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Lenomyrmex, an enigmatic new ant genus from the Neotropical Region (Hymenoptera: Formicidae: Myrmicinae)

FERNANDO FERNÁNDEZ C. and EDGARD E. PALACIO G.*
Instituto de Investigación de Recursos Biológicos 'Alexander von Humboldt', Santafé de Bogotá D.C., and *Fundación Nova Hylaea, Santafé de Bogotá D.C., Colombia

Abstract. We describe a new myrmicine ant genus, *Lenomyrmex*, with four new species: *L. mandibularis* (type species) and *L. foveolatus* from Colombia, *L. wardi* from Ecuador and Colombia, and *L. costatus* from Panama. The new taxon is clearly distinguished from other myrmicine ants by the following combination of characters: (1) mandibles elongate-triangular, with crenulate masticatory margin three times longer than basal margin, and bearing a series of ten to twenty minute peg-like denticles that arise along and immediately behind the masticatory margin; (2) frontal lobes poorly expanded laterally, partly covering the antennal fossae; (3) large and deep antennal fossae; (4) antennal scrobes absent; (5) eyes protuberant; (6) petiole pedunculate, with poorly defined node and with an anteroventral subpetiolar process pointed anteriorly. The affinities of this new taxon within Myrmicinae remain unclear and the observed characters do not permit it to be included satisfactorily in any of the known tribes or genus groups of the subfamily.

Introduction

Myrmicinae is the most widespread and complex subfamily of Formicidae (Bolton, 1994), with a great variety of life habits (Hölldobler & Wilson, 1990). The great number of genera described in this subfamily, added to their morphological variation, has made it difficult to propose a sound tribal classification. There have been attempts at establishing tribes (Emery, 1915, 1922; Wheeler, 1922), but some of them are not satisfactorily defined and several have turned out to be artificial groups (e.g. Ettershank, 1966; Bolton, 1976, 1987; Kugler, 1978). Certain genera, with conspicuous morphological gaps comprise monotypic tribes, as *Crematogaster* and *Stegomyrmex*.

Although the Neotropical Region continues to contribute numerous new species of ants, only a few genera have been described in the second half of this century. In the last 15 years only two myrmicine genera have been described, *Protalaridris* Brown, 1980 (from New World), belonging to the tribe Basicerotini, and *Bariamyrma* Lattke, 1990 (from Venezuela), known only from a winged female and assigned to Stenammini (Bolton, 1994).

This paper describes a new genus of myrmicine ant with several unusual characters, such as the mandible shape, fine peg-like mandibular denticles and well exposed antennal fossae. The ants come from lowland forest in Panama and rain forest from the western slopes of the Choco biogeographic zone.

Correspondence: F. Fernández C., Instituto Humboldt, Apartado Aéreo 8693, Santafé de Bogotá DC, Colombia.

Materials and methods

Most drawings and metric measurements were made at 100 × on a Wild M3Z stereomicroscope. The labrum and sting of *L. mandibularis* were drawn at 419 × on a Nikon SMZ-1 stereomicroscope. The following measurements are based in part on Kugler (1994): CI, cephalic index (HW/HL); EL, eye length, maximum diameter of compound eye in frontal view; GW, gaster width, maximum transverse distance across gaster in a dorsal view; GL, gaster length, in lateral view, from anterior edge of first tergum to posterior edge of last visible tergum; HL, head length, maximum longitudinal distance from the anteriormost portion of the clypeus to the midpoint of a line across the back of the head; HW, head width, maximum width of head, excluding compound eyes, in full face view; ML, mandible length, maximum length of mandible, from anteriormost portion of head to apex of closed mandibles, dorsal view; OI, ocular index (EL/HW); PL, petiole length, the axial distance from the dorsal corner of the posterior peduncle to the nearest edge of the propodeal lobe; PPL,

postpetiole length, in lateral view, the axial distance from base of node in front to tip of posterior peduncle; PPW, postpetiole width, maximum transverse distance across the postpetiole, dorsal view; PW, petiole width, maximum transverse distance across the node; SL, scape length, maximum length excluding basal condyle and neck; TL, total length, ML + HL + WL + PL + PPL + GL; WL, Weber's length, in lateral view of mesosoma, measured diagonally from the posteroventral corner of mesosoma to the farthest point on the anterior pronotal face, excluding the cervix. Descriptive terminology follows Kugler (1978, 1979) for the sting and Gotwald (1969) for the labrum.

The type material will be deposited in the following collections: American Museum of Natural History, New York, U.S.A. (AMNH); The Natural History Musem, London, U.K. (BMNH); Charles Kugler Collection, Radford University, Radford, Virginia, U.S.A. (CKC); Cornell University Insect Collection, Ithaca, New York, U.S.A. (CUIC); Museo de Invertebrados, Instituto de Investigación de Recursos Biológicos 'Alexander von Humboldt', Villa de Leyva, Colombia (IAVH); John T. Longino Insect Collection, Washington, U.S.A. (JTLC); Natural History Museum of Los Angeles County, Los Angeles, California, U.S.A. (LACM); Museum of Comparative Zoology, Harvard University, Cambridge, U.S.A. (MCZ); Instituto de Zoología Agrícola, Universidad Central de Venezuela, Maracay, Venezuela (MIZA); Museum d'Histoire Naturelle, Geneva, Switzerland (MNHG); Museum National d'Histoire Naturelle, Paris, France (MNHN); Museu de Zoologia, Universidade do Sâo Paulo, Brazil (MZSP); Naturhistorisches Museum, Basel, Switzerland (NHMB); Naturhistorisches Museum, Vienna, Austria (NHMV); Phillip S. Ward Collection, University of California at Davis, U.S.A. (PSWC); Robert Hamton Insect Collection, Long Beach, California, U.S.A. (RHIC); Museo de Insectos, Universidad del Valle, Cali, Colombia (UDV); Museo de Insectos, Instituto de Ciencias Naturales–Museo de Historia Natural, Universidad Nacional de Colombia, Santafé de Bogotá D.C., Colombia (UNCB); Museo Francisco Luis Gallego, Universidad Nacional de Colombia, Medellin, Colombia (UNCM); National Museum of Natural History, Washington, D.C., U.S.A. (USNM); William P. Mackay Collection, El Paso, Texas, U.S.A. (WPMC).

