

Loboponera gen. n. and a review of the Afrotropical *Plectroctena* genus group (Hymenoptera: Formicidae)

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SYNOPSIS. The Afrotropical ponerine ant genus *Loboponera* is newly described. It contains 7 new species and one species previously regarded as a member of *Pachycondyla* F. Smith (*L. nasica* (Santschi) **comb. n.**). The relationships of *Loboponera* within the *Plectroctena* genus group and tribe Ponerini are discussed and apomorphy-based diagnoses are provided for all taxa. An identification key and descriptions are provided for the workers of *Loboponera*. Revised keys and taxonomic synopses are given for *Psalidomyrmex* (6 species) and *Plectroctena* (15 species); within the latter *Pl. gabonensis* is a new junior synonym of *Pl. minor*.

INTRODUCTION

The name *Loboponera* first appeared in print in Bolton's (1994: 156) key to the Afrotropical Ponerinae, where it was taxonomically unavailable. The genus was known to be undescribed several years earlier and was included so that a full picture of the regional fauna could be provided, using the name assigned to it by William L. Brown Jr. At that time Brown was engaged in a revision of the world Ponerini genera and the appearance of a formal description for *Loboponera* was expected soon afterwards. Sadly, Professor Brown died before he had completed his studies and so his work on

Loboponera, and the rest of the Ponerini, went into abeyance.

More recently Steven O. Shattuck (ANIC, Canberra) has retrieved Brown's Ponerini manuscripts and is currently working on them in an attempt to bring the study of the genera to a conclusion. He passed on Brown's *Loboponera* notes to me, so that I could conclude work on this genus to species rank. Stefan Cover (MCZ, Harvard) kindly provided me with the figures for the genus that Brown had prepared and they are published here.

While studying material of the *Loboponera* species it became apparent that they formed a monophyletic group with two other Afrotropical Ponerini genera.

Psalidomyrmex and *Plectroctena*, both of which had been revised previously (Bolton, 1974, 1975). This presented a reasonable opportunity to update our knowledge of these two genera and at the same time introduce the new genus, so that a group diagnosis and new findings for all of them could be included in a single publication. Diagnoses of all three genera are presented, as are comparative notes and keys to species. Formal diagnoses of the *Loboponera* species are given but the species of the other two genera are more summarily treated as revised descriptions already exist. Thus for the species of *Psalidomyrmex* and *Plectroctena* only taxonomic synopses are presented, together with additional distribution records.

It should be pointed out that a subtribal name, *Plectroctenina*, exists for this group. It was originally spelled *Plectroctenini* Emery, 1911: 92, but the suffix is modified here in accordance with the Fourth Edition of the International Code of Zoological Nomenclature (1999). At present this subtribal name is treated as a junior synonym of *Ponerini* (Bolton, 1994, 1995). As well as *Plectroctena* and *Psalidomyrmex*, Emery also included in his subtribe *Myopias* Roger and *Trapeziopelta* Mayr, the latter of which is now a junior synonym of the former (Willey & Brown, 1983: 249). *Myopias*, distributed through the Oriental, Malesian and Austral regions, is not part of the *Plectroctena* group. Its affinities appear to lie with *Pachycondyla* and its immediate allies.

The three genera of the *Plectroctena* group are strictly Afrotropical, with a majority of species in the forest zones of West and Central Africa. All nest in rotten wood or in the soil and foraging is carried out there and in the leaf litter layer. Some species may also use abandoned termitaries as nest sites (Dejean, Durand & Bolton, 1996). Diet where known appears entirely carnivorous and the species are specialised predators. *Plectroctena* species prey mostly, or perhaps in some species entirely, on millipedes or their eggs (Lévieux (1972), Bolton (1974), Bolton, Gotwald & Leroux (1979)). *Pl. minor* has been recorded as preying on termites as well as millipedes (Dejean & Suzzoni, 1991). Arnold (1915) mentions millipedes, beetles and termites forming the diet of *Pl. mandibularis*, though Hamish Robertson (SAM, personal communication) informs me that the record for beetles as prey has never been confirmed. *Psalidomyrmex procerus* captures earthworms (Lévieux (1982), Dejean, Schatz, Orivel & Beugnon (1999)); the prey of *Loboponera* remains unknown. Little detail is known of the biology and ecology of individual species apart from comments in the publications just mentioned and some scattered remarks in the literature of original descriptions, but Villet (1991) has reported on colony foundation by, and the origin of, ergatoid queens in *Pl. mandibularis*.

Standard measurements and indices, and abbrevia-

tions for the names of museums, are as noted in the earlier publications (Bolton, 1974, 1975).

The tribe Ponerini

The subfamily Ponerinae, as it is presently understood, is probably paraphyletic. Bolton (1990a, 1990b) and Baroni Urbani, Bolton & Ward (1992) proposed tergosternal fusion of the fourth abdominal segment as a synapomorphy of the subfamily, but the validity of the character was compromised by Ward (1994). In consequence the tribal composition, and indeed the monophyly, of the Ponerinae is still very much in doubt (Keller, 2000).

Of the Ponerinae tribes that are currently recognised, with varying degrees of confidence, the Ponerini is easily the largest (Bolton, 1994). In recent years tribe Amblyoponini has been redefined by Ward (1994) and the phylogeny of the Ectatommini and its relatives has been investigated by Lattke (1994) and Keller (2000). At present the tribe Ponerini is diagnosed by the following synapomorphic characters.

1. Median portion of clypeus is narrowed posteriorly and is narrowly inserted between the frontal lobes as a slender triangle or linear strip (worker and queen).
2. Inner borders of frontal lobes are very closely approximated or confluent for most or all of their length, often separated merely by a sulcus (worker and queen).
3. Outer borders of frontal lobes form simple short semicircles or blunt triangles and have a distinctly pinched-in appearance posteriorly (worker and queen).
4. Helcium projects from low down on the anterior face of the first gastral (= third abdominal) segment and the anterior face above the helcium is vertical and usually high (worker and queen).
5. Mandibles are reduced, short to lobate, edentate except for apical tooth at most (male).

The *Plectroctena* genus group

Within the tribe Ponerini a small group of Afrotropical genera, *Plectroctena* + *Psalidomyrmex* + *Loboponera*, share the following autapomorphic development in workers and queens.

Anteroventral articulatory surface of petiole long and very broad, the surface with a narrow median V-shaped longitudinal groove or central small pore-like depression (see comments for discussion).

Other characters that in combination are diagnostic of female castes in the group include the following. Some are plesiomorphic but some (marked with an asterisk) are probable apomorphies of which analogues have apparently developed convergently elsewhere in tribe Ponerini.

*Frontal lobes hypertrophied.

Antenna with 12 segments.

Promesonotal suture strongly developed.

Orifice of propodeal spiracle round or very broadly oval, nearly round.

Metapleural gland orifice lateral.

Metanotal groove usually absent, rarely vestigial.

*Mesotibia and metatibia each with only a single spur (also in males).

Pretarsal claws simple, small.

Petiole nodiform in profile.

Constriction between first and second gastral segments deep and broad.

*Stridulitrum absent from pretergite of second gastral (= 4th abdominal) segment.

Comments

Within Ponerini but outside this group the anteriormost part of the ventral surface of the petiole, where it articulates with the alitrunk, is quite uniform. At the junction, immediately behind the alitrunk margin and intersegmental membrane, the petiole has an arched or broadly horseshoe-shaped strip of cuticle which, when the petiole is flexed down, slides into the alitrunk; this is the articulating surface proper. Immediately behind this is a transverse impression or depressed area which is followed by a flat or slightly convex zone upon which there are usually a number of proprioceptor hairs.

The members of the *Plectroctena* genus group have modified this basic arrangement by extending the length of the articulating surface of the petiole posteriorly on each side, and expanding its width towards the ventral midline. This has the effect of constricting the subsequent areas into a narrow median impression or groove. In most members of the group this groove is a narrow inverted V-shape but in some (*Plectroctena lygaria*, *Psalidomyrmex foveolatus*) the development has gone so far that only a tiny median pore-like depression remains.

Formal diagnoses of the three genera included in the group are given below, but they can be distinguished quickly in the worker and queen castes by the following features.

Plectroctena has linear mandibles and a large semi-circular excavation in the clypeal margin at the mandibular articulation.

Psalidomyrmex has the labrum projecting as a prominent lobe in front of the anterior clypeal margin and the mandible has a long attenuated apical tooth.

Loboponera has the median portion of the clypeus produced into a lobe that overhangs the mandibles and has the second gastral tergite strongly vaulted.

Dolioponera Brown (1974) may also belong to this genus group but as the taxon is known only from a single worker, the holotype, there is no chance of dissection to assess the presence of the apomorphy. Nevertheless, it has most of the features noted above

and the mandible, with its rounded basal angle, is reminiscent of *Psalidomyrmex*. There are however some striking differences. *Dolioponera* lacks the characteristic labral lobe of *Psalidomyrmex*, the median portion of its clypeus projects as a short truncated lobe, the propodeum lacks a median longitudinal groove and the second gastral segment is elongate and cylindrical. Finally, the three genera of the group all have an anteroventral process on the first gastral sternite that projects somewhat forward and downward beneath the helcium: this is absent in *Dolioponera*.

LOBOPONERA Bolton & Brown gen. n.

(Figs. 1–11)

[*Loboponera* Bolton, 1994: 156 (in key), *unavailable name*.]

Type-species: *Loboponera vigilans*, by present designation.

