws with fine teeth; lip with short straight hairs ..... **Argentine ants *(Linepithema)*** (p.18)

General body parts of an ant used to identify.

1 = Head, 2 = Eye, 3 = Mandible, 4 = Clyepus, 5 = Scape, 6 = Pedicle, 7 = Funicle, 9 = Antennae.

10 = Thracic region (sometimes referred as Mesosoma), 11 = Propodeum, 12 = Propodeal Spiracle, 13 = Mesepimeron.

14 = Abdomenal region, 15 = Petiole (Nodes), 16 = 1st Node (Petiole), 17 = 2nd Node (Postpetiole), 18 = Gaster, 19 = Petiolar process.



the common ant genera of Texas

The arrangement of ant genera following the identification key is based, in part, on the natural classification (i.e. placing closely related genera alphabetically in their respective subfamily).

Formicinae

Formicine ants lack a postpetiole, i.e. they have only one node between the propodium and gaster, and they have an acidopore, a small nozzle-like apparatus surrounded by a ring of hairs at the tip of the gaster.

Other than the formicines, only the dolichoderines and ponerines lack the postpetiole. The dolichoderines lack the acidopore, but otherwise closely resemble formicines. Although ponerines lack the postpetiole, they are easily identified from formicines by having a sting instead of an acidopore and the petiole is flatter on top.

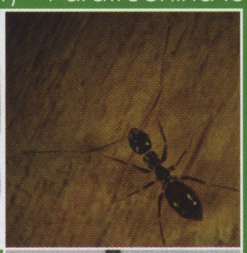
Of the eight genera of formicine ants, the five most commonly encountered are treated herein. The three genera not treated include ***Acanthomyops*** (two rare species from the Panhandle, Texas), ***Lasius*** (one widespread species in the Panhandle and another, rarer species from western Texas), and ***Myrmecocystus*** (eight uncommonly encountered species, mostly in the western half of Texas).

Formica

Camponotus (p.11)

Paratrechina longicornis (p.13)

Formica (p.12)



Paratrechina (p.13)

Camponotus pennsylvanicus (p.11)

Brachymyrmex

Identification

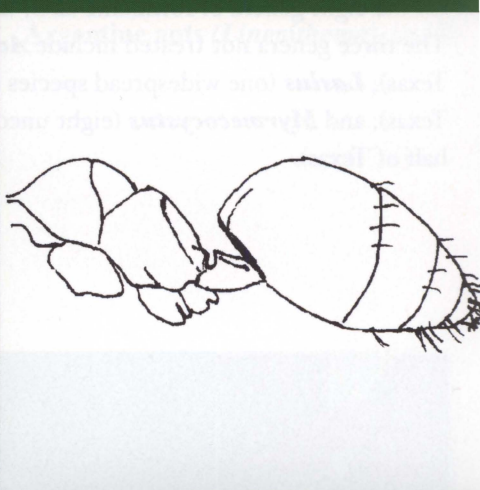
Field identification. Brachymyrmex ants are very small (about 1/16"), and light colored. All workers are the same size.

Lab identification. Brachymyrmex ants have only one node between the thorax and abdomen, have a small circle of short hairs at the tip of the abdomen, and are the only ants with nine segments in the antenna. Creighton (1950) provided the most recent key to identify species.

Similar species. The only other common small ants with only one node between the thorax and abdomen are odorous house ants (Tapinoma), which also do not have a circle of hairs at the end of the abdomen and have 11 antennal segments.

Biology and Behavior

Brachymyrmex ants do not sting. They are slow moving ants but are often not seen due to their small size and light color. They build small, inconspicuous nests, usually under rocks or in rotting wood. Their colonies have at most one to two thousand individuals. They usually feed on honeydew secreted by root-feeding insects.

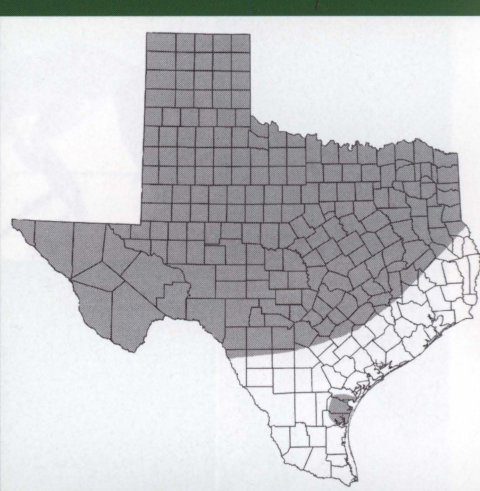


Distribution

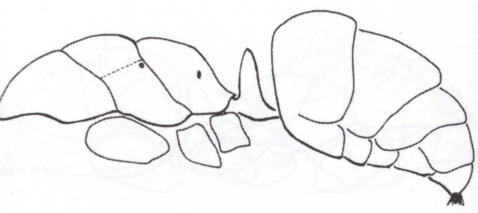
Of the two species of *Brachymyrmex* ants known from the United States, both occur in Texas. *Brachymyrmex* depilis is widespread throughout all but the southern and south-eastern parts of the state and B. *obscurior* is known from Victoria County.

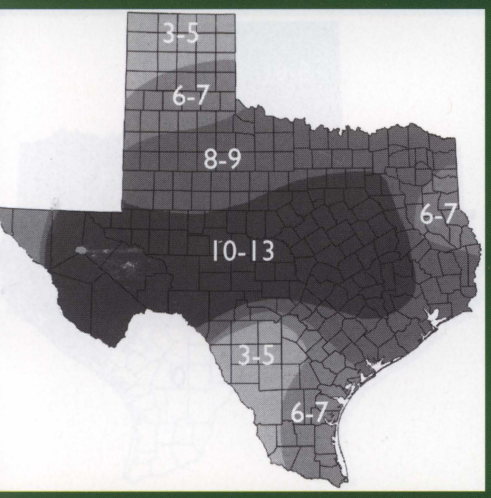
Pest Status

Brachymyrmex is rarely considered a pest species. It does tend and protect root-feeding insects, which in turn are occasionally pests, but due to its small colony size and sparse nest density, the problems associated with this relationship rarely pose an economic problem. It almost always aids in damage to only a very small number of plants. Occasionally a *Brachymyrmex* colony will be associated with a potted plant and be viewed as a nuisance if the host plant is kept indoors.



Carpenter Ants (*Camponotus*)





Numbers on maps reflect approximate number of species known from the area.

Identification

Field identification. Most carpenter ants are large, over 1/2", but several species are about a 1/4" long. Most colonies have workers of several sizes. They are usually red, black, brown, or a combination, and are commonly associated with trees or dead wood (p.9).

Lab identification. Carpenter ants can be identified by having only one node between the thorax and abdomen, a small circle of short hairs at the tip of the abdomen, the thorax is evenly rounded, not stair-step as in Formica, and they do not have a small gland opening above the last pair of legs).

Similar species. Several Formica species resemble carpenter ants but are smaller (usually under a half inch long), have a "step-shaped" thorax, and have a small gland opening above the last pair of legs.

Biology and Behavior

Carpenter ants are often seen singly and rarely form columns. They are most active at night. they do not sting, but have a strong bite. They usually nest in moist wood, such as rotten logs, near the base of trees, inside structures, and under objects on the ground. Colonies of some species are small, a few hundred individuals, while others often contain one to eight thousand individuals. Mature colonies often consist of a parent colony and several mobile satellites. They are scavengers, but some eat live insects, honeydew, or fungus associated with wood and can be attracted to sweets.

Distribution

Of the 42 species of carpenter ants known from the United States, 18 occur in Texas. Several species, such as *Camponotus americanus, C. pennsylvanicus, C. nearcticus, C. discolor, C. sayi, and C. decipiens* are widespread throughout most of the state. A few species are restricted to the eastern or southern parts of the state and many are restricted to the western parts of the state. The greatest diversity of species is a wide belt from western through central and into eastern Texas.

Pest Status

Carpenter ants only invade damaged, but not sound, wood. They are more of a nuisance pest when they occur indoors in search of sweets. Texas species only attack already damaged wood to create a nest cavity which results in piles of sawdust. They are considered a nuisance. Although they bite and release formic acid, they are not considered a medical threat. Carpenter ants are difficult to control because colonies are difficult to locate t and treat and they do not readily consume enough bait products to eliminate the colony.

Field Ants (*Formica*)

Identification

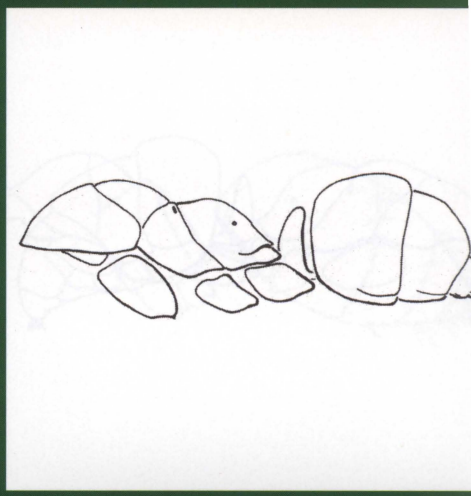
Field identification. Field ants are medium sized (1/4-1/2") black, brown, tan, or red. Workers are all the same size.

Lab identification: Field ants can be identified by having only one node between the thorax and abdomen, a small circle of short hairs at the tip of the abdomen, the thorax is stair-step, and they have a small gland opening above the last pair of legs. Creighton (1950), Wilson and Brown (1955), Buren (1968), and Francoeur (1973) provided the most recent keys to identify species (p.9).

Similar species. Several species of carpenter ants resemble field ants but they are usually larger (often over 1/2"), have an evenly-rounded thorax , and do not have a small gland opening above the last pair of legs.

Biology and Behavior

Although field ants do not sting, they can bite. They "boil" out of the nest when disturbed. They build ground nests usually under objects (rocks) or near bases of trees; if exposed, then the nests are large domes (nearly 1 foot high and up to 2 feet across). Their colony size is up to few a thousand individuals. Most are probably scavengers, but many species also actively tend insects that produce honeydew. Some species are slaves and some are slave-makers of other ants.