Descriptive taxonomy

Lenomyrmex gen.n. (Figs 1–8)

Type species: *Lenomyrmex mandibularis* sp.n.

Worker diagnosis. Ant of the subfamily Myrmicinae. Worker monomorphic. Mandibles elongate, triangular, with masticatory margins opposing at rest, not crossing; masticatory margin crenulated, 3 × longer than basal margin and with a longitudinal series of 10–20 tiny lightly sclerotized blunt pegs arising along distal half of masticatory margin. Palpal formula 2:2 (in *L. mandibularis*). Frontal lobes little developed, only partially covering antennal condyles. Antennal fossae large, deep. Antennal scrobes absent. Antennae 11-segmented, with an inconspicuous club of 2 segments. Eyes relatively well-developed. Pronotum and mesonotum fused, immobile, separated by a well-impressed suture visible in lateral and dorsal views. Propodeum angulate or with well developed spines. Tarsal claws long. Petiole elongate, pedunculate; node scarcely differentiated or inconspicuous; subpetiolar process anteroventral and directed forward, anteroposteriorly flattened in such a way that it appears acute in side view but widely triangular or blunt in anteroventral view. Sting well developed, functional.

Queen diagnosis. As the worker, but distinguished as follows. Presence of 3 ocelli. Thorax modified as in queens of Myrmicinae. Mesoscutum with a feeble longitudinal carina extending from its anterior margin to before its median part. Visible suture between anepisternum and katepisternum. Widespread pilosity on mesosoma and legs. Wings (in *L. wardi*) with numerous fine hairs along margins, the hairs along posterior margin longer than those along anterior margin.

Lenomyrmex mandibularis sp.n. (Figs 1–3)

Holotype worker. COLOMBIA, Nariño, Ricaurte, Reserva La Planada, 1°5′N, 77°24′W 1800 m, montane rain forest, H no. 9, 1.iii.95 (*Catalina Estrada*) (UNCB).

Paratypes. One queen and 6 workers from the same locality, 1.iii.1995; 11 workers from the same locality, 10.iii.95. The queen and a paratype worker deposited in UNCB, other paratype workers deposited in: BMNH, MCZ, MZSP, MIZA, PSWC, UDV, WPMC.

Worker measurements, *holotype* (*paratypes* $n = 18$). TL: 4.10 (4.14–4.22); HL: 0.86 (0.86–0.88); HW: 0.68 (0.68–0.72); ML: 0.36 (0.36–0.38); SL: 0.57 (0.56–0.60); EL: 0.17 (0.17–0.20); WL: 1.12 (1.12–1.16); PL: 0.54 (0.54–0.56); PW: 0.21 (0.21–0.22); PPL: 0.28 (0.28–0.30); PPW: 0.24 (0.24–0.25); GL: 0.94 (0.96–0.98); GW: 0.66 (0.67–0.70); CI: 0.79 (0.79–0.82); OI: 0.25 (0.25–0.28).

Worker description. Mandibles elongate, triangular with masticatory margin crenulated, 3 × longer than basal margin and with a series of 17 or 18 tiny sclerotized blunt peg-like denticles arising along and immediately behind masticatory margin (Fig. 2b). Clypeus without carinae, apical margin mostly convex and with a slight median angle; posterior margin barely projects outward between frontal carinae. Frontal lobes inconspicuous, little expanded sideways, only partially covering antennal condyles. Antennal fossae large, deep, 1.5 × longer than broad. Antennal scrobes absent. Head with a broadly convex posterior margin in full face view, maximum width just behind eyes, tapering slightly posterad. Compound eyes large, protruding, with 8 or 9 facets along maximum diameter. Mesosomal profile with pronotum, mesonotum and propodeum differentiated (Fig. 1a). Metanotal impression slightly marked. Propodeum with 2 long, acute spines, length approximately equal to distance between bases. Inferior propodeal lobes as

