

A Key to the Known Species of South Carolina Ants, with Notes (Hym.).

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Key to Subfamilies of Formicidae.

1. Abdominal pedicel consisting of a single segment2.
- Abdominal pedicel consisting of two segments3.
2. Cloacal orifice terminal, surrounded by a fringe of hairs,

CAMPONOTINAE

- Cloacal orifice ventral4.
3. Frontal carinae very close together, almost vertical, not covering antennal insertions; eyes small or absent; species tropical and sub-tropicalDORYLINAE
- Frontal carinae not as above; eyes rarely vestigial or absent; species numerousMYRMICINAE

4. No constriction between the first and second gastric segments, anal glands present, which produce a secretion with a rancid butter-like odorDOLICHODERINAE
- Gaster with a distinct constriction between the first and second segments; frontal carinae separated or close together,

PONERINAE

Subfamily PONERINAE.

Frontal carinae closely approximated; the tip of gaster strongly deflected downward; clypeus with a projection in the middle,

Sysphincta

S. pergandei Roger.

This species is a member of the above genus, which was once common to the southeastern part of the United States, but is now nearly extinct. The writer has taken only one specimen during two years of collecting in South Carolina. This specimen is rather ferruginous brown in color, has a thorax without sutures, and the tip of the gaster is deflected downward. The specimen was taken from beneath some pine leaves.

W.L. Brown, Jr.
COLLECTION

(Subfamily DORYLINÆ.)

Claws toothed **Eciton****E. opacithorax** Emery.

The workers of this species have vestigial eyes, hence lead hypogaecic or subterranean lives. Specimens were captured while they were trailing over the ground in single file. The species does not seem to be numerous in the northwestern part of the State, the writer only having taken specimens on two different occasions.

Subfamily MYRMICINÆ.

1. Postpetiole joined to the dorsal surface of the gaster, which is flattened dorsally, more convex ventrally and acutely pointed.

Cremastogaster

Postpetiole joined to the anterior basal portion of the gaster..2.

2. Meso-epinotal constriction usually faint or lacking3.

Meso-epinotal constriction distinct4.

3. Antennae 11-jointed; workers monomorphic; head and thorax not rugose **Leptothorax** (in part)

Antennae 12-jointed; meso-epinotal constriction as well as pro-mesonotal constriction absent; the head and thorax distinctly rugose **Pogonomyrmex**

4. Antennae 11-jointed5.

Antennae 12-jointed6.

5. Head with one pair of occipital spines, thorax with three pairs of dorsal spines; integument rough, bearing stiff or hooked hairs. (*Atta*). (One subgenus in South Carolina, which has numerous tubercles on the head, thorax and abdomen **Trachymyrmex**)

Thorax and petiole without any traces of teeth or spines; body slender; workers monomorphic **Monomorium**

6. Last four joints of the antennae forming a rather distinct club; workers with slender thorax and legs; monomorphic,

Aphaenogaster~~Last three joints of the antennae forming a club7.~~

7. The club very distinct; the workers strongly dimorphic; soldiers with large heads **Pheidole**

The club not quite so distinct; meso-epinotal constriction deep and distinct; workers monomorphic,

Leptothorax, sub-genus **Dictothorax** (in part)Head and prothorax distinctly striated; pro-mesonotal constriction absent; imported species **Tetramorium**Genus **Cremastogaster** Lund.

1. Workers with distinct mid-dorsal thoracic carina2.

Workers without distinct mid-dorsal thoracic carina,

victima F. Smith subspecies *missouriensis*

2. Workers with distinct mid-dorsal thoracic carina extending from the center of the pronotum to the center of the mesonotum,

lineolata Say. var. *lutea*

Workers with a distinct, short, mid-dorsal thoracic carina extending partly or throughout the mesonotum*lineolata* Say.

C. victima F. Smith, subsp. **missouriensis**.

This is a small species which may be distinguished by the absence of a mid-dorsal thoracic carina on the workers.

C. lineolata Say, var. **lutea**.

The workers have a distinct mid-dorsal thoracic carina extending from the middle of the pronotum to the middle of the epinotum.

C. lineolata Say.

The workers of this species are very common, ranging throughout all parts of the United States. They build nests under stones, in galls, wood and under carton-like structures. These ants are exceedingly fond of sweets and it is no uncommon occurrence to find them in attendance upon aphids, coccids and similar insects. The workers when disturbed raise the tip of their gaster in a threatening manner as if they could sting.