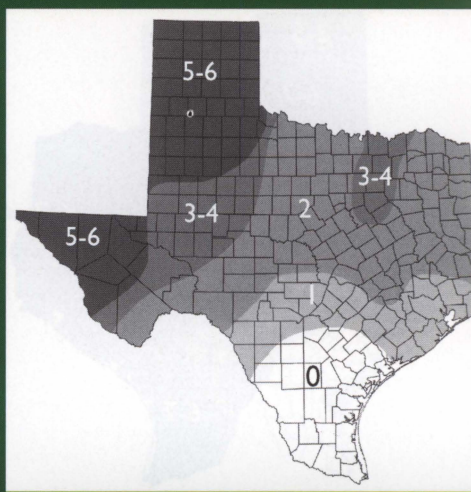


Distribution

Of the 93 species of field ants occurring in North America, 13 are found in Texas. *Formica perpilosa* is widespread throughout the western half of Texas, *F. puberla* throughout the northern half of the state, *F. gnava* throughout the western and into the southern regions, and *F. schaufussi* along the northern third of Texas. Most of the remaining species are known only from a few counties, mostly in the Panhandle region or western Texas.

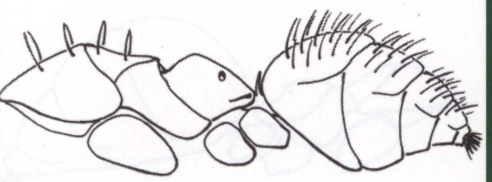
Pest status

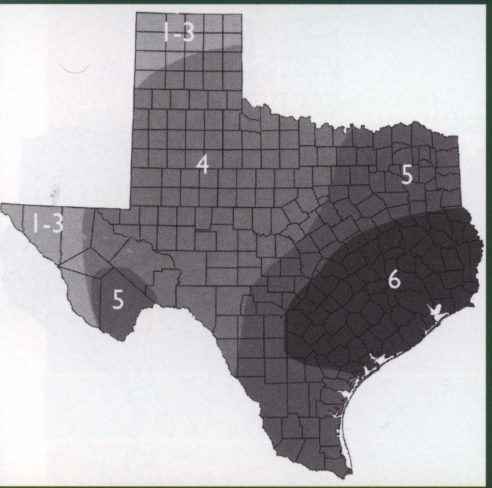
Field ants are usually not pest species. However, they occasionally nest in cracks in sidewalks and sometimes enter houses when foraging. This makes them uncommon nuisance pests. Their bite is of no medical importance.



Numbers on maps reflect approximate number of species known from the area.

Crazy Ants (*Paratrechina*)





Numbers on maps reflect approximate number of species known from the area.

Identification

Field identification. Crazy ants are small to medium in sized (1/8-1/4") brown to black ants and workers are all the same size. The common name, crazy ant, comes from the one pest species, *Paratrechina longicornis*, of this genus because of its behavior of erratically running. Native species in this genus, which are often not considered pests, do not exhibit this same behavior.

Lab identification. Crazy ants have only one node between the thorax and abdomen, a small circle of hairs at the tip of the abdomen, a small gland opening above the last pair of legs, and are covered in long hairs that are arranged in pairs The common pest species, *Paratrechina longicornis*, has very long legs and antennae. (p.9) Trager (1984) provided the most recent key to identify species.

Similar species. The only ants similar to crazy ants are false-honey ants *(Prenolepis)*. False-honey ants are about the same size, their hairs are not arranged in pairs, their waist is more narrowed, and their eyes are higher on the head.

Biology and behavior

The imported crazy ant, *P. longicornis*, is often associated with structures, sometimes being found indoors. The native crazy ants form ground nests in either exposed areas where they build irregular craters or nest under objects, often wood. In urban areas they can also nest in trash piles, cavities in trees, and in rotten woodpiles. They are fast moving and do not sting. They feed on honeydew from aphids, nectar, and tissues from other insects and can be attracted to meat, grease, sweets, and fruit.

Distribution

Of the ten species of crazy ants known from the United States, all occur in Texas. *Paratrechina arenivaga, P. terricola, P. bruesii, and P. vividula* are widespread throughout the state, P. longicornis and P. parvula are widespread in the eastern part of the state, and four other species are known from a few widely scattered localities.

Pest status

Native *Paratrechina* are usually not pests, however, *Paratrechina longicornis*, the only non-native *Paratrechina* in Texas, is a common pest. It does not sting, but is considered a nuisance. It is usually found in large numbers in urban areas. They often nest within wall cavities of houses and move the entire colony if disturbed. This ant is difficult to control because workers do not take enough bait. It is also often difficult to locate colonies for use of contact insecticides.

False Honey Ants (*Prenolepis*)

Identification

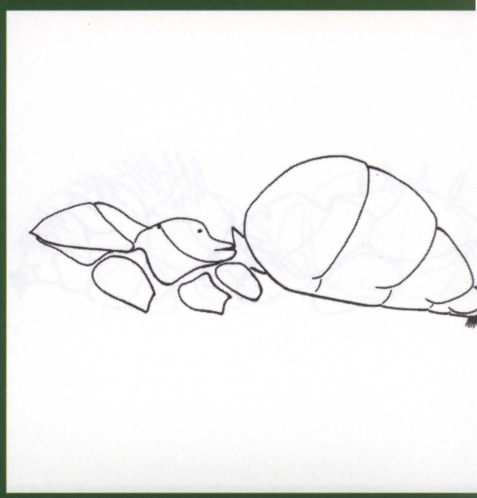
Field identification. False-honey ants are small to medium (1/2") sized, brown ants. Workers are the same size.

Lab identification. False-honey ants have only one node between the thorax and abdomen, have a small circle of hairs at the tip of the abdomen, have a small gland opening above the last pair of legs, have a narrowed waist, and do not have long hairs arranged in pairs.

Similar species. The only ants similar to false-honey ants are crazy ants *(Paratrechina)*. Crazy ants are slightly smaller, their long hairs are arranged in pairs, their waist is thicker, and their eyes are lower on the head.

Biology and behavior

False honey ants have small, ground nests under rocks or other objects in contact with the soil, preferring damp soil and shady conditions. Their colony size is at most a few thousand individuals. They feed primarily on honeydew from aphids or plants, but are also known to sometimes feed on live or dead insects. False honey ants are more commonly encountered in cool weather.

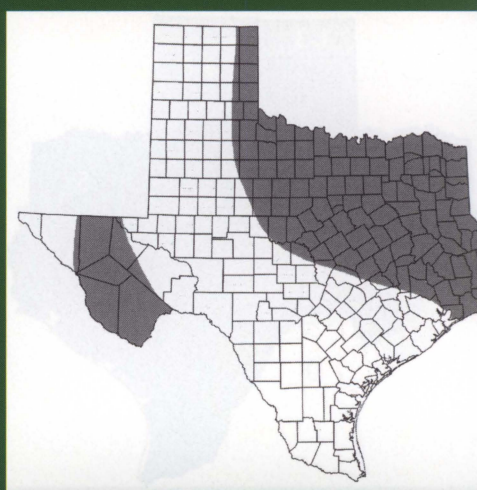


Distribution

A single species of false honey ant, *P. imparis*, occurs in the United States and is found in Texas. It is widespread throughout northeastern Texas and the eastern part of the Panhandle and is also found in western Texas.

Pest status

Prenolepis impairs is rarely considered a pest species. It occasionally moves into, or under, flowerpots or objects in the yard. Because of its small colony size it usually goes unnoticed. It occasionally is considered a nuisance pest.



dolichoderinae

Dolichoderine ants lack a postpetiole (the have only one node between the propodium and gaster) and lack an acidopore, a nozzle-like apparatus surrounded by a ring of hairs at the tip of the gaster.

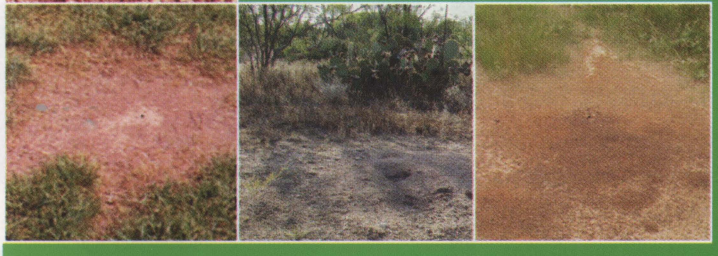
In addition to dolichoderine ants, formicine ants also lack the postpetiole and are very similar in body form, but formicine ants have an acidopore. *Ponerine* ants also lack the postpetiole, but do possess a sting, which is usually visible protruding from the apex of the gaster.

Of the five genera of *dolichoderine* ants known from Texas, only *Liometopium* (two rare species from western Texas) are not covered.

large mounds of various ants

Atta mounds (p.28)

Pogonomyrmex mounds (p.33)



Solenopsis invicta mounds (p.34)

Pyramid Ants (*Dorymyrmex*)

Identification

Field identification. Pyramid ants are medium sized (3/16-1/4"), light-colored, fast-moving ants (p.26). They build nests in dryer areas and their nests are a distinctively round crater, or a horseshoe-shaped crater with a large opening (p.24).

Lab identification. Pyramid ants have only a single node between the thorax and abdomen, they do not have a circle of short hairs at the tip of the abdomen, and pyramid ants are the only ants with a raised node at the back end of the thorax. Snelling (1995) provided the most recent key to identify species.

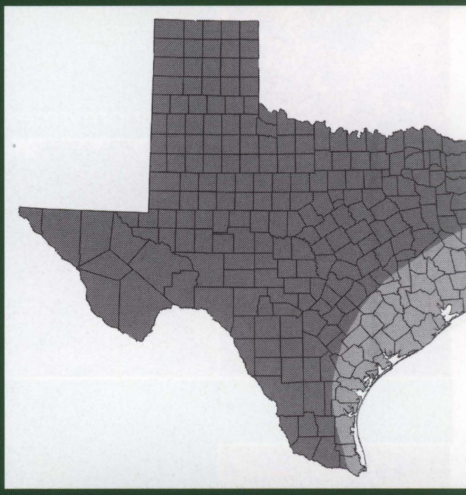
Similar species. No other ants have a cone-shaped node on the thorax. In the field, only cheese ants may be confused with pyramid ants. Pyramid ants are slightly larger, and build distinctive nests where the crater forms a large circle or horseshoe shape.

Biology and behavior

Pyramid ants are very active and fast running when disturbed and do not sting. They often form dense foraging trails to food sources. They nest in dry soil or sand in exposed areas and form irregular, circular or horseshoe-shaped craters, two to four inches across with large entrance holes. In urban areas they prefer to nest in gardens and plant beds, and between cracks in sidewalks and driveways. Their colony size varies from a couple hundred to a few thousand individuals. They are predators and scavengers, and sometimes feed on honeydew and can be attracted to sweets.

Distribution

Of the seven species of pyramid ants known from North America, five occur in Texas. Three species, *D. bicolor, D. flavus, and D. insanus*, are common and widely distributed throughout the state. Two others, one from east Texas and another from west Texas, are rarely encountered.



Pest status

Pyramid ants neither sting nor bite, but in rare cases are considered nuisances because of their nest-building habits.

