Identification and Habits of Key Ant Pests in the Pacific Northwest

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Washington State University • Oregon State University • University of Idaho

Cover images are from www.antweb.org, as photographed by April Nobile.
Top row (left to right): Carpenter ant, *Camponotus modoc*; Velvety tree ant, *Liometopum occidentale*; Pharaoh ant, *Monomorium pharaonis.*
Second row (left to right): *Aphaenogaster* spp.; Thief ant, *Solenopsis molesta*; Pavement ant, *Tetramorium* spp.
Third row (left to right): Odorous house ant, *Tapinoma sessile*; Ponerine ant, *Hypoponera punctatissima*; False honey ant, *Prenolepis imparis*.
Bottom row (left to right): Harvester ant, *Pogonomyrmex* spp.; Moisture ant, *Lasius pallitarsis*; Thatching ant, *Formica rufa.*

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Originally written in 1976 by Roger Akre (deceased), WSU entomologist; and Art Antonelli.

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Ants (Hymenoptera: Formicidae) are an easily recognized group of social insects. The workers are wingless, have elbowed antennae, and have a petiole (narrow constriction) of one or two segments between the mesosoma (middle section) and the gaster (last section) (Fig. 1).

Ants are one of the most common and abundant insects. A 1990 count revealed 8,800 species of ants had been described and that number has increased to more than 14,000. There are still a number of undescribed ant species in the world. The true number is probably more than 30,000.

Ants are also one of the most widely distributed of all insect groups. They occur from the Arctic tree line to the humid tropics, from Alaska to the extreme tip of South America, to the tip of Africa, Australia, and even to all the islands in the oceans. They are the most abundant of all social insects.

Since there are so many species of ants, and in such diverse habitats, it becomes obvious that ants are one of humans' principal insect competitors. Ants infest buildings as a nuisance, feed on human foods, and even cause structural damage.

Ants are also annoying because of their biting or stinging habits. Ant stings are responsible for a number of human fatalities in the United States each year. The effects of stings on a human depend on the ant species and the sensitivity of the person. Most deaths are caused by a hypersensitive reaction leading to anaphylactic shock.

General Biology

Many ant colonies are started by a single inseminated female, called a queen. From this single individual, ant colonies can grow to contain anywhere from several hundred to millions of individuals. Among the largest ant colonies are the army ants of the American tropics, with up to several million workers, and the driver ants of Africa, with 30 million to 40 million workers. A thatching ant (*Formica*) colony in Japan covering many acres was estimated to have 348 million workers. However, most ant colonies probably fall within the range of 300 to 50,000 individuals.

Ants normally have three distinct castes: males, queens, and workers. Males are intermediate in size between queens and workers and can be recognized by ocelli (simple eyes) on top of the head, wings, protruding genitalia, and large eyes. The sole function of the male is to mate with a winged female during the nuptial flight.

The winged female loses her wings soon after mating and becomes a queen. However, scars where the wings were attached remain. Queens usually also have ocelli in addition to large compound eyes and a large gaster for egg production.

The worker, the smallest member of the colony, usually lacks ocelli and is never winged. Workers of a single species may be of one size (monomorphic) or may vary considerably in size (polymorphic). Large workers are usually called soldiers or majors; very small workers are minors.

Ants pass through several distinct developmental stages in the colony: egg, larva, pupa, and adult. The egg is very small (less than 1 mm) and varies in shape according to species. The larva also varies in size and shape, but is usually white and is always legless. The pupal stage looks like the adult, but is soft, white, and motionless; many species are enclosed in a cocoon of a brownish or whitish papery material produced by the mature larva.

Ants produce winged reproductives usually at one time of the year (spring or fall, depending on species and colony disposition). Colony activity at the time of reproductive swarming is high. The winged females and males fly from colonies and mate, and shortly afterward the male dies. The inseminated queen then builds a small nest, lays a few eggs, and nurtures the developing larvae that soon hatch from the eggs. When adult workers appear, they take over the function of caring for the queen and the larvae, building the nest, and bringing in food for the colony. Colonies of some species may persist for 20 years or more.

Since there are so many species of ants with extremely diverse habits it is difficult to outline a common lifestyle. Some ants are strictly carnivorous, while others may specialize by eating fungi, seeds, or the "honeydew" of other insects. However, most ants that cause annoyance to homeowners are omnivorous and feed on a variety of foodstuffs.

Various ants make their nests in rotting logs, trees, soil, or even live inside the nests of other ants. Since they are such a diverse group, it is always best to check the habits of the particular species. Ants that are common in the Pacific Northwest states of Washington, Idaho, and Oregon occur in and around structures are presented in this publication.

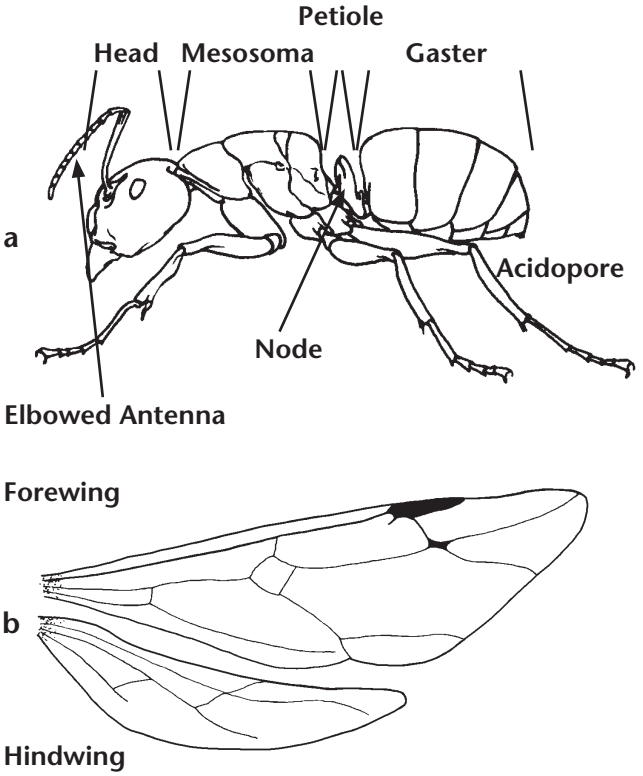

Fig. 1. (a) Profile of worker ant; (b) wings from a reproductive ant.

Identification

Ants are often confused with termites by homeowners. Consider the following features to separate ants from termites:

Ants

1. Strong constriction petiole or "waist" between mesosoma and gaster (Fig. 1a).
2. Elbowed antennae (Fig. 1a).
3. Forewing, when present, much larger than hindwing (Fig. 1b).
4. Workers are various colors and hard-bodied.

