



A taxonomic revision of the Neotropical myrmicine ant genus *Lachnomyrmex* Wheeler (Hymenoptera: Formicidae)

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Abstract

The Neotropical ant genus *Lachnomyrmex* Wheeler, 1910 is revised for the first time. A revised generic description is provided for workers and gynes; males remain unknown. Morphological patterns combined with geographical data led to the recognition of 16 species, of which 10 are here described as new: *L. amazonicus* sp. n., *L. fernandesi* sp. n., *L. grandis* Fernández & Baena, *L. haskinsi* Smith, *L. lattkei* sp. n., *L. longinodus* Fernández & Baena, *L. longinoi* sp. n., *L. mackayi* sp. n., *L. nordestinus* sp. n., *L. pilosus* Weber, *L. laticeps* sp. n., *L. platynodus* sp. n., *L. plaumanni* Borgmeier, *L. regularis* sp. n., *L. scrobiculatus* Wheeler, and *L. victori* sp. n. The gynes of *L. grandis*, *L. haskinsi*, and *L. pilosus* are described for the first time. Illustrated identification keys for workers, distribution maps, and high resolution illustrations are supplied for all species. Some *Lachnomyrmex* species are relatively common in the leaf-litter of submontane wet forests in Central and South America; others remain known by very few individuals. The relatively small and apparently monogynic *Lachnomyrmex* colonies inhabit small nests in the ground, among rotten leaves and inside fallen logs. Workers generally forage alone on the ground or within the leaf litter, but have been recorded also on tree trunks, and apparently do not recruit nestmates.

Key words: *Lordomyrma* genus-group, Stenammini, Myrmicinae, taxonomy, Neotropics

Introduction

The exclusively Neotropical myrmicine genus *Lachnomyrmex* Wheeler is a group of relatively small, monomorphic ants. The genus is restricted to the mainland (and Trinidad) from southern Mexico to northern Argentina. The taxonomic history of *Lachnomyrmex* is relatively short. The genus was described by Wheeler (1910) to accommodate a single species, *L. scrobiculatus*, from Guatemala. Emery (1914) placed *Lachnomyrmex* in the Leptothoracini and the genus was later transferred to Myrmicini by Kusnezov (1964), while Hölldobler & Wilson (1990) transferred it to Pheidolini. Finally, Bolton (1994) reestablished the Stenammini (earlier considered as a subtribe of Myrmicini) where he placed *Lachnomyrmex*, and he followed the same arrangement in subsequent classifications of Formicidae (Bolton 2003; Bolton *et al.* 2006). The last contribution on *Lachnomyrmex* taxonomy was made by Fernández and Baena (1997), who described two species and provided an identification key for the known species. Six available names have accumulated in the taxonomic literature hitherto. However, several species awaited formal description in museum collections, as expected for such a widespread Neotropical ant genus which has never been taxonomically reviewed.

Lachnomyrmex is one of the Neotropical representatives of an informal group of genera within Stenammini, along with the apparently closely related Indo-Australian *Lordomyrma* Emery and the African *Cyphoidris* Weber. This grouping of genera was first suggested by Bolton (1981) and is recognizable by the raised bicarinate midclypeus; distinct antennal scrobes and clubs; and integument variably rugose.

Lachnomyrmex are most often encountered in the leaf litter of submontane wet forests. Despite our poor knowledge of the biology of the cryptobiotic *Lachnomyrmex* species, field observations allied to information recorded in museum specimen labels provide a first glimpse of the natural history of the genus. Nests are found in the ground, among rotten leaves, and inside fallen logs. Workers generally forage alone on the ground or in the low vegetation; apparently they do not recruit nestmates or form pheromone trails. The recent increase in sampling effort of leaf litter ants in Neotropical wet forests has revealed new and interesting records of *Lachnomyrmex*, including several new species and extending considerably the ranges of the previously known ones. The present paper attempts a first synthesis of the taxonomy, geographical distribution, and natural history of this inconspicuous, but nonetheless fairly frequent ant group.

Methods

Approximately 600 *Lachnomyrmex* specimens known to exist in museum collections were examined for this work. Entomological collections are referred to by the following acronyms (Brandão 2000):

AMNH	American Museum of Natural History, New York, NY, USA.
BMNH	The Natural History Museum, London, UK.
CASC	California Academy of Sciences, San Francisco, CA, USA.
CPDC	Centro de Pesquisas do Cacau, Itabuna, BA, Brazil.
ICNC	Instituto de Ciencias Naturales de la Universidad Nacional de Colombia, Bogotá, Colombia.
IHVL	Instituto de Investigación de Recursos Biológicos “Alexander von Humboldt”, Bogotá, Colombia.
INBC	Instituto Nacional de Biodiversidad, Santo Domingo de Heredia, Heredia, Costa Rica.
INPA	Instituto Nacional de Pesquisas da Amazônia, Manaus, AM, Brazil.
JTLC	John T. Longino, personal collection, Olympia, WA, USA.
MCZC	Museum of Comparative Zoology, Harvard University, Cambridge, MA, USA.
MIZA	Instituto de Zoología Agrícola, Facultad de Agronomía, Universidad Central de Venezuela, Maracay, Aragua, Venezuela.
MPEG	Museu Paraense “Emílio Goeldi”, Belém, PA, Brazil.
MSMC	Maria Santina Morini, personal collection, Universidade Mogi das Cruzes, Mogi das Cruzes, SP, Brazil.
MUSM	Museo de Historia Natural “Javier Prado”, Universidad Nacional Mayor de San Marcos, Lima, Peru.
MZSP	Museu de Zoologia da Universidade de São Paulo, São Paulo, SP, Brazil.
UCDC	Bohart Museum of Entomology, University of California, Davis, CA, USA.
UFCE	Universidade Federal do Ceará, Fortaleza, CE, Brazil.
UFPE	Departamento de Botânica, CCB, Universidade Federal de Pernambuco, Recife, PE, Brazil.
UNAB	Facultad de Agronomía de Bogotá, Universidad Nacional de Colombia, Bogotá, Colombia.
USNM	National Museum of Natural History, Smithsonian Institution, Washington, D.C., USA.
WPMC	William P. Mackay, personal collection, The University of Texas, El Paso, TX, USA.