WORKER. Ponerine ants with the tribe and group characters noted above and also with the following.

1. Median portion of clypeus extended anteriorly as a lobe that projects out over the mandibular basal margins; anterolaterally the clypeus with a small projecting lobe that overhangs the outer base of the mandible.
2. Labrum not visible in full-face view with mandibles closed.
3. Mandible subtriangular to triangular; apical tooth the largest but not attenuated; basal angle narrowly rounded to angulate.
4. Palp formula 2,2 (dissections of *obeliscata*, *vigilans*).
5. Posteroventral curve of head in profile with a projecting curved flange that is formed from the hypertrophied lateral portion of the occipital carina.
6. Propodeal dorsum without a median longitudinal groove or impression.
7. Mesofemur and metafemur with a longitudinal (glandular?) groove present mid-dorsally on basal half.
8. Tergite of second gastral (= 4th abdominal) segment vaulted, strongly arched and down-curved posteriorly; second gastral sternite correspondingly reduced.

QUEEN. The few known (*basalis*, *nasica*, *vigilans*) are slightly larger than the worker, dealate, with the above characters and the usual modifications associated with this caste.

MALE. Unknown.

Comments

Characters 1, 4, 5 and 8 are autapomorphic; 2, 3 and 6 are plesiomorphic. Character 7 is equivocal; it may be

autapomorphic but synapomorphy with *Plectroctena*, which also has femoral grooves developed, is a possibility. The latter case would leave *Psolidomyrmex*, which has no trace of femoral grooves, either plesiomorphic for this character or apomorphic by secondary loss.

Species of *Loboponera* superficially resemble the Afrotropical members of *Pachycondyla* that are stockily built, more heavily sculptured and have a nodiform petiole (i.e. former members of *Bothroponera*). Indeed, the only previously described species, *nasica*, was originally included there. However, those *Pachycondyla* species (in the broad sense of Bolton, 1994, 1995) that superficially resemble *Loboponera*, beside lacking the petiole articulation autapomorphic in the *Plectroctena* group, also differ as they have the following features.

Mesotibia and metatibia each with two spurs, one large and pectinate, the other smaller and simple.

Mesofemur and metafemur without a mid-dorsal longitudinal groove.

Posteroventral curve of head without a projecting flange.

Stridulitrum present on pretergite of second gastral segment.

Tergite of second gastral segment curved but not vaulted.

Orifice of propodeal spiracle usually slit-shaped.

Palp formula usually greater than 2,2.

Loboponera also shows some striking parallelisms with the ectatommine genus *Gnamptogenys*. Their habitus similarities may indicate that *Loboponera* shares some ecological or behavioural features with the latter genus. This is an interesting speculation as *Gnamptogenys*, with many species in the Neotropical, Oriental and Malesian regions (Brown, 1958; Lattke, 1995 and in preparation), is absent from the Afrotropical; *Loboponera* on the other hand is restricted to the Afrotropical region. All collections of this genus have been recovered from leaf litter, rotten wood or abandoned termitaries.

List of species

obeliscata group

obeliscata Bolton & Brown sp. n.

politula Bolton & Brown sp. n.

trica group

trica Bolton & Brown sp. n.

vigilans group

basalis Bolton & Brown sp. n.

edentula Bolton & Brown sp. n.

nasica (Santschi, 1920) comb. n.

subatra Bolton & Brown sp. n.

vigilans Bolton & Brown sp. n.

Key to species (workers)

- 1 Dorsum of alitrunk and first gastral tergite without standing hairs of any form (Figs. 4–6). Second gastral tergite punctate or with fine dense sculpture but without longitudinal costate sculpture. With head in full-face view the sides without projecting hairs (Figs. 2–3) 2
- Dorsum of alitrunk and first gastral tergite with numerous to abundant stiff, usually short, standing hairs (Figs. 7–9). Second gastral tergite with coarse longitudinal costate sculpture. With head in full-face view the sides with at least 1–2 short projecting hairs (Fig. 1) 4
- 2 Leading edge of scape without projecting hairs: dorsum of scape finely and densely punctulate. Dorsal surfaces of head and body, including the frontal lobes, entirely blanketed with very fine dense sculpture, opaque. Propodeal lamella restricted to lower half of declivity. (Ivory Coast) *trica*
- Leading edge of scape with a row of suberect projecting hairs: dorsum of scape longitudinally costulate-rugulose. Dorsal surfaces of head and body not entirely finely densely sculptured, not opaque. Propodeal lamella extends the whole depth of the declivity 3
- 3 With petiole in profile the dorsum rising medially to a bluntly subpyramidal point (Fig. 4). Scape longer, $SI > 95$; when laid back the apex of the scape just reaches the occipital margin (Fig. 3). Larger species, $HW > 0.90$. (Ghana, Gabon) *obeliscata*
- With petiole in profile the dorsum shallowly convex to flat, not rising to a median subpyramidal point (Fig. 5). Scape shorter, $SI < 90$; when laid back the apex of the scape distinctly fails to reach the occipital margin (Fig. 2). Smaller species, $HW < 0.70$. (Ivory Coast, Ghana, Nigeria) *politula*
- 4 First gastral sternite with a mid-ventral longitudinal cuticular crest or carina that may extend entire length of sternite or be restricted to posterior half; carina usually partially to entirely translucent and clearly visible in profile 5
- First gastral sternite without a mid-ventral longitudinal cuticular crest or carina that is partially to entirely translucent and clearly visible in profile 7
- 5 Base of gaster deeply concave when viewed from above and slightly to the front; on each side the tergite at its lowest point, at about the level of the helcium, projects forward and curves medially, forming a strongly defined incurved lobe (Figs. 9–10). (Ivory Coast, Ghana, Cameroon) *basalis*
- Base of gaster transverse to shallowly concave when viewed from above and slightly to the front; on each side the tergite at its lowest point, at about the level of the helcium, forms a simple angle and does not project forward and curve medially as an incurved lobe 6
- 6 In dorsal view first gastral tergite coarsely foveolate, not costulate; spaces between foveolae raised and flat, entirely covered with fine dense shagreenate sculpture, dull and opaque. Longitudinal costae of second gastral tergite

- densely shagreenate and opaque. Eye large, with > 10 ommatidia in its maximum diameter and that diameter greater than maximum width of second funicular segment (Fig. 7). (Ivory Coast, Nigeria, Cameroun, Gabon, Zaire) *vigilans*
- In dorsal view first gastral tergite predominantly longitudinally costulate or rugulose, with scattered foveolate punctures between the costulae/rugulae; entire surface glossy, without dense opaque shagreenate sculpture. Longitudinal costulae of second gastral tergite glossy, not densely shagreenate and opaque. Eye small, with < 10 ommatidia in its maximum diameter and that diameter less than maximum width of second funicular segment (Fig. 8). (Ivory Coast, Ghana, Cameroun, Gabon) *nasica*
- 7 Propodeal declivity with a small tubercle above a larger more basally situated tooth. Side of head behind and below eye sculptured with large, broad-rimmed coarse foveolate punctures, not costulate. With head in profile the lower occipital curve with a large lobate cuticular flange that is much broader than the maximum diameter of the eye. (Cameroun) *subatra*
- Propodeal declivity unarmed and smoothly rounded above a basally situated tooth. Side of head behind and below eye sculptured with fine longitudinal costulae and scattered small foveolate punctures. With head in profile the lower occipital curve with a small shallow cuticular crest that is narrower than the maximum diameter of the eye. (Rwanda) *edentula*

Synopsis of species

obeliscata group

(Figs. 2–5)

- Mandible with 1–2 teeth between apical tooth and basal angle.
- Median portion of clypeus, anterior to frontal lobes, narrow but not strongly bilaterally compressed; without a median longitudinal carina.
- Propodeal declivity with a simple lamella on each side that extends its entire height; without a projecting lobe or tooth close to the base of the declivity.
- Sculpture between punctures on dorsal alitrunk and gaster mostly to entirely effaced; surfaces between punctures mostly to entirely smooth and shining.
- Dorsal surfaces of head behind frontal lobes, alitrunk, petiole node and first gastral tergite without standing hairs; second gastral tergite with standing hairs restricted to apical quarter.
- Scape with projecting hairs on the leading edge.

Loboponera obeliscata sp. n.

(Figs. 3, 4)

HOLOTYPE WORKER. TL 5.6, HL 1.13, HW 1.00, CI 88, SL 0.97, SI 97, AL 1.64. Characters of *obeliscata* group and the following. Eye minute and difficult to

see, scarcely larger than one of the adjacent foveolate punctures; maximum diameter 0.04. Scape when laid back in full-face view reaches occipital margin. Small lobe at anterolateral angle of clypeus distinctly prominent. Propodeal lamella broad at sides, narrowing near dorsal angle and thinly continued onto dorsum but narrowed medially or with a mid-dorsal gap. Propodeal declivity finely transversely striate. Petiole in profile with anterior and posterior margins more or less parallel and with the dorsal surface extended medially into a high subpyramidal blunt point; in posterior view the sides slope steeply upward to a pointed apex. First gastral tergite in profile with its anterior face distinctly inclined posteriorly from top to bottom, in dorsal view overhanging the helcium.

PARATYPE WORKER. TL 5.7, HL 1.14, HW 1.00, CI 88, SL 1.00, SI 100, AL 1.72.

Holotype worker, **Ghana**: Tafo, 9.ix.1966, ant ecology sample 251 (*D. Leston*) (BMNH).