Termites

1. Abdomen broadly joined to thorax (no waist) (Fig. 2a).

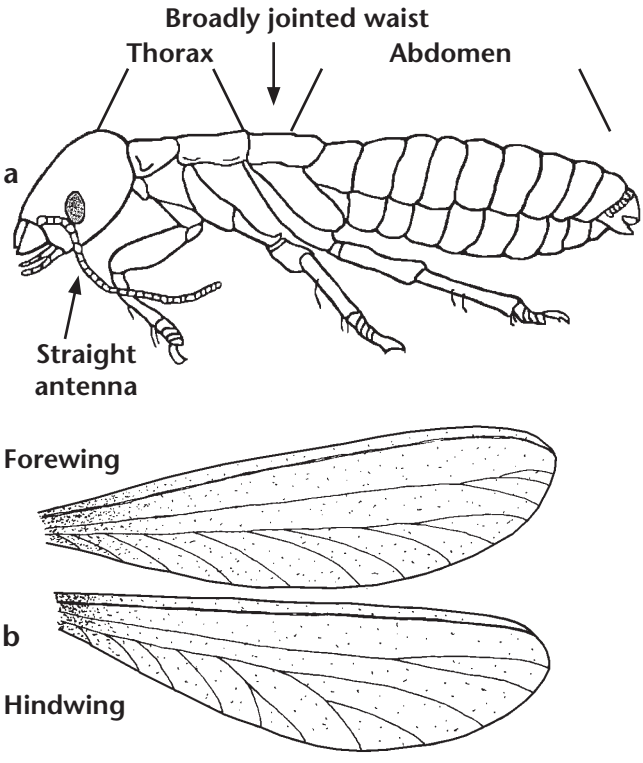

Fig. 2. (a) Profile of a worker termite; (b) wings from a reproductive termite.

2. Straight antennae (Fig. 2a).

3. Both pairs of wings, when present, of about equal size (Fig. 2b).

4. Workers are whitish and soft-bodied.

Ants in the Pacific Northwest that occur around structures are included in four subfamilies of ants:

1. Formicinae: carpenter ants, thatching ants, moisture ants, and small honey ants

2. Dolichodorinae: odorous house ants and velvety tree ants

3. Myrmicinae: pharaoh ants, little black ants, pavement ants, harvester ants, *Aphaenogaster* spp.

4. Ponerinae: ponerine ants

The following keys will assist in the identification of common household ants recorded as pests in the Pacific Northwest.

Note: The first key is for workers. Additional keys are provided for winged females and males. In selecting worker ants for the key, select the largest ants available.

Key to workers

(identifying many of the characteristics will require use of a hand lens)

1) Abdominal petiole composed of one segment (Fig. 3a) 2
   Abdominal petiole composed of two segments (Fig. 3b) (Subfamily Myrmicinae)..... 8

2) Node broad at the apex, rectangular (Fig. 4) (Subfamily Ponerinae) ..... *Hypoponera punctatissima*
   Node not broad at the apex, flattened or pointed (Fig. 1) 3

3) Tip of gaster with circular acidopore (opening) usually surrounded by a fringe of hairs (Fig. 5a) (Subfamily Formicinae) 4
   Opening at the end of the gaster slit-shaped, not surrounded by hairs (Fig. 5b) (Subfamily Dolichoderinae)..... 7

4) Profile of thoracic dorsum evenly convex (Fig. 6a) ..... carpenter ants, *Camponotus* spp.
   Profile of thoracic dorsum not evenly convex, with notch (Fig. 6b)..... 5

5) Epinotal spiracle a narrow slit (Fig. 7a)..... thatching ants, *Formica* spp.
   Epinotal spiracle rounded (Fig. 7b) 6

6) Scape surpassing occipital margin by less than one-third its length (Fig. 8a)..... moisture ants, *Lasius* spp.
   Scape surpassing occipital margin by at least one-third its length (Fig. 8b) ..... small honey ants, *Prenolepis imparis*

7) Node on pedicel flattened when viewed in profile (Fig. 9a).....odorous house ants, *Tapinoma sessile*
   Node on pedicel vertical when viewed in profile (Fig. 9b)..... velvety tree ants, *Liometopum* spp.

8) Antenna with 10 segments (Fig. 10a) ..... thief ants, *Solenopsis molesta*
   Antenna with more than 10 segments (Fig. 10b)..... 9

9) Spines on the epinotum (Fig. 11a)..... 10
   No spines on the epinotum (Fig. 11b) ..... pharaoh ants, *Monomorium pharaonis*

10) Rows of long hairs on underside of head (psammophore) (Fig. 12) ..... harvester ants, *Pogonomyrmex* spp.
    Short hairs on the underside of head, no psammophore..... 11

11) Dorsal profile of the mesosoma markedly step-like (Fig. 13a) .....*Aphaenogaster* spp.
    Dorsal profile of the mesosoma even or only slightly indented (Fig. 13b) ..... pavement ants, *Tetramorium* spp.

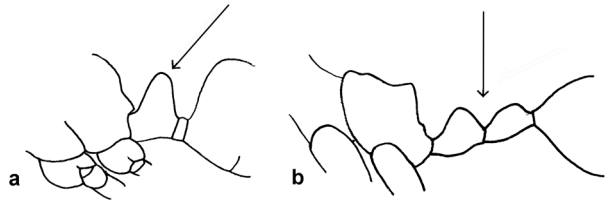

Fig. 3. Profile of abdominal pedicel. (a) One-segment; (b) two-segments.

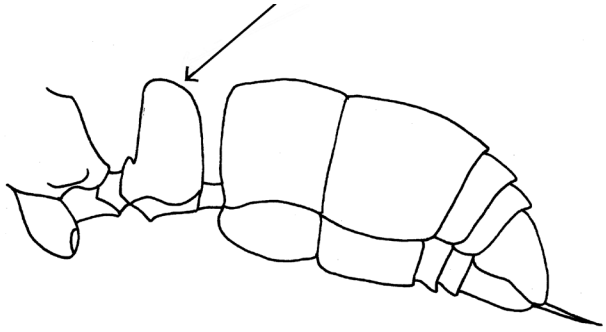

Fig. 4. Profile of pedicel and gaster of **Hypoponera punctatissima.**

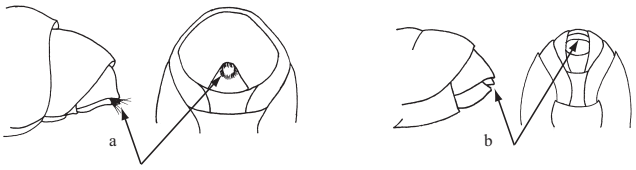

Fig. 5. Profile and ventral views of tip of gaster. (a) **Camponotus** *spp. (arrow: acidopore); (b)* **Liometopum** *spp. (arrow: transverse, slit-like opening).*

