

**RESEARCH BULLETIN No. 6.**

**ANTS OF THE NIGERIAN FOREST ZONE  
(HYMENOPTERA: FORMICIDAE) PART III  
MYRMICINAE (Cardiocondylini to Meranoplini)**

**An illustrated guide to worker caste**

**By**

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## SYNOPSIS

This volume is the third in a short series of illustrated guides to the worker caste of ants of the Nigerian forest zone. This volume covers the tribes Cardiocondylini, Cataulacini, Crematogastrini, Dacetini, Leptothoracini, Melissotarsini and Meranoplini which form part of the subfamily Myrmicinae.

## INTRODUCTION

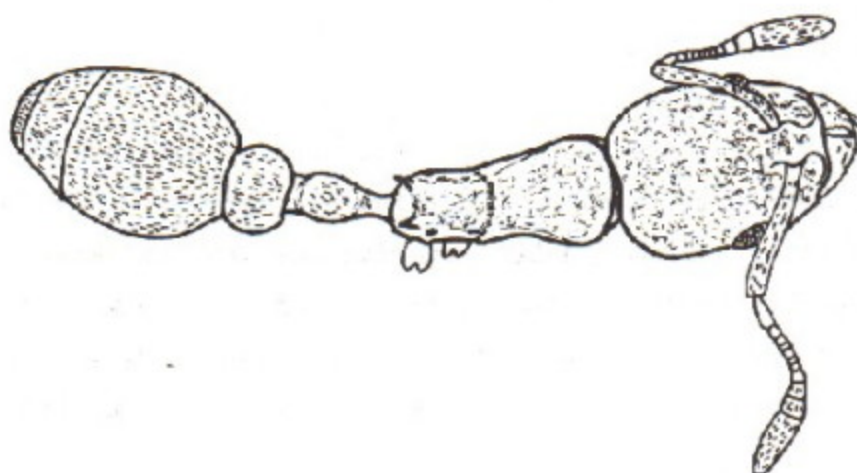
This bulletin follows the same pattern as in the previous two parts of the series and Part I should be consulted for background information and references. For convenience of use of this guide in the field or laboratory the very large subfamily Myrmicinae has been split between two parts of the series and this part covers the tribes Cardicondylini, Cataulacini, Crematogastrini, Dacetini, Leptothoracini, Melissotarsini and Meranoplini.

## Subfamily MYRMICINAE

## Diagnostic features

Pedicel of two segments, postpetiole usually distinctly separated from the gaster. Pygidium not impressed. Frontal carinae totally or partially covering the antennal insertions, eyes usually present. Clypeus projecting back between the frontal carinae. Tibial spurs of middle and hindlegs simple or absent. Antennae 4- to 12- segmented. Ocelli absent. Claws simple.

Genera not represented in the CRIN collection are Codionymex, Epitritus (savannah only in Nigeria), Microdaceton, Quadristuma (single W.African record is from Ghana), Smithistruma, Trichoscapa (not yet recorded from Africa), Adelonymex, Melissotarsus (specimen in CRIN collection from Ghana), Cratonymex (savannah only), Wasmannia (neotropical, introduced into Cameroun), Messor (savannah only), Carebara and Rhoptrymex.



Cardiocondyla emeryi × 62.5



Tribe CARDIOCONDYLINI

Genus Cardiocondyla Emery

Diagnostic features

Lateral portions of clypeus projecting forwards over the basal margins of the mandibles. Eyes well developed, sited forward of the front of the midlength of the head.

Antennae 12- segmented, with a three -segmented club, scapes short failing to reach posterior margin of head.

Promesonotal suture absent, metanotal groove impressed.

Propodeum with a pair of teeth or spines. Petiole with a long peduncle in front, in dorsal view the post-petiole very broad. Middle and hind tibiae without spurs.

Sculpture usually of fine dense puncturation on head and alitrunk, none on gaster. Sparse pubescence but erect setae only on anterior clypeal margin.

A single species, C. emeryi, in the CRIN collection.

TL 1.77 HL 0.44 HW 0.36 SL 0.28 PW 0.25

Collected from soil by Bolton at CRIN

Colour orange, gaster brown also antennal club.



## Tribe CATAULACINI

Genus Cataulacus F. Smith

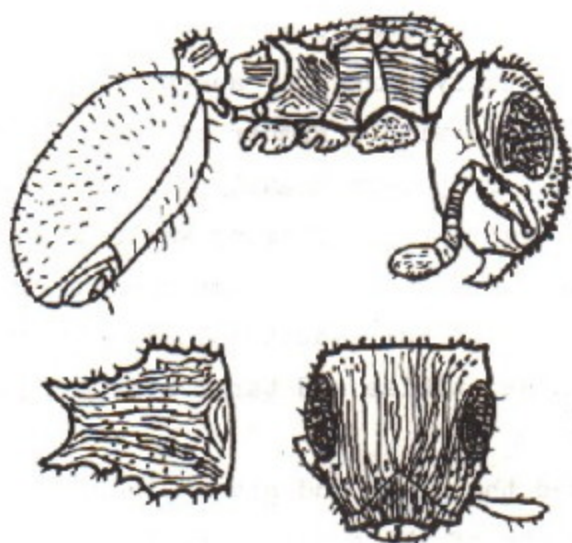
## Diagnostic features

Mandibles edentate to weakly denticulate. Antennae 11-segmented with 3-segmented club. Antennal scrobes present below the eyes which are usually well developed and set behind the mid-length of the head. Sides of head between eye and occipital corner often with numerous laterally projecting denticles, occipital corner usually with a tooth. Dorsum of alitrunk with sutures weakly marked or absent. Sides of pronotum usually marginate with a number of small teeth or an angular projection. Propodeum usually bispinose or bidentate. First gastral tergite forming whole of gaster in dorsal view. Head, alitrunk and gaster considerably dorsoventrally compressed. Full adult colour uniform black or black-brown; antennae, tibiae and tarsi lighter, yellow or yellow-brown.

Bolton (1974a) revised the genus and gives Nigerian records for six species only one of which huberi E. André, is not represented in the CRIN collection. I have collected a further four species at CRIN - two of which have been recorded in countries both to the east and west of Nigeria, one is recorded from the Republic of Benin (Dahomey) and the fourth is apparently new to science. Four other species elongatus Santschi, erinaceus Stitz, kohli Mayr and tardus Santschi are recorded both to the east and west of Nigeria and will probably be collected here at sometime in the future.

The size ranges given are taken from Bolton (1974a) except for the new species. The specimens in the CRIN collection were, however, measured to check they fall into the size range.





Cataulacus brevisetosus × 31

C. brevisetosus Forel

TL 2.7 - 4.0 HL 0.76 - 1.08 HW 0.63 - 0.98

SL 0.36 - 0.50 PW 0.54 - 0.78

Occipital corners denticulate, a second denticle on the occipital margin close to the corner. Sides of head behind eyes usually minutely denticulate. Alitrunk marginate laterally, most pronounced on pronotum. Pronotal margin with a row of small or minute denticles, a few also on mesonotal and propodeal margins and occasionally outer borders of propodeal spines; the latter short but distinct. Subpetiolar process simple or with an acute posteroventral angle, rarely projecting as a short tooth. Subpostpetiolar process a simple blunt spine. Dorsum of head and pronotum finely and densely reticulate - rugose; remainder of alitrunk usually more rugose longitudinally. Petiole and postpetiole usually longitudinally rugose. Gaster dorsally finely and densely reticulate - punctate. Hairs on clypeus and usually on remainder of dorsum of head short and stout, clavate or sub-orbicular. Remainder of body with numerous short stout simple hairs. Quite commonly found on cocoa and shrub vegetation. Nests in hollow twigs.



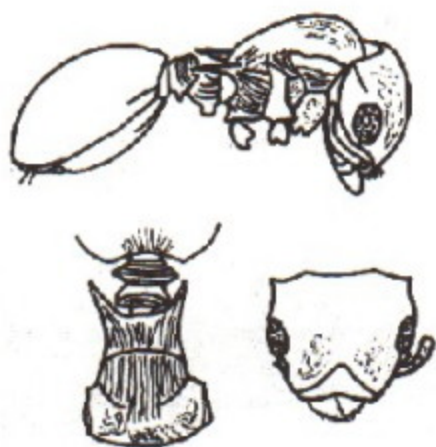
Cataulacus difficilis ×31

C. difficilis Santschi

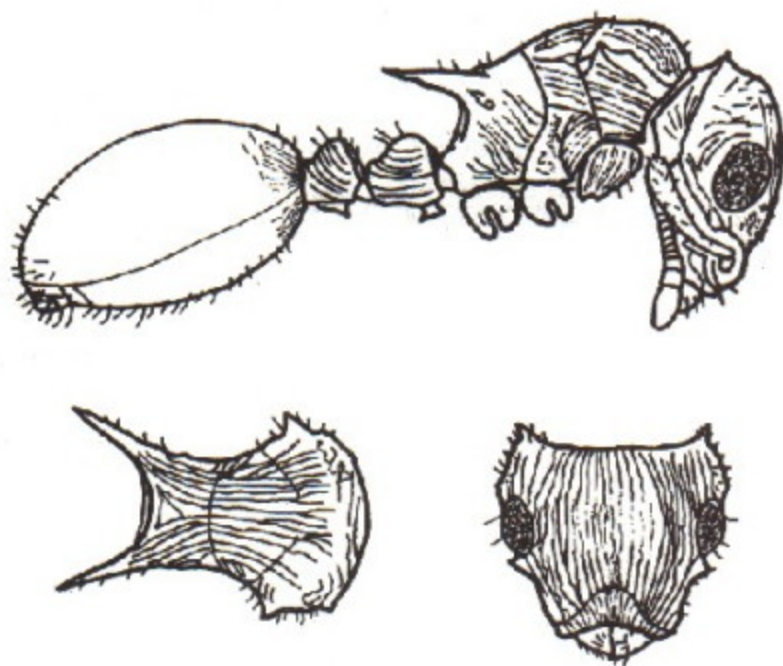
TL 3.33 HL 0.86 HW 0.78 SL 0.44 PW 0.64

Occipital corners each with a pair of small, acute triangular teeth. Sides of pronotum marginate, strongly denticulate, remainder of alitrunk more weakly and sparsely denticulate. Propodeal spines short acute. Mesokatepisternal tooth strongly developed, triangular, acute and visible when alitrunk viewed from above. Subpetiolar process simple, subpostpetiolar process long and digitiform. Dorsum of head reticulate-rugose, rugae longitudinal anteriorly. Alitrunk dorsum longitudinally rugose. First gastral tergite, reticulate punctate. All dorsal surfaces with stout, blunt erect hairs.

First Nigerian record, collected from shrubs at edge of cocoa on CRIN.



Cataulacus egenus ×15



Cataulacus guineensis ×15



C. egenus Santschi

TL 4.2 - 6.1 HL 1.10 - 1.48 HW 1.22 - 1.74

SL 0.62 - 0.80 PW 1.14 - 1.60

Occipital crest variously developed, but even when well developed it is little more than an acute angle separating the vertex from the occiput. Occipital corners with denticiform angle or simple acute angle. Denticles absent from head and alitrunk. Pronotum marginate laterally, remainder of alitrunk not marginate. Propodeal spines long and acute. Dorsum of alitrunk with sutures faintly marked. Petiole with dorsal surface strongly transversely rugose, postpetiole similar and also expanded laterally. First gastral tergite marginate basally and antero-laterally, parallel ridge on sternite. Sculpturation of head finely rugo-reticulate. Dorsum of alitrunk rugo-reticulate on pronotum more obviously longitudinally rugose on remainder. Erect hairs absent from all dorsal surfaces.