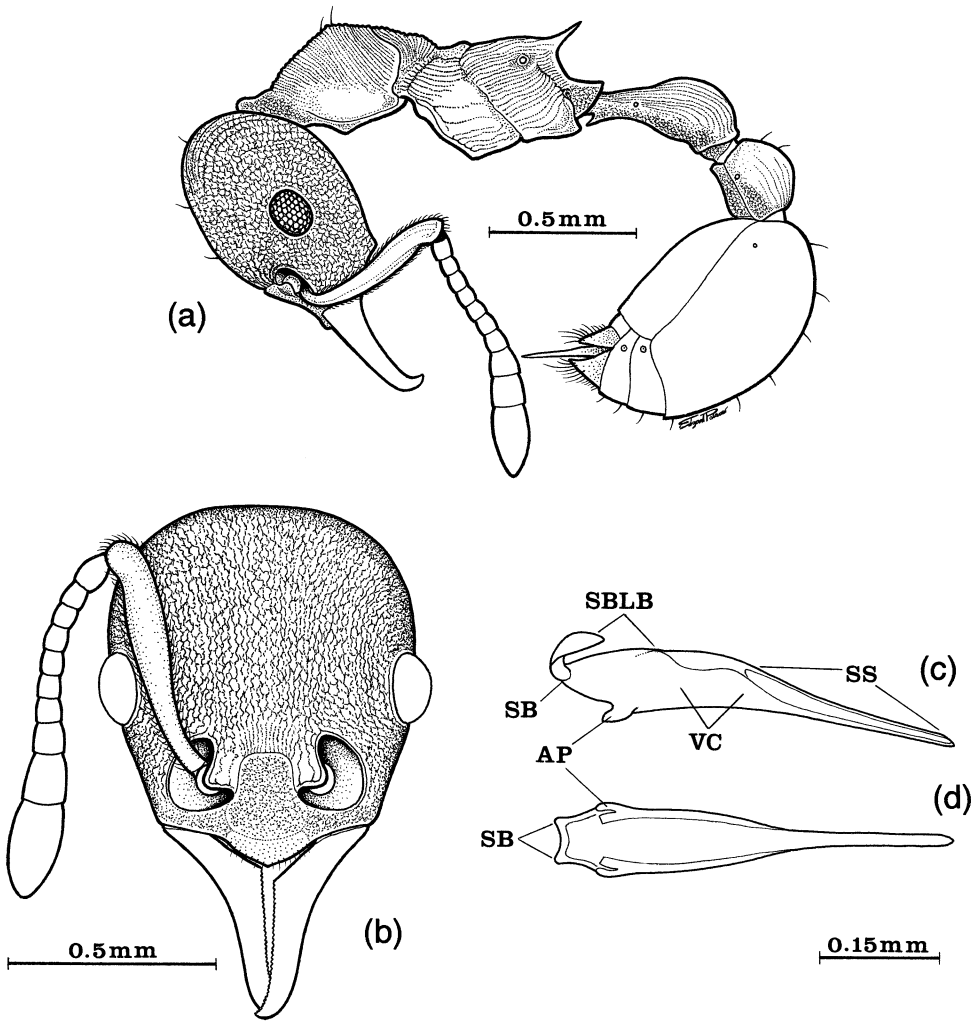

Fig. 1. *Lenomyrmex mandibularis*, holotype worker. a, lateral view (legs omitted); b, head in full face view; c,d, sting, lateral (c), ventral (d).

broadly triangular teeth. Femora claviform, slender basally, very broadened towards apices. Meso- and metatibiae without spurs. Tarsal claws simple, elongated. Petiole long, fusiform, pedunculate; petiolar node scarcely differentiated, anterior face meeting dorsal surface of peduncle in a slight concavity; subpetiolar process antero-ventral, directed forward, widely triangular in anteroventral view, compressed in anterior posterior direction giving appearance of a spine in side view; anterolateral edges of process continue dorsally toward sides of petiolar peduncle. Postpetiole dome-like, without a ventral process.

Mandibles smooth, slightly shining. Head densely rugo-reticulate. Pronotum with dorsal striae extending laterally towards propleural margin; sides of pronotum with irregular smooth, shining areas. Mesonotum transversely striated. Mesopleuron with some irregular longitudinal striae but otherwise smooth, shining. Propodeal dorsum shining, with weak longitudinal striae. Metapleuron with irregular longitudinal striation. Petiole with dorsolateral longitudinal striae and granulations inferolaterally and ventrally. Postpetiole mostly smooth, shining, with some longitudinal striae dorsolaterally and granulations ventrolaterally. Gaster smooth, shining except for dense punctures on pygidium and hypopygium.

Clypeal apical margin with several short, erect hairs. Head with numerous short decumbent hairs and some scattered longer suberect hairs. Scapes with abundant decumbent hairs shorter than maximum scape diameter. Funiculus with numerous short decumbent hairs. Mesosoma, petiole, postpetiole and gaster almost without hairs except for one on each side of pronotal dorsum, 2 on petiole, several on postpetiole and numerous long hairs on pygidium and hypopygium. Legs with abundant short decumbent hairs and several erect, longer hairs on each tarsal apex. Head, scapes, mesosoma, petiole, postpetiole and anterior part of gaster dark brown; legs and coxae lighter; antennal club, mandibles and gastric apex yellowish brown.

Queen (*paratype*). From the same locality as the holotype worker.

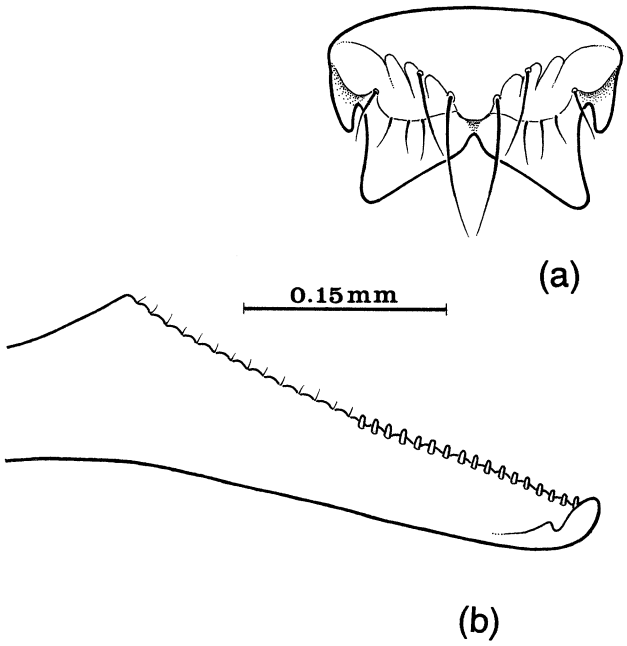

Fig. 2. *Lenomyrmex mandibularis*, paratype worker. a, labrum; b, left mandible in ventral view.

Queen measurements. TL: 4.66; HL: 0.92; HW: 0.76; ML: 0.36; SL: 0.63; EL: 0.20; WL: 1.34; PL: 0.58; PW: 0.24; PPL: 0.34; PPW: 0.27; GL: 1.12; GW: 0.84; CI: 0.83; OI: 0.26.

Queen diagnosis. As the worker, differing in the following characters (Fig. 3). Three ocelli scarcely visible. Thorax larger; mesoscutum rugulose with some longitudinal rugae toward median line; scutellum with longitudinal striae; axillae rugo-reticulate; mesopleuron with anepisternum clearly separated from katepisternum by a suture; anepisternum longitudinally striate; katepisternum with longitudinal oblique striation; propodeal dorsum with transverse striae; suberect pilosity more frequent on thorax and gaster. Mesosomal pilosity more abundant than in workers.