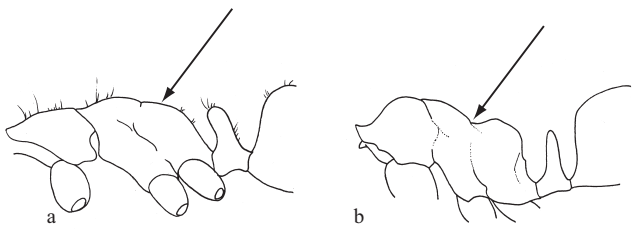

Fig. 6. Mesosoma profile. (a) **Camponotus** *spp.; (b)* **Lasius** *spp.*

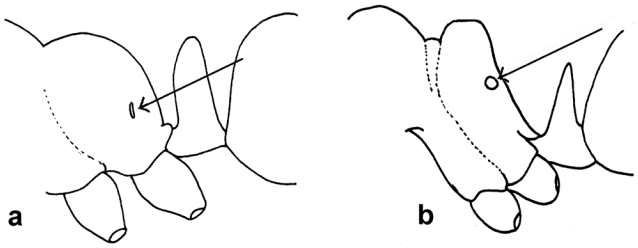

Fig. 7. Profile of epinotum and pedicel. (a) **Formica** *spp.; (b)* **Lasius** *spp.*

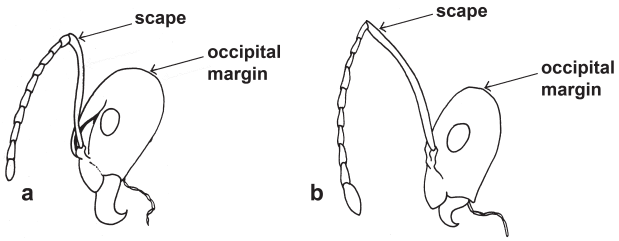

Fig. 8. Profile of head and antennae. (a) **Lasius** *spp.; (b)* **Prenolepis imparis.**

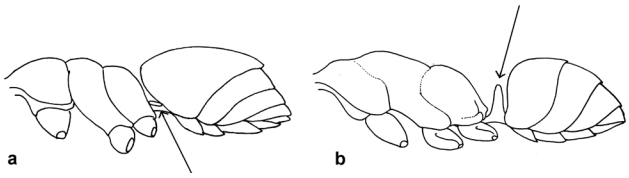

Fig. 9. Mesosoma and gaster. (a) **Tapinoma sessile***; (b)* **Liometopum** *spp.*

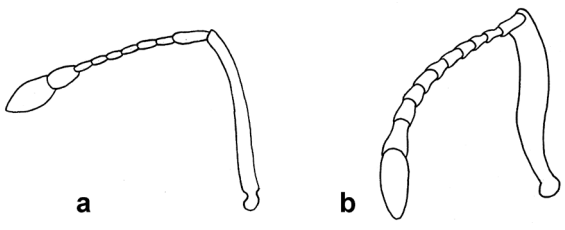

Fig. 10. Antenna. (a) **Solenopsis;** *(b)* **Pogonomyrmex** *spp.*

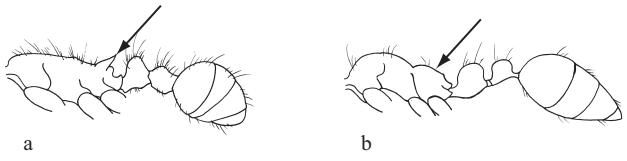

Fig. 11. Profile of mesosoma and gaster. (a) **Tetramorium** *spp.; (b)* **Monomorium pharaonis.**

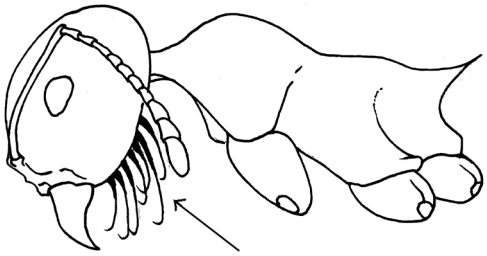

Fig. 12. Profile of head, **Pogonomyrmex** *spp.*

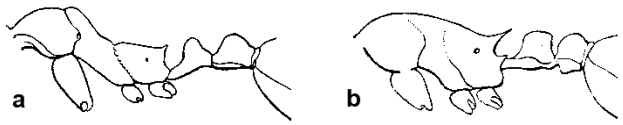

Fig. 13. Profile of the mesosoma. (a) **Aphaenogaster** *spp.; (b)* ***Tetramorium spp.***

Principal Pest Ants of the Pacific Northwest

Aphaenogaster spp.

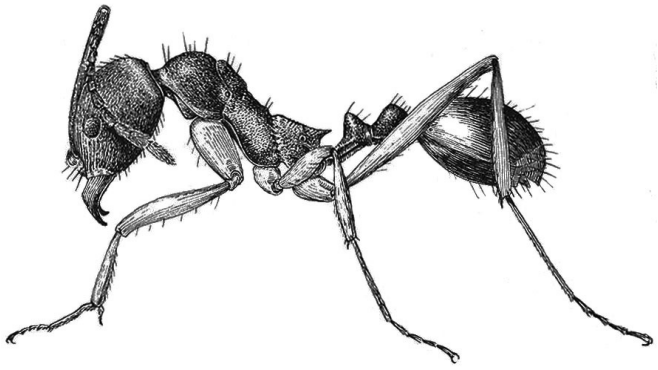

Fig. 14. **Aphaenogaster** *spp., lateral view.*

Most species are brown to reddish-brown, 4–6 mm, and monomorphic. Spines are present on the epinotum. These ants (Fig. 14) nest in wood in various stages of decay, in cavities in sound wood, or in soil beneath stones and wood. Colonies consist of up to 3,000 workers and several queens. All species feed on seeds, dead and live insects, and other arthropods. They have been reported to feed on household foods such as cakes, peanut butter, and meat.

Major concern: These ants are usually only an incidental pest for homeowners when the reproductives swarm in late summer to fall. Workers have a weak sting and will bite if a nest is disturbed, but most people consider these minor annoyances. The sting rarely penetrates human skin; bites hurt only if inflicted in a sensitive area.