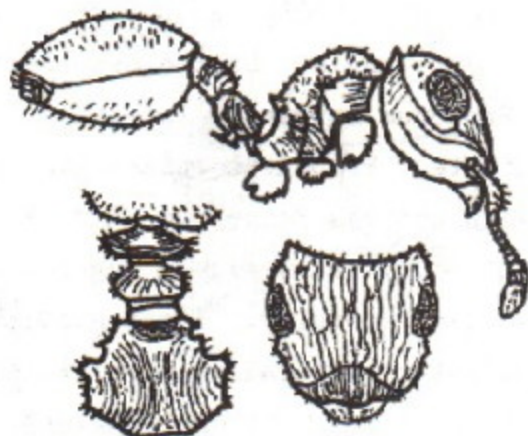
Nest in rotten branches on standing trees, including cocoa.

C. guineensis F. Smith

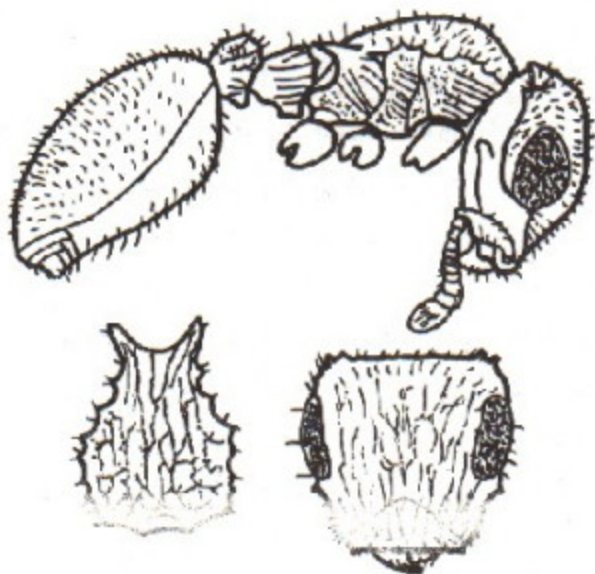
TL 4.5 - 8.6 HL 1.14 - 2.04 HW 1.30 - 2.40

SL 0.74 - 1.22 PW 1.04 - 1.94

Occipital corners with single acute tooth. Sides of head behind eye denticulate. Pronotum marginate laterally, margins usually with 2 - 4 denticles and postero-laterally terminating in a large spine or tooth. Sides of mesonotum and propodeum rounded, usually without denticles. Propodeal spines very long, divergent. Alitrunk sutures usually faintly visible on dorsum. Sculpturation very variable, mostly dominantly a longitudinal rugulation, often sulcate. Stout erect hairs usually present on all dorsal surfaces. Probably the most common member of the genus. Nests in dead branches on standing trees. Tend aphids on cocoa. Often with Oecophylla longinoda (Latreille).



Cataulacus mocquerysi ×15



Cataulacus pygmaeus ×31

C. mocquerysi E. André

TL 4.0 - 5.5 HL 1.00 - 1.400 HW 1.12 - 1.54

SL 0.60 - 0.72 PW 1.02 - 1.48

Occipital corners with one or two small denticles, sides of head behind the eyes denticulate or only crenulate. Pronotum marginate laterally, margins with a few rather large denticles and posterolaterally with a flattened expanded lobe with one or two denticles on its posterior border. Mesonotum with one or two large denticles laterally; propodeal spines reduced to a pair of very short teeth, usually blunt apically.

Petiole and postpetiole strongly flattened dorsoventrally in dorsal view both broadly and stoutly V - shaped. Subpetiolar process with distinct posteroventral heel or spur. Sculpturation of head and dorsal alitrunk a fine, loose rugo-reticulation. Stout erect hairs on all dorsal surfaces.

Small, relatively uncommon species, nests in hollow twigs on bushes and trees. Found once on cocoa tree.

C. pygmaeus E. André

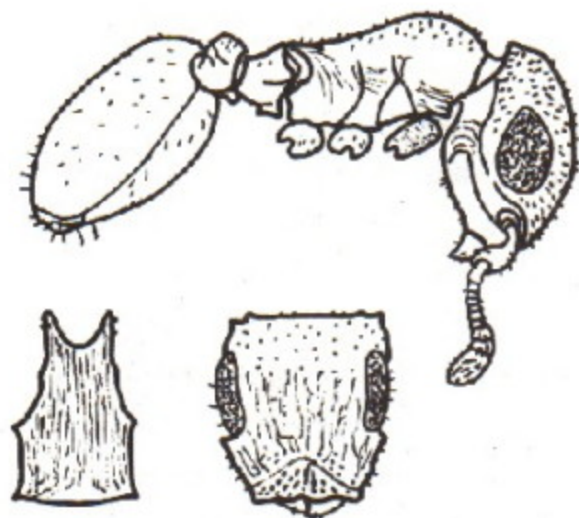
TL 3.7 - 4.4 HL 0.94 - 1.10 HW 0.92 - 1.06

SL 0.48 - 0.52 PW 0.72 - 0.90

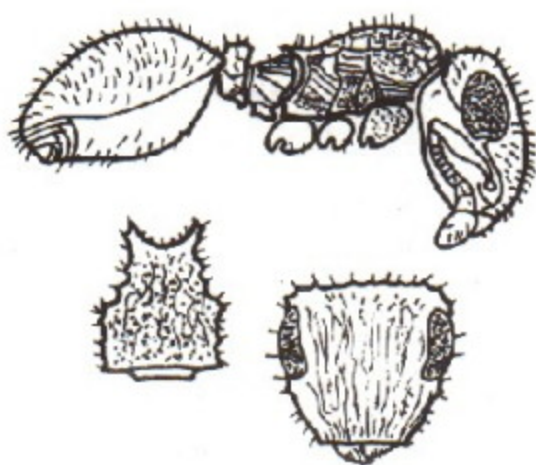
Occipital corners denticulate, with adjacent second denticle. Sides of head behind eyes denticulate. Sides alitrunk marginate, strongly so on pronotum, denticulate throughout. Propodeal spines broad, dorsoventrally flattened. Subpetiolar process variable some with posteroventral angle acute. Subpetiolar process short, simple. Sculpturation of head and dorsal alitrunk a rugoreticulum, coarser on alitrunk, tending to fine irregular widely spaced rugation posteriorly. Simple, erect hairs on all dorsal surfaces.

First Nigerian record, found on low vegetation in unshaded areas. Nests in stems or twigs, will tend small coccids.





Cataulacus vorticus ×31



Cataulacus weissi × 31

C. vorticus Bolton

TL 3.4 - 3.5 HL 0.84 - 0.90 HW 0.74 - 0.82

SL 0.40 - 0.44 PW 0.52 - 0.56

Occipital corners with small triangular tooth and adjacent denticle. Sides of head behind eyes shallowly convex, with minute denticles. Pronotum hardly marginate but humeral angles acute and prominent, a single tooth laterally close to junction with mesonotum. Propodeal spines moderately long, blunt. In profile anterior and posterior faces of petiole meeting dorsally at near right-angle. Postpetiole with convex dorsum. Subpetiolar process simple, a sharp postero-ventral angle. Subpostpetiolar process simple, short, digitiform. Dorsum of head and alitrunk rugoreticulate, with longitudinal trend posteriorly. Hairs on clypeus and dorsum of head strongly clavate. Remaining dorsal surfaces with numerous, short, fine simple hairs.

Holotype collected by Bolton from nest under bark of cocoa tree at Gambari. My specimens were on the trunk of shade tree.

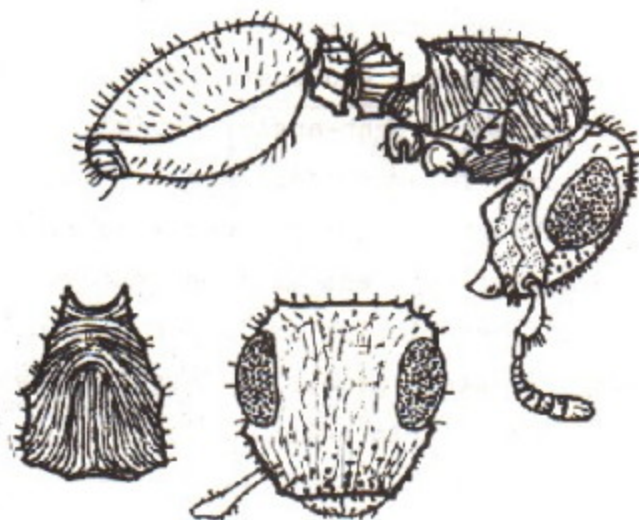
C. weissii Santschi

TL 3.3 - 3.6 HL 0.82 - 0.96 HW 0.74 - 0.86

SL 0.40 - 0.50 PW 0.60 - 0.70

Occipital corners and remainder of head behind eyes denticulate. Alitrunk marginate laterally, margins denticulate. Propodeal spines short, acute. Subpetiolar process complex, posteroventral angle a long heel or spur. Subpostpetiolar process digitiform. Dorsum of head and alitrunk with fine loose rugoreticulum. Simple, stout blunt hairs numerous everywhere. First Nigerian record, collected from low vegetation.





Cataulacus species T<sup>1</sup> x 31

Cataulacus species T<sup>1</sup>

TL 2.74 - 3.08 HL 0.75 - 0.87 HW 0.75 - .78

SL 0.36 - 0.37 PW 0.53 - 0.59

Occipital corners with single denticle, sides of head behind eye denticulate. Pronotum weakly marginate humeral angles with triangular tooth, margination with minute denticles, terminating posteriorly in a single larger denticle close to promesonotal junction. Propodeum and mesonotum not marginate but a few minute denticles. Propodeal spines short acute. Dorsum of head finely reticulate - rugose, rugae more obvious anteriorly. Alitrunk dorsum strongly rugose, longitudinal on top of pronotum, rugae running obliquely on lateral alitrunk and continuing onto dorsum where rugae progressively more transverse on mesonotum and propodeum. Dorsal and lateral surfaces of petiole and postpetiole longitudinally rugose. Femora strongly longitudinally rugose. Hairs on all dorsal surfaces numerous, progressively shorter and stouter anteriorly, those on anterior of cephalic dorsum, especially clypeus, strongly clavate.

General size and sculpturation most closely resembles adpressus Bolton which is known only from Ghana and has sparse, strongly adpressed hairs. The sculpturation and large eyes of this species are very distinctive. Two specimens have been collected on low vegetation at two widely separated sites on CRIN, Gambari.