Cheese Ants *(Forelius)*

Identification

Field identification. Cheese ants are small (1/8-3/16"), often light-colored, fast-moving ants (p.20). They have dense foraging trails, and make a small crater nest (p.24). Often, piles of dead ants can be found nearby the nest. When crushed they smell like cheese, and this odor is the reason for the common name used here.

Lab identification. Cheese ants have only a single node between the thorax and abdomen, and this node can be seen from above. They do not have a small circle of hairs at the tip of the abdomen. Creighton (1950) provided the most recent key to identify species.

Similar species. In the field, only pyramid ants *(Dorymyrmex)* are similar, but they are slightly larger, and often build distinctive larger horseshoe-shaped nests. Ghost ants *(Tapinoma)* and Argentine ants *(Linepithema)* are similar in that they have only one node between the thorax and abdomen, and not have a small circle of short hairs at the tip of the abdomen. Ghost ants can be identified from cheese ants because their node is flat and cannot be seen from above. Argentine ants are very similar and can only be identified by examining hairs along the edge of the front lip. Cheese ants have 2 to 12 long hairs and Argentine ants have 2 to 6 short hairs.

Biology and behavior

Cheese ants are rapid runners and have dense foraging trails and do not sting. They build ground nests that are usually either in exposed areas *(F. maccooki)* or under objects *(F. pruinosus)*; exposed nests consist of a small crater with a single hole. Their colony size is of several thousand individuals. Some cheese ants steal food from other ants, but otherwise they are predators or scavengers.

Distribution

Two species of cheese ants known from the United States, and both are very common and widespread throughout Texas.

Pest status

Cheese ants are rarely considered pests because they do not sting and are only occasionally found in urban areas. When in high densities, cheese ants appear to be beneficial in that fire ants do not like to search for food in areas infested with cheese ants.

Argentine Ant (*Linepithema*)

Identification

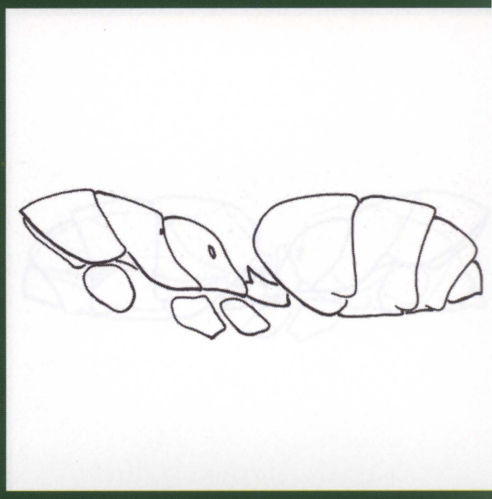
Field identification. Argentine ants are small (1/8-3/16"), dark-colored ants that often forage in dense trails, and are commonly found indoors.

Lab identification. Argentine ants have only a single node between the thorax and abdomen that can be seen from above, and they lack a small circle of hairs at the tip of the abdomen.

Similar species. Ghost ants *(Tapinoma)* and cheese ants *(Forelius)* are similar in that they lack a postpetiole, an acidopore, and long, erect spines. Ghost ants can be identified from Argentine ants by having the petiolar node not visible from above. Cheese ants are very similar and can only be identified by examining hairs along the edge of the clypeus. Cheese ants have 2-12 long hairs and Argentine ants have 2-6 short hairs.

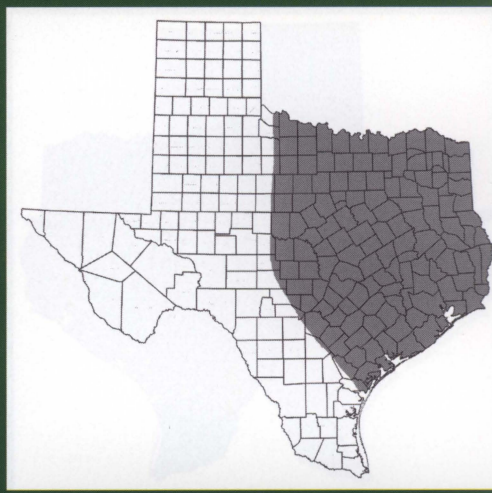
Biology and behavior

Argentine ants are often seen in dense foraging trails. They frequently invade homes. They neither bite nor sting. They are cavity nesters in exposed soil or sometimes inside houses, under cover, or in rotten wood and can nest in lawns and plant beds. Their colony size is in the hundreds of thousands of individuals. Argentine ants have polygyne (multiple queen) colonies and both queens and workers freely move between mounds. This mixing of individuals leaves all of the mounds genetically homogeneous, and thus making the entire population resemble one giant colony. These "supercolonies" may extend for many miles in diameter. They are omnivorous and are attracted to sweets and animal fat.



Distribution

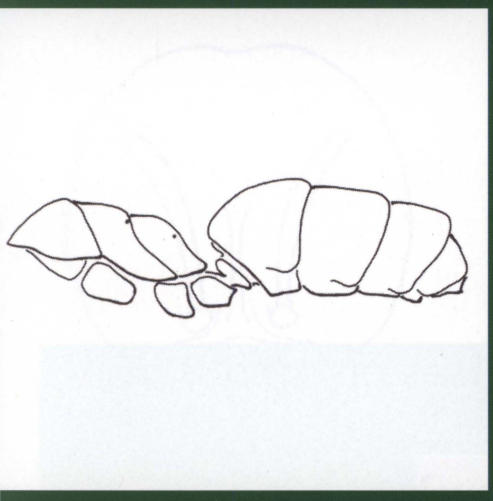
A single species, the Argentine ant *(L. humile)*, is an introduced exotic species that occurs in the United States, and is widely distributed, but not commonly encountered in the eastern half of Texas. In areas where it is present, it is often found in high densities.

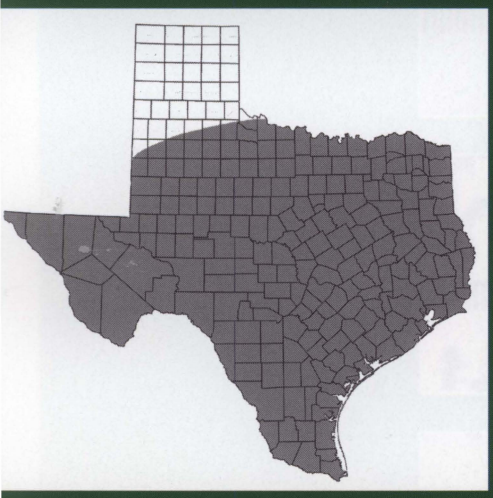


Pest status

Argentine ants are a major pest ant species. They do not pose medical threats, because they do not have a sting, but they are a threat to native biodiversity. Because of their common high nest density and large colony size, they are major nuisance pests that are very difficult to control. They do not readily accept ant bait products or at least do not consume enough bait to eliminate the entire colony, and are hard to eliminate with contact insecticides because of their large colony size and high reproductive potential.

Odorous House and Ghost Ants *(Tapinoma)*





Identification

Field identification. Odorous house ants and ghost ants mainly occur indoors. Odorous house ants are small (1/8-3/16"), drab-colored ants. Ghost ants are tiny (1/16-1/8"), light-colored ants with a dark head and thorax (p26).

Lab identification. Odorous house ants and ghost ants have only one node between the thorax and abdomen. The node is relatively flat and cannot be seen from above. These ants also do not have a small circle of hairs at the tip of the abdomen.

Similar species. Cheese ants *(Forelius)* and Argentine ants *(Linepithema)* are similar in that they lack a postpetiole, an acidopore, an long, erect spines, but their petiolar node is visible from above. Cheese ants also emit an odor, but their odor is distinct.

Biology and behavior

Odorous house and ghost ants are very fast moving and run erratically. They form foraging trails to food sources. They do not sting. They are cavity nesters, preferring to nest in soil sometimes under stones or boards, or in hollow twigs and sometimes in walls or under floors. Odorous house ants have moderate-sized colonies of two to five thousand individuals, while ghost ants may have colonies of over one hundred thousand. Although most feed primarily on honeydew and tend honeydew excreting insects in nature, most scavenge and are attracted to sweets and meat products.

Distribution

Of the two species known from North America, both occur in Texas. One species, the odorous house ant *(T. sessile)* is widespread, although uncommonly found, in all parts of Texas except the northern Panhandle area. A second species, the ghost ant *(T. melanocephalum)*, has been recorded from Galveston, Houston, and Beaumont.

Pest status

The odorous house ant and ghost ant are nuisance pests. They are found almost exclusively within structures in their non-native Texas. Because the ghost ant occurs in large colonies and has multiple queen colonies, they are hard to eliminate. The most effective control method is with ant bait products.

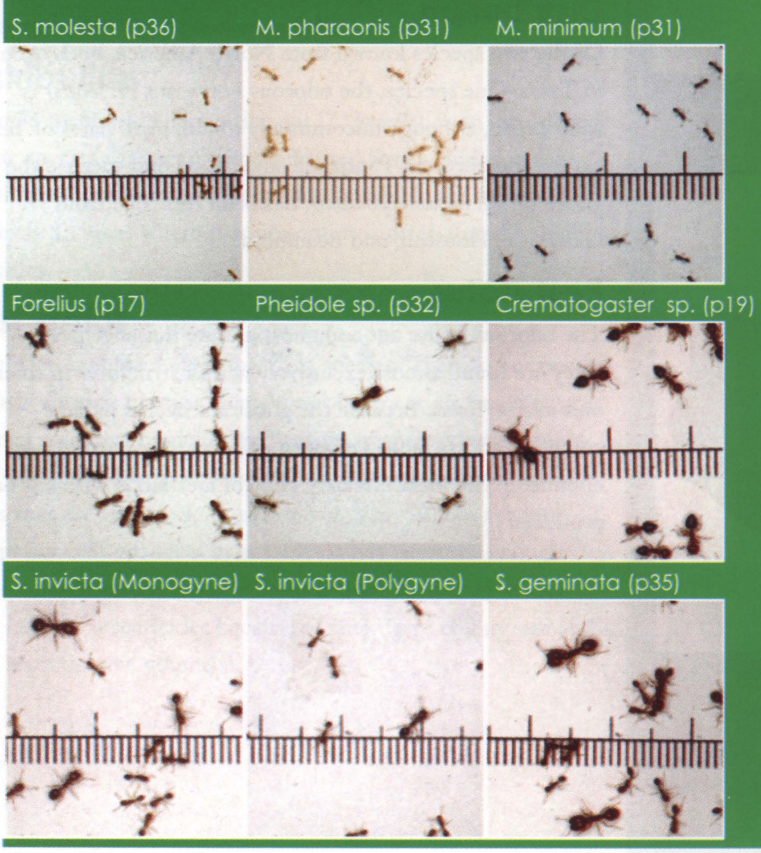
ecitoninae

Ecitoninae, or army ants, possess a distinct postpetiole, and their eyes are reduced to a very small point or are absent.