Observations were made at 80x magnification with a Leica MZ95 stereomicroscope. Images taken under the scanning electron microscope (SEM) were used to record morphological details of *Lachnomyrmex* species. The specimens were previously cleaned in acetone, critical-point dried in a Balzer, and sputter-coated with gold. After that, the specimens were mounted on the tip of metallic triangles using silver glue and then fixed on stubs for the electron microscopy. The images were obtained under several magnifications, according to the size of the specimen and/or structure observed.

High resolution digital images of *Lachnomyrmex* species are here presented thanks to the kind permission of Drs. John T. Longino and Brian L. Fisher. These images are available on the Ants of Costa Rica and the Antweb webpages (www.evergreen.edu/ants and www.anweb.org), respectively.

Measurements were made with a micrometer and recorded to the nearest 0.001mm. All measurements are given in millimeters, and the abbreviations used are:

HW	head width; the maximum width of the head capsule, measured in full face view, at a median transverse line that touches the superior margins of the compound eyes
HL	head length; the maximum length of head capsule excluding the mandible, measured in full face view, in a straight line from the midpoint of the anterior clypeal margin to the midpoint of

	the vertexal margin.
ML	mandible length; in full face view taken with the mandibles in place, the distance from the anteriormost portion of head to apex of closed mandibles.
SL	antennal scape length; the chord length of the antennal scape, excluding the basal condyle and its peduncle.
EL	eye length: maximum diameter of compound eye in lateral view.
WL	mesosoma length (Weber's length); the diagonal length of mesosoma in profile, from the mid-point of the anterior pronotal declivity to the posterior basal angle of the metapleuron.
PSL	propodeal spine length: the distance from the tip of the propodeal spine to the nearest border of the propodeal spiracle.
PL	petiole length; the longitudinal axis of petiole in lateral view.
PPL	postpetiole length; the longitudinal axis of postpetiole in lateral view.
GL	gaster length; the maximum length of gaster in lateral view, excluding sting.
TL	total length; the summed length of HL, ML, WL, PL, PPL, and GL.
CI	cephalic index; $100 \cdot HW/HL$.
OI	ocular index; $100 \cdot EL / HW$.
SI	scape index; $100 \cdot SL / HW$.

A detailed list of the examined material is provided in each species account. Coordinates of localities were obtained from the information on the specimen labels, using the ENCARTA World Atlas (Microsoft); distribution maps were generated by the software Arc View 3.3 (GIS).

The terms for external morphology and surface sculpturing follow, respectively, Bolton (1994) and Harris (1979). The terms for wing venation follow Brown & Nutting (1950). Terms for larvae and sting apparatus morphology follow, respectively, Wheeler & Wheeler (1989) and Kugler (1978). Fluorescent lighting is recommended when using the identification key, because some sculptural features of *Lachnomyrmex* integument are not readily visible under warm light.

The reproductive females are here called "gynes", as suggested by Wheeler (1908) and De Andrade & Baroni Urbani (1999). Bolton (pers. comm.) challenged the use of the Greek word gyne with an "s" to denote the inflected plural form. According to Nélon Papavero (pers. comm.), the plural in Greek would be "gynaikes", but as we are using the word as a neologism in the English language, it is reasonable to use gynes for the plural.

Lectotypes are designated from syntype series whenever necessary to improve nomenclatural stability. All holotypes and paratypes associated with the new species described here have colored identifiers affixed to each pin.

Taxonomic synopsis

Lachnomyrmex amazonicus. Brazil. **New species**

L. fernandezii. Colombia. **New species**

L. grandis Fernández & Baena, 1997. Costa Rica and Colombia.

L. haskinsi Smith, 1944. Costa Rica and Panama.

L. laticeps. Costa Rica. **New species**

L. lattkei. Venezuela. **New species**

L. longinodus Fernández & Baena, 1997. Colombia.

L. longinoi. Costa Rica and Panama **New species**

L. mackayi. Panama. **New species**

L. nordestinus. Northeastern Brazil. **New species**
L. pilosus Weber, 1950. Trinidad and central-northern South America.
L. platynodus. Guyana. **New species**
L. plaumanni Borgmeier, 1957. Northern Argentina and southern Brazil.
L. regularis. Costa Rica. **New species**
L. scrobiculatus Wheeler, 1910. Southern Mexico and continental Central America.
L. victori. Southeastern Brazil. **New species**

Taxonomic account

Lachnomyrmex Wheeler, 1910

Lachnomyrmex Wheeler, 1910: 263. (worker and gyne). Type-species: *L. scrobiculatus*, by monotypy.

Genus references: Emery, 1914: 42 (inclusion in Leptothoracini); Emery, 1924: 269 (diagnosis and catalogue); Smith, 1944: 226 (additions to the original diagnosis and key to species); Weber, 1950: 3 (key to species); Brown, 1950: 249 (additions to the original diagnosis); Kusnezov, 1964: 57 (inclusion in Myrmicini); Gotwald, 1969: 106 (mouthparts); Kempf, 1972: 128 (catalogue); Kugler, 1978: 467 (sting apparatus); Wheeler & Wheeler, 1989: 320 (larvae); Hölldobler & Wilson, 1990: 16 (inclusion in Pheidolini); Bolton, 1994: 106 (inclusion in Stenammini), Bolton, 1995a: 1050 (census); Bolton, 1995b: 220 (catalogue); Fernández & Baena, 1997: 112 (key to species); Bolton, 2003: 203 (taxonomic synopsis); Fernández, 2003a: 325 (diagnosis); Fernández & Ospina, 2003: 54 (synopsis of Neotropical genera); Bolton *et al.*, 2006 (digital catalogue).