## Tribe CREMATOGASTRINI

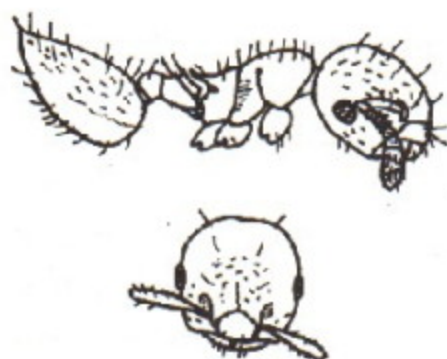
Genus Crematogaster Lund

## Diagnostic features

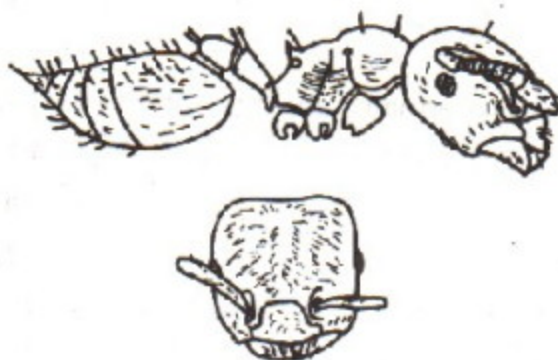
Mandibles with four or five teeth. Antennae 10 - or 11-segments. Eyes present, usually well developed, at or just behind the mid-length of the side of the head. Promesonotal suture usually a weak impression. Metanotal groove impressed, often deeply. Propodeum usually armed with a pair of spines or teeth, rarely tubercles or absent. Petiole dorsoventrally flattened, without a node, the dorsal surface weakly convex to concave. Postpetiole a node, often with a median longitudinal groove, attached to the dorsum of the first gastral segment. Gaster heart-shaped or triangular in dorsal view. Sting spatulate. Tarsal claws simple, often large.

The attachment of the postpetiole to the dorsum of the gaster allows the very characteristic defence posture in which the gaster is turned forwards over the alitrunk.

A very large genus which is taxonomically very confused but is probably of some economic importance as several species are among the dozen or so dominant ant species on cocoa and other tree crops. I have followed the subgeneric groupings given by Wheeler (1922; 661-662) even though this is probably not wholly correct. An unpublished key by Bolton to the species he apparently found at CRIN has been useful although many of the 25 species he listed are not represented in the CRIN collection. I personally have collected 21 species at CRIN.



Crematogaster species T<sup>3</sup> x31



Crematogaster species 1 x31



Subgenus Decacrema Forel

Differentiated by the 10- segmented antennae

Crematogaster species T<sup>3</sup>

TL 1.87 HL 0.54 HW 0.50 SL 0.36 PW 0.31

Colour orange, darkening posteriorly, gastral apex near black.

Shiny, unsculptured; erect setae fine, sparse; pilosity very sparse on head and gaster. Alitrunk convex in profile, metanotal groove slightly impressed, propodeal spines long, acute, upturned. Petiole trapezoidal in dorsal view, corners acute, subpetiolar spine relatively long with rounded apex. Postpetiole with slight longitudinal depression.

Occasionally found on cocoa and shrubs, nests under dry bark.

Subgenus Orthocrema Santschi

Frontal carinae well developed; petiole with parallel sides usually straight or scarcely arcuate, rarely broader posteriorly than anteriorly; antennal club 2- jointed, postpetiole entire.

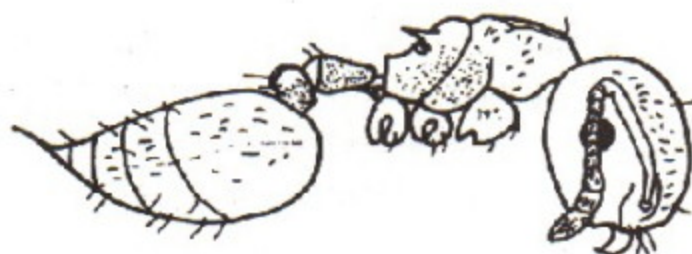
Crematogaster species 1

TL 2.18 HL 0.61 HW 0.59 SL 0.39 PW 0.34

Colour dark-orange, very dark on gaster. Moderately abundant pilosity, erect setae clavate, especially noticeable on pedicel.

Alitrunk profile a nearly continuous convex curve slight depression at metanotal groove; propodeal spines short, triangular upturned denticles. Subpetiolar spine moderately long, triangular.

Not infrequently found on cocoa, nests under bark, in dead branch ends, in mummified pods. Forages over a surprisingly wide area of canopy, constructs discrete tents of vegetable debris over pseudococcids at pod-stalk junction.



pedicel  
×62.5



Crematogaster species A<sup>1</sup> ×31

Subgenus Crematogaster, sensu stricto

Antennae 11-jointed; frontal carinae well developed; petiole broadened in front, trapezoidal, sometimes truncated or rounded at the anterior angles, sometimes oval; postpetiole grooved, sometimes merely impressed.

At CRIN there are several small brown to black species which seem quite variable within themselves. I have attempted to select the most consistent characters in defining each species.

Crematogaster species A<sup>1</sup>

Size variable TL 2.80 - 3.20 but usually fairly consistent within one colony.

Largest dimensions HL 0.76 HW 0.81 SL 0.59 PW 0.47

Colour light to dark brown, shiny. Few erect setae, sparse pilosity. Promesonotum flat in profile, mesonotum sometimes with a slight carina; metanotal groove not impressed, posterior declivity of mesonotum variable often rounded. Propodeal spines set one-third to half-way down propodeal declivity, usually moderately long, acute. Subpetiolar spine variable usually short, acute. Postpetiole divided into two hemispheres. Sculpturation of spiculation on lateral mesonotum and propodeum and pedicel.

Probably commonest member of subgenus, often found on cocoa, nests in dead branch ends, tends pseudococcids and constructs discrete carton tents.





pedicel  
×62.5



Crematogaster species 2 ×31



pedicel  
×62.5



Crematogaster species 3 ×31



pedicel  
×62.5



Crematogaster species C ×31

Crematogaster species 2

TL 3.9 HL 0.86 HW 0.87 SL 0.59 PW 0.50

Colour brown-black, shiny. Pilosity sparse, erect setae few, most on head and gaster. Subpetiolar spine short, blunt.

Metanotal groove deeply impressed, mesonotum with vertical posterior face. Propodeal spine one third down declivity, stout, moderately long. Lateral mesonotum, propodeum and pedicel spiculate, faint striations on some. In profile pronotum flat, slight carination of mesonotum.

Nests in crevices and dead wood on trees. Found on cocoa tending aphids and pseudococcids.

Crematogaster species 3

TL 3.36 HL 0.78 HW 0.78 SL 0.50 PW 0.45

Colour black, shiny. Pilosity sparse, erect hairs few. In profile alitrunk slightly convex, mesonotum with vertical rear face descending into slightly impressed metanotal groove; propodeal spines near halfway down declivity, stout, acute, triangular. Lateral alitrunk reticulo-striate, faint on pronotum. No subpetiolar spine.

Collected foraging on cocoa and on shade trees.

Crematogaster species C/F 409

TL variable 3.27 - 4.04; largest HL 0.92

HW 1.01 SL 0.62 PW 0.59

Colour dark brown - black, shiny. Pilosity sparse, erect setae also sparse but about 10 on dorsum of pronotum. Alitrunk profile slightly concave, metanotal groove not impressed, mesonotum with angled posterior face. Propodeal spines long sharp near top of declivity. Lateral mesonotum, propodeum and pedicel spiculate, some striate on alitrunk.

Subpetiolar spine short, acute triangular.

Found foraging on shrubs and cocoa.





pedicel  
×62.5



Crematogaster species F970 × 31



pedicel  
×62.5



Crematogaster species T<sup>1</sup> × 31

Crematogaster species F 970

TL 3.58 HL 0.79 HW 0.82 SL 0.64 PW 0.53

Colour dark brown - black. Pilosity and erect setae sparse.

Alitrunk profile convex almost flat, mesonotum with slight carina, metanotal groove hardly interrupting profile. Propodeal spines one-third down declivity, long, acute, upward pointing.

Lateral alitrunk and pedicel spiculate. No subpetiolar spine.

Eyes relatively large. Collected once on okra in garden.

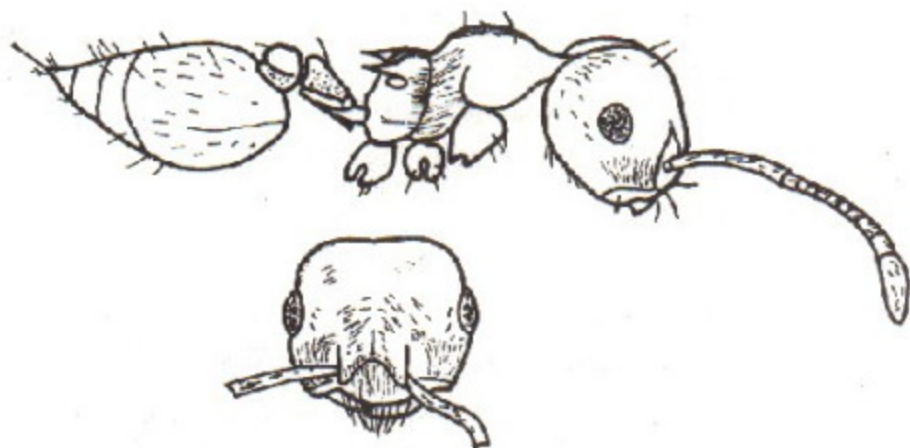
Crematogaster species T<sup>1</sup>

TL variable 2.18 - 2.64 largest HL 0.70

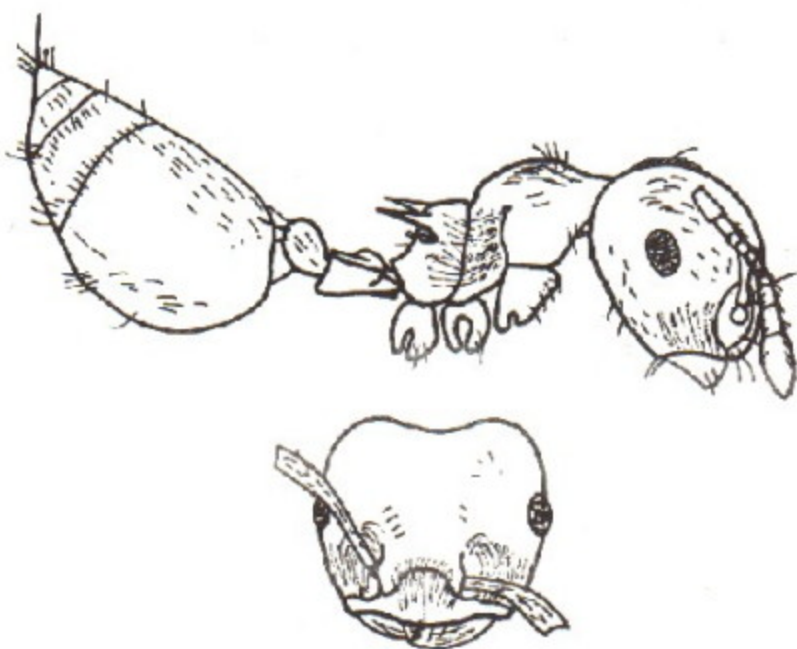
HW 0.70 SL 0.56 PW 0.40\*

Colour medium - dark brown, shiny. Pilosity sparse, erect setae few. Alitrunk profile flattened convex curve with slight depression at metanotal groove. Propodeal spines, near half way down declivity, sharp denticles. Lateral alitrunk very faintly striate. Subpetiolar spine small acute, triangular.

Found on cocoa and nesting in dead wood on tree in garden.