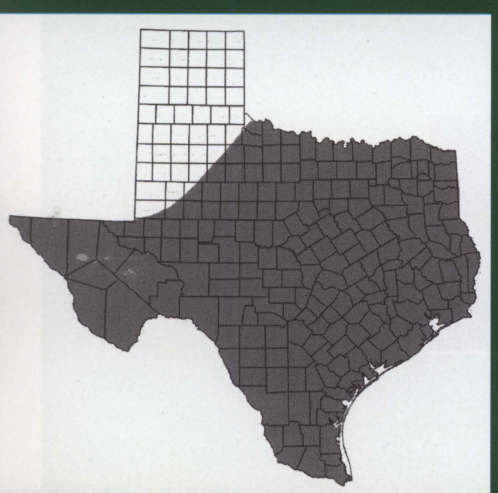
Myrmecine and *pseudomyrmecine* ants also possess a postpetiole, but most often have distinctly visible eyes. *Formicine, dolichoderine, and ponerine* ants lack the postpetiole and most often have distinctly visible eyes.

Four genera of army ants are known from Texas. *Neivamyrmex* includes 18 species found throughout the state, with most species being moderately widespread in their distribution, but fewer species are known from the Panhandle. *Nomamyrmex* includes a single uncommon species known from Cameron County in South Texas. Both of these genera are rarely encountered because they are almost always subterranean (under the ground). There is an old record of an Eciton collected in Victoria County (South Texas), but this is probably a misidentification. *Labidus*, is occasionally encountered in buildings and yards, is treated in this publication.

Relative sizes of various ants



Army Ants (*Labidus*)



Identification

Field identification. The army ants found in Texas are almost entirely subterranean and are rarely seen. They have a wide range in size of workers and large colonies. The largest workers have enlarged heads. Their entire colony moves under the soil surface.

Lab identification. Army ants lack eyes, except for small blister-like structures. They have two nodes and a well-developed sting. Workers range in size from small to large (3/16-1/2"). They are brown in color. Watkins (1985) provided the most recent key to identify all species of army ants within the United States.

Similar species. They have two nodes and a sting like ants in the subfamily *Myrmicinae* (*Solenopsis*-fire ants, *Pheidole*- big-headed ants, etc.), but lack compound eyes.

Biology and behavior

Army ants are mainly subterranean nesters, although colonies move in columns through soil/leaf litter or through rotten logs, will build temporary nests in decayed logs, stumps, or underneath stones. Their colony size is in the hundreds of thousands of workers. They are mostly predators on living and dead insects and can deliver a powerful sting.

Distribution

A single species, *L. coecus*, occurs in the United States, and is widespread throughout most of Texas, except the northern Panhandle region.

Pest status

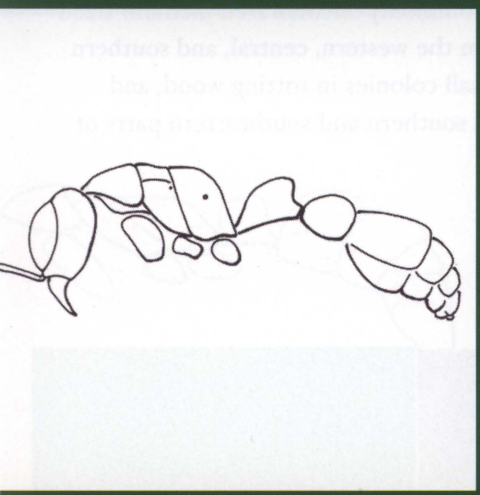
Army ants in Texas are rarely considered a pest species. The exception to this status is when they rarely get into well casings, and due to their large numbers, can cause problems.

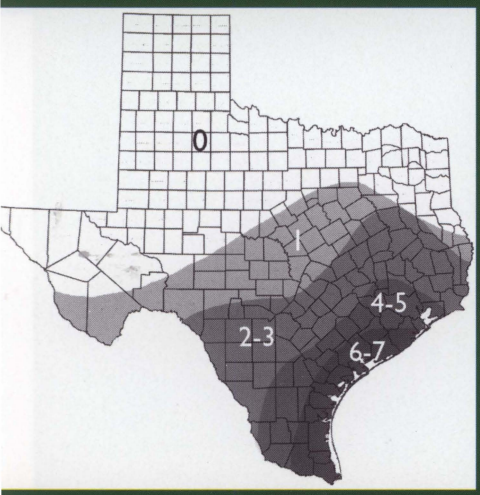
pseudomyrmicinae

Pseudomyrmecine ants, otherwise known as acacia ants, all belong to a single genus in the United States, *Pseudomyrmex*. Acacia ants are easily identified by their large eyes, which often cover half the entire head, and elongate, slender bodies. They also have a postpetiole and lack propodial spines.

Other than Pseudomyrmecinae ants, only Myrmecinae and Ecitoninae ants have a postpetiole; the Formicinae, Dolichoderinae, and Ponerinae ants lack a postpetiole. Both Myrmecinae and Ecitoninae ants have smaller eyes, often have propodial spines, and have a less elongate, slender bodies.

Acacia Ants (*Pseudomyrmex*)





umbers on maps reflect approximate
umber of species known from the area.

Identification

Field identification. Acacia ants are medium to large (1/4 to 1/2") ants with large eyes. Color ranges from yellow to brown to black, depending upon the species. They are usually found foraging individually, often on vegetation. Their common name is derived from the habit of many members in the group using acacia tree thorns as nesting sites. Although none of the acacia ants in Texas nest in acacia trees, they are still usually associated with trees of some type.

Lab identification. Acacia ants have two nodes and a sting. They have very large eyes and slender bodies with no spines. Ward (1985) provided the most recent key to identify species.

Similar species. No other ants in Texas have the combination of very large eyes and slender bodies. Similar species are not found in this part of the world.

Biology and behavior

Acacia ants are very active and aggressive when approached and can sting. They nest in trees and shrubs (*Acacia, Prosopis* [mesquite], and *Quercus* [oak]), where their colonies number in the hundreds to a few thousand of individuals. They are omnivorous, feeding on honeydew, softer plant tissues, and other insects.

Distribution

Of the seven species known from North America, all occur in Texas. Most species are found in the southern and southeastern parts of Texas, with only two species reaching the western region of the state, and they are apparently not found in the northern and north-central regions.

Pest status

Acacia ants readily sting if disturbed. However, they are usually found in low numbers and are therefore not usually considered pest species. They are mostly beneficial species because they readily feed on other insects that may be pests.

ponerinae

Ponerine ants lack a postpetiole, and the petiole is often large and distinctive. They also have a distinct sting, which is usually visible protruding from the apex of the gaster. In contrast *myrmecine*, *pseudomyrmecine*, and ecitonine ants all possess a postpetiole; while formicine and dolichoderine ants lack a sting.

Of the eleven genera of ponerine ants that are known from Texas, ten are not treated here because they are either small, cryptic ants living in leaf litter or uncommonly encountered larger ants. *Leptogenys* are the only moderately encountered ponerine ants because of their wide distribution and large size. For identification of the other genera, refer to Bolton's book, *Illustrated Identification Guide to the Ant Genera of the World* (1994). The ten genera not treated here include: *Hypoponera* (seven species, mostly commonly found in East Texas, but a few occurring in the central and western parts of the state), *Ponera* (two uncommon species ranging from West to East Texas), *Proceratium* (one rare species from West Texas and another from East and South Texas), *Cryptopone* (one rare species from Central Texas), *Platythrea* (one rare species from South Texas), and *Amblyopone* (one uncommon species from West and East Texas), which are all small, mostly forest-inhabiting species; *Ectatomma* (one species from South Texas) and *Gnamtpgenys* (one species from Central and East Texas), which are uncommonly encountered medium-sized ponerine ants; *Odontomachus* (one uncommon species from the western, central, and southern parts of the state) which are larger ants that have very small colonies in rotting wood; and *Pachycondyla* (two uncommonly encountered species from southern and southeastern parts of Texas), which are larger, solitary foraging ants.

Cyphomyrmex (p.30)

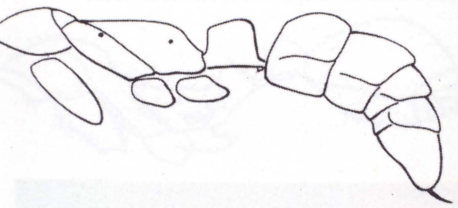
Dorymyrmex (p.16)

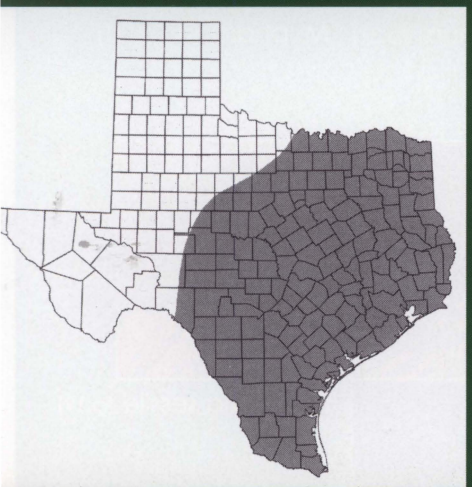
Forelius (p.17)

small mounds of various ants

Monomorium (p.31)

Legionnaire Ants (*Leptogenys*)





Identification

Field identification. These black, medium to large (about 1/2"), narrow-bodied ants form small colonies of several dozen ants in the ground or rotten wood.

Lab identification. Legionnaire ants have one rectangular-shaped, node between the thorax and abdomen, and have a sting .

Similar species. Carpenter ants are similar in that they are larger, have one node, and often occur in wood. Carpenter ants are different because their node is more pointed and not rectangular, they have thicker bodies, and they do not have a sting.

Biology and behavior

Legionnaire ants are hunters, being specialist predators on pill bugs. Although they sting, they generally are not very aggressive. Their nest is commonly found under rocks and logs, or in rotten logs logs. Their colony size is small, usually under a hundred individuals.

Distribution

Of the two species of legionnaire ants known in the United States, *L. elongata*, is widespread throughout the eastern, central, and southern Texas.

Pest status

Legionnaire ants are not normally considered pest species.

myrmecinae

Myrmecinae ants have both a petiole and postpetiole (two nodes present between the propodium and gaster) and their eyes are of moderate or small size, often clearly present (except for the very small thief ants, *Diplorhoptrum*, which are blind), but not distinctly large. The other two groups that also have a postpetiole, i.e. two nodes, the acacia ants (Pseudomyrmicinae) and army ants (Ecitoninae), have either distinctly large eyes or very small or absent eyes respectively.