Ecology. The queen and twelve workers were collected in a scar or knothole in the stem of a *Palicourea* sp. (Rubiaceae). Such scars were present in all branches, with some containing larvae not accompanied by workers (not collected, collector field notes). In one cavity, together with the workers and the queen, an unidentified worker of *Gnamptogenys* was collected. An additional worker of *Lenomyrmex* was collected on a leaf in daylight; but it is not known if it was found on the same plant species as the one containing the nest. A second series of workers of *Lenomyrmex* with callow workers was collected under rotten logs. All the collections from slightly disturbed primary montane forest.

Male. Unknown.

Etymology. From the Latin *mandibula*, in reference to the conspicuous mandibles of the species.

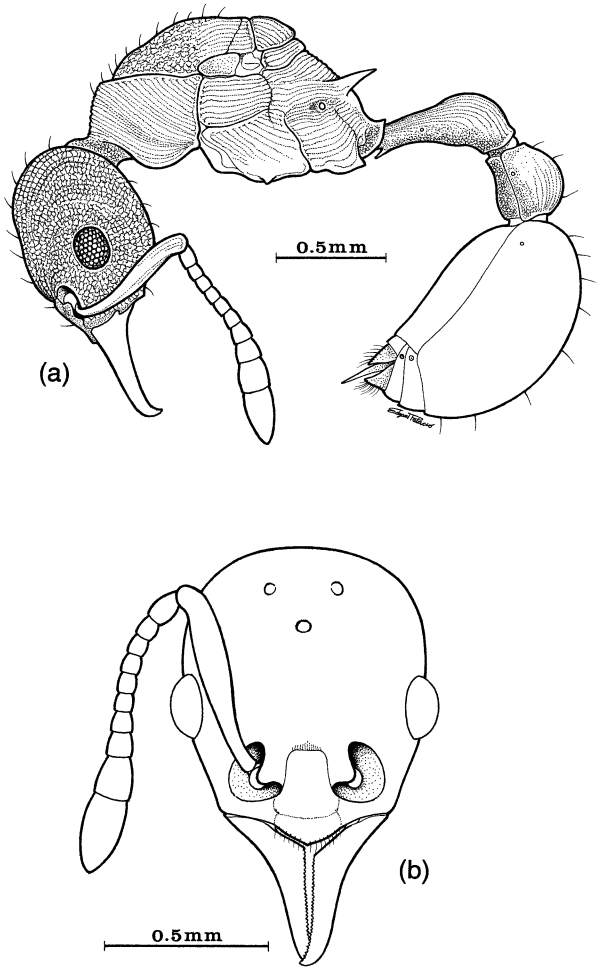

Fig. 3. *Lenomyrmex mandibularis*, dealate paratype queen. a, lateral view (legs omitted); b, head in full face view (sculpturation and pilosity omitted).

Lenomyrmex wardi sp.n. (Figs 4–6)

Holotype worker. ECUADOR, Pichincha, Maquipucuna, 5 km ESE Nanegal, 17.viii.1991, 1500 m, 0°07′N, 78°38′W, Winkler sample (P.S. Ward no. 11503–10) (MCZ).

Paratypes. One queen and 6 workers of the same locality. Deposited in MCZ (queen), UNCB, MZSP, BMNH, PSWC and NMNH; 7 workers from Colombia, Nariño, Barbacoas, Río Ñambí, 1100–1300 m, 1-V-1995, F. Escobar leg. no. 204, deposited in CUIC, LACM, NHMV, USNM and MNHG.

Worker measurements, *holotype* (*paratypes*, $n = 6$). TL: 3.30 (3.30–3.52); HL: 0.68 (0.68–0.72); HW: 0.58 (0.58); ML: 0.28 (0.28); SL: 0.49 (0.49–0.50); EL: 0.19 (0.19–0.20); WL: 0.94 (0.9–1.04); PL: 0.38 (0. 38–0.40); PW: 0.20 (0.18–0.20); PPL: 0.26 (0.26); PPW: 0.21 (0.21–0.22); GL: 0.76 (0.76–0.84); GW: 0.56 (0.56–0.63); CI: 0.85 (0.80–0.85); OI: 0.33 (0.33–0.34).