Crematogaster bequaerti ×31



Crematogaster gabonensis ×31

Subgenus Sphaerocrema Santschi

Antennae 11-jointed; frontal carinae well developed; petiole broadened in front, trapezoidal, sometimes truncated or rounded at the anterior angles. Postpetiole entire without a median furrow.

C. bequaerti

TL 3.02 HL 0.75 HW 0.75 SL 0.65 PW 0.47

Colour brown, shiny. Pilosity moderate, erect setae few. Alitrunk profile flat, metanotal groove not impressed but propodeum on lower level, posterior face of mesonotum angled. Propodeal spines long, straight, flat, acute. Sculpturation of slight striations on lateral alitrunk. Subpetiolar spine blunt.

Nests in dead branch ends on trees, in mummified cherelles on cocoa. Tends aphids on cocoa flowers.

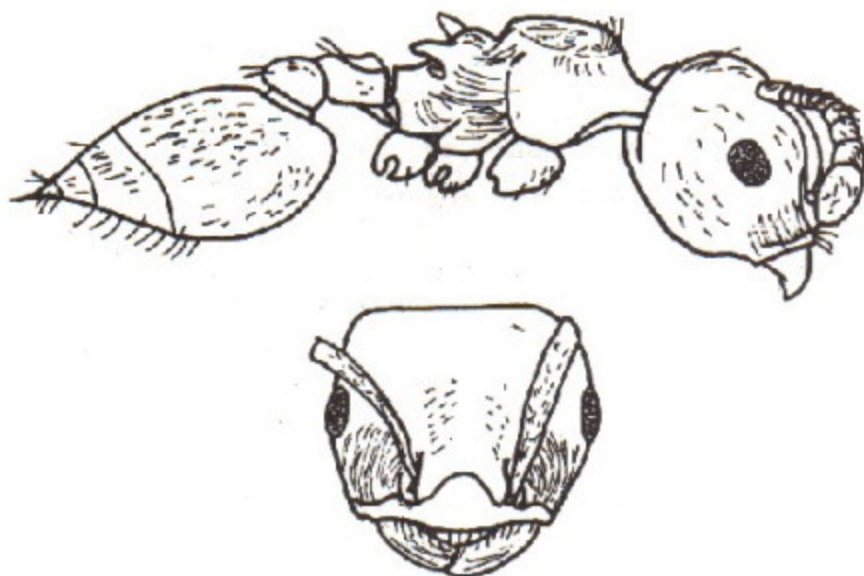
C. gabonensis

TL 4.01 HL 0.90 HW 0.96 SL 0.67 PW 0.56

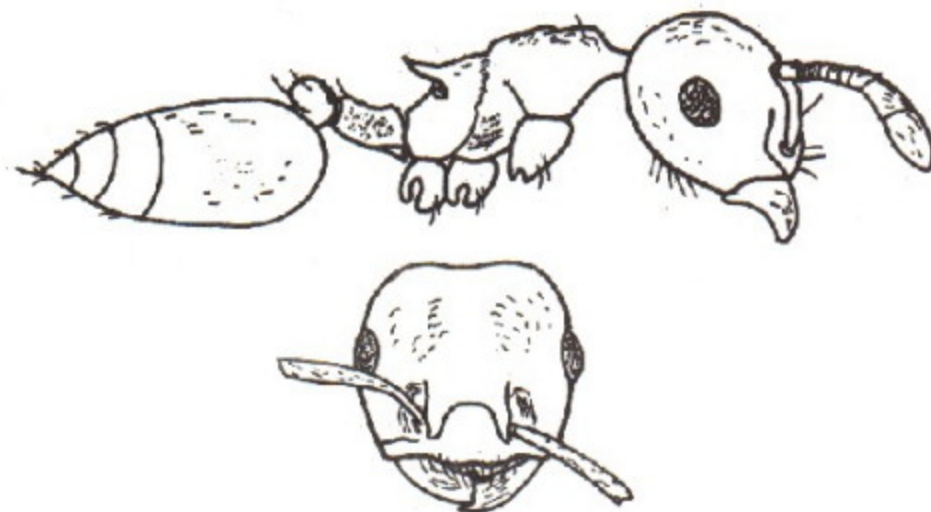
Colour of entire body orange brown, except gaster very dark red-brown. Moderately dense pilosity and moderately abundant erect setae. Profile of pro- and mesonotum convex, metanotal groove impressed. Mildly striate laterally on mesonotum and propodeum. Propodeal spines long, acute, slightly upturned. Subpetiolar spine minute, acute.

Can be dominant species on cocoa, nests amongst and under flaky bark. Tends Homoptera and constructs carton tents.





Crematogaster gambiensis × 31



Crematogaster kneri × 31

C. gambiensis

TL variable 2.64 - 3.80, largest HL 0.93 HW 1.09  
SL 0.73 PW 0.59

Colour body orange, cuticle transparent, except gaster darker, near black apically; shiny, polished. Sculpturation of striations on lateral mesonotum and propodeum. Profile of pro- and mesonotum convex, metanotal groove impressed; propodeal spines coarse, with rounded apices. Erect setae and pilosity moderately abundant. Subpetiolar spine large and keel-shaped.

Nests in dead twigs and under bark on trees, including cocoa. Constructs tents of vegetable matter over Homoptera.

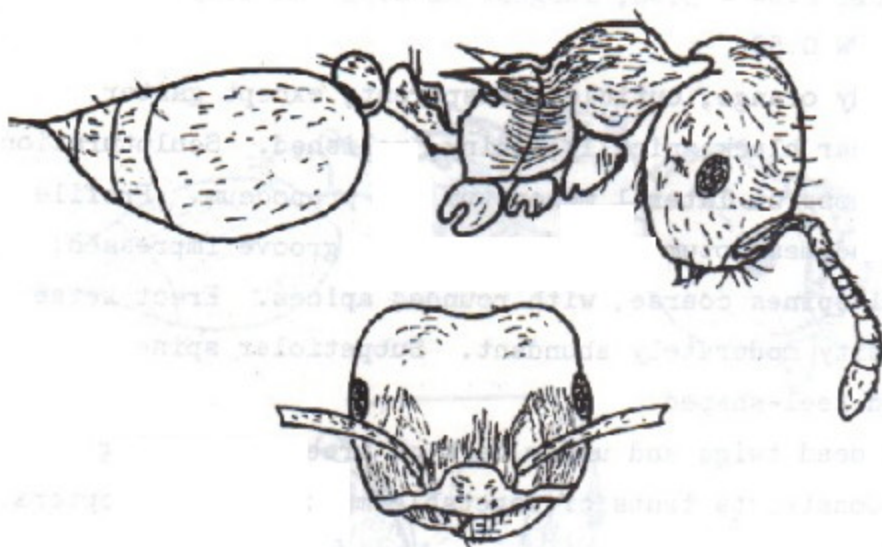
C. kneri

TL variable 3.0 - 3.6, largest HL 0.86 HW 0.86 SL 0.62  
PW 0.50

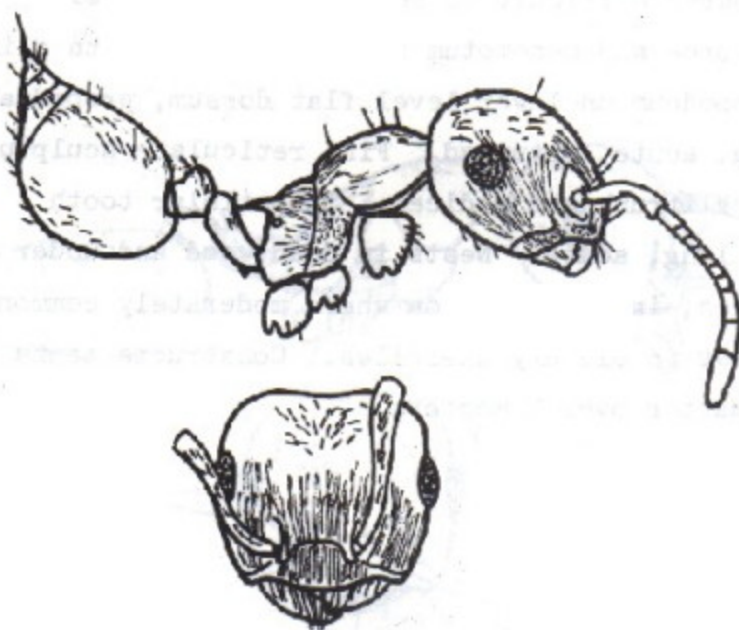
Colour yellow-orange, gaster darker apically, shiny.

Pilosity sparse difficult to see, few erect setae.

Profile of pro- and mesonotum flat, mesonotum with slight carina; propodeum on lower level flat dorsum, propodeal spines long, acute, upturned. Fine reticulate sculpturation on lateral alitrunk and pedicel. Subpetiolar tooth moderately long, acute. Nests in dead wood and under bark on trees, including cocoa where moderately common and will nest in old dry cherelles. Constructs tents of vegetable matter over Homoptera.



Crematogaster sjostedti ×31



Crematogaster striatula ×31

C. sjostedti

TL 3.90 HL 0.96 HW 1.03 SL 0.78 PW 0.59

Colour brown, gaster darker. Relatively dense pilosity and moderately abundant erect setae. Profile of pro- and mesonotum convex, propodeum on lower level. Propodeal spines long, straight, acute. Moderate striations on lateral mesonotum and propodeum. Subpetiolar spine reduced or absent.

Nests in dead wood on trees, including cocoa.

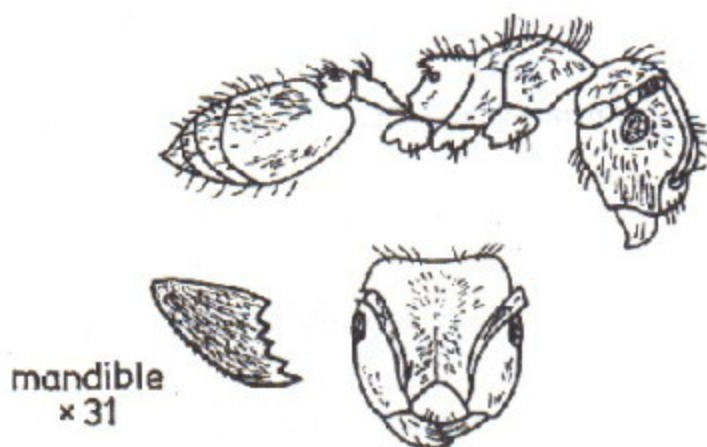
C. striatula

TL variable 3.05 - 3.42, largest HL 0.86 HW 0.87 SL 0.70  
PW 0.50

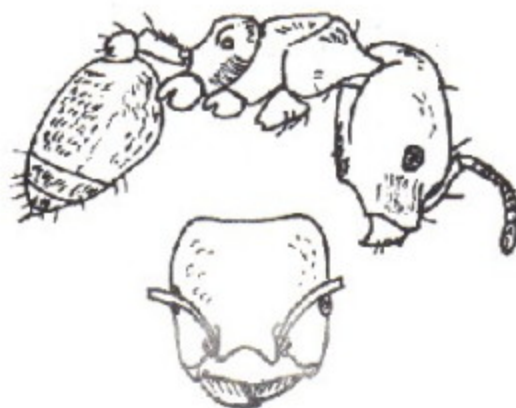
Colour very dark, red-brown to black, tarsi and antennal funiculi yellow, shiny. Pilosity sparse, erect setae moderately abundant. Profile of pro- and mesonotum flat, mesonotum with slight carina, propodeum on lower level. Propodeal spines long, acute, slight down curve. Alitrunk striated on dorsum and laterally, faint on lateral pronotum, lateral mesonotum spiculate. Head also finely striate. Dorsal surface of petiole smooth and flat, subpetiolar spine acute triangular.