Genus **Leptothorax** Mayr.

1. Thorax without meso-epinotal constriction; antennae eleven-jointed; color yellow. *curvispinosus* (Subgenus *Leptothorax* s. str.)
 Thorax with distinct meso-epinotal constriction; antennae twelve-jointed; color black. *pergandei* (Subgenus *Dictothorax* Emery)

L. curvispinosus Mayr.

The small yellow workers of this species build their nests in hollow limbs, galls, nuts, etc. They are easily identified from other species of this genus by their yellow color and by two black or brown spots on the first gastric segment. The species is very small and may be overlooked by the casual observer.

L. pergandei Emery.

The workers are black and considerably larger than those of *L. curvispinosus*. The habits of the two species are practically the same.

Genus *Pogonomyrmex* Mayr.*P. badius* Latr.

This is the only species of the genus that occurs in the southeastern states. Some of the workers have exceedingly large heads. The workers are dark rufous, very hairy, and have a much rugose head and thorax.

Genus *Atta*. Fabr. Subgenus *Trachymyrmex* Forel.*T. septentrionalis* McCook.

The workers of this form have a number of tubercles on the body, which gives them a rough spiny appearance. This species cultivates fungus in its nests for food. The nests are open from the first of April to the latter part of May. After this time the heat becomes too intense for the keeping of fungus without the closure of the entrance to the nest. The writer has often observed workers carrying apple blossom petals into their nest for the purpose of cultivating fungus from it. Their nest always has the excavated dirt placed a few inches from the opening in such a manner as to form a crescent. This is very characteristic.

Genus *Monomorium* Mayr.*M. minimum* Buckley.

The small, slender black workers of this species occur in the fields and in houses. In the field they build crater-shaped mounds. Often they occur in large enough numbers around houses to be considered pests. The writer has found them nesting in rotten wood.

Genus *Aphaenogaster* Mayr.

1. Antennal scape with a shield-shaped enlargement at the base, *treatae*
- Antennal scape without a shield-shaped enlargement at the base. 2.
2. Femur and tibiae of legs distinctly enlarged and much darker, *lamellidens*
- Femur and tibiae not distinctly enlarged and much darkened. . . . 3.
3. Head broad, occipital region with distinct lobes; general color dark brown *fulva*.
- Head slender, occipital region with rounded lobes; general color usually light ferruginous brown with gaster and legs yellowish *texana*.
- Workers smaller; epinotal spines shorter and directed more backward; general color brownish; base and tips of gaster paler, *texana*, var. *carolensis*.

A. treatae Forel.

The workers are easily identified by the lobe-like enlargements of their scapes. They are very common throughout the eastern section of the United States. The workers are carnivorous and forage singly. They nest beneath stones in the woods.

A. lamellidens Mayr.

This species has workers which are reddish in color and have much darkened femora and tibiae. The workers have always been captured by the writer on or around wood.

A. fulva Roger.

The workers are dark brown in color and are slender in form. They nest in rotten logs in the woods. This species does not seem to be common in the northern section of the State.

A. texana, var. **carolensis**.

The workers are hard to distinguish from those of *A. fulva*. This variety seems to be very common throughout the State. Their nests have been found under stones.

Genus **Pheidole** Westwood.

1. Epinotum with vestigial spines*morrisi* Forel
Epinotum with spines well developed2.
2. Abdomen piceous; head and thorax dark rufous,
crassicornis Emery
Abdomen not as above3.
3. General body color yellowish*tysoni* Forel
General body color darker4.
4. Size larger, 3 mm.-3.5 mm.; workers with coarser, longer and
more numerous hairs*dentata* Mayr.
Size smaller 2 mm.-2.5 mm.; workers with hairs smaller and not
as numerous*vinelandica* Forel

P. morrisoni Forel.

The workers are easily separated from those of allied species in having only vestigial spines on the epinotum. Their nests are very characteristic, consisting of a large mound from 4 to 6 inches high and from 6 to 8 inches in diameter, built around the base of a bunch of grass. When distributed the workers run frantically to and fro over the nest.

P. crassicornis Emery.

This species has workers that are distinctly more rufous colored than are those of any other species of this genus, the abdomen is very dark. The writer has found nests of this ant under pavement walks and around the roots of trees.