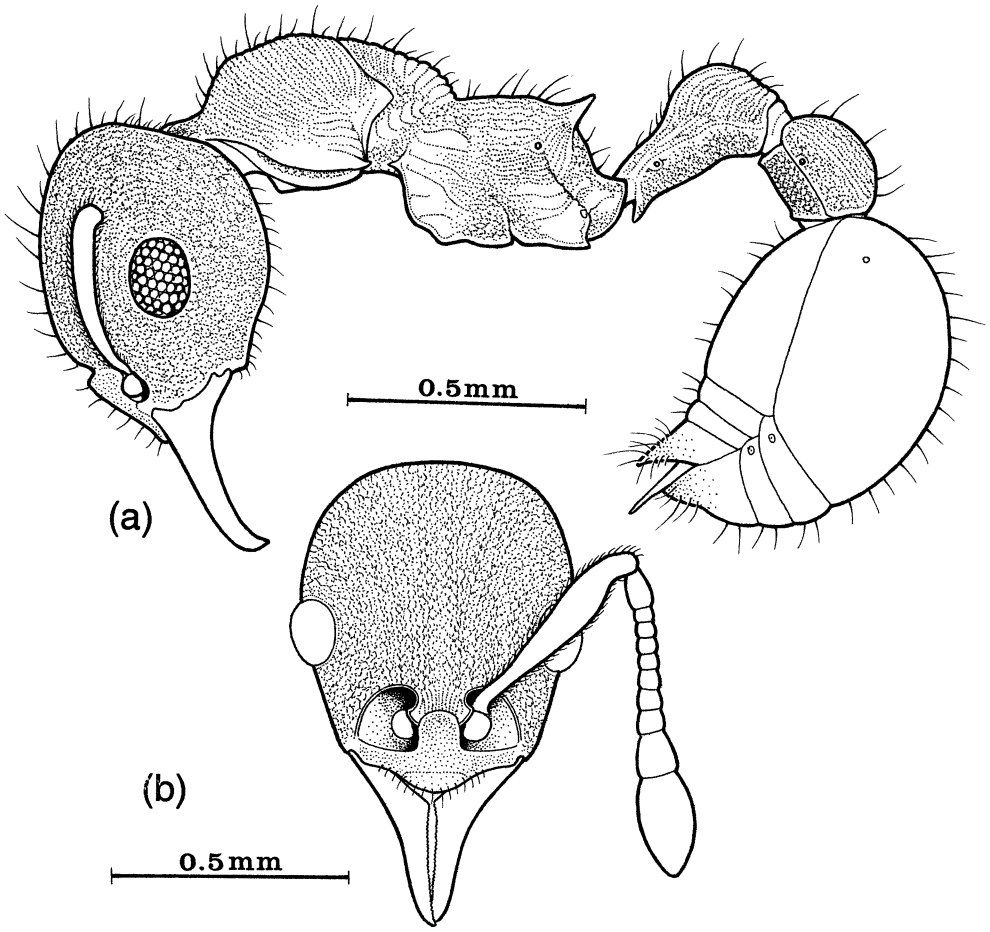

Fig. 4. *Lenomyrmex wardi*, holotype worker. a, lateral view (legs omitted); b, head in full face view.

Worker diagnosis. Similar to *L. mandibularis*, with the following differences.

Mandibular peg-like denticles vary from 18 to 20. Eyes larger in proportion to head, with 6 or 7 facets in maximum diameter. Propodeal spines not so long, length less than distance between bases. Petiolar peduncle shorter; petiolar node more protruding and slightly more defined.

Metapleuron and posterior mesopleuron rugo-reticulate. Striation of mesosomal dorsum more rough and irregular. Scape with some long suberect hairs toward apex in addition to short decumbent pilosite, shorter than maximum diameter of scape. Femora with scattered long erect hairs, in addition to decumbent pile.

Integument in general more opaque than in *L. mandibularis*; head, mesosoma, petiole, postpetiole and gaster slightly clearer and reddish. Legs and scapes yellowish brown, clearer than in *L. mandibularis*. Dorsum of mandibles and antennal club whitish yellow.

Queen (*paratype*). From the same locality as the holotype.

Queen measurements. TL: 3.52; HL: 0.72; HW: 0.58; ML: 0.28; SL: 0.50; EL: 0.20; WL: 1.02; PL: 0.40; PW: 0.18; PPL: 0.26; PPW: 0.22; GL: 0.84; GW: 0.63; CI: 0.80; OI: 0.34.

Queen diagnosis. As the worker, with the following differences (Figs 5, 6). Three ocelli present. Mesosoma robust. Mesopleural suture present. Dorsum of pronotum with weak, irregular striae laterally more defined. Mesoscutum with longitudinal rugulae. Axillae rugo-reticulate. Scutellum rugose anterad with some posterior transverse striae. Propodeum with transverse striae. Anepisternum with well defined longitudinal striation. Katepisternum with oblique striae. Metapleura with irregular striae. Pilosite most abundant on mesosoma and legs.

Male: Unknown.

Etymology. We have named this species in honour of our friend and colleague Dr Philip S. Ward. He kindly supplied the *Lenomyrmex* material from Panama and Ecuador for study, although he was aware some years ago that the specimens represented an undescribed genus.

Lenomyrmex costatus sp.n. (Fig. 7)

Holotype worker. PANAMA, Bocas del Toro, road from Fortuna to Chiriquí, 8°47′N, 82°12′W. 14-VIII-1987. D.M. Olson no. 523. Deposited in MCZ.

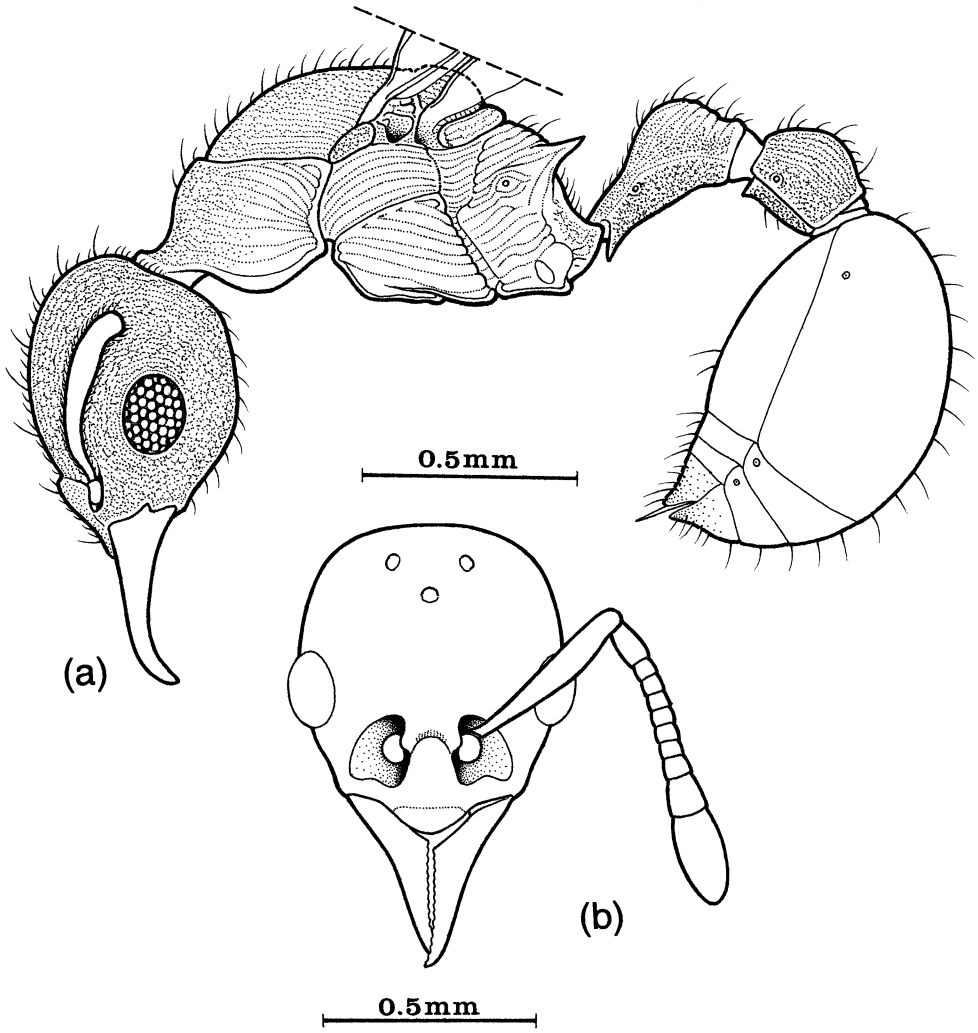

Fig. 5. *Lenomyrmex wardi*, alate paratype queen. a, lateral view (legs omitted); b, head in full face view (sculpturation and pilosity omitted).