Nests in dead wood on trees including cocoa where has been found in old dry cherelles.





Crematogaster africana x15



Crematogaster boxi x15

Subgenus Atopogyne Forel

Antennae 11- jointed; frontal carinae well developed; petiole broadened in front, usually oval or at least rounded at the anterior angles; postpetiole impressed behind; promesonotal suture impressed, mesonotum carinate in front; propodeal spines often curved downwards.

C. africana

Size very variable TL 3.23 - 5.51, largest HL 1.46

HW 1.43 SL 1.00 PW 0.78

Colour generally dark brown-black. Dense pilosity, erect setae abundant, postpetiole with 10-12 long setae. Alitrunk profile convex interrupted by low mesonotal carina and depression to shallow metanotal groove. Propodeal spines short, acute, down turned. Postpetiole with lower anterior corners rounded. Mandible of largest worker with nearly straight masticatory margin.

Relatively common dominant species building large carton nests on certain species of forest trees, rarely nesting on cocoa. Forages widely over trees adjacent to nest site, will cross ground between trees. Can cause some loss of production in cocoa by removing flowers, the extent of the loss and the reason for this activity is not clearly known.

C. boxi

Size variable TL 3.00 - 5.13, largest HL 1.49 HW 1.40

SL 0.87 PW 0.78

Colour orange on head darkening posteriorly to gaster, black, shiny. Dense pilosity, few erect setae. Alitrunk profile angular flat on mesonotum and propodeum, metanotal groove deeply impressed. Propodeal spines reduced to low tubercles. Lateral propodeum striated. Subpetiolar spine small, blunt. Carton nest in dead wood on forest trees, will forage on cocoa. Not very common.



Crematogaster buchneri ×15



Crematogaster clariventris ×15

C. buchneri

Size variable TL 2.68 - 4.26, largest HL 1.03 HW 1.00  
SL 0.78 PW 0.65

Colour usually dark brown-black. Relatively coarse pilosity, erect setae mainly on head and gaster. Alitrunk profile, pronotum square shouldered, mesonotal carina well developed, descent to metanotal groove steep near vertical, groove deeply impressed. Propodeal spines relatively narrow blunt with prominent spiracle at base. Sculpturation of coarse striations on lateral mesonotum. Postpetiole with rectangular lower anterior corners.

Not very common, large carton nests on certain forest trees. Forages off trees onto cocoa and other adjacent trees. Can be a dominant species.

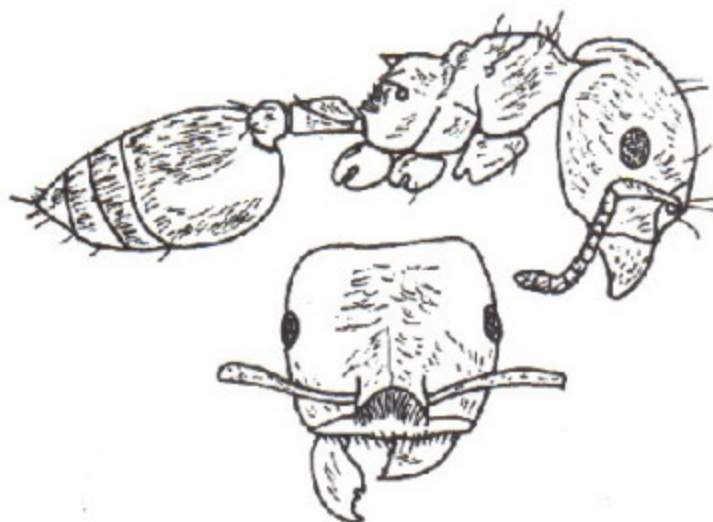
C. clariventris

Size variable TL 3.89 - 6.33, largest HL 1.43 HW 1.71  
SL 1.00 PW 0.93

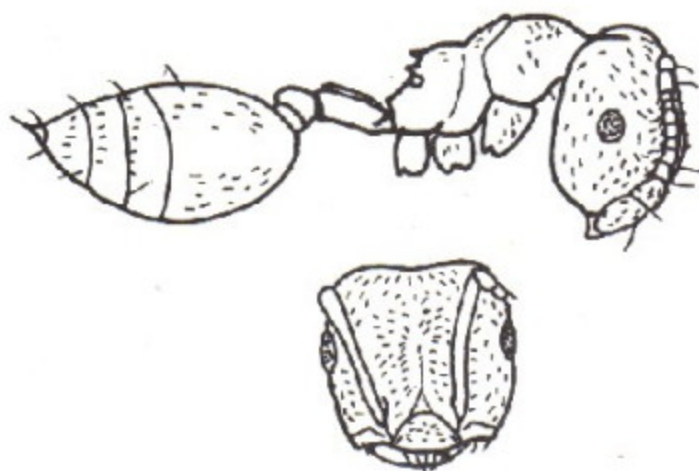
Colour head and alitrunk dark brown, gaster orange, shiny. Dense pilosity, few erect setae. Alitrunk profile rounded, mesonotal carina low, mesonotum descending steeply into impressed metanotal groove. Alitrunk and head finely striate. Propodeal spines moderately long, near straight, acute. Postpetiole with near rectangular lower anterior corners.

Fairly common dominant tending to build a number of small carton nests on cocoa and other trees. A dominant species.





Crematogaster depressa x15



Crematogaster species A x31

C. depressa

Size very variable TL 3.42 - 7.28, largest HL 2.02

HW 1.80 SL 1.18 PW 1.00

Colour dark chestnut brown. Dense pilosity, few erect setae, only 4 on postpetiole. Alitrunk profile rounded except in metanotal groove area where often raised.

Mesonotal carina low; propodeal spines acute fairly stout and straight, down curved more on largest workers. Postpetiole with rounded lower anterior corners. Mandible of largest worker with concave masticatory margin.

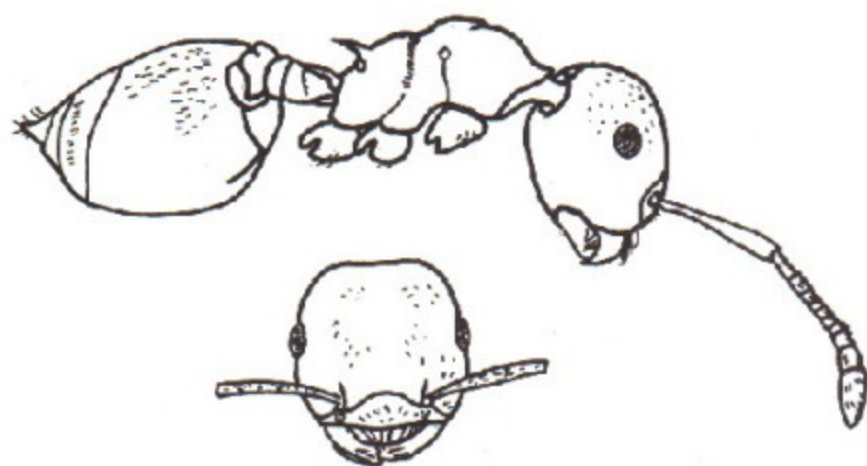
Common dominant species constructing large carton nests on certain forest trees. Forages widely from nest site on cocoa and any other adjacent trees.

Crematogaster species A

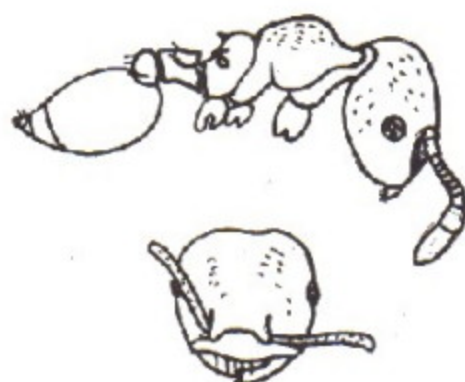
Apparently monomorphic TL 3.42 HL 0.82 HW 0.81 SL 0.62  
PW 0.44

Colour dark brown, shiny. Moderate pilosity, few erect setae. Alitrunk profile rounded, mesonotal carina low, mesonotal groove hardly impressed. Propodeal spines very short or reduced to tubercles. Sculpturation of very fine striae, hardly noticeable on alitrunk.

Nesting in dead wood, branch ends and similar, on trees, little or no carton.



Crematogaster species 5    × 31



Crematogaster species T<sup>2</sup>    × 31

## Undetermined subgenera

Crematogaster species 5

TL 3.11 HL 0.70 HW 0.68 SL 0.56 PW 0.40

Colour very dark red-brown, antennal funiculi yellow brown. Highly polished appearance with little or no sculpturation. Pilosity short, sparse; erect setae on apices of gaster and clypeus. Alitrunk profile very convex, mesonotum slightly humped, no metanotal groove, dorsal propodeum curved spines straight, narrow, acute, upwardly directed. Postpetiole flattened in profile, trapezoidal in front view; lower edge wide with acute lateral angles; upper edge slightly rounded medially impressed. Head near ovoid in frontal view. First gastral tergite with rounded acute antero-lateral corners.

Two specimens collected by Bolton at CRIN with C. gambiensis on tree.

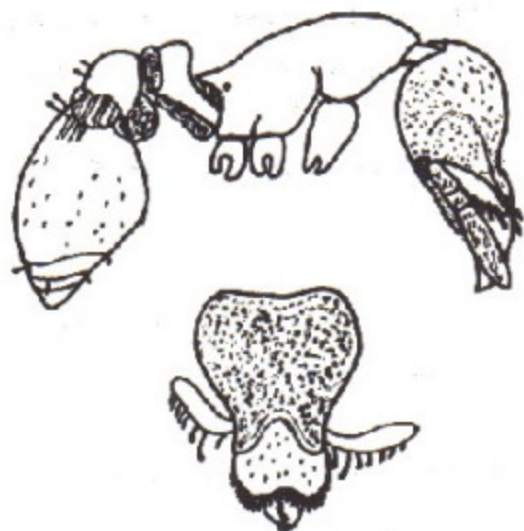
Crematogaster species T<sup>2</sup>

TL 1.94 HL 0.56 HW 0.59 SL 0.37 PW 0.34

Colour yellow brown, gaster darker, shiny. Pilosity sparse, erect setae few. Profile pro- and mesonotum smoothly convex, slightly impressed metanotal groove; propodeum passing through convex curve, spines short, acute triangular upturned. Petiole trapezoidal straight sided, anterior slightly wider, anterolateral corners acute, subpetiolar spine, moderately large, blunt.

Specimens reared by female collected in laboratory, which might give misleading impression of worker size.





Miccostruma species T<sup>1</sup> x62.5

## Tribe DACETINI

Genera not represented in the CRIN collection are Codionymex Wheeler, Epitritus Emery, Microdaceton Santschi, Quadristruma Brown, Smithistruma Brown and Trichoscapa Emery.