Generic diagnosis. Monomorphic myrmicine ants. Body variably rugose except for the primarily smooth scrobe, legs, and gaster. Usually covered by long flexuous hairs. Mandible triangular with two apical and two basal teeth, both pairs equidistant from a single median tooth (dental formula 2–1–2). Clypeus bicarinate and with a broad anteromedian incision. Palpal formula 2, 2. Antennal scrobe present and well developed. Antenna 11-segmented with 2-segmented apical club. Promesonotum variably convex in profile and always fused. Well developed propodeal spines and toothed propodeal lobes present.

Worker generic description. Size relatively small (TL 2.26–4.54 mm). Color reddish-brown to black, with appendages slightly lighter. Integument thick, shiny and usually strongly sculptured on head, mesosoma, and waist. Body sculpturation composed mainly of vermiculate, variably spaced, and short to continuous wavy rugae. Cephalic dorsum usually presenting sparse piligerous punctuations among rugae. Dorsal surface of mandibles with sparse piligerous punctuations and short, longitudinal striae normally restricted to basal portion; surface of clypeus opaque, with sparse piligerous punctuations; inner surface of antennal scrobes predominantly smooth and shining; ventral face of head and nuchal area smooth and shining. Rugae on metanotal groove usually parallel. Dorsal face of propodeum with short, transversal striae between bases of propodeal spines; anterior coxae usually presenting short and fine transversal rugulation. Dorsal surface of petiolar peduncle, anterior face of node and surface of gaster usually smooth and shining. Pilosity generally abundant. Dorsum of body frequently covered by dense, whitish to cream-colored, long, flexuous hairs (except for the first gastral segments of some species). Short subdecumbent hairs densely covering antennae and distal portion of legs. Cephalic dorsum with long subdecumbent hairs converging towards head center. Clypeus with a row of hairs, getting gradually longer from lateral to median portion, so that median clypeal hairs surpass mandibles midlength; frontal carinae with three to four extremely long, equidistant hairs projecting laterally, fairly surpassing the lateral margins of head. Extremely short appressed hairs sparsely covering gaster.

Head as long as or longer than broad in full-face view, with posterolateral corners rounded and vertexal

margin flat to strongly convex; lateral margins gently converging anteriorly towards mandibles. Mandibles relatively long, subtriangular, and with external margins moderately convex; masticatory margins with five teeth: two apical, two basal, and a single median tooth, equidistant from others; apical tooth distinctly more developed than preceding ones. Intramandibular space absent when mandibles are fully closed against clypeus. Clypeus relatively narrow, medially elevated, feebly emarginate on anterolateral portions, and slightly convex in side view; anterior border with a broad median incision; clypeal central disc bicarinate. Palpal formula 2, 2. Genae with short, deep, longitudinal striae. Frontal lobes laterally rounded to subquadrate, not strongly expanded but covering antennal insertions, prolonged posteriorly as a pair of strongly developed frontal carinae which form the dorsal margins of a pair of deep and conspicuous antennal scrobes; scrobes run back almost to posterolateral corners; ventral margins of scrobes formed by a long longitudinal ridge running above eyes. Frontal area and fronto-clypeal suture obsolete. Antennae 11-segmented; scapes as long as scrobes and moderately incrassate medially; funiculus with conspicuous 2-segmented apical club; apical segment about twice longer than subapical. Compound eyes elliptical, relatively well developed and convex, placed immediately before midline of head; ocelli absent.

Promesonotum in profile fused and swollen, with dorsal outline convex and variably elevated above the level of dorsal surface of propodeum. Metanotal suture obsolete to deeply impressed. Propodeum strongly sloped, with a pair of well developed, acute spines; propodeal spiracles set close to propodeal declivity, with orifices circular and slightly directed posteriorly. Propodeal lobes subquadrate, armed with a superior, long to short tooth. Legs relatively short and robust; mid and hind tibiae devoid of spurs; tarsal claws simple and strongly curved.

Petiole with an elongate anterior peduncle, eventually with a discrete anteroventral denticle; petiolar node normally well developed. Postpetiole usually broader than long in dorsal view, without a well developed node and presenting a subpetiolar process in some species. Gaster globose to slightly elongate, without anterior shoulders.

Sting apparatus (after Kugler 1978, based on an unidentified *Lachnomyrme* close to *L. scrobiculatus*): Spiracular plate lost during preparation. Quadrate plate relatively narrow ventrally and with lateral lobe reduced to a weak ridge. Oblong plate with very narrow posterior arm and with prominent posterior apodeme. Gonostylus uniformly sclerotized and with relatively broad basal half. Triangular plate with long and slender body; long and relatively narrow ventroapical process; dorsoapical process very low. Lancet long, very narrow, weak, distal end tapers slightly towards subacute apex; groove and ventral ridge very closely set, parallel for most of lancet length, subterminal end; symmetrical and feebly acute apical portion. Sting shaft very long, slender, hemocoel highly reduced, slightly forked end in ventral view; very well developed valve chamber and sting bulb, distinct in profile; sting bulb dorsal profile gently convex; sting base vertical in profile, with prominent anterolateral processes, and very weak basal ridge. U-shaped furcula; lateral arms do not curve posteriorly; dorsal arm reduced to a small tubercle.