Camponotus spp. (carpenter ants)

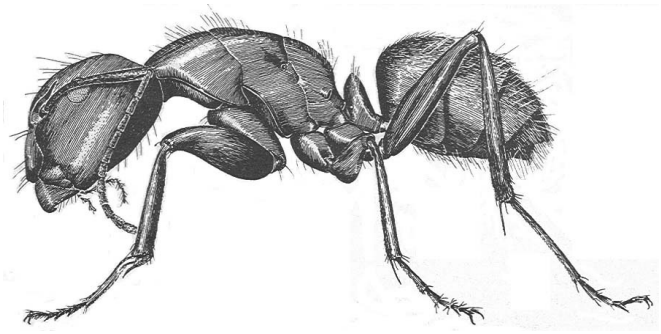

Fig. 15. **Camponotus** *spp., lateral view.*

Carpenter ant workers (Fig. 15) can be recognized by their evenly convex thoracic profile. Color is variable, with black or red and black bicolored species most common. Polymorphic workers range in size from 6 to 13 mm, which distinguishes them as one of the largest ant species. Colonies are usually found in logs, trees, or some other wooden structure. Workers forage for dead or live insects, honeydew, or common household foodstuffs. Reproductives are present in the colony during winter and swarm during the first warm days of spring (March–June, depending on locality). Several species occur throughout the Pacific Northwest.

Major concern: These ants are considered structural pests. While they will sometimes start their attack in wood in various stages of decay, they also attack sound wooden structures and can be extremely damaging. They do not eat wood, but instead clear areas inside the wood in which to raise their brood.

Remedial measures should include determining the location of the colony, removing all infested material and attendant rotten wood, and replacing it with sound wood. It is important that the location of the colony be determined, as much undue alarm is caused by sexual forms that wander into homes during and after swarming but are not established in the house or doing damage. See EB0818, Carpenter Ants: Their Biology and Control.

Formica spp. (Western thatching ant and other ants)

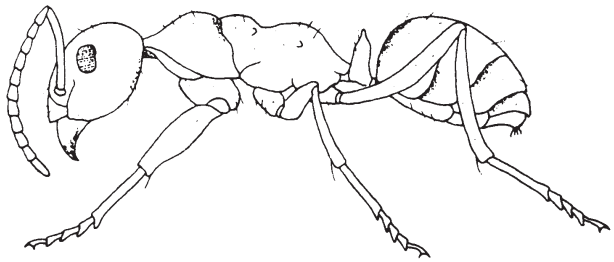

Fig. 16. **Formica** *spp., lateral view.*

Many species of western thatching ant (Fig. 16) are bi-colored, red and black; some species can be uniformly brown or black. These large polymorphic ants (4–9 mm) possess a notch or depression on top of the thorax. Many colonies have multiple queens. Colonies usually nest in soil or in rotten logs. Frequently these ants make a thatch or mound of plant material, often grass. They rarely nest in homes, but can be a problem, as they feed on sweet materials and will also attend aphids for honeydew. Reproductive swarms are produced in late summer to early fall. This group is one of the most abundant and diverse groups of ants; various species occur throughout the Pacific Northwest.

Major concern: These ants are usually only incidental pests, but they can bite quite hard and usually spray the area they have bitten with formic acid to produce a painful sensation. See EB0929, Thatching Ants.

Hypoponera punctatissima (ponerine ants)

Ponerine ant (Fig. 17) workers are yellow to brown, 2–3 mm, monomorphic, possess a thick broad node,

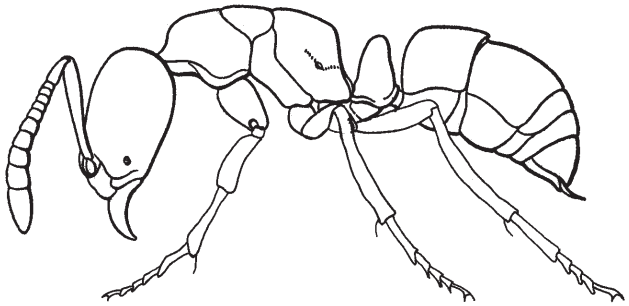

Fig. 17. **Hypoponera punctatissima***, lateral view.*

and have a stinger. The colonies are small, usually consisting of fewer than 100 workers. Nests are located in soil or rotten wood. This group, which was introduced from subtropical areas, has become established in urban areas around the Pacific Northwest. Generally only the winged females are encountered as they emerge into a building from a subterranean nest and are attracted to lights. The stings can be quite painful.

Major concern: Winged forms emerging in buildings can sting people and produce a welt or respiratory problems if there is an allergic reaction to the sting. Because the nests are usually underground, it is problematic when nests occur under concrete slabs where they are difficult to treat. Also, potted plants should be inspected for the possible introduction of these ants into a residential area.

Lasius spp. (cornfield, moisture, and other ants)

Most pest species of these ants (Fig. 18) are yellow but can vary to dark brown. Species are monomorphic (3–4 mm) and can be identified by a round epinotal spiracle that distinguishes this group from thatching ants. Colonies are usually found in decayed logs, stumps, or soil. These ants feed on sweet materials, attend aphids for honeydew, and become a general annoyance factor around homes. Reproductive swarming occurs in late summer to early autumn. These ants are a widely distributed genus, containing several species of pest status that occur throughout the Pacific Northwest.

Major concern: These ants have frequently been found associated with rotting wood in houses, but

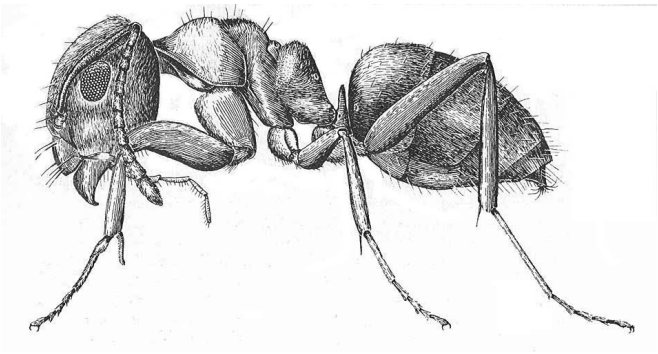

Fig. 18. **Lasius** *spp., lateral view.*

they should not be considered a structural pest. While several species may bring moisture into the wood structure to increase damage, the colony started in decayed wood. The problem invariably existed before the colony was established. The remedy is to remove the decayed wood and to replace it with sound material. Yellow ants and cornfield ants are collectively known as "moisture ants" in the Pacific Northwest. See EB1382, Moisture Ants.