Genus Miccostruma Brown

## Diagnostic features

Mandibles subtriangular, serially dentate, concealed for most of their length by the very well developed, anteriorly projecting clypeus, which is fringed anteriorly and laterally by flattened hairs. Antennae 4-segmented; antennal scrobes present. Sutures absent from dorsal alitrunk. Propodeum bidentate. Spongiform appendages of pedicel well developed. Dorsum of head with fine scattered punctures, hairs absent except on clypeus. Dorsum of alitrunk, pedicel and gaster mostly shiny with small widely spaced punctures. Base of first gastric tergite with longitudinal striae.

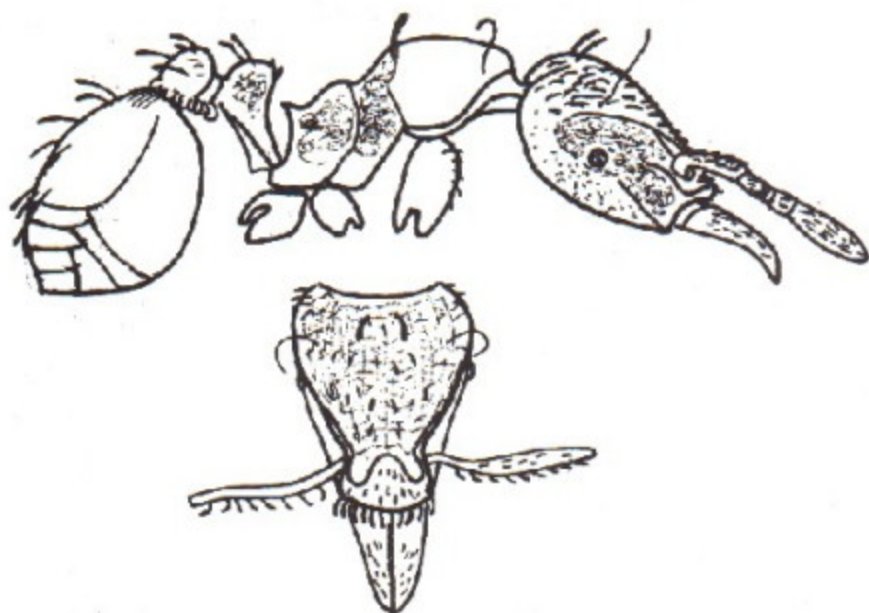
Miccostruma species T<sup>1</sup>

TL 1.63 HL 0.48 HW 0.37 SL 0.20 PW 0.22

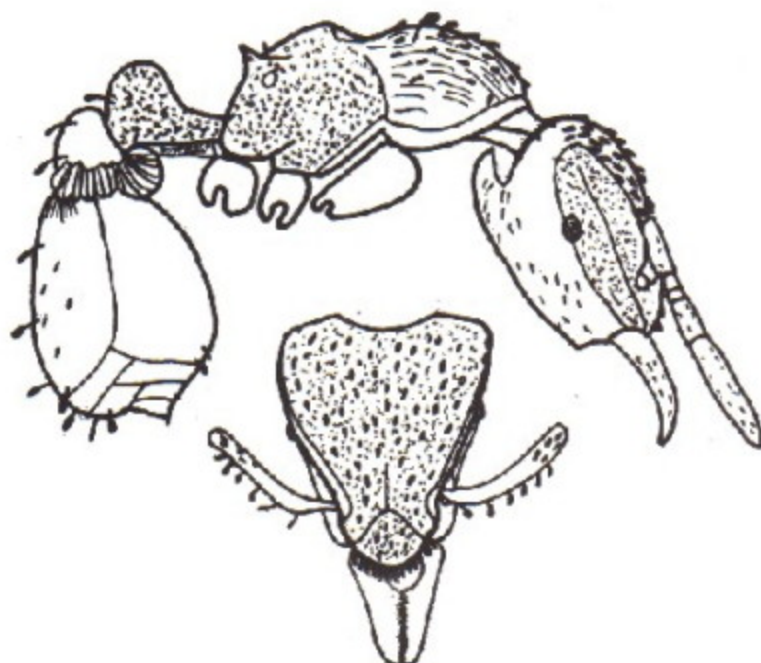
Colour dark yellow-brown, extremities orange, shiny except head. Eyes moderate below scrobes. Erect hairs restricted to gastral apex, antennal scapes, a pair at anterior of first gastral tergite and a pair on postpetiole, all spatulate. Very sparse pilosity just visible on gaster and head under high magnification.

One specimen, collected on cocoa flowers at 120 cm with

Technomyrmex detorquens



Serrastruma lotti × 62.5



Serrastruma maynei × 62.5



Genus Serrastruma Brown

## Diagnostic features

Mandibles elongate triangular, serially denticulate, more than 20 denticulae, basal 4 - 8 may be much larger than others. Antennae 6-segmented, second and third funicular segments reduced, antennal scrobes present. Promesonotal suture may be present as a weak impression. Pronotum may be differently sculptured to mesonotum. Metanotal groove impressed, propodeum armed with a pair of teeth, may be reduced. Spongiform appendages of pedicel usually reduced. All golden yellow.

S. lotti

TL 1.90 HL 0.48 HW 0.39 SL 0.34 PW 0.28

Erect setae generally rather sparse moderately long and clavate, pair of long slender sinuate setae at humeral angles of pronotum and on dorsum of head above the eyes. Pronotum smooth except for distinct longitudinal mid-dorsal carina. Mesonotum and propodeum spiculate also pedicel. Gaster shiny, base first gastral tergite with longitudinal striae. Head with reticulate sculpture.

Collected from rotten wood on ground and a dead tree branch at CRIN and nesting under dead wood bark at Itamerin.

S. maynei

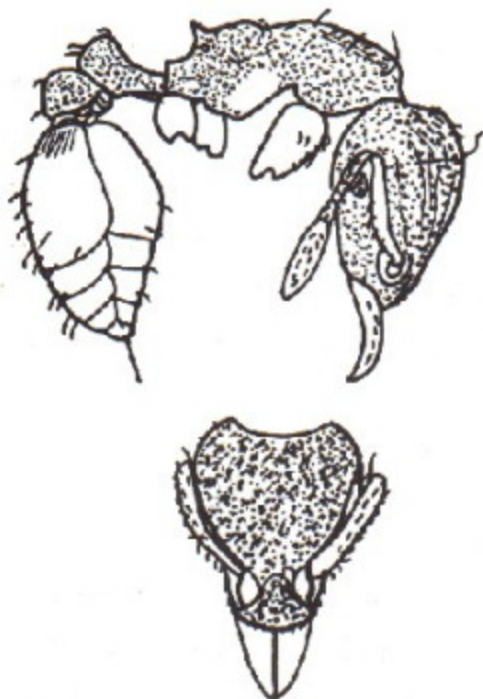
TL 2.29 HL 0.54 HW 0.45 SL 0.31 PW 0.34

No long sinuous setae, most erect setae relatively short spatulate, short adpressed clavate setae moderately abundant on head and dorsal alitrunk. Pronotum shiny unsculptured except for longitudinal discontinuous rugulation. Remainder of alitrunk and petiole finely reticulopunctate. Postpetiole and gaster shiny, basal rugae on first gastral tergite.

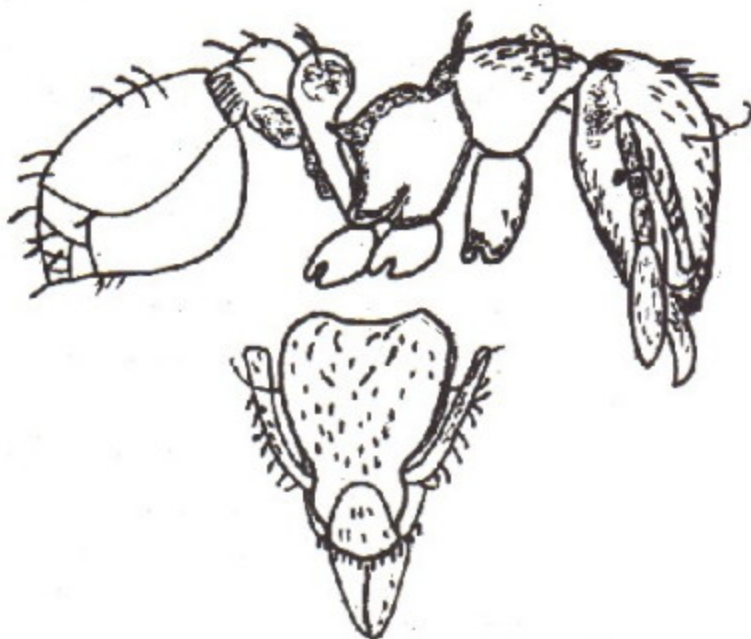
Propodeal spines acute triangular.

Collected from rotten log at Gambari by Bolton.





Serrastruma species Bolton coll.  $\times 62.5$



Serrastruma species T<sup>1</sup>  $\times 62.5$

Serrastruma species Bolton collected

TL 1.96 HL 0.45 HW 0.36 SL 0.26 PW 0.25

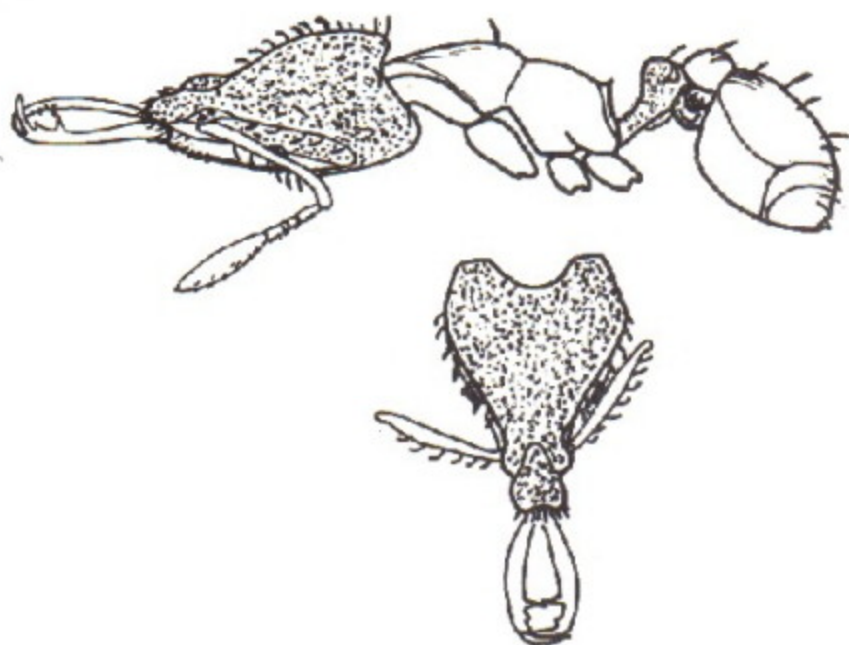
Entire body, except gaster and central area of lateral mesonotum, reticulopunctate, coarsest on head. Erect setae few, most on gaster, relatively long narrow and clavate; adpressed narrow clavate hairs on dorsal head and alitrunk. Long sinuous setae at humeral angles and on head above eyes. The specimen drawn was collected at CRIN in 1975 but the collection data were not kept. Bolton collected the species at Gambari from a tree stump and from under bark of a dead log.