Gyne generic description. Like conspecific workers, with the modifications expected for myrmicine gynes. Body rugulation mostly longitudinal, especially on mesosoma. Three ocelli present, with anterior slightly larger than posterior ones. Scutum convex; notauli and parapsidal lines usually indistinct from surrounding sculpture; tegulae blackish and projected laterally. Transcutal articulation feebly convex; prescutellum with central area indistinct, scutoscutellar sulcus variably impressed; axillae laterally subquadrate; scutellum flat and semicircular; dorsum of propodeum reduced, with spines shorter than in conspecific workers. Forewings with a narrow and poorly colored stigma; longitudinal veins Sc+R, SR, M+Cu, and A present. Cells C and R closed. Hind wings with venation reduced; veins Sc+R, SR, and M+Cu present; SR and Sc+R extending shortly beyond R cell; three submedian hamuli present.

Male. Unknown.

Mature larva (After Wheeler & Wheeler 1989, based on *L. pilosus*, although called *L. scrobiculatus* by these authors). Head hairs sparse, long, and smooth, with evenly curved shaft. Body hairs sparse and long of

four types: (1) smooth with frayed tip; (2) flexuous shaft with a small bulbous tip; (3) smooth shaft with uncinuate tip; and (4) flexuous shaft with anchor-like tip. Body profile pheidoloid (head ventral, near anterior end, mounted on a short neck which corresponds to the pronotum). Mandible ectatommoid, subtriangular with a medial blade arising from anterior surface and with two medial teeth; apex curved medially, forming a tooth. Abdomen short, stout, straight, and apically rounded.

Comments. In the Neotropical region, *Lachnomyrmex* can be easily distinguished from the other genera by its diagnostic characters. However, within the circumtropical areas the separation may be a little more difficult, mainly from the African genus *Cyphoidris* and the Indo-Australian *Lordomyrma*. Comparatively, in *Cyphoidris* only one species (*C. exalta* Bolton) has the body predominantly rugose, the other species present extensive smooth areas over the body. In addition, *Cyphoidris* presents palpal formula 4,3; mandibles multidenticulate (9–12 teeth); and antennal club 3-segmented. Species of *Lordomyrma* differ from those of *Lachnomyrmex* by the integument only partially rugose; mandibles multidenticulate (7–9 teeth); palpal formula variable among species (3,2–4,3); antennal scrobes relatively short and shallow; and antennae 12-segmented, with 3-segmented apical club. *Cyphoidris*, *Lordomyrma* and *Lachnomyrmex* share the presence of a broad anterior incision in the clypeus, the dorsally convex promesonotum, the well developed propodeal spines, and particularities in the sting apparatus (Kugler 1978, 1997). The clypeus and sting characters are exclusive in relation to Stenammini, and support the notion that the three genera form a monophyletic group within the Stenammini. However, recent molecular studies consider the tribe, as presently accepted, an artificial group (Brady *et al.* 2006; Ward 2007).

In the original description of *Lachnomyrmex* (Wheeler 1910), the author made some mistakes when describing the antennae with 12 segments, anterior margin of clypeus uniformly rounded, and mandibles with only two teeth. These mistakes were later corrected by Smith (1944) and Brown (1950), which made important additions to the genus diagnosis.

Our studies show that three main characters help to diagnose and separate the 16 *Lachnomyrmex* species here recognized: the presence in some species of long flexuous hairs on the first gastral segment, the overall sculpture pattern, and the comparative depth of the metanotal suture in relation to the mesosoma dorsal profile. However, when we tried to organize the species into groups within *Lachnomyrmex*, we realized that the groups formed using each state of these characters changed as we favored one or another character, which precluded the proposal of internal relations among the species. In the comments sections after each species description, we discuss possible affinities within species, but these should be seen as tentative, as we do not have a strong phylogenetical framework to test our ideas.

Distribution. *Lachnomyrmex* is endemic to the Neotropics, ranging from southern Mexico, east into the Caribbean (Trinidad), and south to northern Argentina. Despite a few records of *Lachnomyrmex* in lowland forests of the Amazon Basin and other lowland localities, these ants apparently reach their peak of abundance and diversity in the submontane wet forests (500–2000m) of northern South America and southern Central America, where 12 of the 16 known species occur. *Lachnomyrmex* ants are also commonly encountered in scattered submontane localities along the Brazilian Atlantic Forest. The preference for submontane forests is shared with species of the related Central American stenammine genus *Stenamma* Westwood and may suggest that workers are tolerant to relative low temperature and wet conditions (Longino 2007). Intensive surveys in Central and Southeastern Brazil savannas failed to record any *Lachnomyrmex* representatives (Silva *et al.* 2004).

Natural history. Very little is known about the biology of these cryptic ants. Workers are frequently found in leaf litter and soil samples submitted to Winkler or Berlese extractors, but are never especially abundant within samples. When a dealate gyne is found associated with workers in 1m² samples of leaf litter, normally it is found singly, which suggests that colonies are relatively small and apparently monogynic; workers and nests are extremely difficult to spot in the field, because the workers are very slow moving and well camouflaged; if there is any leaf-litter nest structure, it is destroyed during sifting, but our impression is that they

do not construct any permanent nidal structure. Species of *Lachnomyrmex* apparently nest within the leaf litter, inside natural cavities of the superficial soil layers, fallen logs, and rotten wood, as evidenced by the large number of soil-covered individuals collected, from information recorded in specimen label data, and from observations of collectors. Workers forage alone, in the leaf litter and in the low vegetation, occasionally among epiphytes and moss, probably preying on small soft-bodied arthropods and possibly harvesting plant exudates. All attempts to maintain colonies in artificial conditions have failed thus far. No males are known for the entire genus and gynes have been associated to nest series for nine species.