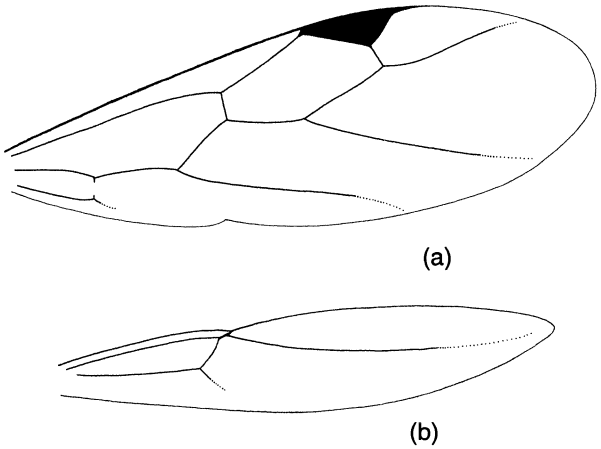

Fig. 6. *Lenomyrmex wardi*, wings of paratype queen. a, front wing; b, hind wing.

Worker measurements, *holotype*. TL: 3.88; HL: 0.76; HW: 0.64; ML: 0.30; SL: 0.55; EL: 0.20; WL: 1.12; PL: 0.44; PW: 0.21; PPL: 0.25; PPW: 0.22; GL: 1.00; GW: 0.66; CI: 0.84; OI: 0.31.

Worker diagnosis. Similar to *L. mandibularis*, with the following differences. Propodeal spines longer, length at least 1.5 × greater than distance between bases. Petiolar node poorly defined, dorsal surface of peduncle forms a continuous and slightly convex surface with the node; posterior face of petiolar node shorter, steeper. Subpetiolar process widely rounded in anteroventral view. Head, mesosoma, petiole and postpetiole with well impressed costae; costae of head and propodeal dorsum longitudinal; those of pronotum and mesonotum transverse, continued in an obtuse angle on the mesonotum with oblique mesopleural costae; petiole and postpetiolar costae longitudinal. Head with numerous suberect hairs, longer than in *L. mandibularis*. Scape with several erect to suberect hairs,

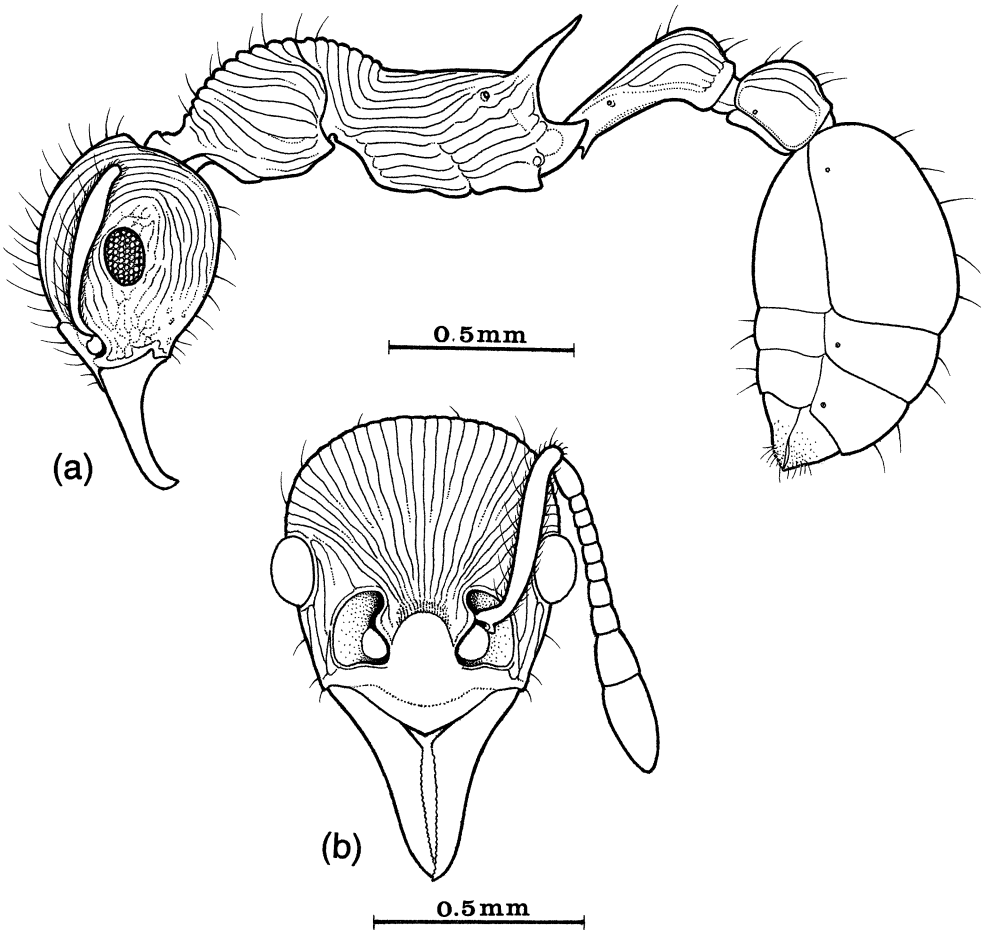

Fig. 7. *Lenomyrmex costatus*, holotype worker. a, lateral view (legs omitted); b, head in full face view.

as long as or longer than maximum scape diameter. Femora and tibiae with some erect and suberect scattered hairs; decumbent pile less abundant than in *L. mandibularis*. Body ferruginous yellow; antennae and legs slightly lighter; mandible and antennal club whitish yellow.