Serrastruma species T<sup>1</sup>

TL 2.17 HL 0.56 HW 0.39 SL 0.36 PW 0.28

Erect setae relatively long narrow clavate, several on occiput; paired fine long sinuous setae at humeral angles of pronotum and head above eyes. Eyes small. Alitrunk reticulopunctate only on dorsum of mesonotum and propodeum. Collected at base of cocoa tree.

Also in CRIN collection are specimens of S. lujae from CRI, Ghana. A smaller species with a flatter alitrunk in profile, 3 pairs erect setae on mesonotum.



Strumigenys n.sp. in Bernard ms.  $\times 62.5$

Genus Strumigenys F. Smith

Diagnostic features

Mandibles elongate, linear; preapical armament usually of two teeth on the distal portion of the blade, occasionally one tooth missing from one blade. Apical armament of a fork of two spiniform teeth, with or without intercalary denticles. Antennae 6-segmented, the second and third funicular segments reduced. Antennal scrobes present. Often ventrolateral margin of head excised in front of the eye to form a preocular notch.

All orange-brown, some darker.

Genus revised by Brown (1954)\*

Strumigenys n. sp. in Bernard ms. [Brown, 1954]

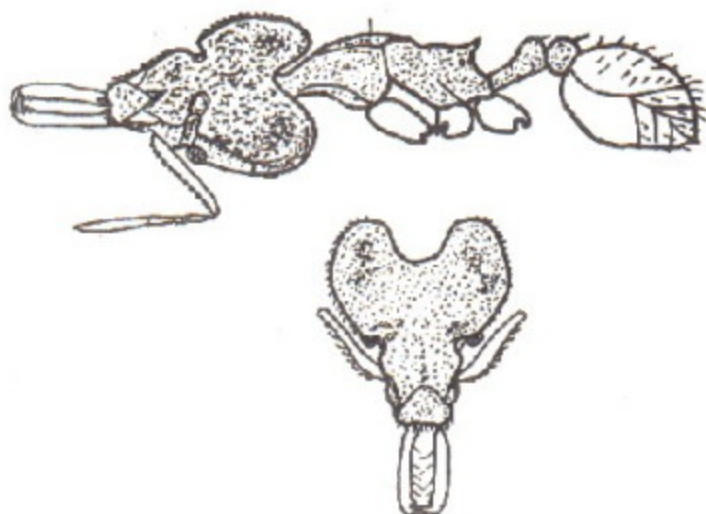
TL 1.94 HL 0.54 HW 0.39 SL 0.31 PW 0.23

Sculpturation of head reticulate, remainder of body except petiole unsculptured, lateral mesonotum, propodeum and gaster shiny. Erect setae few, spatulate; head with dorsolateral fringe of 6 - 7 curved spatulate setae, similar but finer setae on scapes and clypeal margin. Very sparse short adpressed setae on dorsum of head and alitrunk. First preapical tooth, on right mandible only, minute, second as long as ventral apical tooth. Spongiform appendages of pedicel only moderately developed, subpetiolar strip narrow restricted to posterior.

Collected at CRIN by Bolton from leaf litter and a rotten log.

\*Brown, W.L. 1954. The ant genus Strumigenys F. Smith in the Ethiopian and Malagasy Regions. Bull. Mus. comp. Zool. Harv. 112: 1-34.





Strumigenys cacaoensis × 31



Strumigenys pallestes × 62.5

S. cacaoensis Bolton

Specimens in CRIN collection were found by Bolton in the nest from which he described the holotype (Bolton, B. 1971. Two new subarboreal species of the ant genus Strumigenys (Hym. Formicidae) from West Africa. Entomologist's mon. Mag. 107, 59-64).

TL 2.7 HL 0.83 HW 0.72 SL 0.45

Head, alitrunk and pedicel overall finely and densely punctate, coarser on head. Gaster dull shining. Erect clavate setae sparse except on gaster. Head with numerous small adpressed spatulate setae. Head massive with very well developed preocular notch present on dorsolateral border as well as ventrolateral border. Mandibles with two small preapical teeth. Ventral apical tooth shorter than dorsal tooth. Spongiform appendages of pedicel very much reduced.

Nest found in shallow rot-hole in trunk of cocoa tree.

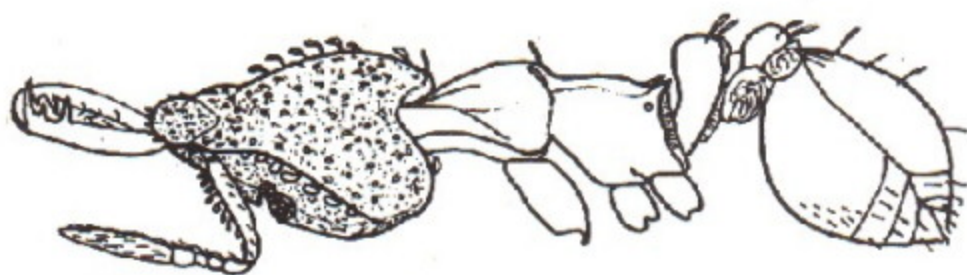
S. pallestes Bolton

Description based on Bolton (op. cit. above).

TL 2.1 HL 0.56 HW 0.40 SL 0.24

Sculpturation of head and alitrunk of fine dense puncturation, weaker on alitrunk. Gaster and pedicel shiny. Dorsum of alitrunk with 5 pairs of long erect clavate setae on dorsolateral margins, erect clavate setae relatively abundant on pedicel and gaster. Dorsal surfaces of head and alitrunk with abundant short spatulate setae, dorsolateral margin of head with fringe of longer curved setae. No preocular notch. Mandibles with very broad base; first preapical tooth small, second larger. Ventral apical tooth smaller than dorsal. Spongiform appendages massively developed on pedicel as are lamellae below propodeal teeth.

Found nesting in rot-holes in cocoa tree trunks.



Strumigenys rufobrunnea × 62.5



Strumigenys scotti × 62.5



S. rufobrunnea Santschi

TL 2.26 HL 0.62 HW 0.50 SL 0.31 PW 0.30

Head reticulopunctate; alitrunk and pedicel opaque dull unsculptured except fine mid-dorsal carina on pronotum, lateral areas of mesonotum and propodeum shiny. Erect setae narrow clavate on alitrunk, one pair, pedicel and gaster. Dorsum of head with scattered short adpressed spatulate setae and lateral fringe of 6/7 curved broad spatulate setae. Moderately excised preocular notch, ventral only. Mandibles with first preapical tooth moderately long, second tooth well developed. Apical pair of teeth with ventral shorter than dorsal. Spongiform appendages of pedicel poorly developed on petiole, short narrow subpetiolar strip, moderate on postpetiole. Mesonotum on distinctly lower level than pronotum.

Collected at CRIN by Bolton from soil and dead log. Found by my staff in debris? tent on cocoa at Apoje.

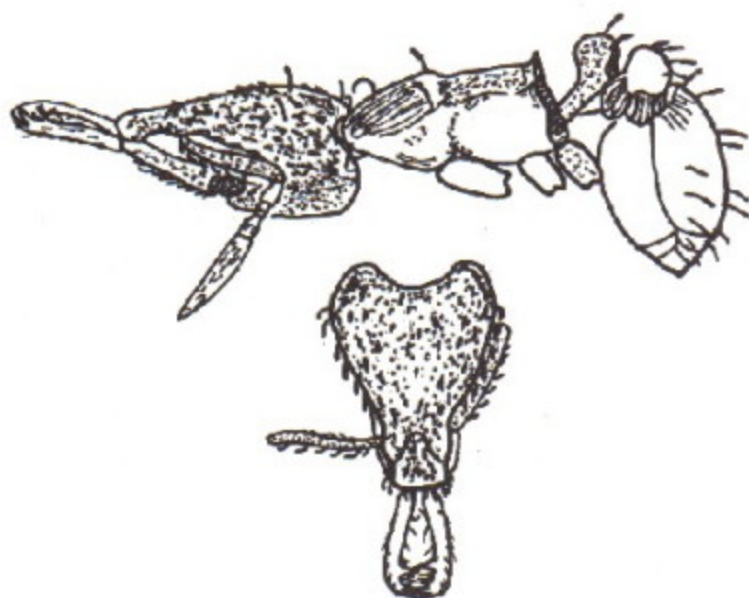
S. scotti Forel

TL 1.71 HL 0.50 HW 0.36 SL 0.23 PW 0.23

Head, dorsal alitrunk and petiole finely reticulate; lateral alitrunk, postpetiole and gaster shiny. Erect setae long, only slight apical thickening, sparse also pair long sinuous setae at humeral angles of pronotum; decumbent setae on head also with only slight apical thickening. No preocular notch. Mandibles with preapical teeth both moderately long and apical pair. Midventral spongiform process of petiole along entire length; narrow dorsolateral strip on petiole; postpetiole processes moderate.

Found under a fallen banana stem by Bolton at CRIN.



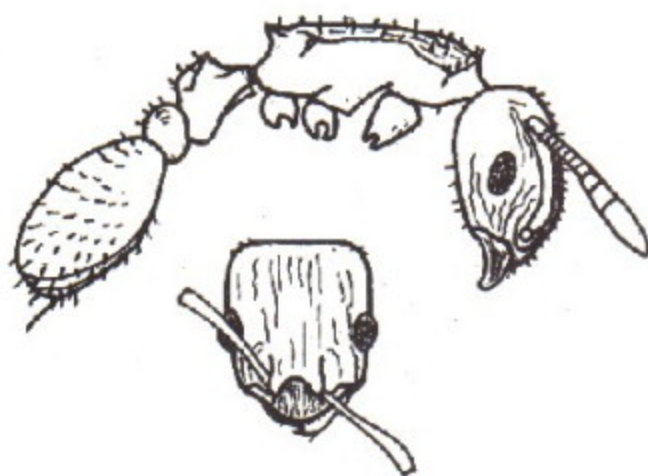


Strumigenys rogeri × 62.5

S. rogeri Emery

TL 1.74 HL 0.51 HW 0.36 SL 0.26 PW 0.22

Head including scapes, dorsal mesonotum and propodeum and petiole reticulopunctate. Dorsal pronotum faintly but fairly densely longitudinally rugose; lateral pronotum dull; lateral mesonotum and propodeum shiny, polished. Erect setae moderately long and clavate; pair short sinuous setae at humeral angles. Decumbent setae on head curved moderately clavate, fringe setae clavate - spatulate. Mandibles with minute first preapical tooth very close to apical pair, second preapical tooth as long as ventral apical tooth; numerous fine setae on mandibles including between teeth. Poorly developed preocular notch on ventrolateral edge only. Mandibular shafts straight. Two workers found in dead wood on ground, queen found at base of cocoa tree.



Leptothorax species T<sup>1</sup> ×31

## Tribe LEPTOTHORACINI

Genus Adelomyrmex Emery

Not represented in CRIN collection.

Genus Leptothorax Mayr

Diagnostic features.

Median portion of clypeus projecting over base of mandibles as a broad arcuate lobe. Antennae 12-segmented with a 3-segmented club, antennal scrobes absent. Eyes well developed, at about midlength of head. Anterodorsal angles acute giving square shouldered appearance. Promesonotal suture absent, metanotal groove weak or absent. Propodeum bidentate or bispinose. Petiole with very short, thick anterior peduncle. Erect setae on all dorsal surfaces thick, short and blunt.