Paratype. 1 worker with same data as holotype (MCZ).

Non-paratypic material examined. **Gabon**: La Makandé, Forêt des Abeilles (*A. Dejean*).

Closest related to *politula* but easily distinguished by the unique shape of the petiole node.

Loboponera politula sp. n.

(Figs. 2, 5)

HOLOTYPE WORKER. TL 3.7, HL 0.73, HW 0.64, CI 88, SL 0.52, SI 81, AL 1.09. Characters of *obeliscata* group and the following. Eye minute, maximum diameter 0.03. Scape when laid back in full-face view distinctly fails to reach occipital margin. Propodeal lamella narrow at sides, petering out at dorsal angle and not continued onto dorsum; the latter separated from the declivity by an angle. Petiole in profile with anterior margin rising to a blunt anterodorsal angle, behind which the dorsum slopes posteriorly and is flat or very feebly convex. In posterior view the petiole node dorsum is broadly evenly rounded. First gastral tergite in profile or in dorsal view with its anterior face overhanging the helcium.

PARATYPE WORKERS. TL 3.4–3.7, HL 0.70–0.73, HW 0.60–0.64, CI 85–90, SL 0.48–0.52, SI 79–82, AL 1.01–1.09 (3 measured).

Holotype worker, **Nigeria**: Ibadan, IITA no. 62, 16.vii.1974 (*B.R. Critchley*) (BMNH).

Paratypes. 1 worker, **Ivory Coast**: Abidjan, Banco Nat. Pk, 18.iii.1977, primary forest litter (*J. Löbl*); 1 worker, **Ghana**: Mampong, 10.viii.1970 (*P. Room*); 1 worker, **Nigeria**: near Ibadan, 26.vii.1981, secondary forest, no. 10 (*A. Russell-Smith*) (BMNH, MCZ).

Non-paratypic material examined. **Ghana**: Bunso, nr Tafo (*R. Belshaw*).

This species is smaller than the above and, beside

lacking the unique subpyramidal shape of the petiole node that characterises *obeliscata*, has much shorter scapes.

trica group

(Fig. 6)

Mandible with 3 teeth between apical tooth and basal angle.

Median portion of clypeus, anterior to frontal lobes, strongly bilaterally compressed, narrow and with a nearly vertical longitudinal carina.

Propodeal declivity with a rounded lobe near base, without a lamella above the lobe.

Sculpture between punctures everywhere on dorsal head and body fine and very dense.

Dorsal surfaces of head behind frontal lobes, alitrunk, petiole node and first gastral tergite without standing hairs; second gastral tergite without standing hairs.

Scape without projecting hairs on the leading edge.

Loboponera trica sp. n.

(Fig. 6)

HOLOTYPE WORKER. TL 3.0, HL 0.59, HW 0.55, CI 93, SL 0.43, SI 78, AL 0.90. Characters of *trica* group and the following. Maximum diameter of eye 0.02. Scape when laid back not reaching occipital margin. Dorsum of head opaque, extremely densely finely striolate-punctulate and with larger shallow foveolae that are overlaid and partially masked by the finer components of the sculpture. Alitrunk and gaster similarly sculptured, in places with the foveolae more conspicuous.

PARATYPE WORKER. TL 3.0, HL 0.59, HW 0.55, CI 93, SL 0.47, SI 85, AL 0.90.

Holotype worker, **Ivory Coast**: Abidjan, Banco Nat. Pk, 14.iii.1977, dead wood sample (*J. Löbl*) (BMNH).

Paratype. 1 worker with same data as holotype (MCZ).

L. trica is a very distinctive small species that is easily recognised by its lack of standing hairs coupled with the presence everywhere of uniform fine dense sculpture.

vigilans group

(Figs. 1, 7–11)

Mandible with 3–5 teeth between apical tooth and basal angle.

Median portion of clypeus, anterior to frontal lobes, usually with a low median longitudinal carina.

Propodeal declivity with a lobe or triangular tooth near base; margin above this either unarmed, or with a narrow lamella, or with a small tooth, or with a lamella and a tooth.

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Sculpture coarse and dense on dorsal alitrunk and gaster, basically of coarse foveolae with rugulose or costate-striate interspaces.

Dorsal surfaces of head behind frontal lobes, alitrunk, petiole node and first gastral tergite with numerous short suberect to erect hairs; second gastral tergite with standing hairs everywhere.

Scape with projecting hairs on the leading edge.

Loboponera basalis sp. n.

(Figs. 1, 9, 10)

HOLOTYPE WORKER. TL 6.6, HL 1.20, HW 1.06, CI 88, SL 1.02, SI 96, AL 1.87. Characters of *vigilans* group and the following. Maximum diameter of eye 0.07. First gastral sternite with a mid-ventral longitudinal translucent carina that extends the length of the segment. First gastral tergite in profile with its anteroventral angle extended forward as a broadly triangular tooth, just above the helcium. In ventral view the extended anteroventral angles of the first tergite are seen to be drawn out as incurved triangular broad teeth or short stout horns on each side of the helcium. In dorsal view the anterior face of the first gastral tergite forms a broad concave arc that is extended forward and inward on each side by the broadly triangular curved angles. Propodeal declivity above the basal tooth with a narrow uneven lamella that terminates dorsally in a small tooth or tubercle. Sculpture everywhere on the glossy dorsum longitudinally costate-rugulose between broad foveolate punctures that are mostly sharply defined. On the second gastral tergite the longitudinal costate-rugose sculpture predominates.

PARATYPE WORKERS. TL 5.9–6.6, HL 1.11–1.16, HW 1.05–1.11, CI 95–96, SL 1.00–1.08, SI 94–97, AL 1.82–2.02 (3 measured).

Holotype worker, **Ivory Coast**: Lamto, Toumodi, 5.iii.1968, rotten wood (*J. Léveux*) (MCZ).

Paratypes. 2 workers with same data as holotype; 1 worker, **Ivory Coast**: Nzi Noua, on Ndouci-Toumodi Highway, about 21 km. N. of Ndouci, in rotten wood (*J. Léveux*); 1 worker, **Ghana**: Tafo, rotten wood (*D. Leston*); 2 workers, Tafo, 25.v.1970, on ground at base of tree (*B. Bolton*) (MCZ, BMNH, MNHN).

Non-paratypic material examined. **Ivory Coast**: Iringou (*F. Krell*). **Cameroun**: Kala (*A. Dejean*).

The unique structure of the base of the first gastral tergite immediately isolates this very conspicuous species.

Loboponera edentula sp. n.

HOLOTYPE WORKER. TL 6.1, HL 1.11, HW 1.03, CI 93, SL 0.98, SI 95, AL 1.78. Characters of *vigilans* group and the following. Maximum diameter of eye

0.07. First gastral sternite without a tooth on each side of the anteroventral median process and without a translucent median longitudinal carina. Propodeal declivity with a small sharp tooth near base but otherwise unarmed and rounding evenly into the dorsum. Sculpture on glossy head and alitrunk is of relatively fine longitudinal costulae and scattered foveolate punctures. On the first gastral tergite the costulae are mostly suppressed, much less obvious than on the alitrunk, and the spaces between the foveolae are very glossy and partially to mostly smooth.

PARATYPE WORKER. TL 6.1, HL 1.11, HW 1.04, CI 94, SL 0.94, SI 90, AL 1.79.

Holotype worker, **Rwanda**: Kayove, 23.iv.1973, 2100 m (*P. Werner*) (MCZ).

Paratype, 1 worker, **Rwanda**: Rangiro, ix.1976, litter (*P. Werner*) (BMNH).

The form of the propodeal declivity, coupled with the lack of a longitudinal carina on the first gastral sternite, isolates this species within the group.

Loboponera nasica (Santschi) comb. n.

(Figs. 8, 11)

Pachycondyla (*Bothroponera*) *nasica* Santschi, 1920:

6. Holotype worker, GABON: Samkita (*F. Faure*) (NMB).

WORKER. TL 4.7–5.6, HL 0.91–0.99, HW 0.86–0.95, CI 95–96, SL 0.80–0.90, SI 93–95, AL 1.82–2.02 (3 measured). Characters of *vigilans* group and the following. Maximum diameter of eye 0.03–0.04. First gastral sternite without a tooth on each side of the anteroventral median process but with a median longitudinal carina. Propodeal declivity with an acute tooth near the base; above this the margin has an indistinct narrow irregular lamella that may peter out dorsally or may have a small dorsal tubercle or blunt tooth. Base of first gastral tergite without the bizarre modification of *basalis* (see above). All dorsal surfaces of head and body glossy, with longitudinal costulate-rugulose sculpture and scattered foveolate punctures. On the second gastral tergite coarse longitudinal costae predominate.

This is the most generalised species of the group, characterised mainly by its lack of the specialisations shown in the other four species.

MATERIAL EXAMINED. **Ivory Coast**: Lamto Field Station, nr Toumodi (*J. Lévieux*). **Ghana**: Tafo (*D. Leston*); Legon (*D. Leston*); Mampong (*P. Room*). Kade (*R. Belshaw*). **Cameroun**: Bakundu (*A. Dejean*). **Gabon**: Samkita (*F. Faure*).

Loboponera subatra sp. n.