Queen and male. Unknown.

Etymology. From the Latin *costa* (rib), in reference to the rib-like sculpture that covers the head, mesosoma and waist segments.

Lenomyrmex foveolatus sp.n. (Fig. 8)

Holotype worker. COLOMBIA, Valle, Darién, middle Rio Calima basin, Río Azul Camp, 550 m., 3°57′N, 76°42′W. 23-IV-1994, Rosa Aldana leg. Deposited in UDV.

Paratypes. Four workers from the same locality. Deposited in UDV, IAVH, UNCB and MCZ.

Worker measurements, *holotype* (*paratypes*, $n = 5$). TL: 5.16 (4.89–5.16); HL: 0.98 (0.92–0.98); HW: 0.92 (0.88–0.92); ML: 0.44 (0.36–0.44); SL: 0.76 (0.68–0.76); WL: 1.42 (1.30–1.42); PL: 0.64 (0.56–0.64); PW: 0.28 (0.26–0.28); PPL: 0.36 (0.34–0.36); PPW: 0.31 (0.27–0.31); GL: 1.32 (1.25–1.32); GW: 1.00 (0.96–1.00); CI: 0.94 (0.91–0.94); OI: 0.28 (0.25–0.28).

Worker diagnosis. Similar to *L. mandibularis* with the following differences. Mandibles with 10–15 peg-like denticles. Eyes smaller in proportion to head with 7–9 ommatidia in maximum diameter. Posterolateral corners of propodeum angulate, without spines. Petiolar node inconspicuous, less defined than in *L. mandibularis*, with posterior face longer, less steep. Mesosoma, petiole and gaster mostly smooth, shining except for a few scattered punctures on pronotum, petiole and postpetiole. Head with scattered foveolae on dorsal surface, these becoming larger and more abundant ventrally. Surface of body without erect or suberect hairs, except for some on gastric apex. Darker than *L. mandibularis*, almost black, except for mandibles, antennae and dark brown legs.

Queen and male. Unknown

Etymology. From the diminutive of the Latin *fovea* (pit), in reference to the foveolae that cover the head surface.

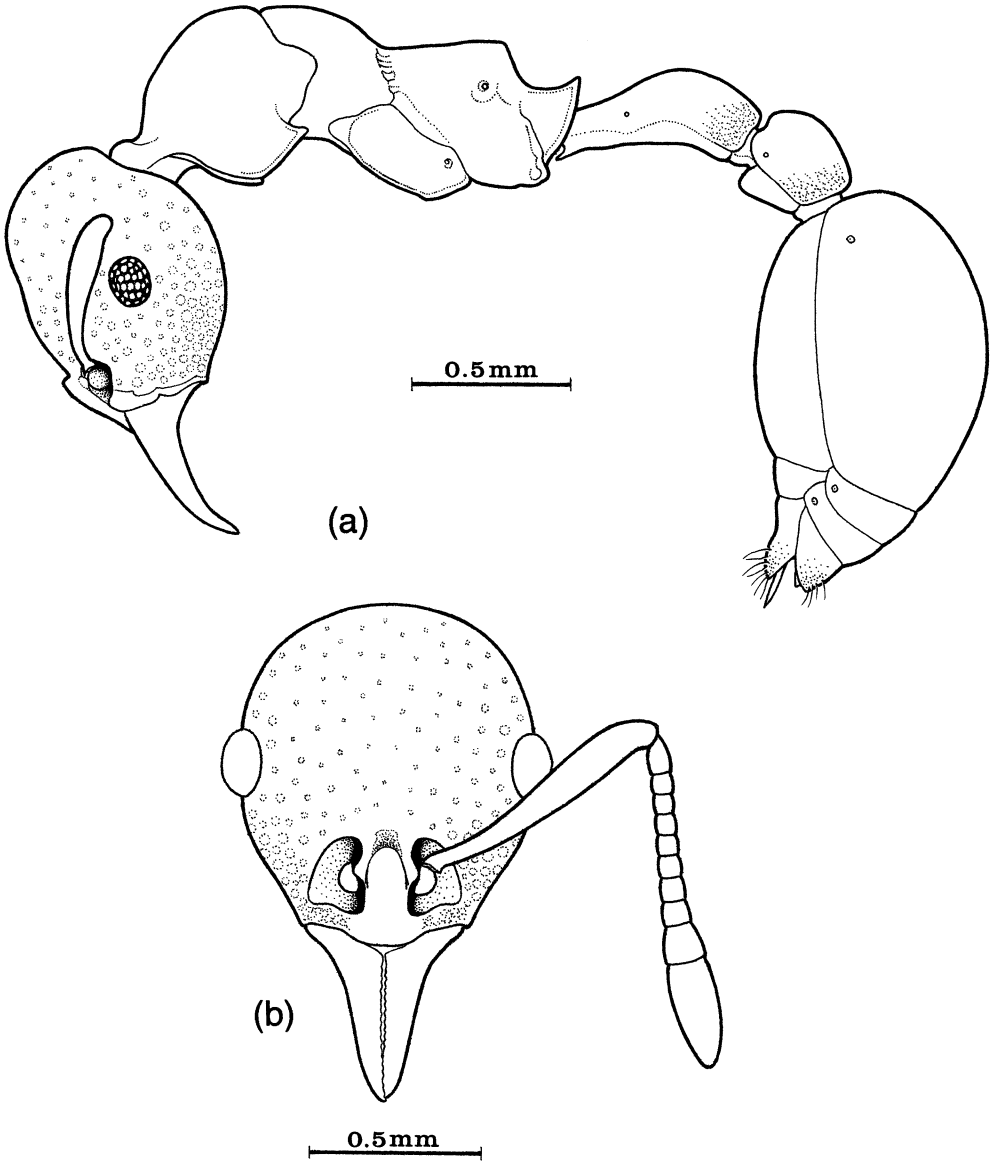

Fig. 8. *Lenomyrmex foveolatus*, holotype worker. a, lateral view (legs omitted); b, head in full face view.