P. tysoni Forel.

Workers of this shining yellow species have been taken only once. The workers are easily identified from the other workers of this genus by their yellow color and smooth shining appearance.

P. dentata Mayr.

The workers are easily confused with those of *P. vinelandica*, from which they differ in the sculpture of the head and in their larger size. The nests are small crater-shaped affairs; sometimes they nest under stones or logs. The workers store seed in their nests.

P. vinelandica Forel.

The workers of this species are often confused with those of *P. dentata*, from which they differ in their smaller size, less numerous hairs, and the sculpture of the head. They build nests under stones or in the open. The field nests are small crater-shaped mounds only a few inches in diameter. The workers store small grass seeds in their nests.

Genus **Tetramorium** Mayr. Subgenus **Tetramorium** s. str.

T. caespitum L.

This species has been introduced into America from Europe and occurs principally in our large cities. The workers have a striated thorax and head. From their habit of nesting beneath pavement walks they are commonly known as the "pavement ant."

Subfamily **DOLICHODERINAE**.

1. Chitinous integument hard and brittle; epinotum with declivity strongly concave; principally arboreal in habits,

Dolichoderus, subgenus **Hypoclinea**

- Chitinous integument thin and flexible2.
2. Epinotum with a conical elevation; terrestrial species building dome-shaped mounds in sunny spots.....**Dorymyrmex**
- Epinotum not as above /.....3.

3. Petiole well developed, more or less inclined; workers generally brownish in color; nests usually under stones... **Iridomyrmex**
 Petiole vestigial or absent; workers black **Tapinoma**

Genus **Dolichoderus** Lund.

1. Head and thorax with shallow punctures2.
 Head and thorax coarsely and deeply punctured3.
 2. Epinotal concavity with a strong median longitudinal ridge; head, thorax and petiole yellowish red; body hairless above,
mariae Forel (Subgenus *Hypoclinea* Mayr)
 Epinotal concavity without such a ridge; at least the head black.4.
 3. Base of gaster with reddish yellow spots,
plagiatus Mayr (Subgenus *Hypoclinea* Mayr)
 4. Body without erect hairs on the upper surface; body and appendages deep black. *taschenbergi* Mayr, var. *atterina*. Whlr.
 Body with erect hairs on the upper surface; thorax reddish brown; base of gaster with reddish yellow spots,
plagiatus Mayr var. *pustulatus* Mayr.

D. mariae Forel.

This beautiful species is very common in the State. The workers build nests in the soil at the base of broom straw. The writer has found several thousand workers in a nest. The nest has a peculiar odor. The workers are especially fond of aphids and coccids; they were often found attending the aphids, *Lachnus australis*, on pine. In numbers this species is the most common throughout the State.

D. plagiatus Mayr.

It is very hard to distinguish between the workers of this species and the above. The habits of the two are practically the same. This species is not as numerous as *D. mariae*.

D. plagiatus Mayr, var. *pustulatus* Mayr.

This species is a variety of *D. plagiatus*, from which it differs principally in its smaller size and its numerous coarse punctures on the head and thorax. This variety does not seem to be numerous in the State.

D. taschenbergi Mayr, var. *atterina* Whlr.

This shining black species is very common. The writer has found its nests in the soil at the base of pine trees and in the soil at the base of broom straw. The habits of this species are the same as those of the above two species.

Genus *Dorymyrmex* Mayr.

1. Color dark brown2.
- Color not as above, light yellowish3.
2. Head and thorax reddish brown, abdomen darker,
pyramicus Roger
General color much darker, almost black,
pyramicus Roger, var. *niger*.
3. Head and thorax reddish yellow; abdomen lighter with darkened
tip*pyramicus* Roger, var. *flavus* Pergande.

D. pyramicus Roger.

This dark brown species builds crater-shaped nests in sunny spots. It is one of the most numerous ants in the State and is common throughout the southern states. The workers feed on other insects, but are also fond of aphid excretions.

D. pyramicus Roger, var. *niger* Pergande.

This is a much darker form than the above and has not been collected by the writer in the northern part of the State, although it is common in the warmer southern part.

D. pyramicus Roger, var. *flavus* Pergande.

This species is light in color, being reddish yellow with a lighter abdomen. It is also very common throughout the State. The habits of this variety and of *D. pyramicus* are the same.

Genus *Iridomyrmex* Mayr.