HOLOTYPE WORKER. TL 7.3, HL 1.32, HW 1.11, CI 84, SL 1.27, SI 114, AL 2.38. Characters of *vigilans*

group and the following. Maximum diameter of eye 0.10. First gastral sternite without trace of a median longitudinal carina. Anteroventral median process of first gastral sternite with an anteriorly directed blunt tooth on each side that also arises from the sternite. Propodeal declivity with a broad triangular tooth near base, the margin above this with a small rounded tubercle; dorsum of alitrunk rounds into declivity. Short pilosity very dense on all dorsal surfaces, also dense on scapes, femora and tibiae. Dorsum of head and alitrunk predominantly longitudinally costate-rugose, the alitrunk also with foveolae but most of these are partially effaced by the longitudinal component; foveolae are most clearly defined on propodeum. Second gastral tergite longitudinally costate-rugose, the sculpture better defined here than on the first tergite, where the foveolate component is more obvious.

Holotype worker, **Cameroun**: Nkoemvon, 1980, P74 (*D. Jackson*) (BMNH).

This relatively large, slender species is recognised by the lateral blunt tooth on each side of the anteromedian process of the first gastral sternite. In *vigilans* there is usually an angular development in the same place, but the latter species has characteristic sculpture and has a median carina on the first gastral sternite, which is completely absent in *subatra*.

Loboponera vigilans sp. n.

(Fig. 7)

HOLOTYPE WORKER. TL 6.3, HL 1.20, HW 1.15, CI 96, SL 1.10, SI 96, AL 2.10. Characters of *vigilans* group and the following. Maximum diameter of relatively large eye 0.19. First gastral sternite with a median longitudinal carina at least on the posterior half of the sclerite. First sternite at each side of the anteroventral median process forms a short projecting angle or low prominence. First gastral tergite in dorsal view with bluntly angular anterolateral corners; sides slightly constricted behind the corners. Propodeal declivity with a blunt tooth near base and another, smaller, tooth near apex; the basal teeth appear very broad and coarse in dorsal view. Petiole in dorsal view bluntly subtriangular, widest posteriorly. All dorsal surfaces of head and body with coarse broad foveolate punctures, separated by longitudinal costae or elevated narrow flat surfaces. The entirety, including bases of foveolae and surfaces that separate them, is completely covered with extremely fine dense microsculpture and is dull and opaque. This microsculpture also occurs on at least the upper half of the propodeal declivity and is present, though less intensely, on the scapes and legs.

PARATYPE WORKERS. TL 6.0–6.6, HL 1.16–1.23, HW 1.06–1.20, CI 91–98, SL 0.99–1.19, SI 95–103, AL 1.91–2.14 (10 measured). Maximum diameter of eye 0.15–0.20.

Holotype worker, **Ivory Coast**: Abidjan, Banco National Forest, 17.vi.1958, rain forest (E.S. Ross & R.E. Leech) (CAS).

Paratype workers. 4 workers with same data as holotype; 1 worker, **Ivory Coast**: Abidjan, Banco Nat. Pk. 14.iii.1977, dead wood sample (I. Löbl); 4 workers, Tai Forest, 17.x.1980 (V. Mahnert & J.-L. Perret); 1 worker, Agboville, Yapo Forest, nr Yapo-Gare, 21-22.iii.1977, forest litter (I. Löbl); 6 workers, **Nigeria**: Gambari, 16.vii.1969, rotten log (B. Bolton); 1 worker, nr Ibadan, IITA, 18.v.1981, secondary forest, no. 7 (A. Russell-Smith); 1 worker, **Cameroun**: Nkoemvon, 24.iv.1980 (D. Jackson) (CAS, MCZ, BMNH, SAM).

Non-paratypic material examined. **Cameroun**: Mvini (A. Dejean); Ottotomo (A. Dejean); Pan Pan (A. Dejean). **Gabon**: La Makandé, Foret des Abeilles (S. Lewis). **Zaire**: Kikwit, Kinzambi (A. Dejean).

Apart from having the largest eyes known in the genus, *vigilans* is quickly identified by its unique sculpture. Scanning electron microscope photographs of this species appear in Bolton, 1994: 180, figs 493, 494.

PSALIDOMYRMEX André

Psalidomyrmex André, 1890: 313. Type-species: *Psalidomyrmex foveolatus*, by monotypy.

WORKER. Ponerine ants with the tribe and group characters noted above and also with the following.

1. Median portion of clypeus with its anterior margin shallowly convex, not forming a projecting lobe.
2. Labrum with upper portion directed anteriorly and projecting as a narrow but conspicuous lobe in front of the clypeal margin; labral lobe clearly visible in full-face view and usually transversely striate.
3. Mandible triangular to falcate, the apical tooth attenuated and the basal angle rounded.
4. Palp formula 3.4 (dissections of *foveolatus*, *procerus*)
5. Posteroventral curve of head in profile without a flange.
6. Propodeal dorsum with a median longitudinal groove or impression.
7. Mesofemur and metafemur without a mid-dorsal longitudinal groove on the basal half.

QUEEN. Known for *feae*, *foveolatus*, *procerus*: slightly larger than the worker, alate, with the above characters and the usual modifications associated with this caste.

MALE. Known for *foveolatus*, *procerus*, *reichenspergeri*: mesotibia and metatibia each with a single spur; pretarsal claws with a preapical tooth; pygidium truncated, not spinose; notauli absent. For general description see Bolton (1975).

Comments

Characters 2 and 3 are autapomorphic; 1 and 5 are plesiomorphic. Characters 4 and 6 are possible synapomorphies with *Plectroctena*. The first of these (PF 3.4) appears to be the basic maximum count in both genera (with subsequent reductions to PF 2.3 and PF 2.2 in some *Plectroctena* species). Character 6 appears autapomorphic at first glance but queens of some species in the *Plectroctena minor* group show a partial (*cristata* ergatoid) to complete (*minor*, *latinodis* alates) propodeal groove. In addition, some *Pl. minor* workers have a short anterior stub of the groove, so a basically synapomorphic state with subsequent loss in most *Plectroctena* must be considered. Character 7 is equivocal and is noted under *Loboponera* comments.

The genus *Psalidomyrmex* was revised earlier by Bolton (1975). Following the key are taxonomic synopses and records of more recently discovered material of each species, together with diagnoses of species groups within the genus, but formal diagnoses of individual species are not repeated as no new species-rank taxa are reported here.

List of species

foveolatus group

foveolatus André, 1890

reichenspergeri Santschi, 1913

= *mandibularis* subsp. *mabirensis* (Arnold, 1954)

sallyae Bolton, 1975

procerus group

feae Menozzi, 1922

= *feae* var. *impressa* Menozzi, 1922

procerus Emery, 1901

= *longiscapus* Santschi, 1920

= *obesus* Wheeler, 1922

= *procerus* st. *collarti* Santschi, 1937

wheeleri Santschi, 1923

Key to species (workers)

- 1 Masticatory margin of mandible concave posterior to the elongate apical tooth and with a number of short or blunted small teeth at least near the basal angle; overall appearance of mandible falcate 2
- Masticatory margin of mandible straight posterior to the elongate apical tooth and edentate throughout its length; overall appearance of mandible not falcate 4
- 2 Dorsum of first gastral tergite with small punctures, the diameters of which are less than the distances separating them. Sculpture on anterior half of first gastral tergite strongly contrasting to that on anterior half of second tergite: the former smooth between the small punctures, the latter longitudinally costulate-striate with scattered larger punctures. Petiole node in dorsal view longer than broad. Large black species. HW > 2.50. (Cameroun, Zaire, Uganda) *reichenspergeri*

- Dorsum of first gastral tergite with coarse foveolate punctures, the diameters of which are equal to or greater than the distances separating them. Sculpture on anterior half of first gastral tergite basically the same as that on anterior half of second tergite: either both smooth between foveolate punctures, or both longitudinally costulate-striate between foveolate punctures. Petiole node in dorsal view as broad as or broader than long. Smaller red-brown species. HW <2.50 3
- 3 Spaces between foveolate punctures on pronotal dorsum and first gastral tergite densely striate. Anterodorsal margin of mesotibia in its apical half with a row of short but strong spine-like traction setae among the normal pilosity, the same as the traction setae present at the mesotibial apex. Scape relatively short. SI < 75. (Sierra Leone, Ivory Coast, Ghana, Nigeria, Cameroun) *foveolatus*
- Spaces between foveolate punctures on pronotal dorsum and first gastral tergite unsculptured, mostly smooth and shining. Anterodorsal margin of mesotibia without spine-like traction setae among the normal pilosity; traction setae present at the mesotibial apex. Scape relatively long. SI > 80. (Ghana) *sallyae*
- 4 Scape relatively longer and head narrower; SI 90-102, CI 84-89. Petiole node longer than broad in dorsal view. (Cameroun, Zaire) *wheeleri*
- Scape relatively shorter and head broader, SI 79-88, CI 91-96. Petiole node broader than long in dorsal view 5
- 5 Frontal lobes smooth and shining over the antennal insertions. Median portion of clypeus not longitudinally striate. (Sao Tomé & Príncipe) *feae*
- Frontal lobes uniformly striate over the antennal insertions. Median portion of clypeus longitudinally striate. (Ghana, Cameroun, Gabon, Zaire, Burundi, Uganda) *procerus*

Synopsis of species

foveolatus group

- Mandible falcate; blade of mandible relatively slender, narrowing apically and continuing to narrow without interruption into a much elongated curved apical tooth.
- Masticatory margin of mandible concave and with weak teeth or crenation on the concave margin distal of the basal angle.
- Mandible proximal of rounded basal angle narrowed and elongated.