Superficially like some Tetramorium but lateral portions of clypeus not raised as a ridge in front of antennal insertions and sting without triangular, lamelliform appendage.

Leptothorax species T<sup>1</sup>

TL 3.08 HL 0.78 HW 0.62 SL 0.54 PW 0.50

Colour golden-yellow, apical segment of antenna dark.

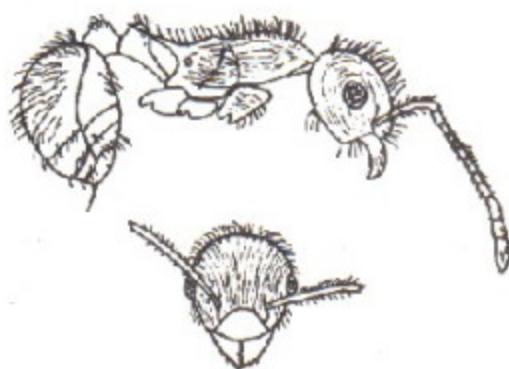
Dorsum of head and alitrunk faintly rugo-reticulate, rugae longitudinal; alitrunk laterally punctate. No alitrunk

sutures visible. Propodeum with acute pyramidal teeth.

Collected at CRIN foraging on cocoa and hedge. At

Ogunmakin found nesting in dead parts of cocoa tree. These subarboreal habits not mentioned for genus by Bolton (1973a).





Macromischoides aculeatus x15

Genus Macromischoides Wheeler

## Diagnostic features

Mandibles subtriangular with 9 to 11 teeth of varying size. Head narrowed in front, broadening behind to the large protuberant eyes and usually narrowing posterior to the eyes. Antennae 12-segmented with a club of three segments, scape very long surpassing the occipital margin. Pronotum with a small obtuse tubercle at each side. Promesonotal suture absent, metanotal groove impressed. Propodeum with a pair of long acute spines. Petiole with a long narrow anterior peduncle. Body with numerous long, fine pointed setae.

Arboreal, constructing nests of vegetable fragments, "felt", under or between leaves or in axils of large leaves.

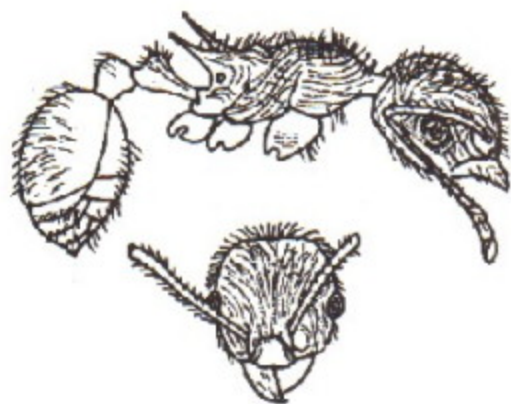
M. aculeatus

TL variable but around 4.0 - 4.4, larger specimens

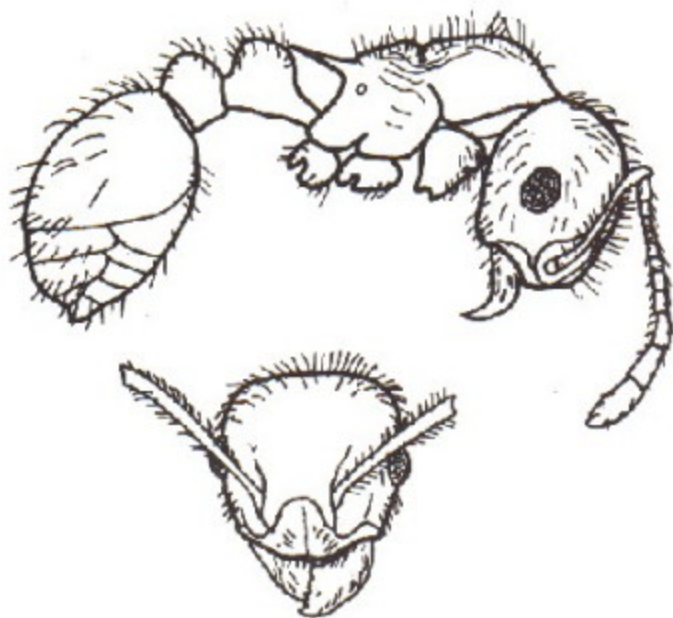
HL 0.93 HW 0.84 SL 1.17 PW 0.58

Colour dark brown but somewhat variable. Sculpturation primarily of rather sinuous longitudinal rugae on head, alitrunk and, more faintly, on pedicel. Mandible denticles moderately developed. Clypeus near flat, smooth, margin entire.

A common and dominant species on cocoa and other tree crops with suitable leaves for nesting on or between.



Macromischoides species T<sup>1</sup> x15



Macromischoides species T<sup>2</sup> x31

Macromischoides species T<sup>1</sup>

TL 5.29 HL 0.96 HW 1.12 SL 1.28 PW 0.78

Colour very dark red-brown. Sculpturation rugoreticulate, rugae dominant, on head and alitrunk, longitudinal except on dorsal pronotum where transversely arcuate and oblique on lateral mesonotum. Metanotal groove impressed, propodeum with pronounced anterior dorsal carina. Propodeal spines noticeably curved upwards but relatively shorter than spines of M. aculeatus. Mandibles with denticles much reduced except apical pair. Clypeus with spiculate central area and anteriorly emarginate.

Single specimen collected from vine on shade tree in cocoa plot at CRIN. Worker distinctly larger than M. aculeatus queen.

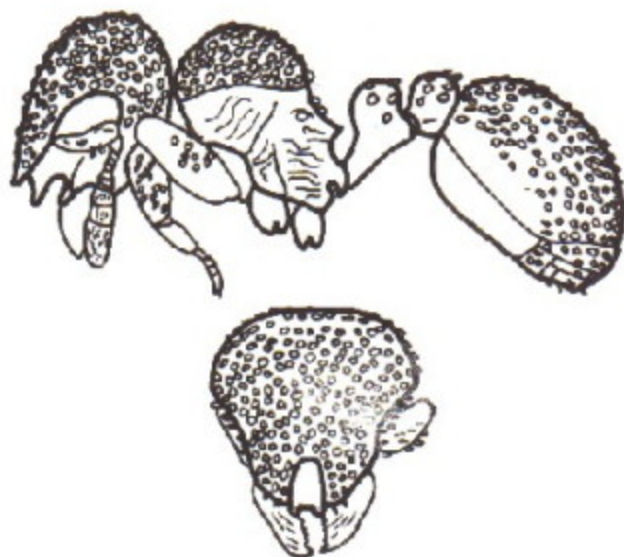
Macromischoides species T<sup>2</sup>

TL 3.67 HL 0.84 HW 0.75 SL 0.36 PW 0.54

Colour orange, gaster darker. Sculpturation, limited to alitrunk, of faint rugae. Metanotal groove slightly impressed. Propodeal spines narrow, flat, relatively short. Petiole with short, relatively thick peduncle, node smooth hemispherical dome in profile. Denticles well developed on mandibles. Clypeus with slight emargination, anteriorly with central carina, posterior apex depressed relative to remainder of dorsum of head. Head only slightly narrowed posterior to the eyes sides rounding into near flat occipital margin. Antennal scapes relatively short.

Collected from canopy of forest trees during felling operations.





Calyptomyrmex cryptocerus x31

## Tribe MELISSOTARSINI

Genus Melissotarsus Emery

## Diagnostic features

Antennae 6- segmented with a 2- segmented club, scapes very short. Eyes well developed, noticeably longer than broad.

Dorsum of alitrunk smoothly convex in profile, propodeum unarmed. Postpetiole very broadly attached to gaster.

Coxae of middle and hind legs very large. Basal segment of tarsi enlarged, remaining segments small.

Uncommon ants nesting under bark of trees. Specimen of M. beccarii, TL 2.64, in CRIN collection comes from Tafo in Ghana.

## Tribe MERANOPLINI

Genus Calyptomyrmex Emery

## Diagnostic features

Median portion of clypeus vertical, projecting anterodorsally as a bilobed structure overhanging the mandibles. Antennae 11- or 12- segmented with 3- segmented club. Antennal scrobes, above eyes, very deep, able to contain whole antenna. Dorsum of alitrunk without sutures, promesonotum convex in profile, the propodeum sloping and armed with a pair of spines or teeth. Dorsal surfaces usually with spatulate or other bizarre setae.

C. cryptocerus

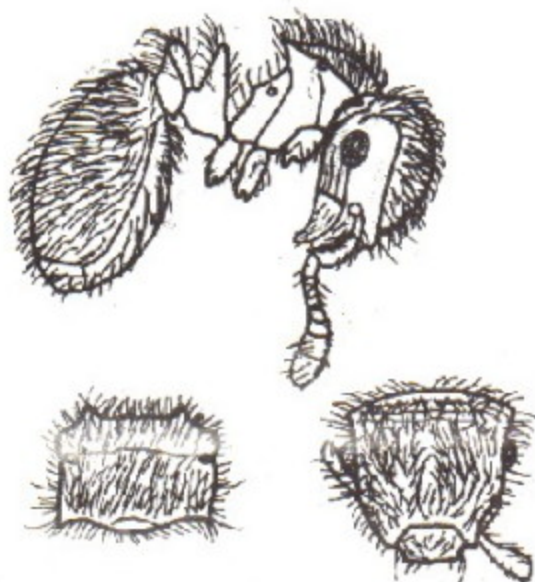
TL 3.02 HL 0.89 HW 0.86 SL 0.34 PW 0.75

Colour brown. Dorsal surfaces entirely covered with orbicular setae. Propodeum with pair of teeth over halfway down steep declivity.

A single specimen from a rotten log with alate males collected by Bolton at CRIN.



Meranoplus nanus x 31



Meranoplus species T<sup>1</sup> x 31



Genus Meranoplus F. Smith

## Diagnostic features

Antennae 9- segmented with a 3- segmented club. Antennal scrobes well developed, deep. Eyes situated towards posterior of ventral border of scrobes. Promesonotum fused, strongly margined all round, projecting posteriorly as a shelf overhanging near vertical propodeum. Posterior margin of shelf with a number of teeth or spines. Propodeum unarmed or bidentate or bispinose. Petiole and postpetiole scale-like. All dorsal surfaces with abundant long, soft setae giving ants a furry appearance.

M. nanus

TL 2.80 HL 0.70 HW 0.72 SL 0.37 PW 0.78

Colour brown. Posterior margin of promesonotal shelf with outer pair large blunt teeth and inner pair of smaller, sharper teeth. Circular spiracular openings laterally at junction of pro- and mesonotum, median circular light area near border of posterior shelf. Faint longitudinal, widely spaced rugae on head and dorsal promesonotum. Clypeal margin shallowly concave.

Collected by Bolton from under rotten banana stem at CRIN.

Meranoplus species T<sup>1</sup>

TL 2.68 HL 0.73 HW 0.68 SL 0.37 PW 0.70

Very similar to M. nanus but generally longer and slimmer in dorsal view, also with somewhat longer, finer, more abundant setae. Colour dark brown. Posterior margin of promesonotal shelf with single pair moderately large teeth. Promesonotal suture more clearly marked, lateral spiracle openings incised in shelf margin. Clypeal margin near straight.

Collected several times tending aphids on cocoa flowers.