Of the 22 genera of Myrmecinae ants known from Texas, twelve are not treated here because they are either small ants or rarely encountered. Of the ten genera treated in this publication, several include a great number of species, which are often difficult to tell apart. Also, most of the ants considered as pests, such as fire ants, leafcutting ants, and pharaoh ants, are in this group. For identification of these other genera, refer to Bolton's book, *Illustrated Identification Guide to the Ant Genera of the World*, published in 1994. Several genera, such as *Pyramica* (known as *Smithistruma* until 1999) (seven species, nearly all in eastern Texas), *Strumigenys* (two species mostly found in central and east Texas), and *Myrmecina* (one species from western to eastern Texas), are small ants that inhabit leaf-litter in forested areas and would not normally be encountered by the non-specialist. Other genera, such as *Rogeria* (one rare species from south Texas), *Stenamma* (one rare species from west Texas), *Trichoscapa* (one rare species from near Lubbock), *Cardiocondyla* (three uncommon species, one from west Texas and the other two from south Texas), *Mycetosoritis* (one rare species from central Texas), and *Acromyrmex* (one rare species from west Texas), are known only from a few, specimens. Three other genera not likely to be encountered are: *Oligomyrmex* (one uncommon species from central Texas), *Myrica* (three rare species from west Texas and another two rare species from east Texas), and *Cephalotes* (one rare species from south Texas and another more common species from southeast Texas).

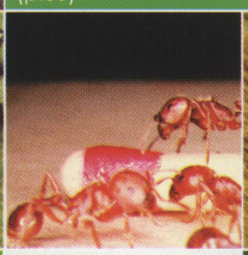
various ants

Dorymyrmex flavus (p.16)

M. minimum (p.31) M. pharaonis (p.31)

Pogonomyrmex (p.33)

Pheidole (p.32)

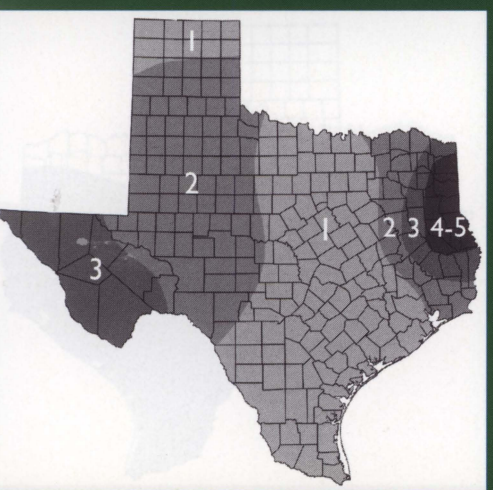


Creatogaster (p.29)

Tapinoma sessile (p.19)

Solenopsis invicta (p.34) Tapinoma melanocephalum (p.19)

Aphaenogaster Ants (*Aphaenogaster*)



Numbers on maps reflect approximate number of species known from the area.

Identification

Field identification. Aphaenogaster ants are medium-sized (3/16- 5/8"long), usually slender, and often dark brown or black in color. The workers are all the same size.

Lab identification. Aphaenogaster ants have two nodes between the thorax and abdomen, one pair of spines on the thorax, a 12-segmented antennae in which the end segments are not enlarged into a club-shape. Creigton (1950) provided the most recent key to identify species.

Similar species. Big-headed ants (Pheidole) and harvester ants (Pogonomyrmex) are often confused with Aphaenogaster ants. Workers of big-headed ants occur in two body sizes, the last three segments of the antennae end in a distinct club, and the soldiers have only two distinct teeth at the end of the mandible. Harvester ants have a more square or rectangular head when viewed from the front, have a series of very long hairs under the head, and have finely combed spurs on the hind legs.

Biology and behavior

Although these ants can sting, they usually are not very aggressive. Most species of Aphaenogaster are scavengers, forming small colonies with several hundred to a few thousand individuals and nesting in the ground, usually in open areas, but sometimes nesting underneath objects and occasionally in decaying wood. The workers forage singly.

Distribution

Of the 19 species of Aphaenogaster known from North America, eight occur in Texas. A single species, A. texana, occurs throughout the state; and another, A. cockerelli, is widespread throughout the west and Panhandle. *Aphaenogaster* alisetosa is restricted to far west Texas and four other species are restricted to the far eastern parts of Texas.

Pest Status

Aphaenogaster ants are usually not considered pest species.

Leaf-cutter Ants (*Atta*)

Identification

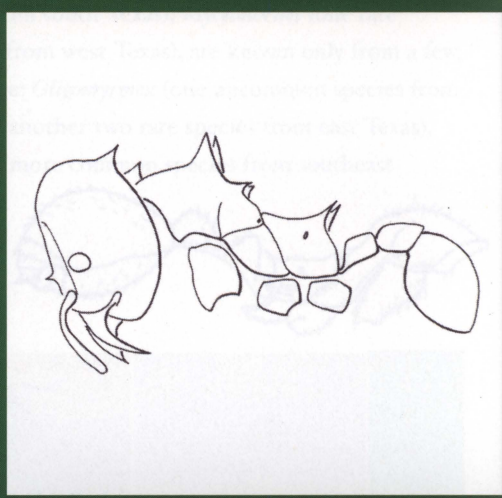
Field identification. Texas leaf-cutting ants, Atta texana, are easily identified by the large size (about 1/2") of their major workers, although workers may range in size to small (3/16"). They are reddish color, occur in dense foraging trails, and build large nests (p.15). Often, many of the medium and larger workers are seen carrying cut plant leaves back to their nest.

Lab identification. Leaf-cutter ants can be identified by having two nodes between the thorax and abdomen, a sting, spines on the head, and they are the only ants with three pairs of spines on the thorax.

Similar species. The only ants that can be confused with leaf-cutters are the harvester ants (Pogonomyrmex), which are also large, often reddish in color, and also travel in dense foraging trails. The leaf-cutters are easily identified by having more spines on the thorax, and they are often carrying pieces of leaves.

Biology and behavior

Leaf-cutting ants travel in dense foraging trails and many are seen carrying pieces of leaves. Although they generally do not sting, they can give a painful bite. Leaf-cutter ants produce very large ground nests with multiple terrace-topped mounds with central openings, and up to three to five million individuals. They feed mostly on fungi grown from cut plant material, but sometimes also scavenge or feed on plant juice and parts.

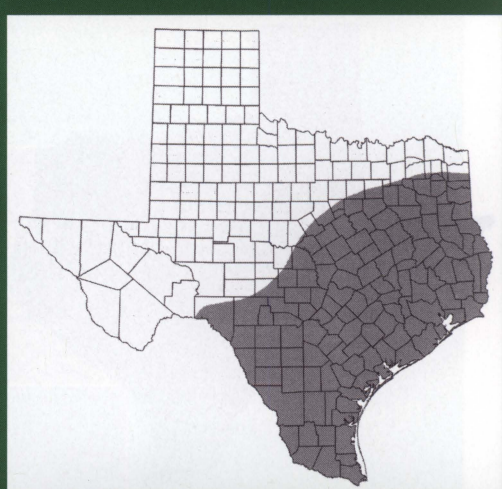


Distribution

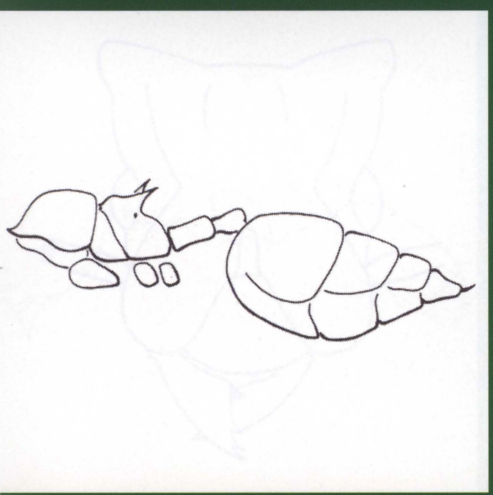
Of the two species of leaf-cutting ants known from the United States, only Atta texana occurs in Texas. It is found throughout the central, eastern, and southern parts of the state.

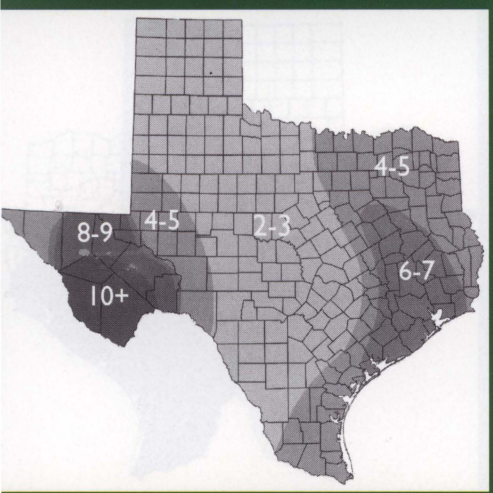
Pest status

Leaf-cutting ants are considered pests when they damage plants. With their large colonies, they can destroy some plants in areas of land where ants forage that can exceed an acre in size. They are particularly damaging in pine reforestation and citrus production areas in east and south Texas, and are important landscape pests in urban and rural areas where they occur.



Acrobat Ants (*Crematogaster*)





Numbers on maps reflect approximate number of species known from the area.

Identification

Field identification. Acrobat ants are easily identified because they often hold their abdomen over their head, like they are threatening to sting, when they are disturbed. The ants are small to medium sized (1/8-3/8") and the workers are all the same size (p.20). Species range in color from yellow to black.

Lab identification. Acrobat ants have two nodes between the thorax and abdomen, a pair of spines on the thorax, 12-segmented antenna, and the abdomen is heart-shaped and attached somewhat below the postpetiole (p.26). Creighton (1950), Buren (1968), and Johnson (1988) provided the most recent key to identify species.

Similar species. No other ants have an abdomen that is heart-shaped and attached below the petiole like the acrobat ants.

Biology and behavior

Acrobat ants sometimes forage in columns. Although they seldom sting, they can bite. While some species produce exposed nests, many nest under objects, in rotten logs, or are cavity nesters in shrubs or trees. Their colony size is usually a couple thousand members. They are omnivorous; many tend aphids and occasionally eat dead or living insects and sometimes can be attracted to sweets or meat.

Distribution

Of the 27 species known of acrobat ants known from the United States, 17 occur in Texas. Although *C. punctulata, C. laeviuscula,* and *C. minitussima* occur widely throughout the state, six species are found only in eastern Texas and eight occur only in western Texas.