Psalidomyrmex foveolatus André

Psalidomyrmex foveolatus André, 1890: 314. Syntype workers, SIERRA LEONE (A. Mocquereys) (MNH).

Psalidomyrmex foveolatus André; Emery, 1899: 471 (misidentification); Stitz, 1910: 129; Wheeler, W.M. 1922: 785; Bernard, 1953: 209; Bolton, 1975: 7.

MATERIAL EXAMINED. As Bolton (1975), plus: Ivory Coast: Palmeraie Lame (T. Diomande); Iringou (F. Krell). Nigeria: Gambari (B. Taylor); Ibadan (A. Russell-Smith). Cameroun: Ottotomo (A. Dejean).

Psalidomyrmex reichenspergeri Santschi

Psalidomyrmex reichenspergeri Santschi, 1913: 302. Holotype worker, CAMEROUN: Molunda (A. Reichensperger) (NMB).

Plectroctena mandibularis subsp. *mabirensis* Arnold, 1954: 293, figs 3, 3a. Syntype workers, UGANDA: Mabira Forest, 21.v.1952 (G. Arnold) (SAM, BMNH). [Synonymy by Bolton, 1975: 8.]

Psalidomyrmex mabirensis (Arnold); Bolton, 1974: 334. [Raised to species and revised combination.]

Psalidomyrmex reichenspergeri Santschi; Santschi, 1914b: 288; Wheeler, W.M. 1922: 90, 786; Bolton, 1975: 8.

MATERIAL EXAMINED. As Bolton (1975).

Psalidomyrmex sallyae Bolton

Psalidomyrmex sallyae Bolton, 1975: 9, fig. 5. Holotype and paratype workers, GHANA: Tafo, 23.vii.1966, ant ecology sample 120 (D. Leston); paratype worker, GHANA: Tafo, 19.vii.1966, ant ecology sample 110 (BMNH, MCZ, AMNH, SAM).

MATERIAL EXAMINED. Known only from type-series.

procerus group

- Mandible subtriangular; blade of mandible relatively broad and with an elongate curved apical tooth.
- Masticatory margin of mandible straight and edentate.
- Mandible proximal of rounded basal angle short and stout.

Psalidomyrmex feae Menozzi

Psalidomyrmex feae Menozzi, 1922: 349. Syntype workers, queen and male, SAO TOMÉ & PRÍNCIPE: Príncipe I., Roça Infante Don Henrique, iii.1901, 100-300 m. (L. Fea) (IE, MCZ).

Psalidomyrmex feae var. *impressa* Menozzi, 1922: 352. Syntype workers and male, SAO TOMÉ & PRÍNCIPE: Príncipe I., Roça Infante Don Henrique, ii.1901, 200-300 m. (L. Fea) (IE, MCZ, BMNH). [Synonymy by Bolton, 1975: 11.]

Psalidomyrmex feae Menozzi; Bolton, 1975: 11.

MATERIAL EXAMINED. Known only from above series.

***Psalidomyrmex procerus* Emery**

Psalidomyrmex procerus Emery, 1901: 50. Syntype worker, queens and male. CAMEROUN (*Conradt*) (MCSN, NMB).

Psalidomyrmex longiscapus Santschi, 1920: 8. Holotype queen, GABON: Samkita (*F. Faure*) (NMB). [Synonymy by Bolton, 1975: 12.]

Psalidomyrmex obesus Wheeler, W.M. 1922: 92, fig. 19. Syntype workers, ZAIRE: Medje (*Lang & Chapin*) (MCZ, AMNH). [Synonymy by Bolton, 1975: 12.]

Psalidomyrmex procerus var. *obesus* Wheeler; Santschi, 1937: 74. [Reduced to variety.]

Psalidomyrmex procerus st. *collarti* Santschi, 1937: 74. Holotype worker, ZAIRE: Ituri, Matenda, 22.ix.1929 (*A. Collart*) (MRAC). [Synonymy by Bolton, 1975: 12.]

Psalidomyrmex procerus Emery; Stitz, 1910: 129; Wheeler, W.M. 1922: 90, 785 (misidentification); Bernard, 1953: 209; Wheeler, G.C. & Wheeler, J. 1964: 454; Bolton, 1975: 12.

Scanning electron microscope photographs of this species appear in Bolton, 1994: 175, figs 471, 473.

MATERIAL EXAMINED. As Bolton (1975), plus: **CAMEROUN**: Ottotomo (*A. Dejean*); Abong Mbang (*A. Dejean*). **BURUNDI**: Banage (*A. Dejean*).

***Psalidomyrmex wheeleri* Santschi**

Psalidomyrmex wheeleri Santschi, 1923: 263. Syntype workers, ZAIRE: Medje, Akenge & Niapu (*Lang & Chapin*) (MCZ, AMNH, MRAC, BMNH, SAM).

Psalidomyrmex wheeleri Santschi; Bolton, 1975: 13.

MATERIAL EXAMINED. As Bolton (1975).

Dispersal from *Psalidomyrmex*

Psalidomyrmex clavicornis Bernard, 1953: 209, fig. 5. [Transferred to *Pachycondyla*, where it is a junior synonym of *P. talpa* (André), by Bolton, 1975: 6.]

***PLECTROCTENA* F. Smith**

Plectroctena F. Smith, 1858: 101. Type-species: *Plectroctena mandibularis*, by monotypy.

Cacopone Santschi, 1914c: 325. Type-species: *Cacopone hastifer*, by monotypy. [Synonymy by Bolton, 1974: 313.]

WORKER. Ponerine ants with the tribe and group characters noted above and also with the following.

1. Median portion of clypeus with its anterior margin shallowly concave.
2. Clypeal margin anterolaterally with an extensive, roughly semicircular, excavation around the mandibular articulation.

3. Labrum with basal portion not produced into a projecting lobe; sclerite minutely but extremely densely strongly sculptured.
4. Mandible stoutly linear, blunt or obliquely truncated apically, with 0–2 teeth; dorsal surface with a longitudinal groove or trench.
5. Palp formula 3,4 (dissections of *cristata*, *macgeei*, *mandibularis*, *minor*, *strigosa*), or PF 2.3 (*ugandensis*), or PF 2.2 (*anops*, *cryptica*, *lygaria*, *subterranea*).
6. Posteroventral curve of head in profile without a projecting flange but anterior portion of occipital carina may form a conspicuous crest on the ventral surface.
7. Propodeal dorsum usually without a median longitudinal groove but a vestige may be present in some individuals of the *minor* group.
8. Mesofemur and metafemur with a longitudinal (glandular?) groove present mid-dorsally, at least on the basal half.

QUEEN. Mostly alate but four species have ergatoid queens (*cristata*, *dentata*, *macgeei*, *mandibularis*). All have the above characters and alates have the usual modifications associated with this caste. Ergatoids may be extremely worker-like but usually retain ocelli or ocellar vestiges; see Bolton (1974). Queens remain unknown in *hastifera*, *laevior*, *strigosa*.

MALE. Insufficiently known (*lygaria*, *mandibularis*, *minor*, *subterranea* only). For general description see Bolton (1974) but this is compromised as *lygaria* lacks the notauli and toothed pretarsal claws that are present in the other three.

Comments

Characters 1, 2, 4 and second part of 3 (sculpture) are autapomorphic; 6 is plesiomorphic. The possibly synapomorphic nature of characters 5 and 7 is discussed under *Psalidomyrmex*, that of 8 under *Loboponera*.

The genus *Plectroctena* was revised earlier by Bolton (1974). Following the key are taxonomic synopses and records of more recently discovered material of each species, together with diagnoses of species groups within the genus, but formal diagnoses of individual species are not repeated as no new species-rank taxa are reported here.

List of species***hastifera* group**

anops Bolton, 1974

hastifera (Santschi, 1914)

***minor* group**

cristata Emery, 1899

= *cristata* var. *semileavis* Santschi, 1924

dentata Santschi, 1912

= *emeryi* Santschi, 1924

latinodis Santschi, 1924

minor Emery, 1892

= *gabonensis* Santschi, 1919 **syn. n.**

= *minor* var. *perusta* Santschi, 1924

= *minor* var. *liberiana* Santschi, 1924

= *minor* var. *insularis* Santschi, 1924

mandibularis group

cryptica Bolton, 1974

gestroi Menozzi, 1922

laevior Stitz, in Santschi, 1924

lygaria Bolton, Gotwald & Leroux, 1979

macgeei Bolton, 1974

mandibularis F. Smith, 1858

= *caffra* Spinola, 1851 (*nomen nudum*)

= *caffra* st. *major* Forel, 1894

= *minor* st. *conjugata* Santschi, 1914

= *mandibularis* st. *integra* Santschi, 1924

[*mandibularis* st. *strigosa* var. *striativentris* Stitz, in Santschi, 1924; unavailable name]

strigosa Emery, 1899

subterranea Arnold, 1915

= *punctatus* Santschi, 1924

ugandensis Menozzi, 1933

punctures smooth and shining. Funicular segments 3–4 broader than long, usually markedly so 6

5 Very large species with relatively very long mandibles, HL > 4.0, MI > 90. Transverse groove on first gastral tergite strongly developed across the width and preceded by a thick crest of cuticle; very conspicuous in profile. (Cameroun, Zaire, Uganda, Kenya) *cristata*

– Smaller species with relatively shorter mandibles, HL < 4.0, MI < 90. Transverse groove on first gastral tergite faint and poorly developed, only visible in the middle of the tergite and not preceded by a thick crest of cuticle; scarcely discernible in profile. (Republic of Congo, Zaire, Angola, Uganda) *dentata*