Key to the workers of Lenomyrmex

1. Propodeum without spines, merely angulate between dorsum and declivity (Fig. 8a); head and mesosoma predominantly smooth and shining, hairless; HL > 0.98 mm (SW Colombia)..... *foveolatus* sp.n.
– Propodeum with a pair of acute and well defined spines (Figs 1a, 4a, 7a); head and mesosoma with conspicuous sculpture and at least some erect hairs; HL < 0.98 mm.....2
2(1). Dorsum of head and petiole with longitudinal conspicuous costae (Fig. 7a,b); length of propodeal spines at least 1.5 × greater than distance between bases (Fig. 7a); in side view, dorsum of petiolar peduncle forming a slightly convex surface with the node; erect hairs of antennal scape as long as or longer than maximum diameter of scape; body ferruginous yellow (W Panama)..... ..... *costatus* sp.n.
– Head dorsum densely rugo-reticulate (Figs 1b, 4b); petiole rugo-reticulate or longitudinally striate; length of propodeal spines equal to or less than distance between bases (Figs 1a, 4a); in side view, dorsum of petiolar peduncle forming a slight concavity with the node; erect hairs of antennal scape not longer than maximum diameter of the scape; body brownish black 3
3(2). Length of propodeal spines approximately equal to distance between bases (Fig. 1a); mesopleuron with some irregular longitudinal striae, but mostly smooth and

shining; metapleuron with irregular longitudinal striae; HL > 0.75 mm; eyes with 8–9 facets in maximum diameter; mesosoma with only 2 suberect hairs on the pronotum (SW Colombia) ..... *mandibularis* sp.n.

– Propodeal spines shorter than distance between bases (Fig. 4a); metapleuron and subsequent portion of mesopleuron rugo-reticulate and without smooth areas; HL < 0.75 mm; eyes with 6 or 7 facets in maximum diameter; mesosoma with numerous erect to suberect hairs (NW Ecuador, SW Colombia)..... *wardi* sp.n.

Key for the known queens of Lenomyrmex

1. Propodeal spines approximately equal in length to distance between bases; integument predominantly shining; HL > 0.80 .....*mandibularis* sp.n.

– Propodeal spines notably shorter than distance between bases; integument predominantly opaque; HL < 0.80 .... *wardi* sp.n.

Discussion

Lenomyrmex constitutes a very interesting taxon that possesses an unusual combination of primitive and derived characters. In the subfamily Myrmicinae, the promesonotal suture is generally absent (Bolton, 1994), although it can occasionally be present as a weak line or a feeble indentation. This fusion of the promesonotal suture is an apomorphic condition within Formicidae, whereas the unfused suture, permitting relative mobility of pronotum with mesonotum, constitutes the plesiomorphic condition (Baroni Urbani *et al*., 1992). *Lenomyrmex* exhibits an apparently intermediate state between these two conditions: the pronotum and mesonotum do not present mobility between themselves, but the promesonotal suture is well developed, clearly delineating lateral and dorsally the posterior margin of the pronotum.

The sting of *L. mandibularis* (Fig. 1c,d) shows a typical Myrmicine conformation, being strongly acute from sting shaft (SS), that is only slightly longer than combined length of sting bulb (SBLB) and valve chamber (VC), and with the articular process (AP) slightly ventral, not extending to sting base (SB). This conformation lies on the degree 2A, *Leptothorax* branch, defined for Myrmicinae by Kugler (1978, 1979). In this category Kugler includes, in addition to *Leptothorax*, the tribes Dacetonini, Basicerotini and Tetramorini. This type of sting (well sclerotized and fully functional) is found in the second of five evolutionary steps proposed by Kugler, being relatively primitive within the subfamily.

In contrast, the mandibles present a specialized morphology. First, their elongated condition is far from the triangular form, the typical and generalized condition within the subfamily. Second, this ant apparently is unable to cross the mandibles at rest, because the masticatory margins are apposing, a condition that seems derivate in Myrmicinae (Baroni Urbani & de Andrade, 1994). Furthermore, the peg-like denticles present in the apical half of the masticatory margin are clearly atypical since, as opposed to the normal dentition, they do not form part of the mandibular integument. These peg-like structures are immediately below the masticatory margin and apparently of internal origin (Fig. 8). As far as we know, this type of dentition is not present in other genera of the subfamily. Therefore this character is a potential autopomorphy of this genus.

Besides specialized mandibular morphology, the conformation of the labrum and the reduced palpal segments is also derived. In contrast with the typical structure of labrum of Myrmicinae (see Gotwald, 1969), where it tends to be notably broader than long and with little prominent lateral lobes, the *Lenomyrmex* labrum (Fig. 2a) is more elongated and subtriangular, apically acute and with a median notch, the lateral lobes are very prominent. The two labral haemocoel arms seem to be at least narrowly connected in their median part, a condition uncommon within the subfamily (Gotwald, 1969). Myrmicinae exhibits great variability in the number of palpal segments: zero to six maxillary palp segments and one to four labial palp segments (Gotwald, 1969). *Lenomyrmex* has the palpal formula 2:2, a derived but common condition within the subfamily.

This mixture of primitive and derived characters makes difficult to speculate on the phylogenetic position of the genus, especially in a subfamily where the relationships of most of the genera are not well known. The wing characters (Fig. 6) and the structure of alitrunk suggest that affinities of *Lenomyrmex* appear to lie with Pheidolini (B. Bolton, personal communication), whereas a preliminary and independent analysis of the sting of *L. mandibularis* by R. Brandão (personal communication) suggests no affinities with any known myrmicine tribe, although they noted that it regards in some extent the sting of some members of Basicerotini. On other hand, the opposing mandibles show a possible relationship with Dacetonini, according to the tribal definition of Baroni Urbani & de Andrade (1994). Only a sound phylogenetic analysis of the myrmicine genera will be throw some light on the relationships of *Lenomyrmex* to the other ants.

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