The absence of *Lachnomyrmex* males in ant collections remains a mystery, especially considering that males of the related *Cyphoidris* and *Lordomyrma* are known. For the Neotropical Stenammini, the male sex is known only for a few species (Bolton 2003), probably because most of the samples refer to stray individuals and do not come from nest series. We can not rule out the possibility that these ants adopt alternative reproductive strategies, as thelytokous parthenogenesis or employ the “female calling syndrome”, hampering male capture by the usual ant collection techniques (Hölldobler 1971; Kaspari *et al.* 2001).

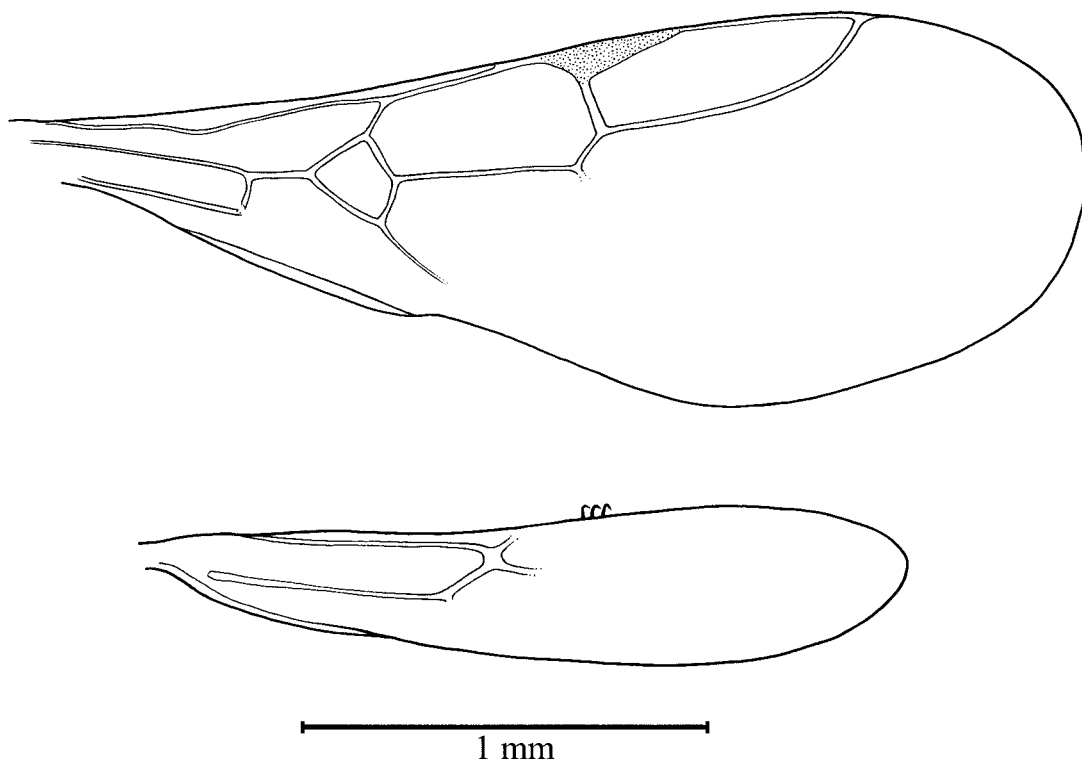
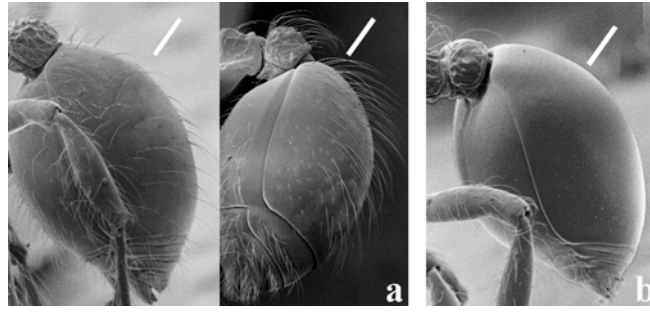


FIGURE 1. Fore and hind wings of *Lachnomyrmex pilosus* (gyne).

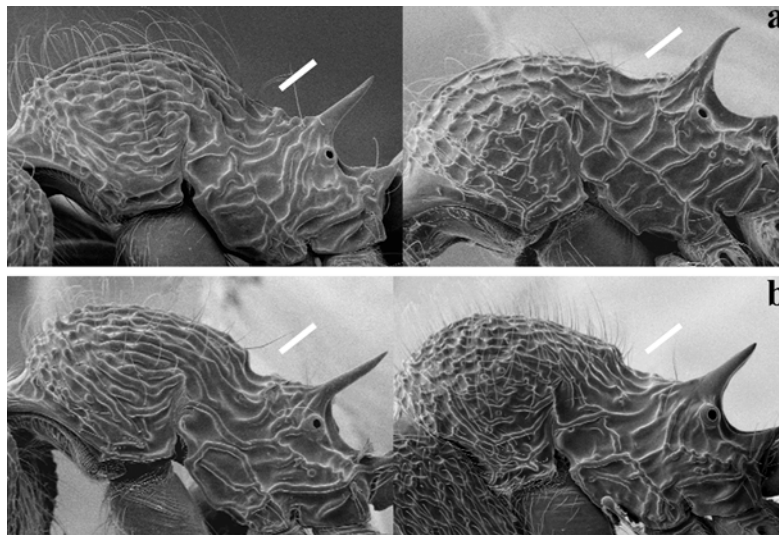
Key to the identification of *Lachnomyrmex* workers

(The SEM illustrations will help decide which entry should be followed and refers to the key couplet immediately above. After the taxonomic account, all species are illustrated using high definition pictures.)