Pest status

Although acrobat ants have a stinger, they seldom sting. Sometimes acrobat ants will enter houses near windows or electrical cables and nest in insulation.

Fungus Ants (*Cyphomyrmex*)

Identification

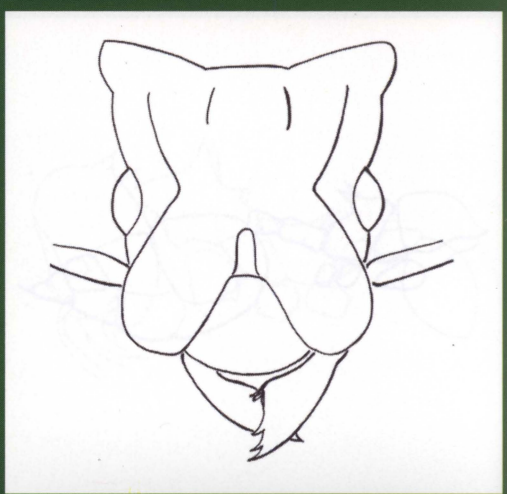
Field identification. Fungus ants are small, about 1/8", slow moving, and often light colored. Workers are all the same size.

Lab identification. Fungus ants have two nodes between the thorax and abdomen, three pairs of blunt knobs on the thorax, an 11-segmented antenna, and large, broad, flat lobes on the front of the head covering the bases of the antennae. They have one sided crater mounds (p.24). Snelling and Longino (1992) provided the most recent key to identify species.

Similar species. In Texas, only fungus ants have the blunt knobs on the thorax and large lobes on the front of the head. *Trachymyrmex* ants are similar, but their spines are short and sharp, and they do not have large lobes on the front of the head.

Biology and behavior

Fungus ants are slow-moving and often play dead when disturbed. The small ground-nesting colonies have, at most, two- to three-hundred individuals and are either in exposed areas (usually for *C. wheeleri*), or under rocks (*C. rimosus*), or sometimes in rotten wood. They usually feed on fungi grown on arthropod feces and sometimes scavenge.

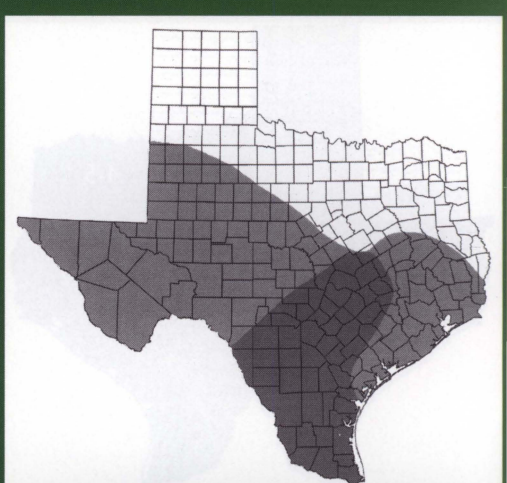


Distribution

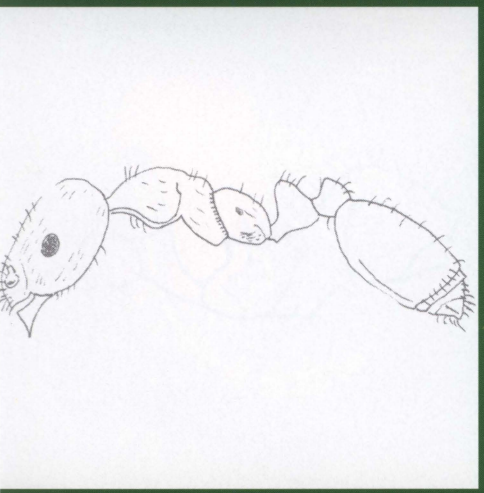
Both species of fungus ants known from North America occur in Texas. *Cyphomyrmex* wheeleri is widespread throughout the western, central, and southern parts of the state and *C. rimosus* is widespread throughout the southeastern and southern parts of the state.

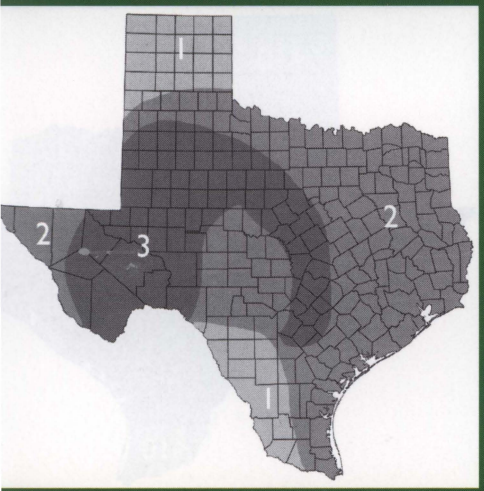
Pest status

The fungus ants are not considered pests.



Pharaoh and Little Black Ants (*Monomorium*)





umbers on maps reflect approximate
umber of species known from the area.

Identification

Field identification. Ants in the genus *Monomorium* are very small (1/8") light brown or black ants (p.20) that commonly nest in soil. The more common species tend to be dark colored. The exotic Pharaoh ants are light colored and almost always found in small places within buildings (p.20 & 26).

Lab identification. Little black ants and pharaoh ants are common and can be identified by their small size, color, presence of both a petiole and postpetiole, 12-segmented antennae, and absence of propodial spine. DuBois (1968) provided the most recent key to identify species.

Similar species. The other myrmecine ants in Texas that do not have propodial spines are ants in the genus *Solenopsis*, which have only a 10-segmented antenna with a 2-segmented antennal club. Fire ants are usually larger and build large, dome-shaped mounds. Thief ants are smaller, light in color and have no obvious nests.

Biology and behavior

Monomorium are slow moving, and often form foraging trails. Although they can sting, their sting is usually too small to penetrate the skin. Colonies can contain tens of thousands of individuals with more than one queen and often have satellite nests. Little black ants nest in exposed areas often under small piles of soil, stones, in dead wood or stone cavities. May nest in foundations and walls if moist. They mostly scavenge, but some feed on sweet foods and others occasionally are predators, and they are attracted to grease, meats, sweets, and sometimes fruits.

Distribution

Of the eight species of *Monomorium* known from North America, five occur in Texas. The little black ant, *Monomorium minimum*, is widespread throughout the state, *M. pharaonis* is widespread throughout the eastern part, and *M. cyanum* throughout the western part.

Pest status

The native *Monomorium* are rarely considered pests and have been shown to invade and kill small fire ant colonies, and can be considered to be beneficial. *Monomorium pharaonis* is a major nuisance species. It is almost always found within structures and is difficult to eliminate. If disturbed or foraging trails disrupted by the application of contact insecticide treatments, the colony often buds off into several separate colonies. Therefore the best control method is by using slow acting ant bait products so that the toxicant is spread throughout the colony before ants begin to die.

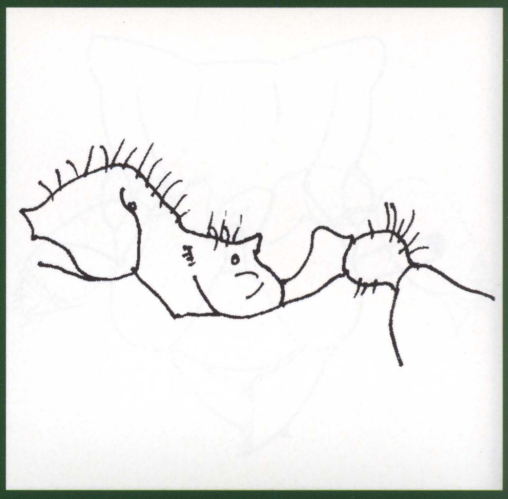
Big-Headed Ants (*Pheidole*)

Identification

Field identification. Big-headed ants can be identified by noting that the workers in colonies occur in two distinct sizes (p.20), the larger with much larger heads than the smaller workers. Different species range in size from small to medium sized (1/8-3/8") and in color from light to dark brown (p.26). Most nests occur in the soil and are often inconspicuous.

Lab identification. Big-headed ants can be identified by having propodial spines, a 12-segmented antenna with the last three segments forming a distinct club-shape, distinct worker and soldier casts, the mandibles of the soldiers have only two teeth at the tip followed by a small tooth. Their thorax has segments that are usually stair-stepped. Gregg (1958) and Wilson (2002) provided the most recent keys to identify species.

Similar species. Because there are so many species of big-headed ants, they can be confused with many other groups of ants, including fire ants (*Solenopsis*), little black ants (*Monomorium*), *Aphaenogaster*, and pavement ants (*Tetramorium*). Fire ants and little black ants do not have the propodial spines, *Aphaenogaster* ants do not have a soldiers, and have 7 teeth on the mandibles, and pavement ants have numerous distinct long ridges running the length of the head.

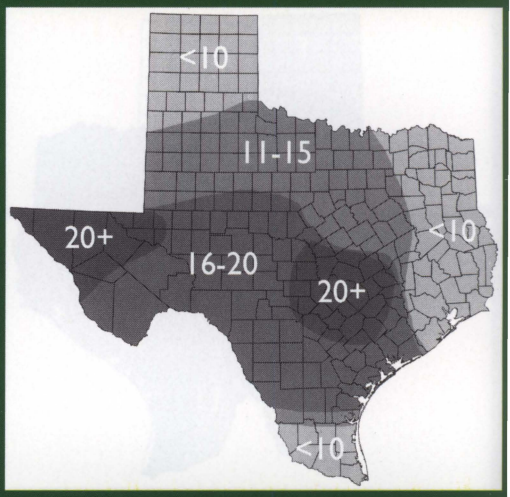


Biology and behavior

Big-headed ants have small to medium sized, ground-nesting colonies. The nests of several species, such as *P. hyatti* and *P. porcula*, are usually found by their craters in exposed areas, but most species build their nests under objects or in rotting wood. Although some big-headed ants feed on seeds, others are scavengers or are omnivorous. While big-headed ants are capable of stinging, they are usually not aggressive.

Distribution

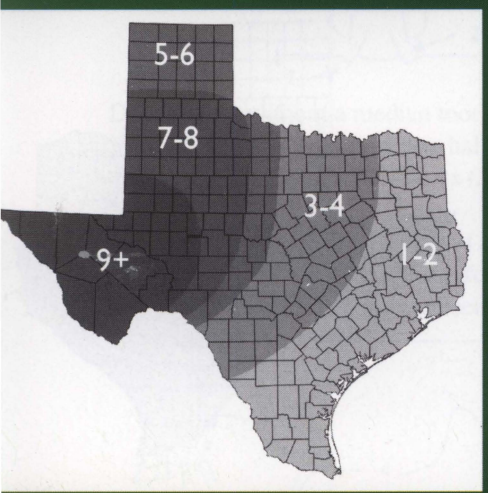
Of the 62 species of big-headed ants known from the United States, 42 occur in Texas. Although several species occur throughout the state and several others occur over much of the state, most are known from more restricted areas and seven are known only from a single county. The fewest species occur in the northern panhandle, and the extreme eastern and southern parts of the state. The greatest diversity of species, over 20, occurs in two areas: the far western counties and a large area in southeastern Texas.