Liometopum spp. (velvety tree ants)

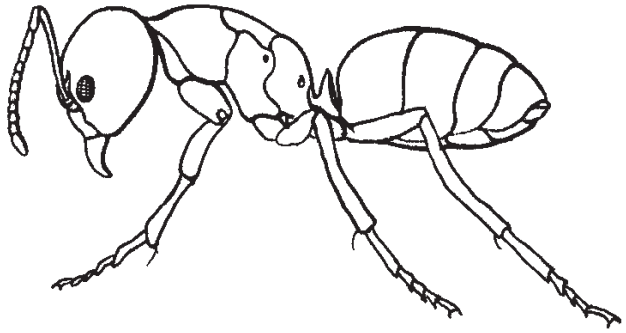

Fig. 19. **Liometopum** *spp., lateral view.*

Velvety tree ants (Fig. 19) are polymorphic (2–5 mm) ants that include two species: *L. occidentale* is bi-colored with a dark red mesosoma and black head and gaster, while *L. luctuosum* is dark brown to black. The latter ant is also known as the pine tree ant. Colonies have many queens and forage in trees for honeydew and live and dead insects. These ants resemble odorous house ants in that they possess anal glands that produce a coconut-like odor and run with their gasters raised when disturbed. These ants nest in trees, fallen timbers, and in structures where they mine wood and insulation.

Major concern: Velvety tree ants are considered nuisance pests because of their large numbers infesting structures and foraging on foods in the household. In addition, these ants infest wood and are considered wood-destroying organisms.

Monomorium pharaonis (pharaoh ants)

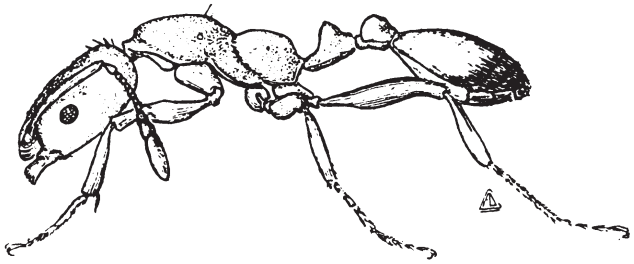

Fig. 20. **Monomorium pharaonis***, lateral view.*

Pharaoh ants (Fig. 20) are an introduced species that was native to Africa. The ant is yellow or light brown, about 2 mm, and monomorphic. Colonies possess many queens. These ants do not swarm but produce winged forms in the colony. Additional colonies are produced by the splitting of large mature colonies.

Major concern: These omnivorous ants will eat practically any food material in homes, including bread, cookies, cakes, sugar, syrup, liver, bacon, and dead insects. See EB1514, Pharaoh Ant.

Prenolepis imparis (small honey ants)

This ant (Fig. 21) is known as the small honey ant, the false honey ant, or the winter ant. The monomorphic workers are yellow to brown, 2–4 mm, and have a constriction on the thorax that gives it an hourglass shape from a dorsal view. It forages in very cold conditions, hence the name winter ant. Their food sources include honeydew and sweets, but they will also feed on household food such as bread and meat. These ants nest in soil but may trail into structures in inclement weather.

Major concern: These are nuisance pests and homeowners become aware of their presence in

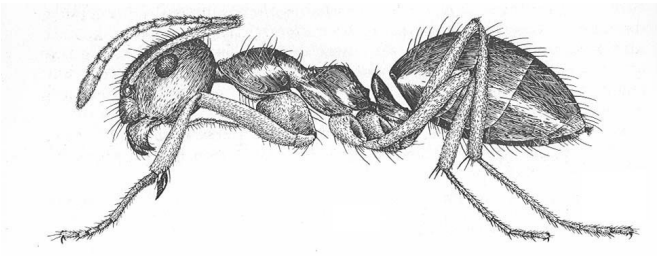

Fig. 21. **Prenolepis imparis***, lateral view.*

the early spring when other ants have not begun foraging. Vegetation in contact with structures provides avenues to enter structures.

Pogonomyrmex spp. (harvester ants)

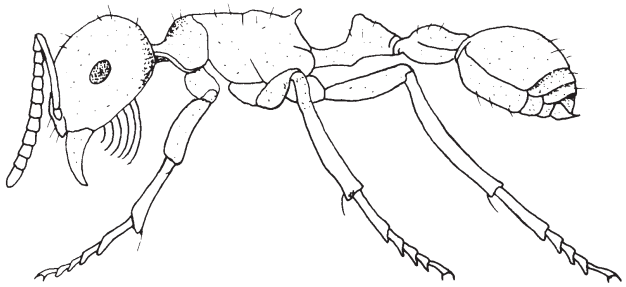

Fig. 22. **Pogonomyrmex** *spp., lateral view.*

Most species of harvester ant (Fig. 22) are reddish or reddish brown and monomorphic (6–8 mm). These ants are easily recognized by their psammophore (Fig. 12) or beard under the "chin," which is used as an aid in digging for seeds. Harvester ants nest only in sandy soil of a particular texture. Ordinarily these ants feed on seeds of grasses and various weeds, but they can also be a problem in alkali bee beds. Reproductive swarming occurs in spring.

Major concern: These ants are among the few in the Pacific Northwest that can give a person a rather severe sting, somewhat like a honey bee or yellowjacket. Since the greatest number of colonies of these ants occurs along the Snake River and Columbia River areas, people who are stung are usually engaged in picnicking, fishing, rock-hounding, or other recreational activities. This is usually not a serious pest, unless there is an allergic reaction; few people are stung.

Solenopsis molesta (thief ants)

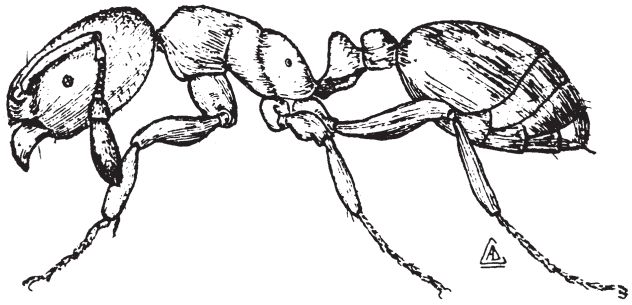

Fig. 23. **Solenopsis molesta***, lateral view.*

This native species is one of the smallest species of ants occurring in the Pacific Northwest. Thief ants (Fig. 23) are sometimes confused with pharaoh ants. Monomorphic workers range from 1.3 to 1.8 mm. The antennal club is unusually long with two segments. Body color ranges from yellowish or light brown to dark brown. Colonies consist of many hundreds to a few thousand individuals. These ants nest in exposed soil or under various objects, in rotting wood, and in the woodwork and masonry of houses. Swarming usually occurs from mid-summer to early fall. These highly predaceous ants, however, will also feed on honeydew, nuts, grains, and many household foods. They earn their name by robbing other ants of food.

Major concern: These ants can be a nuisance house pest because of the wide range of foods it consumes. It is also an intermediate host for one of the poultry tapeworm species.