6 Petiole node in dorsal view as broad as long. (Cameroun, Zaire) *latinodis*

– Petiole node in dorsal view longer than broad. (Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Nigeria, Cameroun, Equatorial Guinea, Gabon, Zaire) *minor*

7 Dorsum of head coarsely sculptured with foveolae or large pits whose diameters are greater than the distances that separate them or which are adjacent. Mesonotum and propodeum with a polished, virtually unsculptured, median longitudinal strip. (Liberia, Ivory Coast, Ghana) *cryptica*

– Dorsum of head finely sculptured with small punctures whose diameters are less than the distances that separate them. Mesonotum and propodeum without a polished, virtually unsculptured, median longitudinal strip 8

8 Labrum shallowly transversely concave and with a sharply incised median longitudinal groove that extends the entire length of the sclerite and completely breaks the fine surface sculpture. Mandible edentate. (Ghana, Nigeria) *macgeei*

– Labrum without a median longitudinal groove, the fine surface sculpture uninterrupted across the entire shallowly transversely concave sclerite. Mandible at least with a strong basal tooth; usually also with a second, smaller, tooth in the apical half 9

9 Dorsal surfaces of head and alitrunk with numerous short erect or suberect hairs present. (Principe I.) *gestroi*

– Dorsal surfaces of head and alitrunk without standing hairs 10

10 Ventral surfaces of head without striation between the punctures 11

– Ventral surfaces of head with striation between the punctures, at least anteriorly 14

11 Propodeal declivity armed near its base with a stout triangular tooth; lamella not developed dorsal to the tooth. Larger species. HL > 3.0; full adult colour blackish brown to black. (Tanzania) *laevior*

– Propodeal declivity not armed near its base with a stout triangular tooth; lamella fully developed and extends almost the height of the declivity. Smaller species. HL < 2.5; full adult colour orange-brown or dark red 12

Key to species (workers)

1 Propodeum with a continuous cuticular lamella that forms an uninterrupted projecting flange across the dorsum and down the sides of the declivity. Apical half of each mandible swollen, basal tooth always absent. Head relatively narrow, CI < 80 2

– Propodeum either without a projecting cuticular lamella or with a lamella that is confined to each side of the declivity and does not extend across the dorsum. Apical half of each mandible not swollen, basal tooth usually present. Head relatively broad, CI > 85 3

2 Dorsal surfaces of head, alitrunk, petiole and first and second gastral tergites with numerous short erect to suberect hairs. Eyes present, minute. (Ghana) *hastifera*

– Dorsal surfaces of head, alitrunk, petiole and first and second gastral tergites without standing hairs of any form. Eyes absent. (Ghana) *anops*

3 Dorsum of first gastral tergite with an anteriorly located transverse groove or impression which may extend the width of the tergite or be confined to the median quarter of the width of the sclerite 4

– Dorsum of first gastral tergite without trace of an anteriorly located transverse groove or impression 7

4 Ventral surfaces of the head and usually also the sides of the head, at least below and behind the eyes, with the spaces between punctures finely striate. Funicular segments 3–4 as long as, or longer than broad 5

– Ventral surfaces of the head and the sides of the head below and behind the eyes with the spaces between

- 12 Foveolate punctures on dorsum of head each with an appressed small hair arising from its centre, the hair directed toward the cephalic midline. (Ivory Coast) *lygaria*
- Foveolate punctures on dorsum of head without appressed small hairs arising from their centres 13
- 13 Basal tooth on mandible with distal (anterior) and proximal (posterior) surfaces that are of about equal length and slope; proximal base of tooth linked to mandible base by a shallow low ridge. Colour orange-brown. (Kenya, Malawi, Zimbabwe, Namibia) *subterranea*
- Basal tooth on mandible with vertical distal (anterior) surface but without a defined proximal (posterior) surface; instead the apex of the tooth is extended to the mandible base as an oblique high ridge. Colour dark red. (Ivory Coast, Cameroun, Zaire, Uganda) *ugandensis*
- 14 Leading edge of scape with a row of suberect to erect short hairs. All dorsal surfaces of head and body entirely covered with extremely dense fine striate sculpture. (Kenya, Tanzania, South Africa) *strigosa*
- Leading edge of scape without suberect to erect short hairs. Sculpture variable in density and intensity but not all dorsal surfaces of head and body entirely covered with extremely dense fine striate sculpture. (Ethiopia, Kenya, Uganda, Burundi, Zaire, Angola, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, South Africa) *mandibularis*

Synopsis of species

hastifera group

Propodeal lamellae form a continuous flange or rim around the sides and dorsum of the declivity.
Mandible with basal tooth absent.
First gastral tergite without an anteriorly situated transverse groove or impression on the dorsum.
Petiole node in profile long and low.
Head considerably longer than broad, CI < 80.

Plectroctena anops Bolton

Plectroctena anops Bolton, 1974: 319, figs 4, 7.
Holotype worker, GHANA: Tafo, 8.ix.1966, ant ecology sample 249c (*D. Leston*) (BMNH).

MATERIAL EXAMINED. As Bolton (1974), plus:
Ghana: Kwadaso (*J. Plisko*).

Plectroctena hastifera (Santschi)

Cacopone hastifer Santschi, 1914c: 325, fig. 11.
Holotype worker, GHANA: Aburi (*F. Silvestre*) (IEN).

Plectroctena hastifera (Santschi); Bolton, 1974: 320.
[Revised combination.]

MATERIAL EXAMINED. As Bolton (1974).

minor group

Propodeal lamellae restricted to sides of the declivity, often very weakly developed.
Mandible with basal tooth present and usually also with a second, smaller, more apically situated tooth.
First gastral tergite with an anteriorly situated transverse groove or impression on the dorsum.
Petiole node in profile as high as or higher than long.
Head relatively broad, CI 89–97.

Plectroctena cristata Emery

Plectroctena cristata Emery, 1899: 470. Syntype workers, CAMEROUN (*Conradi*) (MCSN).

Plectroctena cristata var. *semileavis* Santschi, 1924: 163 (variant spelling as *semilaeve*: 173). Holotype worker, ZAIRE: Luebo, Kamaiambi, 22.ix.1921 (*H. Schouteden*) (MRAC). [Synonymy by Bolton, 1974: 321.]

Plectroctena cristata Emery; Stitz, 1910: 129; Wheeler, W.M. 1922: 88, 783; Santschi, 1924: 163; Bolton, 1974: 321.

MATERIAL EXAMINED. As Bolton (1974), plus:
Uganda: Busongoro (*G.D.H. Carpenter*). **Cameroun:** Tisongo (*D. Jackson*).

Plectroctena dentata Santschi

Plectroctena minor var. *dentata* Santschi, 1912: 150.
Syntype workers, ANGOLA: Benguela, Cucala (*J. Cruchet*) (NMB, MRAC).

Plectroctena dentata Santschi; Santschi, 1924: 164.
[Raised to species.]

Plectroctena emeryi Santschi, 1924: 164. Holotype queen (ergatoid, not worker), REPUBLIC OF CONGO (*J. de Gaule*) (NMB). [Synonymy by Bolton, 1974: 322.]

Plectroctena dentata Santschi; Bolton, 1974: 322.

MATERIAL EXAMINED. As Bolton (1974).

Plectroctena latinodis Santschi

Plectroctena latinodis Santschi, 1924: 165, fig. 2a.
Syntype worker and queen: ZAIRE: Congo da Lemba (*R. Mayné*) (NMB, MRAC).

Plectroctena latinodis Santschi; Bolton, 1974: 323.

MATERIAL EXAMINED. As Bolton (1974).

Plectroctena minor Emery

Plectroctena minor Emery, 1892: 556, pl. 15, figs 1, 2.
Holotype queen, IVORY COAST: Assinie, vii–viii.1886 (*C. Alluaud*) (MCSN).

Plectroctena gabonensis Santschi, 1919a: 336. Syntype workers, GABON: Libreville, 1.xii.1897 (*Chalot*) and GABON: Samkita, 1914 (*F. Faure*) (NMB).
Syn. n.

Plectroctena subterranea st. *gabonensis* Santschi, 1919b: 90. [Second description as new, based on same specimens as above.]

Myopias subterranea subsp. *gabonensis* (Santschi); Wheeler, W.M. 1922: 785. [Revised combination.]

Plectroctena gabonensis Santschi; Santschi, 1924: 170. [Revived combination and revived status.]

Plectroctena minor var. *perusta* Santschi, 1924: 168, fig. 2b. Syntype workers. CAMEROUN: Barumbistation (*Prenuss*) (NMB). [Synonymy by Bolton, 1974: 324.]

Plectroctena minor var. *liberiana* Santschi, 1924: 169, fig. 2c. Holotype worker. LIBERIA (NMB). [Synonymy by Bolton, 1974: 324.]

Plectroctena minor var. *insularis* Santschi, 1924: 169, fig. 3a. Holotype worker. EQUATORIAL GUINEA: Fernando Po I. (*Conrad*) (MCSN). [Synonymy by Bolton, 1974: 324.]

Plectroctena gabonensis Santschi; Wheeler, W.M. 1922: 783; Bolton, 1974: 323.

Plectroctena minor Emery; Emery, 1902: 32; Wheeler, W.M. 1922: 88, 784; Santschi, 1924: 167; Bolton, 1974: 324.

