Field Guide to Ants that Live in Wood and Within Termite mounds of Springfield Research Station

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By

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Introduction

Ants are one of the world's most successful insects. We encounter them on a daily basis. Their habitats include subarctic tundra, equatorial rainforest, swamp, harsh desert, sea coast, great altitude, deep soil, tips of high tree limbs, and even our homes.(Bolton 1994) This guide was created to cover wood and termite-associated ants found at Springfield Research Center, Dominica. Wood ants can easily be found living in old decaying wood or upright healthy trees. Termite associated ants can be found living in active termite mounds or might inhabit abandoned or old mounds. Ants are actually more properly grouped under Formicidae, a family within the order Hymenoptera. Formicids differ from other insects in their order by the presence of a hump or node on the first metasomatic segment or two, the antennae are usually elbowed, and most colonies have many wingless members. This guide was created to make identification of ants in these stated habitats easier. I have included pictures of the ants and pictures of their colony or site of discovery when possible. Also included, is a short diagnosis of each subfamily that is taken out of Barry Bolton's book *Identification Guide to the Ant Genera of the World.* Finally, a short description of each ant's habitat will be included. Below I have supplied the higher taxonomic groupings of ants.

Kingdom: Animalia
Phylum: Arthropoda
Class: Hexopoda
Order: Hymenoptera
Family: Formicidae
Subfamily: Dolichoderinae
Formicinae
Myrmicinae
Ponerinae

Methods

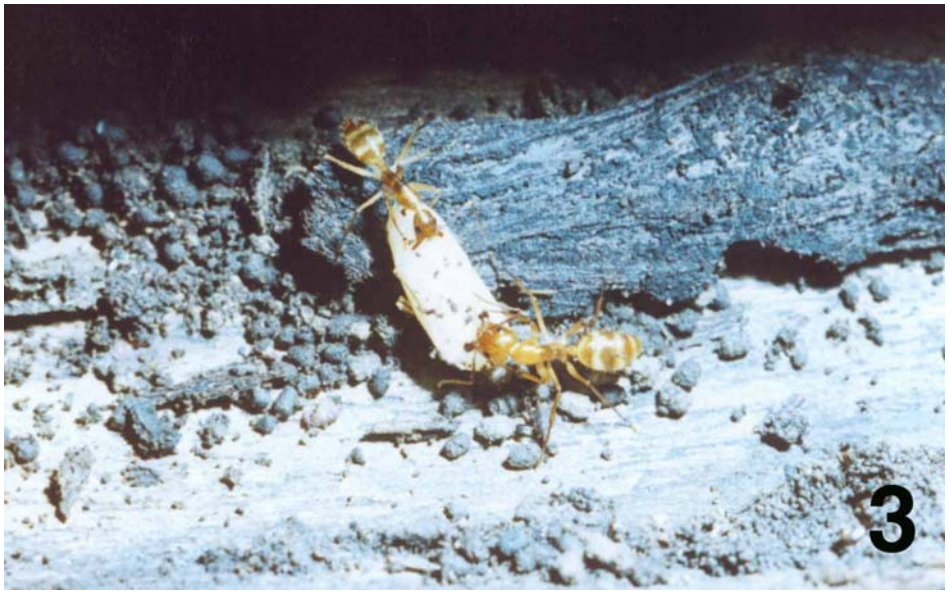
There are not many graceful ways of collecting ants in logs. The most important thing to remember when capturing ants is to be willing to get stung. When dealing with colonies with over 500 members it is inevitable that the collector will get stung from time to time. Some tips to prevent some unnecessary bites and stings are:

- Always bring tweezers
- Be proficient with tweezers
- Have container ready to close quickly for live capturing
- If able use gloves (covering gloves, or any surface, with cornstarch makes moving very difficult for ants)
- Aspirators
- Hatchet or cutless for easy entry into logs and termite mounds

Subfamily Formicinae

Dendromyrmex sp.

(Figure 2 and 3)



Subfamily Formicinae

Camponotus sp.

(Figure 1)

Subfamily Ponerinae

Ponera sp.

(Figure 10 and 11)

Subfamily Ponerinae

Odontomachus sp.

(Figure 7, 8, and 9)

Subfamily Dolichoderinae

Azteca sp.

(Figure 4)

Subfamily Myrmicinae
Unknown
(Figure 5 and 6)

Subfamily Myrmicinae

unknown sp.