Numbers on maps reflect approximate number of species known from the area.

Pest status

Big headed ants are rarely considered pest species. It has also been shown that some species will invade and kill small fire ant colonies.



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Identification

Field identification. Harvester ants are large (about _"), reddish ants (they are sometimes commonly called "red ants" in Texas (p.26). Harvester ants can often be easily identified by their nest structure, which is either a large, flat mound surrounded by an area of small gravel, or a moderately large circular cone of sand (p.15). Workers are all the same size.

Lab identification. Harvester ants have two nodes between the thorax and gaster, a 12-segmented antenna, propodial spines, and have a broad, rounded head, with long hairs underneath. Cole (1968) and Tauber (1998) provided the most recent key to identify species.

Similar species. The only ants that can be confused with harvester ants are Texas leaf-cutter ants (*Atta texana*) and possibly larger Aphaenogaster. Leaf-cutter ants are large and reddish also, but have a pair of short spines on the top of the head and two pairs of spines on the thorax and Aphaenogaster ants usually do not have the long hairs under the head and the head is often distinctly longer than wide, whereas the heads of harvester ants are about as long as they are wide.

Biology and behavior

Harvester ants are common in arid regions usually with sandy soil where they are often seen in dense foraging trails near their nests. Some species, such as *P. barbatus* and *P. rugosus* build large exposed, flattened mounds surrounded by small gravel or pebbles and are common in disturbed habitats, while some species, such as *P. desertorum* and *P. comanche,* build small mounds with cones of primarily sand . The workers commonly clear the area around their nest of all vegetation, creating a bare area of fully exposed soil. They feed on seeds and are scavengers.

Distribution

Of the 24 species of harvester ants found in North America, 12 occur in Texas. Only *P. barbatus* is widespread in Texas, although *P. rugosus* is common in parts of western Texas. *Pogonomyrmex* comanche was the only species originally widespread throughout eastern Texas, but is now restricted to a few localities. *Pogonomyrmex* imberbiculus and *P. rugosus* historically reached eastern Texas and into southern Texas, but are now rare or absent from east Texas. All other species are found only in the west.

Pest status

Most species of harvester ants are not considered pest species. However, *P. barbatus* and *P. rugosus* are sometimes considered economically detrimental because they clear and eliminate substantial areas of grass around their nests. Harvester ants have a potent sting, but they are not normally aggressive and seldom sting, unless handled.

Fire Ants (*Solenopsis*)

Identification

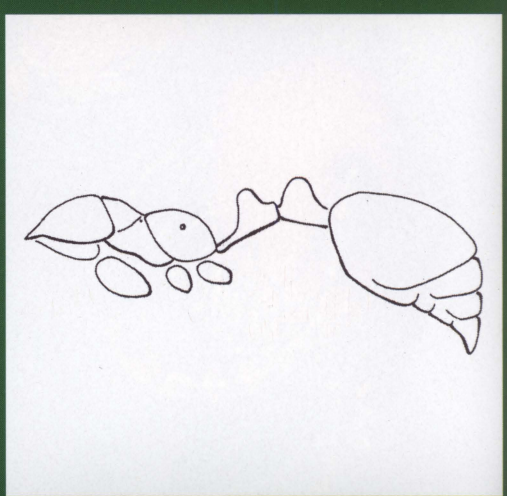
Field identification. Fire ants are most easily identified by their large, dome-shaped mounds without an entrance hole (p.15) and behavior when colonies are disturbed. Fire ants are generally medium sized, but have a large range of worker sizes. They are brownish-red in color (p.36).

Lab identification. Fire ants have a petiole and postpetiole, lack propodial spines, and have a 10-segmented antenna with the last two segments forming a distinct club-shape.. Trager (1991) published the most recent key to identify all fire ant species, and O'Keefe et al. (1999) developed a key to the identification of the major workers for the Texas species.

Similar species. Big-headed ants (*Pheidole*) and the little black ant can be confused with fire ants, but both have a 12-segmented antenna with the last three segments forming a distinct club-shape. Big-headed ants also have propodial spines.

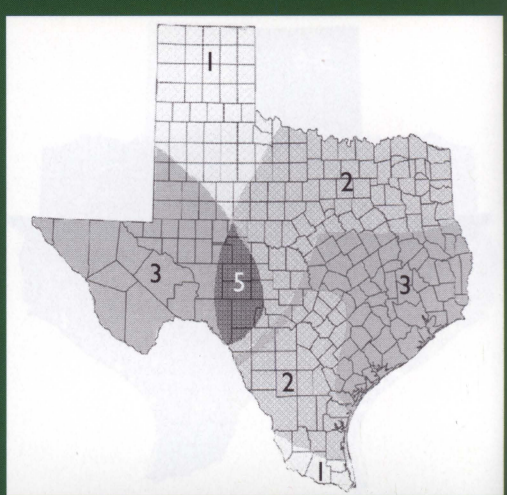
Biology and behavior

Fire ants are often very aggressive when disturbed and can deliver painful stings. They will actively crawl up any object placed into their mound. Fire ant colonies can be large, with several hundred thousand individuals and build large, dome-shaped mounds with no central entrance hole. The desert fire ant colonies are often smaller, consisting of only a few hundred individuals. In urban settings, fire ants prefer to build their nests in lawns, gardens, and plant beds, usually in exposed, sunny areas. Fire ants are predators, omnivores, and scavengers and will be attracted to meat and grease if they come indoors.



Distribution

Of the six species of fire ants known from North America, five occur in Texas. Historically, *S. xyloni* was widespread throughout the state, *S. geminata* widespread throughout the southwestern, southern, and eastern Texas, and *S. aurea* throughout western Texas and into parts of southern and eastern Texas. *Solenopsis xyloni* and *S. geminata* were once very common and widely distributed throughout the eastern and southern regions of Texas, but have been largely replaced by the accidentally introduced red imported fore ant, *S. invicta*. A systematic sampling for current distributions of *S. xyloni* and *S. geminata* in eastern and southern Texas has not been done.



Numbers on maps reflect approximate number of species known from the area.

Pest status

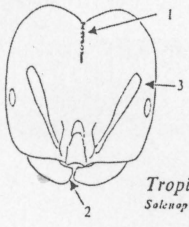
Of fire ants, *S. invicta* are an especially important pest species. They deliver a sting with a unique venom that produces a whitish, fluid-filled pustule. They are of medical importance to venom-sensitive people and animals, and when victims receive multiple stings that can lead to shock, health problems and occasionally death. *Solenopsis invicta* is considered a threat to biodiversity and is also known to damage electrical equipment. *Solenopsis invicta* is the primary pest ant species in Texas due to its high mound density and reproductive potential. In some instances, fire ants are considered beneficial insects because these predatory ants help to control populations of pest insects.

Identification of the major workers of Fire Ants in Texas.

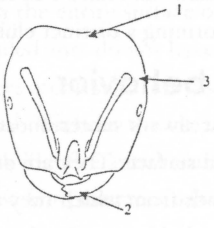
Two nodes present between thorax and abdomen, eyes present, 10 segments on antennae with 2 segments forming a club, no spines on the propodeum, over 2 mm is length. (see page 20)

A Vertex of head with deep grove (1), Mandibles without teeth and entirely black (2), short antennal scape reaching half way to the vertex (3). ----------*S. geminata* (Tropical FA).

Vertex of head just indented (1), mandibles with teeth (2), long antennal scape reaching over half way to the vertex (3). ----------(B).



Tropical fire ant
Solenopsis geminata



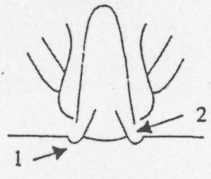
B Gaster light colored, yellow ñ red to reddish ñ yellow. ----------
----------(C).

Gaster dark colored, dark brown to black. ----------(D).

C Clypeal teeth distinct (1), clypeal ridge distinct (2), vertex dull, with many hairs (3). ----------*S. aurea* (Desert FA).

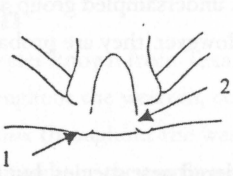
Clypeal teeth reduced (1), clypeal ridge reduced (2), vertex shiny, few hairs (3). ------
----------*S. amblychila* (Desert FA).

Solenopsis aurea



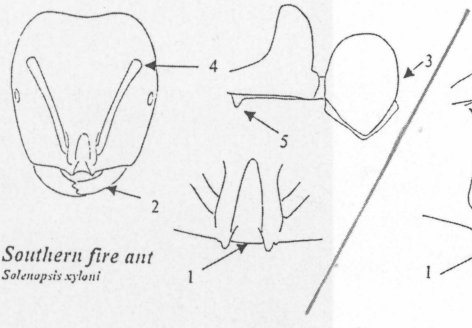
Desert fire ants

Solenopsis amblychila

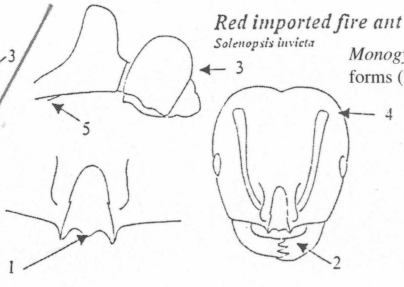


D Clypeus without a median tooth (1), mandible with 3 teeth (2), postpetiole is rounded (3), antennal scape reaches halfway between eye and the vertex (4), and the petiole with distinct petiolar process (5). ---------- *S. xyloni* (Southern FA).

Clypeus with a median tooth (1), mandible with 4 teeth (2), postpetiole indented (3), antennal scape reaches three-fourths or more between eye and vertex (4), petiolar process either reduced or absent (5), and has a striated mesepimeron (see Fig. B, page 8).----------*S. invicta* (Imported FA).



Southern fire ant
Solenopsis xyloni



Red imported fire ant
Solenopsis invicta

Monogyne and Polygyne forms (P20) Greenberg et al.1985

Thief Ants (*Solenopsis*)

Identification

Field identification. Thief ants, a subgroup of Solenopsis species, do not have surface mounds and are very small (p.20). They are usually light-brown colored.

Lab identification. Thief ant workers, like all Solenopsis, have a petiole and postpetiole, lack propodial spines, and have a 10-segmented antenna with the last two segments forming a distinct club-shape, but are normally uniform in size with smaller eyes or no eyes.