Comment

Accretion of new material has gradually eliminated the supposed differences of size, colour, relative size of eye and minor structural features that were formerly invoked to separate *minor* and *gabonensis* (Santschi, 1924; Bolton, 1974); the two are newly synonymised here.

Scanning electron microscope photographs of this species appear in Bolton, 1994: 175, figs 470, 472.

MATERIAL EXAMINED. As Bolton (1974), plus: **Ghana**: Tafo (*D. Leston*); Wiawso (*D. Leston*); Odomi Riv. (*D. Leston*). **Togo**: Palimé, Klouto (*Vir*). **Cameroon**: Ottotomo (*A. Dejean*); Ndupe (*A. Dejean*); Nzi (*A. Dejean*); Nkoemvon (*D. Jackson*). **Gabon**: La Makandé, Forêt des Abeilles (*S. Lewis*). **Zaire**: Kinzambi (*A. Dejean*).

mandibularis group

Propodeal lamellae restricted to sides of the declivity, often very weakly developed.

Mandible with basal tooth usually present (absent only in *macgeei*); usually also with a second, smaller, more apically situated tooth.

First gastral tergite without an anteriorly situated transverse groove or impression on the dorsum.

Petiole node in profile usually as high as or higher than long (relatively long and low in *macgeei*).

Head relatively broad, CI 86–95.

Plectroctena cryptica Bolton

Plectroctena cryptica Bolton, 1974: 327, fig. 5. Holotype worker. GHANA: Tafo, 2.i.1969, on mud

below dam (*B. Bolton*) (BMNH). Paratype workers. IVORY COAST: Lamto (Toumodi), 11.iv.1968, sample AA279N2; Lamto, 20.vi.1968, sample AA334N4; and Lamto, 21.ii.1969 (*J. Lévieux*) (BMNH, MCZ).

MATERIAL EXAMINED. As Bolton (1974), plus: **Ivory Coast**: Tai Forest (*T. Diomande*); Abidjan, Adiopodoumé (*I. Löbl*). **Ghana**: Mt Atewa (*D. Leston*).

Plectroctena gestroi Menozzi

Plectroctena gestroi Menozzi, 1922: 348, fig. 1. Syntype workers and queen, SAO TOMÉ & PRÍNCIPE: Príncipe I.: Roca Infante Don Enrique, iii.1900 (*L. Fea*) (IE, MCZ).

Plectroctena gestroi Menozzi; Bolton, 1974: 328.

MATERIAL EXAMINED. Known only from type-series.

Plectroctena laevior Stitz

Plectroctena mandibularis st. *laevior* Stitz, in Santschi, 1924: 163, fig. 1d. Holotype worker, TANZANIA: Kiwugebeit (*Kadt*) (MNHU).

Plectroctena laevior Stitz; Bolton, 1974: 329. [Raised to species.]

MATERIAL EXAMINED. Known only from holotype.

Plectroctena lygaria Bolton, Gotwald & Leroux

Plectroctena lygaria Bolton, Gotwald & Leroux, 1979: 373, figs 1, 2. Holotype worker, paratype workers, queens and males, IVORY COAST: Lamto, 4.vi.1974, forêt galerie du Bandama (*W.H. Gotwald & J.M. Leroux*) (BMNH, MCZ, MNHN, NMB, MHN, ANIC, SAM).

MATERIAL EXAMINED. Known only from type-series.

Plectroctena macgeei Bolton

Plectroctena macgeei Bolton, 1974: 330, figs 1, 8. Holotype worker, NIGERIA: Western State, Gambari, 28.x.1969, amongst termites under log (*B. Bolton*) (BMNH).

MATERIAL EXAMINED. As Bolton (1974), plus: **Ghana**: Tafo (*D. Leston*); Ashanti, Juaso (*R. Belshaw*); Atewa For. Res., nr Kibi (*R. Belshaw*). **Nigeria**: Gambari (*B. Taylor*); Ibadan (*B.R. Critchley*).

Plectroctena mandibularis F. Smith

Plectroctena mandibularis F. Smith, 1858: 101, pl. 7, figs 1–5. Syntype queen (ergatoid, not worker) and male, SOUTH AFRICA: Natal, Durban (= Port Natal) (*Gueinzus*) (BMNH).

Ponera caffra Spinola, 1851: 53; Spinola, 1853: 69.

- Nomen nudum* (attributed to Klug). [Spinola material referred to *mandibularis* by Roger, 1861: 41.]
- Plectroctena caffra* (Klug); Roger, 1861: 41 [combination]; Emery, 1892: 556 [as valid species, in error]; Dalla Torre, 1893: 31 [as senior synonym of *mandibularis*, in error].
- Plectroctena caffra* r. *major* Forel, 1894: 74. Holotype queen (ergatoid, not worker). MOZAMBIQUE: Delagoa (*P. Berthoud*) (MHN). [Synonymy by Emery, 1899: 469; Santschi, 1924: 160; Bolton, 1974: 330.]
- Plectroctena mandibularis* var. *major* Forel; Emery, 1911: 95; Santschi, 1914a: 54; Arnold, 1915: 86.
- Plectroctena minor* st. *conjugata* Santschi, 1914d: 8. Syntype workers and queen: SOUTH AFRICA: Natal, Stamford Hill, Charlestown, 30.iv.1905, and SOUTH AFRICA: Zululand (*I. Trägårdh*) (NMB, MCZ, MRAC). [Synonymy by Arnold, 1926: 209; revived from synonymy by Bolton, 1974: 326; synonymy reaffirmed by Villet, McKitterick & Robertson, 1999: 282.]
- Plectroctena mandibularis* var. *integra* Santschi, 1924: 161. Syntype worker, KENYA: Nairobi, Wa Kikongo et Masai, 1904 (*C. Alluaud*); syntype male, KENYA: Bura, Wa Taita, 1904 (*C. Alluaud*) (NMB). [Synonymy by Bolton, 1974: 330.]
- [*Plectroctena mandibularis* st. *strigosa* var. *striativentris* Stitz, in Santschi, 1924: 162 (with variant spellings *strativentris* and *striativentris*: 162). Unavailable name; material (from Malawi) referred to *mandibularis* by Bolton, 1974: 330.]
- Plectroctena conjugata* Santschi; Wheeler, W.M. 1922: 785; Santschi, 1924: 166 [raised to species]; Bolton, 1974: 326; Wheeler, G.C. & Wheeler, J. 1989: 52.
- Plectroctena mandibularis* F. Smith; Gerstäcker, 1873: 346; Emery, 1899: 469; Forel, 1913: 108; Wheeler, W.M. 1922: 783; Santschi, 1924: 160; Bolton, 1974: 330; Villet, McKitterick & Robertson, 1999: 282.

MATERIAL EXAMINED. As Bolton (1974), plus: **Kenya**: Shimba Hills (*B. Hölldobler*); Kajiado (*G. Nyamasyo*); Olikoriti, nr Kajiado (*M.G. Lepage*). **Burundi**: Bujumbura (*A. Dejean*). **Tanzania**: Old Shinyanga (*O.W. Richards*); Mkomazi Game Res., Ibaya (*A. Russell-Smith*). **Botswana**: Maxwee (*A. Russell-Smith*). **South Africa**: Transvaal, Hoedspruit (*C. Peeters*); Natal, Mkuzi Res. (*C. Peeters*); Cape Prov., Grahamstown (*F. Jacot-Guillarmod*); Grahamstown (*W.L. Brown*); Grahamstown (*L.S. Naylor*); Cape Prov., nr Pt Alfred (*H.G. Robertson*); Cape Prov., Alexandria (*H.G. Robertson*).

Plectroctena strigosa Emery

Plectroctena mandibularis var. *strigosa* Emery, 1899: 469. Holotype worker. SOUTH AFRICA: Natal (*Staudinger & Bang-Haas*) (MCSN).

- Plectroctena mandibularis* var. *strigosa* Emery; Arnold, 1915: 88; Wheeler, W.M. 1922: 784.
- Plectroctena cristata* st. *strigosa* Emery; Santschi, 1924: 161.
- Plectroctena strigosa* Emery; Bolton, 1974: 332. [Raised to species.]

Comment

Hamish Robertson (SAM) has drawn attention to the fact that material from Kenya and Tanzania that is referred to *strigosa* fits the original description, but no specimen matching the Kenyan/Tanzanian material has yet been seen from Natal, the type-locality. It is possible that the name is misapplied or the specimen mislabeled (Emery mentions a specimen from Zanzibar in his discussion). A reappraisal of the holotype will be necessary to resolve the situation.

MATERIAL EXAMINED. As Bolton (1974), plus: **Kenya**: Tiwi Beach (*C.J. Powles*); Shimba Hills (*B. Hölldobler*); Shimba Hills (*C. Peeters*); Gedi Natl. Monument (*P.S. Ward*). **Tanzania**: Mkomazi Game Res., Ibaya (*A. Russell-Smith*).

Plectroctena subterranea Arnold

- Plectroctena subterranea* Arnold, 1915: 84, pl. 3, figs 23, 23a. Syntype workers and queen, ZIMBABWE: Bulawayo, 14.vi.1913 (*G. Arnold*), and Shiloh (*G. Arnold*) (BMNH, SAM).
- Myopias subterranea* (Arnold); Wheeler, W.M. 1922: 785. [Revised combination.]
- Plectroctena subterranea* Arnold; Santschi, 1924: 171. [Revived combination.]
- Plectroctena punctatus* Santschi, 1924: 170. Holotype male, KENYA: Bura Wa Taita, iii.1912, 1050 m, st. 61 (*C. Alluaud & R. Jeannel*) (NMB) [Synonymy by Bolton, 1974: 333.]