Diagnosis of Myrmicinae (Bolton 1994)

Median portion of clypeaus extended backward between the frontal carinae. Antennal sockets inclined to almost vertical; their margins and arch of torulus closest to the midline of the head on a higher level than the margin most distant from the midline, or the former almost directly above the latter. Frontal lobes usually present, frequently large or very large, and mostly or entirely concealing the antennal sockets; less commonly frontal lobes very small or rarely absent, leaving the antennal sockets partially to entirely exposed. Narrow neck joining condylar bulb of antennal scape to shaft of scape proper usually straight. Eyes usually present, less commonly vestigial or absent; antenna with 4 – 12 segments. Promesonotal suture always absent, the pronotum and mesonotum firmly fused together and immobile with respect to each other; at most a weak line or feeble indentation mar occur at the original site of the suture. Metapleural gland orifice frequently invisible and probably absent, when present situated in lower posterior corner of metapleuron, opening laterally or posteriorly, and not concealed by a cuticular flange or flap. Metacoxal cavities closed; cuticular annulus around each cavity broad and complete, not interrupted by a suture or gap linking the coxal cavity to the cavity in which the petiole articulates. Propodeal lobes usually present; vestigial or absent in a few genera. Waste of 2 segments, the petiole and postpetiole. Abdominal stridulatory system usually present, only rarely absent; the stridulitrum situated on the pretergite of abdominal segment 4, the plectrum posteriorly on the preceding tergite. Abdominal segment 4 with sharply defined and differentiated presclerites that fit tightly within the posterior end of the third segment. Abdominal spiracles 5 – 7 concealed by posterior margins of preceding tergites, not visible without distension of the gaster. Helcium sternite relatively large and convex, not retracted nor concealed by the tergite; helcium sternite attached across apices of tergite in frontal view. Abdominal segment 2 with tergosternal fusion; remaining segments with tergites and sternites not fused. Pygidium variable in size, simple. Sting present, usually large and strongly developed, but reduced and nonfunctional as a weapon in some.

Habitat:

Found living in the exterior tunnels of termites on the sides of live trees. Most locations of the ants appeared to be abandoned portions of the tunnels. The colony size usually is less than 50 members. The ants themselves are less than 2.5 mm long.

Subfamily Formicinae
Camponotus

Diagnosis of Formicinae (Bolton 1994)

Clypeus broad from front to back so that antennal sockets are well behind anterior margin of head. Median portion of clypeus usually not extended backwards between the frontal carinae, rarely otherwise. Usually a postclypeal frontal triangle present that may project back between the frontal carinae or antennal sockets. Antennal scokets inclined, the portion of the socket margin and torulus closest to the dorsal midline of the head on a higher level than the portion of the margin most distant from the midline. Frontal carinae usually present, rarely absent; when present varying from a pair of simple carinae or the margins of a raised plateau to elevated broad flanges, which however only rarely completely conceal the antennal sockets; the latter are usually partly or wholly exposed. Only very rarely the carinae expanded into frontal lobes that conceal the antennal sockets. Narrow neck joining condylar bulb of antennal scape to shaft of scape proper straight. Eyes usually present, only rarely vestigial or absent, ocelli sometimes present; antenna with 8 – 12 segments. Promesonotal suture usually present and flexible but sometimes fused ; more rarely the suture vestigial or absent. Metapleural gland orifice present or absent; when present situated in lower posterior corner of metapleuron, opening laterally or posterolaterally; the orifice commonly with numerous guard setae crossing its aperture. Metanotum and its spiracles frequently present on dorsal alitrunk. Metacoxal cavities closed; a thin, continuous strip of cuticle separates the metacoxal cavity from the cavity in which the petiole articulates. Propodeal lobes absent. Waist of 1 segment, the petiole. Helcium tergite dorsally usually with an extensive U-shaped emargination of its leading edge, the emargination often reaching back almost the whole length of the sclerite; this emargination only very rarely absent. Helicum sternite small, retracted, concealed by the tergite. Abdominal stridulatory system absent. Abdominal segment 4 without differentiated presclerites. Abdominal spiracles 4 – 7 sometimes concealed by posterior margins of preceding tergites; frequently abdominal spircales 4 – 5 visible and sometimes also 6 – 7 visible without distension of the abdomen. Abdominal segment 2 with tergosternal fusion; abdominal segments 3 – 7 without tergosternal fusion. Pygidium usually large, simple. Hypopygium with a U shaped to almost ciucular acidopore present apically. Acidopore may be at apex of nozzle like extension of the hypopygium and equipped apically with the circlet of hairs, or may be merely an emargination of the hypopygial apical margin. In the latter case the acidopore may be concealed by the pygidial apex when not in use, and consequently difficult to see without opening out the 2 sclerites. Sting absent, replaced by formic acid projection system of which the acidopore is the orifice.