- 1a. First tergite of gaster with long (similar in length to antennal scape), flexuous hairs at least on anterior third, near the insertion of postpetiole; usually over entire surface.....2
- 1b. First tergite of gaster entirely devoid of long hairs.....9

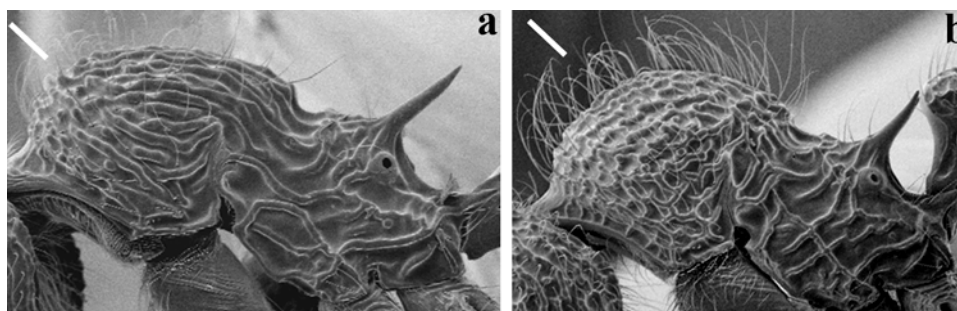


- 2a. Metanotal groove obsolete, so that the dorsal outline of promesonotum continues to the propodeum in a slight declivity3
- 2b. Metanotal groove impressed, so that the dorsal outline of promesonotum continues to the propodeum in an abrupt declivity4

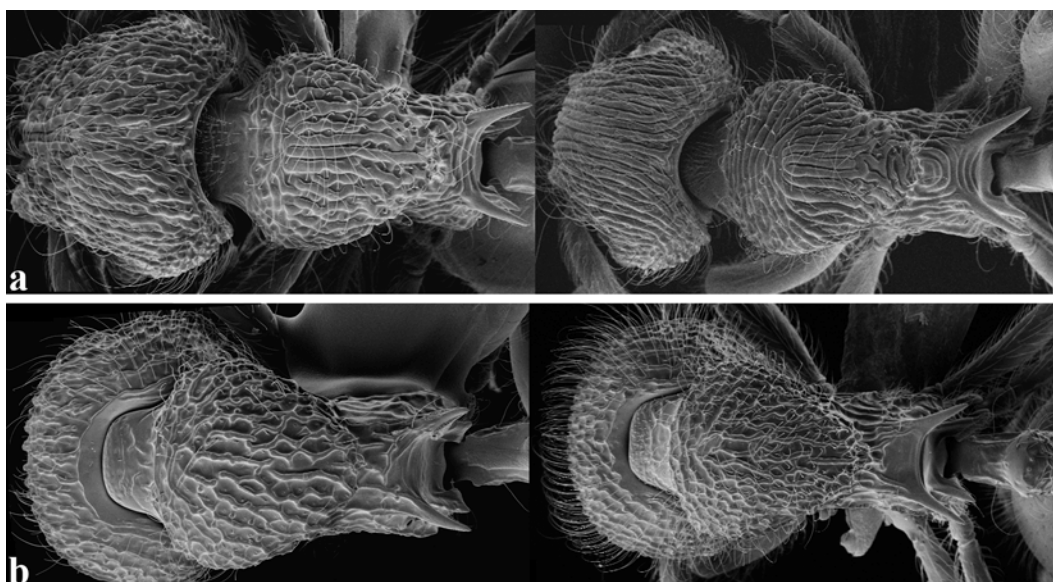


- 3a. Teeth of propodeal lobes wide dorsoventrally, in lateral view; petiolar node subtriangular; dorsum of postpetiole considerably convex and rugose; first tergite of gaster completely covered by long, flexuous hairs (continental Central America) (Fig. 16) *L. scrobiculatus* Wheeler, 1910
- 3b. Teeth of propodeal lobes narrow dorsoventrally, in lateral view; petiolar node dorsally flat; dorsum of postpetiole weakly convex and predominantly smooth; first tergite of gaster with about five long, sparse, flexuous hairs (Guyana) (Fig. 13)..... *L. platynodus* **sp. n.**
- 4a. Larger species; mesosoma length (WL) ≥ 1.20 mm (Costa Rica and Colombia) (Fig. 4)
..... *L. grandis* Fernández & Baena, 1997
- 4b. Smaller species; mesosoma length (WL) < 1.20 mm5
- 5a. Propodeal spines very well developed, at least twice longer than the distance between their basis; petiole extremely elongate, at least three times longer than broad in dorsal view (Colombia) (Fig. 8).....
..... *L. longinodus* Fernández & Baena, 1997
- 5b. Propodeal spines less than twice longer than the distance between their basis; petiole shorter, less than three times long than broad in dorsal view6
- 6a. Mesosoma covered by thick and somewhat continuous rugae, transverse on anterior portion of pronotum, grading to longitudinal on rest of promesonotum and propodeum; in lateral view, promesonotum moderately convex, only slightly above the level of propodeum7

- 6b. Mesosoma covered by finer and shorter rugae; in lateral view, promesonotum strongly convex, well above the level of propodeum8



- 7a. Petiolar node relatively low, weakly raised dorsally; first tergite of gaster rather opaque and completely covered by long, flexuous hairs (Colombia) (Fig. 3)..... *L. fernandesi* **sp. n.**
- 7b. Petiolar node relatively high, subtriangular; first tergite of gaster strongly shining and with long, flexuous hairs only on the anterior third, near the insertion of postpetiole (Panama) (Fig.10)..... *L. mackayi* **sp. n.**
- 8a. Vertexal margin of head virtually flat and relatively broad ($LC \geq 0.73\text{mm}$); mesosoma length (WL) $\geq 0.90\text{mm}$; metanotal groove relatively shallow and broadly impressed, without a distinct posterior limit, so that dorsal face of propodeum forms a separate plane relative to convex promesonotum (Costa Rica) (Fig. 6) *L. laticeps* **sp. n.**
- 8b. Vertexal margin of head convex and shorter ($LC < 0.73\text{mm}$); mesosoma length (WL) $< 0.90\text{mm}$; metanotal groove narrow and deeply impressed (Trinidad and central-northern South America) (Fig. 12) *L. pilosus* Weber, 1950
- 9a. Head and mesosoma covered by continuous rugae, transverse on anterior portion of pronotum, grading to longitudinal on rest of promesonotum and propodeum; dorsum of postpetiole mostly smooth and with a raised boss medially; subpostpetiolar process usually well developed10
- 9b. Head and mesosoma covered by irregular short rugae; dorsum of postpetiole mostly sculptured and without a raised boss medially; subpostpetiolar process absent or weakly developed 11