1. Color uniform brown; workers when crushed not odorous; imported species found generally in seaport towns, *humilis* Mayr.
Color of head and thorax brown, abdomen lighter; workers when crushed give off a perceptible *Tapinoma* odor *analis* André

I. humilis Mayr.

This species has been imported into the United States from Argentina. It occurs principally in seaport towns. In South Carolina this species has not been found in any other towns than Charleston and Summerville. As a species of economic importance this ant is second to none. The Bureau of Entomology, United States Department of Agriculture, has a large bulletin on the distribution, life history, control measures and other important points of interest concerning this ant.

I. analis André.

The workers of this ant build their nests principally under stones. The ants have a characteristic odor. The workers are

fond of attending plant lice. In one field of rye a large number of this species had their nests in the soil at the base of rye plants, on which occurred the green bug, *Toxoptera graminum*, and were busily attending this species.

Genus *Tapinoma* Förster.

T. sessile Say.

This slender black species builds its nests under stones, leaves and the bark of logs; generally in sunny spots. The workers have a characteristic odor. The pupae are salmon colored. The workers of this form resemble those of *Dorymyrmex pyramicus* in appearance and action. This species may be distinguished from other ants by the presence of a vestigial petiole.

Subfamily CAMPONOTINAE.

1. Workers polymorphic; no ocelli present **Camponotus**
Workers not polymorphic, though often variable in size.....2.
2. Clypeal fossa distinctly separated from the antennal fossa.....3.
Clypeal fossa confluent with the antennal fossa5.
3. Mesonotum not constricted or cylindrical; ocelli present,
..... **Formica**
Mesonotum constricted4.
4. Antennal scapes and tibiae without erect hairs; mesonotum sub-cylindrical; workers nest in moist places... **Prenolepis** s. str.
Antennal scapes and tibiae with erect hairs; mesonotum constricted but not sub-cylindrical Subgenus **Nylanderia**
5. Maxillary palpi six-jointed **Lasius** s. str.
Maxillary palpi three-jointed..... Subgenus **Acanthomyops**

Genus *Camponotus* Mayr.

1. General color of body black2.
General color of body yellow and black, or red and black.....3.
2. Form robust; workers polymorphic; head and thorax sparsely covered with large yellow hairs; the abdomen with numerous large and small hairs, the small hairs giving it a bronzed metallic lustre ... *herculeanus* L., subspecies *pennsylvanicus* DeGeer
Body slender; head, thorax and abdomen smooth, shining black; body practically devoid of hairs except on the abdomen, where the anterior and posterior edge of each segment bears a fringe of long hairs..... *fallax* Nyl., var. *nearcticus* Emery.
3. Form robust; workers polymorphic; color of body yellow except the head, which is piceous; abdomen with numerous long hairs..... *castaneus* Latr., subspecies *americanus* Mayr.

Form slender; color of head and thorax dark rufous, abdomen black; abdomen with a fringe of long hairs on the posterior edge of each segment.....*fallax* Nyl. var. *decipiens* Emery.

C. herculeanus L., subspecies **pennsylvanicus** De Geer.

These large black ants are found nesting in wood; because of this fact they are commonly known as the "carpenter ant." The workers of this species seem to be very cosmopolitan, occurring throughout the eastern states. Sometimes they are very injurious to lumber and wooden constructions, through which they construct numerous galleries and chambers.

C. fallax Nyl., var. **decipiens** Emery.

These slender forms with red heads and thoraces and black abdomens are commonly found under the bark of trees or crawling over the surface of the bark. The writer found a large number of workers nesting in an oak gall.

C. fallax Nyl., var. **nearcticus** Emery.

The slender black workers of this species nest under the bark of trees. The habits of the workers are about the same as those of *C. decipiens*. The writer has never found but a few workers in the nests.

C. castaneus Latr., var. **americanus** Mayr.

The workers of this species may be recognized by their yellow bodies and dark piceous heads. They build their nests under stones. These ants are very common in the woods. In size this species ranks with *C. pennsylvanicus*, which is the largest species in the State.

Genus **Formica** Linn.

1. General color of body uniform black; head, thorax and abdomen with fine pubescence, giving a pruinose effect, *fusca* Linn., var. *subsericea* Say.
2. General color of body not black, more or less yellowish.....2.
2. Abdomen distinctly darker than the head and thorax, almost black; without hairs, except for the fringe of hairs on the posterior edge of each segment; head and thorax dark rufous, *truncicola*, subspecies *integra* Nyl.
- Abdomen only faintly darker than the head and thorax, which are yellow or yellowish red3.