Tapinoma sessile (odorous house ants)

The odorous house ant (Fig. 24) is monomorphic, varies from brown to black, and possesses anal glands that produce a rotten, coconut-like odor when disturbed. Workers range from 2.5 to 3.5 mm long. Colonies nest in a wide variety of habitats such as woodland, beaches along rivers and lakes, under bark of stumps and logs, and in houses. When alarmed, workers dash about with abdomens raised. They will tend aphids and will also feed on wide variety of household foods, such as raw and cooked meats, dairy products, and vegetables; however, they prefer sweets. These ants are found throughout the Pacific Northwest.

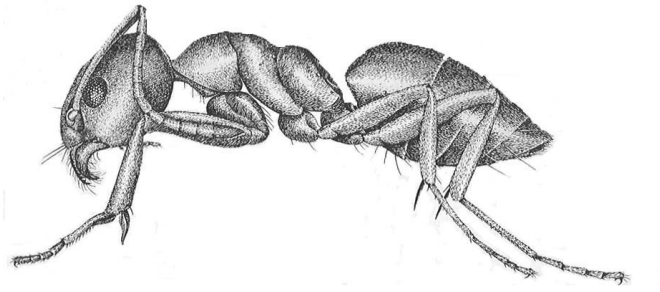

Fig. 24. **Tapinoma** *spp., lateral view.*

Major concern: These ants are primarily an annoyance factor because of their odor and preference for sweets. They are usually found in abundance in houses. See EB1550, Odorous House Ant.

Tetramorium spp. (pavement ants)

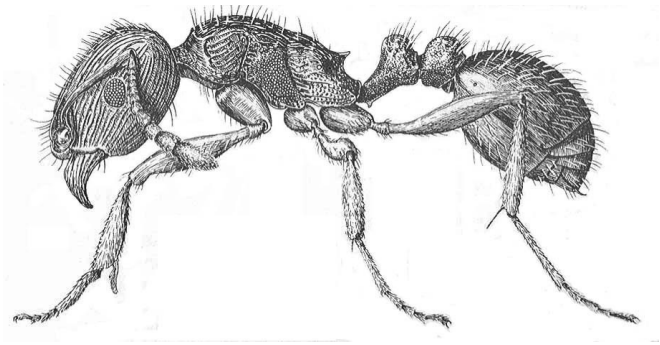

Fig. 25. **Tetramorium** *spp., lateral view.*

These monomorphic workers (2.5–3 mm long) range from light brown to reddish brown. The head and thorax of pavement ants (Fig. 25) are sculptured with numerous parallel grooves. Colonies, which have many queens, nest in exposed soil, under stones or pavement, and in rotting wood. Swarming occurs mostly in mid-summer. These ants forage on seeds, honeydew, sap, dead and live insects, and a variety of household foods. They commonly excavate soil from around pavement and stones or from under concrete slabs. They can sting, especially if trapped in clothing.

Major concern: Pavement ants are nuisance pests and cause unsightly piles of sand on driveways, patios, sidewalks, or in basements. They also forage on food items in structures. Skin reactions to the stings may occur. These ants are also intermediate hosts to poultry tapeworms.

Identification of winged reproductives

Ideally, ant genera and species are identified using workers. Their more dependable characteristics lend themselves to identification when using a dichotomous key.

Reproductive forms (females and males) of ants are more difficult to identify. Dependable characteristics are usually confined to differences in the wings and a few characteristics that are not readily visible. Queens lose their wings shortly after mating, losing this identification characteristic. People often select a male or queen ant for identification and, all too often, the queen specimens are without wings.

The following key will help identify common ants in many cases where only reproductive forms of ants with wings are present. When workers are available, you will find them easier to identify.

Before embarking on the identification of winged ants, follow these pointers:

1) Obtain a 10X hand lens or magnifying glass.

2) Prepare the wings by carefully removing the forewing, preferably with a fine-pointed scissors, as close to the body as possible, and put into alcohol.

3) Wing venation is much easier to observe if the wing is placed against a white background.

4) Check for the presence of one or two nodes to certify the specimen is truly an ant (wasps resemble ants but have no node).

Key to the sexes of winged ants

1) Head large in relation to body, tip of abdomen without clasping structures, sometimes with a sting (Fig. 26a) .....FEMALE

   Head small in relation to the body, tip of abdomen with clasping structures (Fig. 26b) ..... MALE

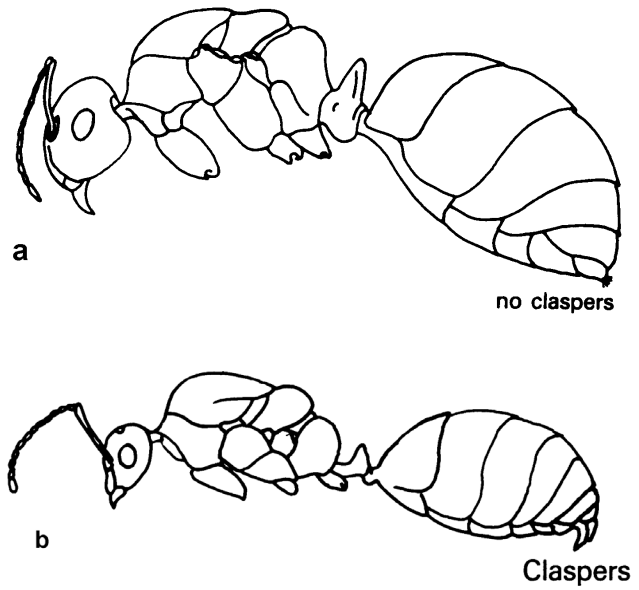

Fig. 26 Profiles of reproductive ants. (a) Female; (b) male.

Key to winged females

1) Abdominal petiole one-segmented (as in worker key) (Fig. 3a) 2

   Abdominal petiole two-segmented (as in worker key) (Fig. 3b) (Subfamily Myrmicinae)..... 8

2) Node large and broad at the apex (as in worker key) (Fig. 4); forewing venation with submarginal cell (SM) and discoidal cell (D) about the same length (Fig. 27) (Subfamily Ponerinae
   .....ponerine ants, *Hypoponera punctatissima*

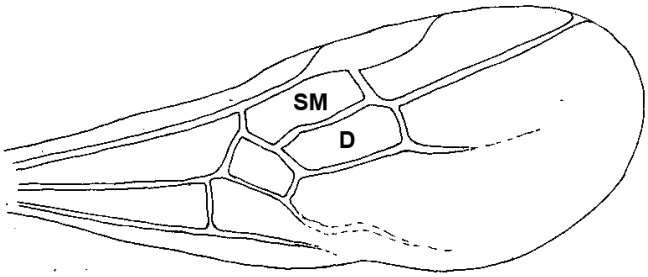

Fig. 27. Forewing of **Hypoponera punctatissima.**

   Node pointed at the apex or node barely visible; forewing venation not as above..... 3

3) Cloacal orifice circular, surrounded by a fringe of hairs (as in worker key) (Fig. 5a) (Subfamily Formicinae)..... 4

   Cloacal orifice slitlike (as in worker Key) (Fig. 5b) (Subfamiy Dolichoderinae) 7

4) Forewing venation without a discoidal cell (Fig. 28)..... 5

   Forewing venation with a discoidal cell (D) (Fig. 29)..... 6

5) Large ants, forewing venation with large stigma (st) cell; marginal cell (MC) five to six times longer than wide at the base of the cell (Fig. 28a)..... carpenter ants, *Camponotus* spp.