Habitat:

These ants are can easily be found in either living or decaying tree material. Their range from the nest is large, so tracking back to their colony could be difficult. In length these ants can reach up to one centimeter. They are without stings and are not large enough to make a bite hurt. Carpenter ants is the common name for this genus.

Subfamily Formicinae
Dendromyrmex

Diagnosis of Formicinae (Bolton 1994)

Clypeus broad from front to back so that antennal sockets are well behind anterior margin of head. Median portion of clypeus usually not extended backwards between the frontal carinae, rarely otherwise. Usually a postclypeal frontal triangle present that may project back between the frontal carinae or antennal sockets. Antennal scokets inclined, the portion of the socket margin and torulus closest to the dorsal midline of the head on a higher level than the portion of the margin most distant from the midline. Frontal carinae usually present, rarely absent; when present varying from a pair of simple carinae or the margins of a raised plateau to elevated broad flanges, which however only rarely completely conceal the antennal sockets; the latter are usually partly or wholly exposed. Only very rarely the carinae expanded into frontal lobes that conceal the antennal sockets. Narrow neck joining condylar bulb of antennal scape to shaft of scape proper straight. Eyes usually present, only rarely vestigial or absent, ocelli sometimes present; antenna with 8 – 12 segments. Promesonotal suture usually present and flexible but sometimes fused ; more rarely the suture vestigial or absent. Metapleural gland orifice present or absent; when present situated in lower posterior corner of metapleuron, opening laterally or posterolaterally; the orifice commonly with numerous guard setae crossing its aperture. Metanotum and its spiracles frequently present on dorsal alitrunk. Metacoxal cavities closed; a thin, continuous strip of cuticle separates the metacoxal cavity from the cavity in which the petiole articulates. Propodeal lobes absent. Waist of 1 segment, the petiole. Helcium tergite dorsally usually with an extensive U-shaped emargination of its leading edge, the emargination often reaching back almost the whole length of the sclerite; this emargination only very rarely absent. Helicum sternite small, retracted, concealed by the tergite. Abdominal stridulatory system absent. Abdominal segment 4 without differentiated presclerites. Abdominal spiracles 4 – 7 sometimes concealed by posterior margins of preceding tergites; frequently abdominal spircales 4 – 5 visible and sometimes also 6 – 7 visible without distension of the abdomen. Abdominal segment 2 with tergosternal fusion; abdominal segments 3 – 7 without tergosternal fusion. Pygidium usually large, simple. Hypopygium with a U shaped to almost ciucular acidopore present apically. Acidopore may be at apex of nozzle like extension of the hypopygium and equipped apically with the circlet of hairs, or may be merely an emargination of the hypopygial apical margin. In the latter case the acidopore may be concealed by the pygidial apex when not in use, and consequently difficult to see without opening out the 2 sclerites. Sting absent, replaced by formic acid projection system of which the acidopore is the orifice.

Habitat:

These ants can live in several places other than logs. Colonies in logs don't exceed 125 members. The length of these ants is well over 1 closer 1.5 centimeters. These ants are without the ability to sting, they do have larger mandibles, but bites rarely hurt.

Subfamily Dolichoderinae

Azteca

Diagnosis of Dolichoderinae (Bolton 1994)

Median portion of clypeus broad from front to back so that antennal sockets are well behind anterior margin of head. Median portion of clypeus usually extended backwards between the antennal sockets, sometimes not. Often a postclypeal frontal triangle present but in some of the frontoclypeal suture obliterated. Antennal sockets inclined, the portion of the socket margin and torulus closest to the dorsal midline of the head on a higher level than the portion of the margin most distant from the midline; torular sclerites usually exposed. Frontal carinae usually present, rarely absent; when present varying from a pair of simple carinae or the margins of a raised plateau to narrow flanges; antennal sockets partly or wholly exposed. Only very rarely the carinae expanded into narrow frontal lobes. Narrow neck joining condylar bulb of antennal scape to shaft of scape proper straight. Eyes usually present, only rarely vestigial or absent; ocelli rarely present; antenna usually with 12 segments but very rare counts of 8 and 11 are known. Promesonotal suture present and usually flexible. Waist of 1 segment, the petiole. Helcium tergite dorsally with and extensive U shaped emargination of its leading edge, the emargination often reaching back alos the whole length of the sclerite. Helcium sternite small, retracted, concealed by the tergite. Abdominal stridulatory system sbasent. Abdominal segment 4 without differentiated presclerites. Abdominal spiracles 4 – 7 sometimes concealed by posterior margins of preceding tergites; frequently abdominal spircles 4 and 5 visible and sometimes also 6 and 7 visible without distension of the abdomen. Abdominal segment 2 with tergosternal fusion; abdominal segments 3 – 7 without tergosternal fusion. Pygidium small or very small, simple; pygidium often reflexed so that it is on the ventral surface of the gaster often overhung and partially to almost entirely concealed by the tergite of abdominal segment 6. Hypopygium not modified into an acidopore apically. Sting vestigial to absent, not functional, and not detectable without dissection.