- 10a. Cephalic dorsum with dense, subparallel rugae; compound eyes relatively large ($EL > 0.15\text{mm}$), with about 10 facets at maximum diameter; mesosoma length (WL) $\geq 0.85\text{mm}$; dorsum of postpetiole entirely smooth and shining; gaster much darker than the rest of body (Costa Rica) (Fig. 15) ... *L. regularis* **sp. n.**

- 10b. Cephalic dorsum with rather sparser, vermiculate rugae; compound eyes smaller ($EL \leq 0.15\text{mm}$), with about 7 facets at maximum diameter; mesosoma length (WL) $< 0.85\text{mm}$; dorsum of postpetiole with short and weak rugulation; gaster slightly darker than the rest of body (Costa Rica and Panama) (Fig. 5)
 *L. haskinsi* Smith, 1944
- 11a. Metanotal groove deeply impressed, so that the dorsal outline of promesonotum reaches the propodeum in an abrupt angle in profile; propodeal spines relatively thin (Venezuela) (Fig. 7) *L. lattkei* sp. n.
- 11b. Metanotal groove shallowly impressed or obsolete, so that the dorsal outline of promesonotum reaches the propodeum in a slight declivity in profile; propodeal spines with wider bases.....12
- 12a. Mesosoma sparsely rugose; in lateral view, promesonotum relatively low, only slightly above the level of propodeum; apex of propodeal spines curved downwards (northern Argentina and southeastern Brazil) (Fig. 14) *L. plaumanni* Borgmeier, 1957
- 12b. Mesosoma more densely rugose; in lateral view, promesonotum higher, well above the level of propodeum; apex of propodeal spines straight to curved upwards.....13
- 13a. Teeth of propodeal lobes well developed and strongly projected over petiolar peduncle; dorsum of postpetiole strongly convex and densely rugose (Costa Rica and Panama) (Fig. 9) *L. longinoi* sp. n.
- 13b. Teeth of propodeal lobes reduced, not strongly projected over petiolar peduncle; dorsum of postpetiole weakly convex and more sparsely rugose14
- 14a. Dorsum of postpetiole with less than 10 long flexuous hairs, usually six (northeastern Brazil) (Fig. 11) ..
 *L. nordestinus* sp. n.
- 14b. Dorsum of postpetiole with 10 or more long flexuous hairs15
- 15a. Promesonotum strongly compact and elevated; apex of propodeal spines slightly directed upwards; dorsum of postpetiole with much more than 10 long, flexuous hairs (Amazonian Brazil) (Fig. 2)
 *L. amazonicus* sp. n.
- 15b. Promesonotum somewhat more elongate; propodeal spines straight; dorsum of postpetiole with about 10 long, flexuous hairs (southeastern Brazil to state of Bahia) (Fig. 17) *L. victori* sp. n.

Species descriptions

Lachnomyrmex amazonicus Feitosa & Brandão, new species

Figures 2, 20

Holotype worker. BRAZIL: Pará: Parauapebas, Fl. Nacional de Carajás, Garagem, 06°02'54"S 50°04'55"W, 25.iv–02.v.2008, Rogério R. Silva col., no. 5 [MZSP].

Paratypes. same data as holotype, no. 1 (1 worker) [CASC]; same data, no. 4 (1 worker) [CPDC]; same data (1 worker) [ICNC]; same data, no. 5 (1 worker) [USNM]; same data (1 worker) [WMPC]; same data, nos. 1/2/3/4/5 (5 workers and 3 gynes) [MZSP]; **BRAZIL: Amazonas:** Manaus, 22.ix.1993, A.B. Casimiro col., no. 4829 (1 worker) [INPA]; iii–iv.1994, R. Didham col. (3 workers) [BMNH]; same data (1 worker) [MZSP]; **Mato Grosso:** Alta Floresta, 10°47'S 56°49'W, 28.iv.1999, H.L. Vasconcelos col. (1 worker) [INPA]; **Pará:** Melgaço, Caxiuanã, 1°44'9"S 51°29'15"W, 27–29.i.2003, A.Y. Harada, E.P. Fagundes, P. Batra, R. Calisto & Mó cols, no. 5 [MPEG]; 1°45'15"S 51°31'20"W, 23–25.i.2004, A.Y. Harada, E. P. Fagundes, R. Calisto & Mó cols, no. 5 (1 worker) [MZSP]; Parauapebas, Fl. Nacional de Carajás, Casa de Hóspedes, 06°03'41"S 50°03'13"W, 25.iv–02.v.2008, Rogério R. Silva col., no. 1 (1 worker) [MZSP]; Núcleo Urbano, 06°03'53"S 50°03'42"W, 25.iv–02.v.2008, Rogério R. Silva col., no. 1 (1 worker) [MZSP]; Zoobotânico, 06°03'41"S 50°03'13"W, 25.iv–02.v.2008, Rogério R. Silva col., no. 1 (1 worker) [MZSP].