MATERIAL EXAMINED. As Bolton (1974), plus: **Kenya**: Kibwezi (*S.A. Neave*). [Also recorded from Namibia by Robertson (2000).]

Plectroctena ugandensis Menozzi

- Plectroctena ugandensis* Menozzi, 1933: 99, fig. 2. Holotype queen, UGANDA: Bussu (*E. Bayon*) (location of holotype not known, presumed lost).
- Plectroctena ugandensis* Menozzi; Bolton, 1974: 334.

MATERIAL EXAMINED. As Bolton (1974), plus: **Ivory Coast**: Tai Forest (*T. Diomande*). **Cameroon**: nr Yaoundé (*G. Terron*); Nzi (*A. Dejean*).

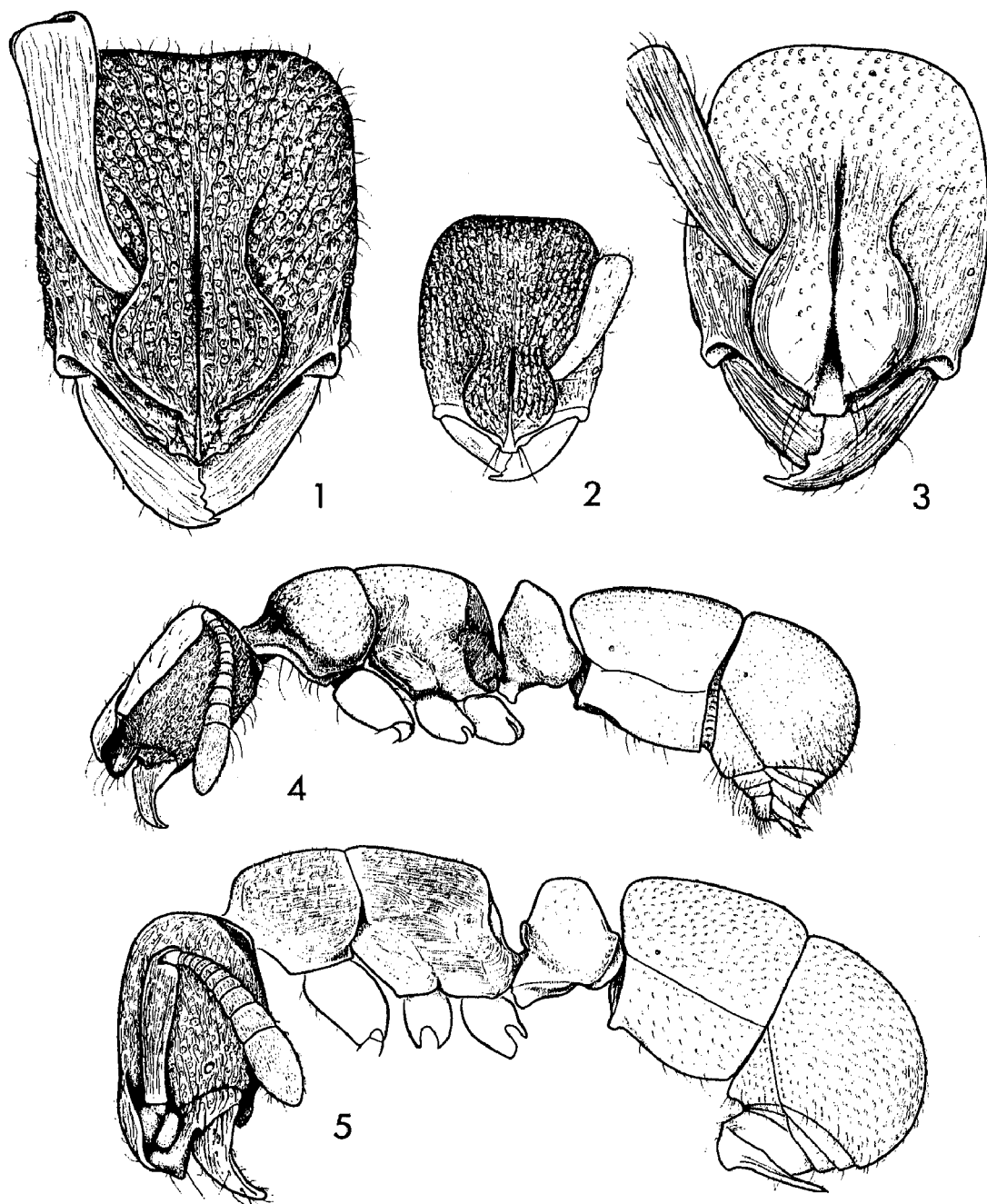
Dispersal from *Plectroctena*

- Plectroctena mandibularis* subsp. *nabirensis* Arnold, 1954: 293. [Transferred to *Psolidomyrmex* by Bolton, 1974: 334; junior synonymy with *P. reichenspergeri* by Bolton, 1975: 6 (see above).]

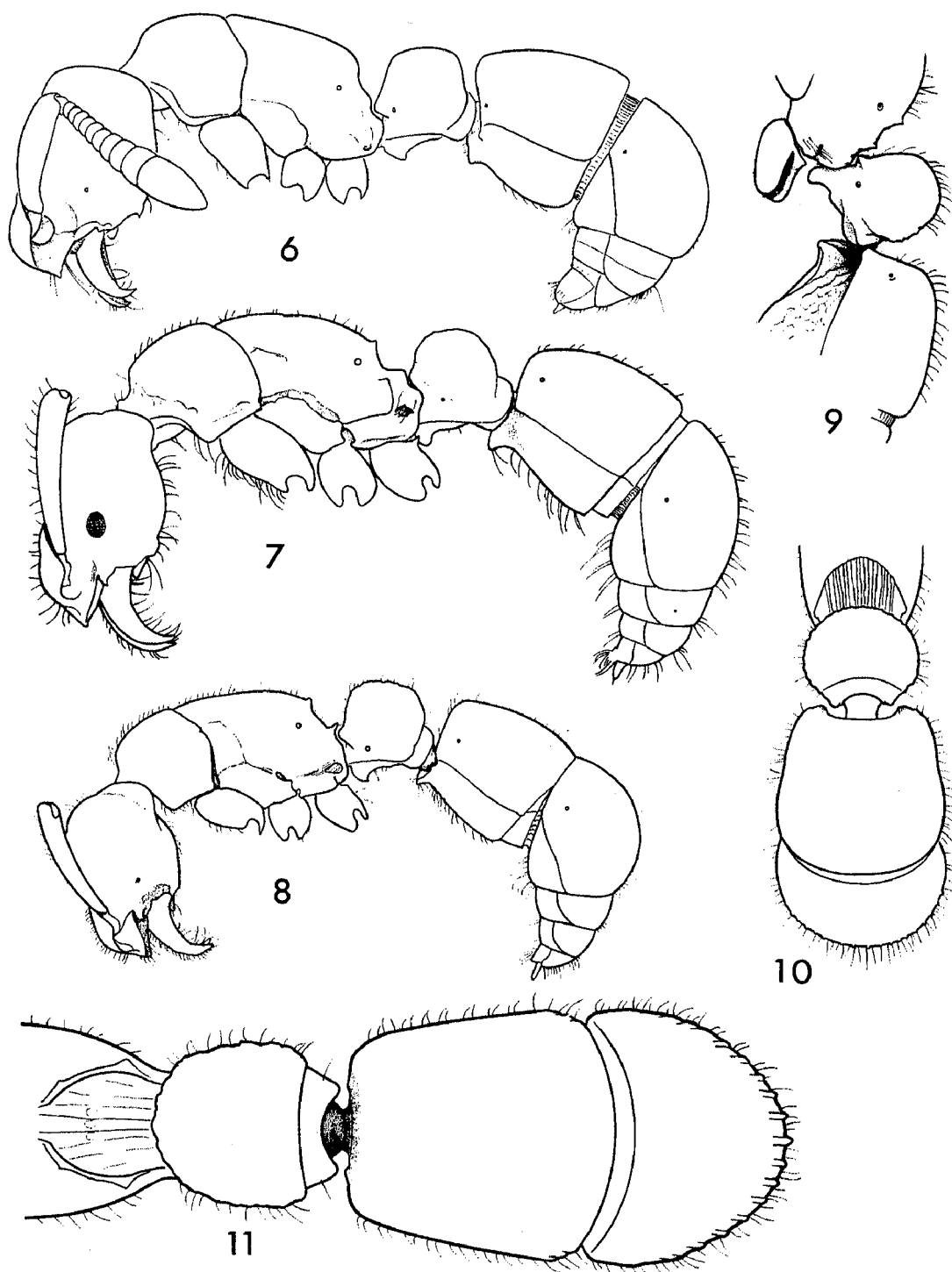
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Figs. 1-5. *Loboponera* workers: 1-3, heads in full-face view of 1. *basalis*; 2. *politula*; 3. *obeliscata*; 4-5, body profiles of 4. *obeliscata*; 5. *politula*.



Figs. 6-11. *Loboponera* workers: 6-8, body profiles of 6. *trica*; 7. *vigilans*; 8. *nasica*; 9, profile of petiole and base of gaster of *basalis*; 10-11, dorsal view of petiole and gaster of 10. *basalis*; 11. *nasica*.