Habitat:

Usually found living in live trees, under the bark. In this area cocoa trees are often a nesting site of these colonies that reach up to 1000 members. These ants can not sting, and are less than 2.5 mm in size, making them incapable of biting.

Subfamily Ponerinae
Ponera

Diagnosis of Ponerinae (Bolton 1994)

Clypeus broad from front to back so that antennal sockets are well behind anterior margin of head. Median portion of clypeus extended backwards between the frontal carinae. Antennal sockets inclined; their margins and section of torulus closest to the midline of the head on a higher level than the margin most distant from the midline. Frontal carinae present; frontal lobes absent but the antennal insertions partly concealed by the torular sclerites. Narrow neck joining condylar bulb of antennal scape to shaft of scape proper straight. Eyes present, large, antenna with 12 segments. Promesonotal suture present and flexible, the pronotum capable of movement relative to the mesonotum. Metapleural gland orifice at lower posterior corner of metapleuron, opening laterally and not concealed by a cuticular flange or flap. Mesonotum distinctly defined; metanotum present on dorsal alitrunk. Metacoxalcavities open; cuticular annulus around each cavity with a wide break or interruption medially so that the coxal cavity is confuluent with the cavity in which the petiole articulates. Propodeal lobes present. Waist of 1 segment , the petiole. Abdominal stridulatroy system present ventrally, the stridulitrum anterior on abdominal sternite 4, the plectrum posterior on the preceding sternite. Abdominal segment 4 without differentiated presclerites. Abdominal spiracles 5 – 7 concealed by posterior margins of preceding tergites, not visible without distension of the gaster. Helicium sternite relatively small, retracted, concealed by the tergite, and not visible in profile. Abdominal segments 2 – 7 without tergosternal fusion. Pygidium simple, biconvex, unarmed. Sting present, large, and strongly developed.

Habitat:

Living in small dead logs these ants colonies do not exceed 50 members. These ants are just over half a centimeter in length. Usually are reluctant to sting or bite.

Subfamily Ponerinae
Odontomachus

Diagnosis of Ponerinae (Bolton 1994)

Clypeus broad from front to back so that antennal sockets are well behind anterior margin of head. Median portion of clypeus extended backwards between the frontal carinae. Antennal sockets inclined; their margins and section of torulus closest to the midline of the head on a higher level than the margin most distant from the midline. Frontal carinae present; frontal lobes absent but the antennal insertions partly concealed by the torular sclerites. Narrow neck joining condylar bulb of antennal scape to shaft of scape proper straight. Eyes present, large, antenna with 12 segments. Promesonotal suture present and flexible, the pronotum capable of movement relative to the mesonotum. Metapleural gland orifice at lower posterior corner of metapleuron, opening laterally and not concealed by a cuticular flange or flap. Mesonotum distinctly defined; metanotum present on dorsal alitrunk. Metacoxalcavities open; cuticular annulus around each cavity with a wide break or interruption medially so that the coxal cavity is confuluent with the cavity in which the petiole articulates. Propodeal lobes present. Waist of 1 segment , the petiole. Abdominal stridulatroy system present ventrally, the stridulitrum anterior on abdominal sternite 4, the plectrum posterior on the preceding sternite. Abdominal segment 4 without differentiated presclerites. Abdominal spiracles 5 – 7 concealed by posterior margins of preceding tergites, not visible without distension of the gaster. Helicium sternite relatively small, retracted, concealed by the tergite, and not visible in profile. Abdominal segments 2 – 7 without tergosternal fusion. Pygidium simple, biconvex, unarmed. Sting present, large, and strongly developed.

Habitat:

These ants are commonly found in both dead logs and termite mounds. They tend to forage on the unsuspecting termites. These ants are very common on springfield station and have a most painful sting and bite. They are over 1.5 centimeters in length and live in colonies that do not exceed 150 members.

Conclusion

These 6 ants make up a very small percentage of all the ants in this area, but should be able to cover most ants that one will come across in logs and termite mounds. Odontomachus appears to be the most common of the wood ants and also the most intimidating. Further studies on these ants and others that take up these narrow niches will surely yield more information and new species.

References

Bolton, Barry. 1994. *Identification Guid to the Ant Genera of the World*. Harvard University Press, Cambridge, Massachusetts

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