   Medium size ants, forewing venation with small stigma (st); marginal cell (MC) two to three times longer than wide (Fig. 28b)
   .....small honey ants, *Prenolepis imparis*

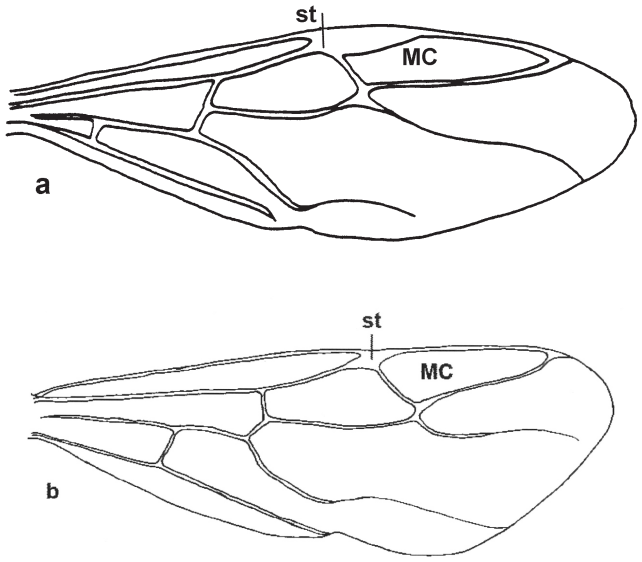

Fig. 28. Forewing. (a) **Camponotus** *spp.; (b)* **Prenolepis imparis.**

6) Leading edge of the forewing slightly concave at the stigma (st) (Fig. 29a)
   .....moisture ants, *Lasius* spp.

   Leading edge of the forewing straight or slightly convex at the stigma (st) (Fig. 29b)
   .....thatching ants, *Formica* spp.

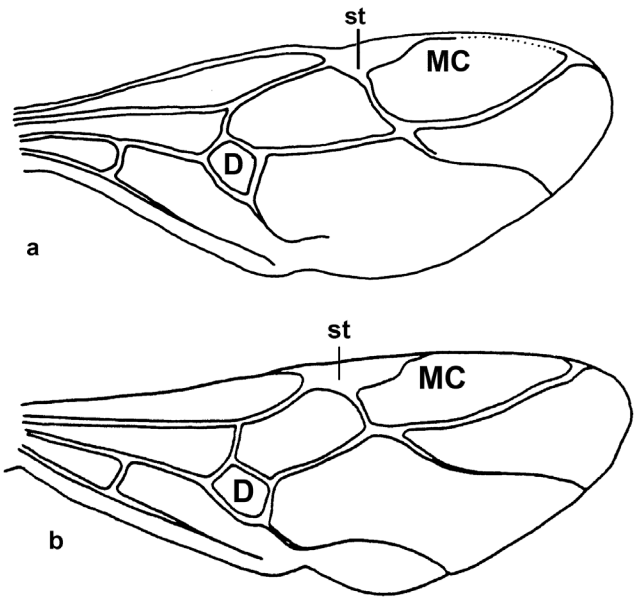

Fig. 29. Forewing. (a) **Lasius** *spp.; (b)* **Formica** *spp.*

7) Forewing venation with costal cell (C) and submarginal cell (SM) ending at the stigma (st) (Fig. 30a)
..... odorous house ants, *Tapinoma sessile*

Forewing venation with submarginal cell (SM) extending beyond the costal cell (C) and below the stigma (st) (Fig. 30b)
..... velvety tree ants, *Liometopum* spp.

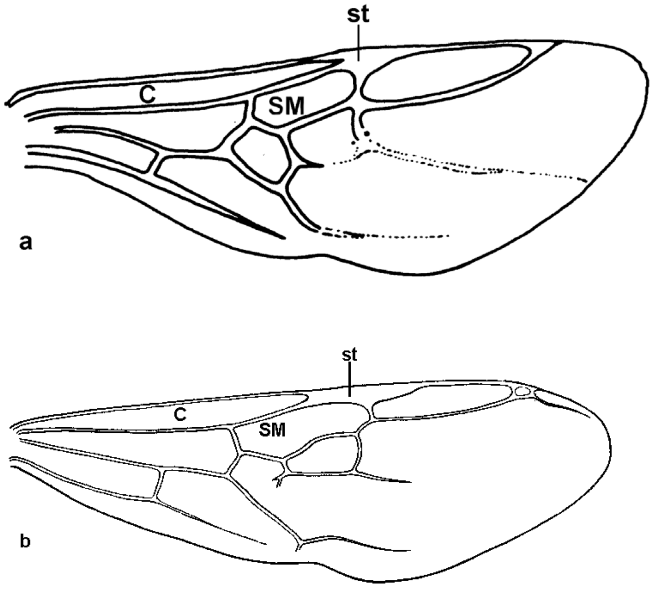

Fig. 30. Forewing. (a) **Tapinoma sessile***; (b)* **Liometopum** *spp.*

8) Forewing venation with marginal cell (MC) closed (Fig. 31a)
..... harvester ants, *Pogonomyrmex* spp.