3. Maxillary palpi, especially their last two joints, conspicuously long; color pale yellow; gaster slightly infuscated,

pallidefulva Latr.

Maxillary palpi shorter; color, reddish yellow with more or less infuscated gaster; pubescence and hairs long and abundant,

pallidefulva Latr., var. *schaufussi* Mayr.

F. fusca Linn, var. **subsericea** Say.

The workers of this form are very common in South Carolina. They forage singly, living on the products of the chase. This form is very cowardly and has been made slaves of by other species of this genus.

F. truncicola, subsp. **integra** Nyl.

The robust workers of this species have red heads and thoraces and black abdomens. This species nests in rotten logs. The writer has seen them so numerous in the woods that when the workers were crawling over the leaves it sounded much like rain pattering on the leaves. The workers are very pugnacious when aroused.

F. pallide-fulva Latr.

These ants are very numerous throughout the State, being commonly called red ants. Nests have been found in the soil at the base of trees and in the open field. This species resembles *F. fusca subsericea* in habits.

F. pallide-fulva, Latr., var. **schaufussi** Mayr.

This variety differs from the typical form of the species by having a much more infuscated abdomen. It does not seem to be as common in the State.

Genus Prenolepis Mayr.

1. Workers from 3-4 mm. in size; abdomen often distended; color light yellowish, abdomen often darker; nests in moist places.

imparis Say.

Smaller species 1.8-2 mm. in size; color, dark brown to almost black; upper surface of body with prominent coarse hairs,

parvula Emery (Subgenus *Nylanderia* Emery)

P. imparis Say.

This is one of the most numerous species of ants in the State. The workers are very fond of attending aphids. Some of the workers often have their abdomens so distended with

aphid honey dew that they can hardly walk. This species builds crater-shaped nests in moist spots, generally preferring clay soil, probably because of its capacity for holding moisture. The males and females remain in the nest over winter and take their nuptial flight in the spring. The writer has captured both forms in Ohio as early as March 27th. This form occurs around the house, where it often gets into the pantry and causes the housekeeper a great amount of trouble.

P. parvula Emery.

This form is smaller, more hairy, and of a darker color than *P. imparis*. The workers inhabit the fields, where they often build their nests under rocks.

Genus **Lasius** Fabricius.

1. Maxillary palpi six-jointed; general color deep brown.
niger Linn., var. *americanus* Emery.
 Maxillary palpi three-jointed..... (Subgenus *Acanthomyops*), 2.
2. Petiole low and broad when viewed from above; hairs of the body short *latipes* Walsh
 Petiole higher and narrower; abdomen with longer hairs..... 3.
3. All but the last joint of the antennae broader than long,
claviger Roger.
 All but the last joint of the antennae not broader than long;
 posterior edge of each abdominal segment with a fringe of
 long hairs *interjectus* Mayr.

L. niger Linn., var. *americanus* Emery.

This form is very common in the corn and cotton fields of the State. Professor Forbes, of Illinois, has published several interesting bulletins on this species' relation to the corn and cotton root louse, *Aphis maidi-radici*. It has been definitely proven that these ants are responsible for the spread of the root louse. The ants are very abundant throughout the United States, except the extreme southern and southwestern sections. The workers have an abdomen with a pruinose appearance, which when crushed gives off a strong formic acid odor. Prof. W. A. Thomas, of South Carolina, has found that the cotton root louse, to a large extent, may be controlled by shallow plowing the growing cotton at frequent intervals, thus disorganizing the ants.

L. latipes Walsh.

This form is found nesting under stones. The females are often dimorphic, one form being peculiar in having much flattened femora and tibiae. The species is not as numerous as *L. interjectus* and *L. claviger*.

L. claviger Roger.

Wheeler states that this is the most common species of the subgenus *Acanthomyops*. The workers build their nests under stones along the edges of woods where they can find warmth and moisture. Solitary dealated females have been found under rocks during the winter.

L. interjectus Mayr.

This is the largest species of the subgenus. The workers build their nests under stones and in old logs. These ants are very fond of attending subterranean aphids. In numbers this is one of the most common species in the State.