Similar species. The genus Monomorium, particularly Pharaoh ants due to their light color, can be confused, but are very rarely found outside and have a 12 segmented antenna with the last three forming a distinct club.

Biology and behavior

Thief ants are almost always subterranean, and generally are not found on the soil surface. They are often closely associated with other ant mounds from which they are known to steal resources. Thief ants do have a sting, but they are not aggressive and their stinger is not long enough to penetrate human skin. Thief ants have also been shown to be beneficial in that they invade small fire ant colonies and kill them. Fire ants do not invade areas with a high Thief ant density. Thief ants are both predators and scavengers. They are attracted to oils and meat.

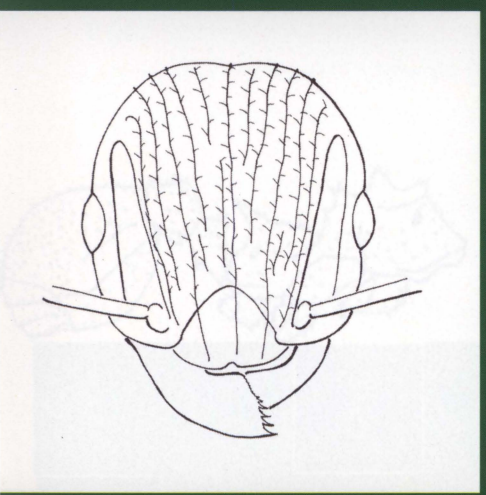
Distribution

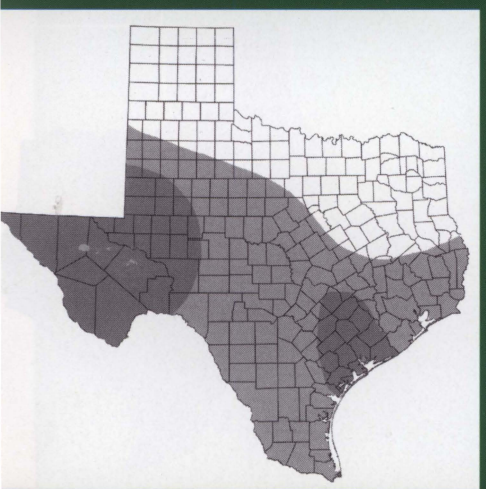
There is much debate about the relationship of the various species of thief ants with other ants and the complexities of the species. This is an undersampled group and their distribution is unclear. However, they are probably found throughout Texas.

Pest status

Thief ants are not considered pest species, but may, in fact help suppress red imported fire ants by raiding small colonies.

Pavement Ants *(Tetramorium)*





Identification

Field identification. Pavement ants are slow moving, medium sized (1/4") brown and black ants Colonies do not produce a distinct mound. Workers are uniform in size and often form foraging trails.

Lab identification. Pavement ants have a petiole and postpetiole, propodial spines, 12-segmented antennae, and a series of fine ridges running the length of the head Bolton (1979) provided the most recent key to identify species.

Similar species. The only ants that can be confused with pavement are big-headed ants. The easiest way to tell ants of these two groups apart is that pavement ants have distinct front to back ridges on the entire surface of the head, and although most big-headed ants do not have any ridges, in those that do, the ridges are usually less distinct and only on the top part of the head. Without the use of magnification, pavement ants can look like fire ants because they both are similar in size and color, but pavement ants are much slower moving, and are uniform in size.

Biology and behavior

Pavement ants form foraging trails. Colonies may contain ten thousand individuals. In urban settings, they often nest in cracks in or near sidewalks and pavement next to landscape elements or at the base of trees; otherwise, they usually build nests with small craters in exposed areas, rarely building nests under objects. Although they can sting, they are not aggressive. They are omnivorous and scavenge, and will be attracted to grease, meat, and honey.

Distribution

Of the three species known from Texas, *T. spinosum* is widespread throughout the western, central, and southern regions, *T. hispidum* throughout the western region, and *T. bicarinatum* throughout the southeastern region.

Pest status

Pavement ants are sometimes considered nuisance species because of their habit of nesting between cracks in pavement and sidewalks (only *T. bicarinatum* usually), or when worker ants forage indoors.

Trachymyrmex Ants (*Trachymyrmex*)

Identification

Field identification. *Trachymyrmex* are medium sized (1/4") reddish-brown ants that make rather large crescent-shaped mounds. The slow moving workers are all one size.

Lab identification. *Trachymyrmex* ants have two nodes between the thorax and abdomen, several pairs of stout spines on the thorax, and an 11-segmented antenna . Creighton (1950) provided the most recent key to identify species.

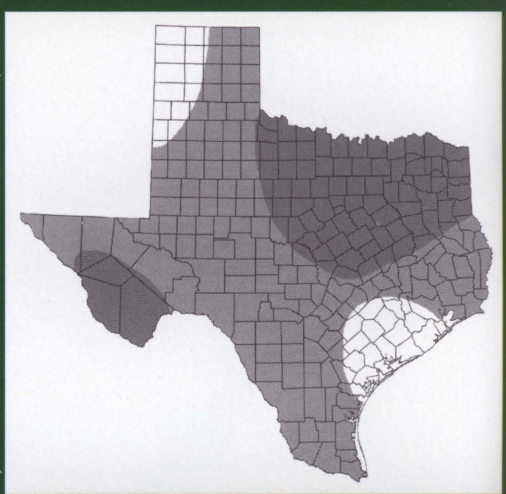
Similar species. *Trachymyrmex* ants resemble leaf-cutter ants (*Atta*) and fungus ants (*Cyphomyrmex*). They differ from fungus ants by having spines instead of blunt tubercles on the thorax and not having lobes on the head, covering the antennae. They differ from leaf-cutter ants by having three pairs of spines compared to two in the leaf cutters. The first segment of the gaster also has raised tubercles in *Trachymyrmex*, but not in leaf-cutter ants.

Biology and behavior

Trachymyrmex ants feign death when disturbed and, although they can sting, they are not aggressive. They do not occur in well-developed trails. They produce small, ground nesting colonies in open, exposed areas and the nests are often topped with a chimney-like turret. Developed colonies contain 200-300 individuals. They feed on fungi that they grow in fungal gardens, and scavenge.

Distribution

Of the five species known from North America, all occur in Texas. *Trachymyrmex turrifex* is widespread throughout the state, *T. septentrionalis* is widespread in the northeast, and *T. smithi* occurs in the extreme west.

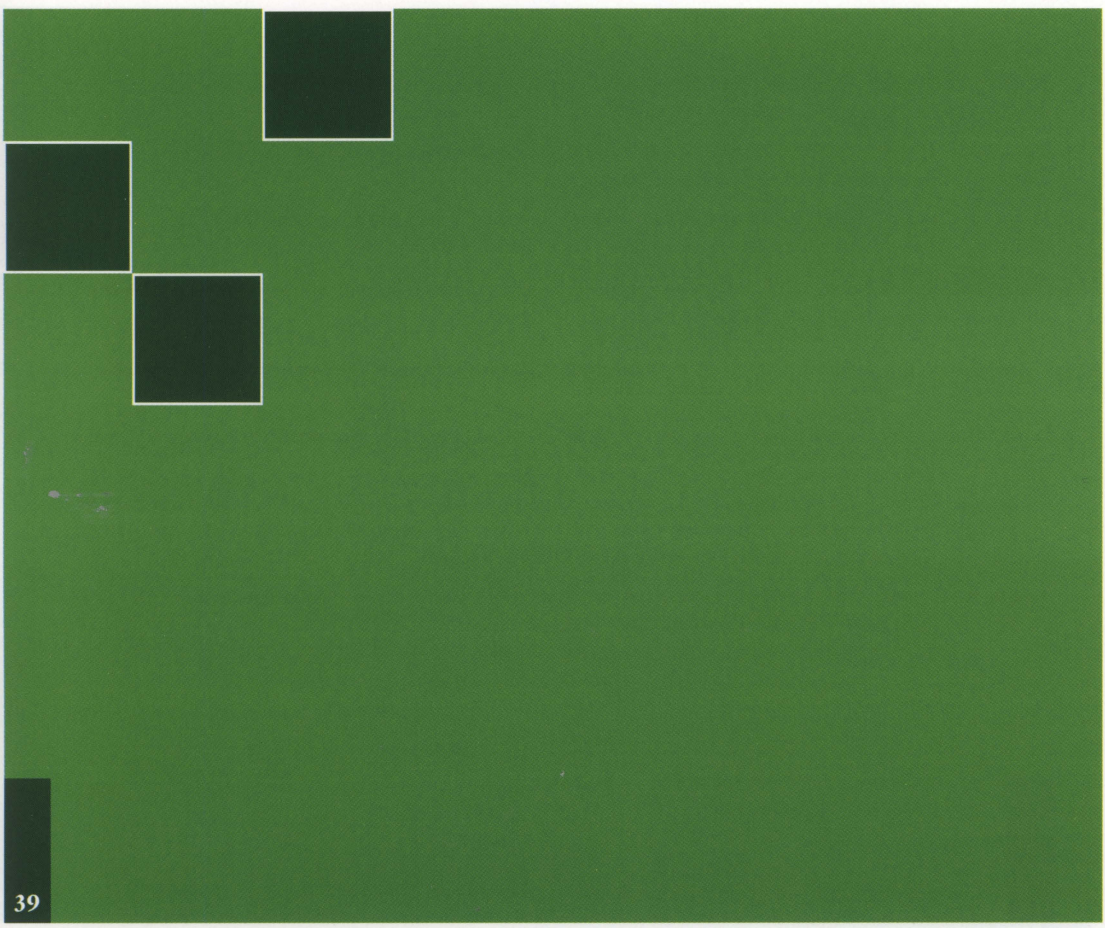


Pest status

Trachymyrmex ants are not considered pest species.

pest ants not yet in texas

Several of the world's notorious pest ants, such as the Argentine ant (*Linepethima humile*), pharaoh ant (*Monomorium pharaonis*), ghost ant (*Tapinoma melanocephalum*), crazy ant (*Paratrechina longicornis*), and red imported fire ant (*Solenopsis invicta*) have already invaded Texas. Several others, such as the little fire ant (*Wasmannia auropunctata*), a big-headed ant (*Pheidole megacephala*), white-footed ant (*Technomyrmex albipes*), another crazy ant (*Anoplolepis longipes*), and Singapore ant (*Monomorium destructor*) have yet to be recorded from the state.



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see the web site for more details: (http://fireant.tamu.edu).

the Common Ant Genera of Texas

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Fire Ant Research
and Management Plan

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