Forewing venation with marginal cell open or indistinct cells (Fig. 31b) 9

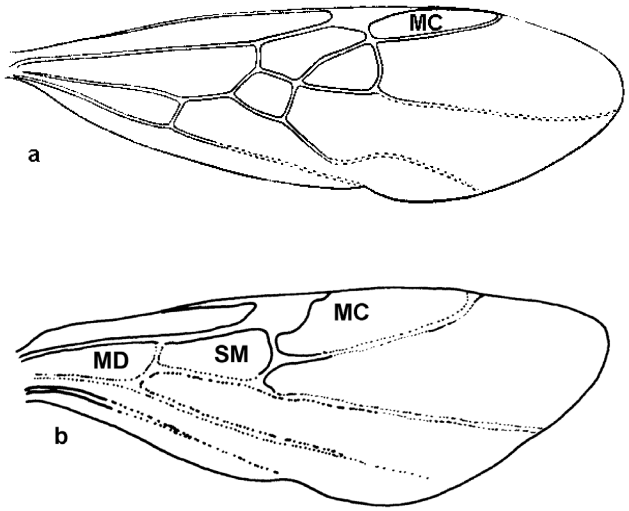

Fig. 31. Forewing. (a) **Pogonomyrmex** *spp.; (b)* **Monomorium pharaonis.**

9) Small (4.5 mm) yellow ants with brown gasters, antennae with 12 segments, wings with stigma in first half of forewing and indistinct submarginal (SM), medial (MD), and marginal cells (MC) (Fig. 31b)
..... pharaoh ants, *Monomorium pharaonis*

Forewing venation not as above 10

10) Antennae with more than 10 segments and without a terminal two-segmented club..... 11

Antennae with 10 segments and with a distinct two-segmented club (Fig. 32a), forewing venation (Fig. 32b)
..... thief ants, *Solenopsis molesta*

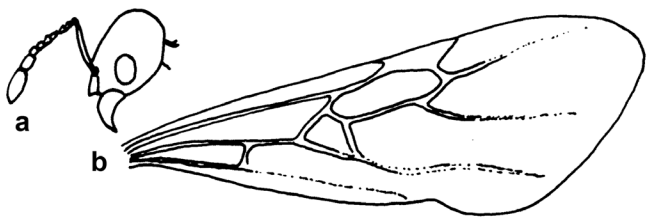

Fig. 32. Profile of (a) head and (b) forewing of **Solenopsis molesta.**

11) Body slender; wing without second submarginal (SM) cell (Fig. 33a)
..... pavement ants, *Tetramorium* spp.

Body more typical; wing with second submarginal (SM) cell (Fig. 33b)
..... *Aphaenogaster* spp.

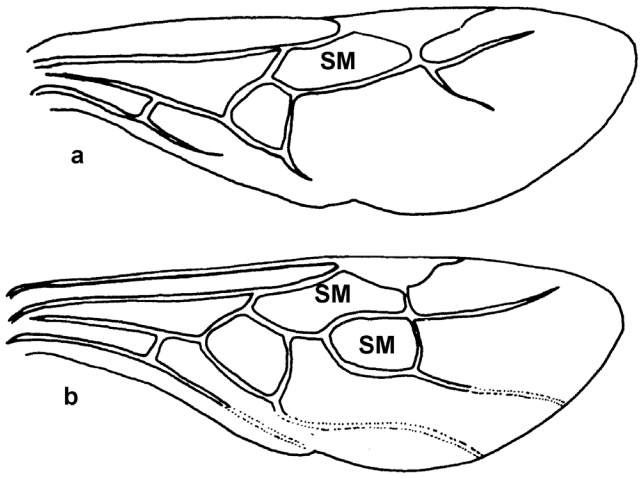

Fig. 33. Forewing. (a) **Tetramorium** ***spp.; (b)*** **Aphaenogaster** ***spp.***

Males

Males are difficult to identify. The characteristics used are complex and extremely small. Follow the forewing venation with the venations illustrated in the winged female key. In some cases, wing venation of the male is identical to that of the corresponding females. However, anomalies do occur, such as one wing differing from the other. This has been particularly observed in *Lasius* spp.

Key to winged males

1) Abdominal petiole one-segmented (as in worker key) (Fig. 3a) 2

Abdominal petiole two-segmented (as in workers) (Fig. 3b)..... 7

2) Node large and broad at the apex (as in worker key) (Fig. 4) (Subfamily Ponerinae)
.....ponerine ants, *Hypoponera punctatissima*

Node pointed at the apex or node barely visible
..... 3

3) Anterior face of the gaster flat or convex..... 4

Anterior face of the gaster concave..... 5

4) Antennae inserted at a short distance from the margin of the clypeus (Clp) (Fig. 34)
..... carpenter ants, *Camponotus* spp.

Antennae inserted close to the margin of the clypeus (Clp).....thatching ants, *Formica* spp.

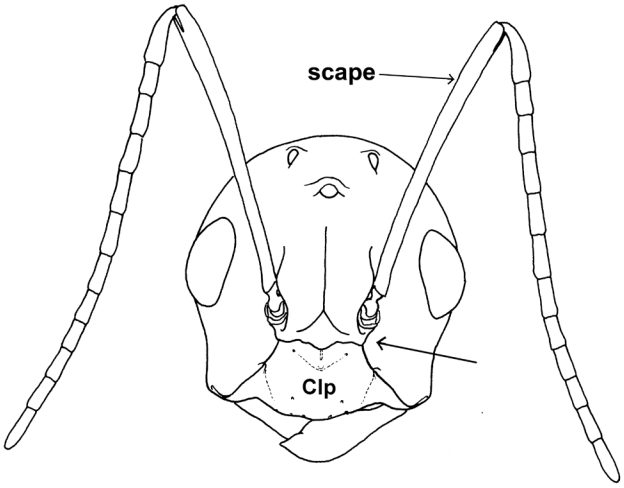

Fig. 34. Face view, male carpenter ant.

5) Antennal scape shorter than the next four segments combined
.....small honey ants, *Prenolepis imparis*

Antennal scape longer than the next four segments combined (Fig. 34) 6

6) Petiolar node upright and high
.....moisture ants, *Lasius* spp.

Petiolar node flat (as in worker key) (Fig. 9a)
.....odorous house ants, *Tapinoma sessile*

7) Antenna 10 segmented
.....pavement ants, *Tetramorium* spp.

Antenna with more than 10 segments 8

8) Head and body with numerous erect hairs
.....harvester ants, *Pogonomyrmex* spp.

Head and body with only a few erect hairs 9

9) Antenna 11 or 12 segmented
.....thief ants, *Solenopsis molesta*

Antenna 13 segmented 10

10) Head flattened, slightly elliptic or rectangular in lateral view (Fig. 35a) ..... *Aphaenogaster* spp.

Head rounded..... pharaoh ant, (Fig. 35b) *Monomorium pharaonis*

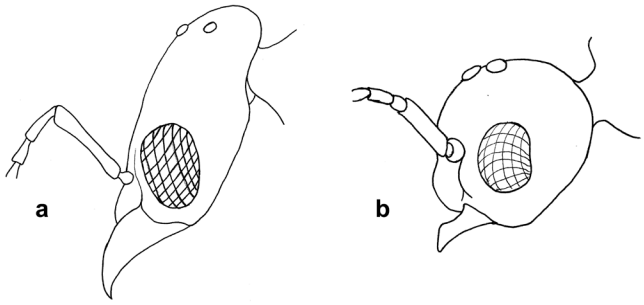

***Fig. 35. Lateral view of head. (a)* Aphaenogaster *spp.; (b)* Monomorium pharaonis.**

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