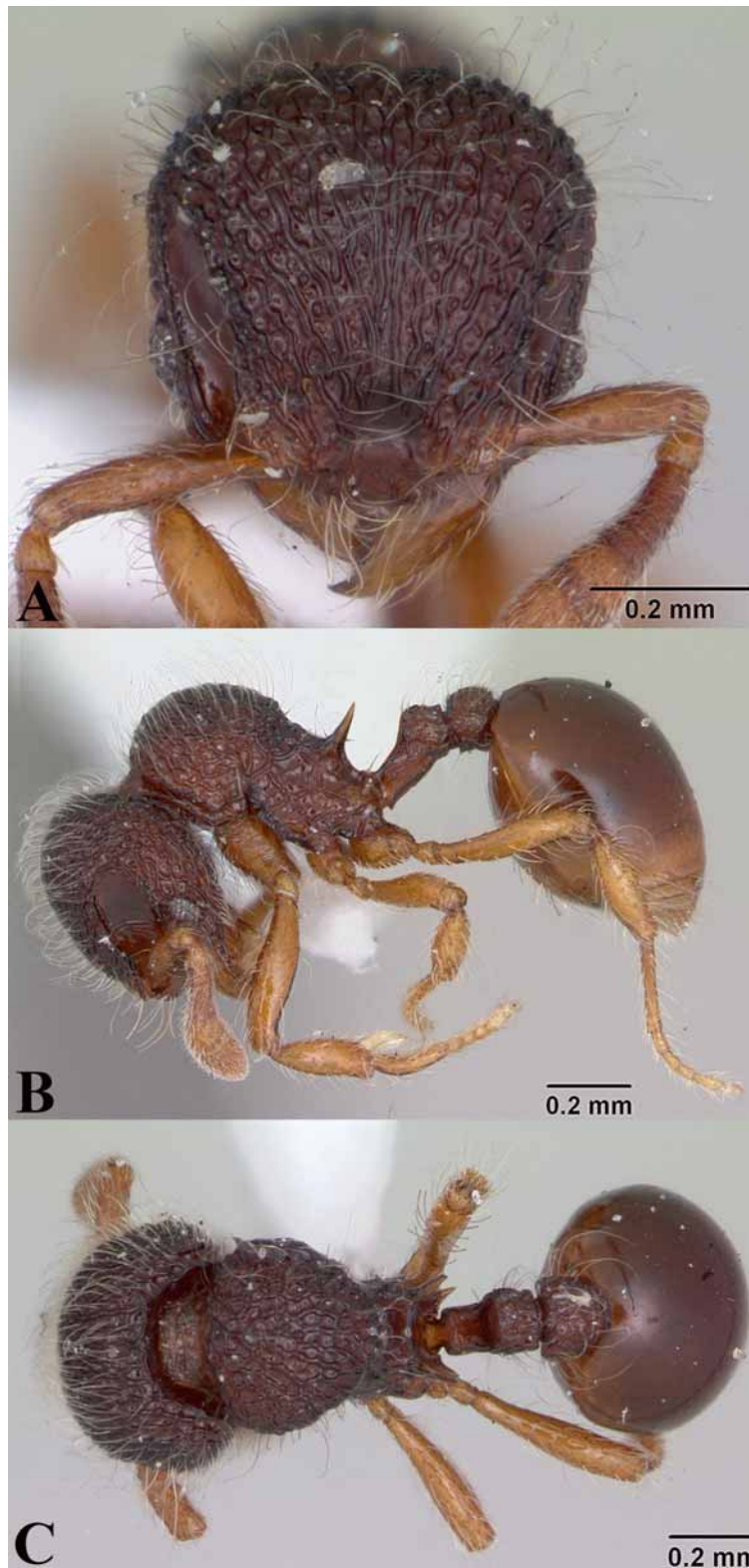


FIGURE 2. Paratype worker of *Lachnomyrmex amazonicus* from Pará, Brazil: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen CASENT0173882.

Worker diagnosis. Body irregularly rugose; promesonotum in profile elevated well above the level of propodeum; metanotal groove weakly impressed to obsolete; propodeal spines slightly directed upwards; teeth of propodeal lobes reduced; dorsum of postpetiole with more than 10 long, flexuous hairs; first gastral tergite entirely devoid of long hairs.

Holotype measurements. HL 0.58; HW 0.58; ML 0.16; SL 0.31; EL 0.11; WL 0.66; PSL 0.14; PL 0.28; PPL 0.13; GL 0.76; TL 2.57; CI 100; SI 54; OI 18.

Worker measurements (n=6). HL 0.52–0.66; HW 0.54–0.66; ML 0.16–0.21; SL 0.31–0.41; EL 0.08–0.13; WL 0.57–0.74; PSL 0.11–0.17; PL 0.22–0.29; PPL 0.12–0.15; GL 0.68–0.82; TL 2.26–2.84; CI 100–103; SI 50–63; OI 13–19.

Worker description. Color dark reddish-brown to blackish, with waist and gaster slightly lighter; appendages yellowish to light brown. Body densely covered by vermiculate short rugae, forming irregular areolae on promesonotum; rugae somewhat longer and longitudinal on head dorsum, and slightly sparser on mesopleura and lateral surfaces of propodeum; mandibles with short longitudinal striae restricted to basal portion; petiole and postpetiole finely and irregularly rugose. Abundant pilosity on head and mesosoma dorsum; dorsum of petiolar node and postpetiole each with more than 10 long, flexuous hairs; first gastral tergite entirely devoid of long hairs.

Head as long as broad, with vertexal margin weakly convex; frontal lobes laterally rounded; eyes with about seven facets on maximum diameter. Promesonotum strongly convex in profile, elevated well above the level of propodeum; metanotal groove shallow to virtually obsolete; propodeal spines slightly directed upwards; teeth of propodeal lobes reduced, with around one-third of propodeal spines length. Petiolar node moderately elevated, dorsally rounded, and with the posterior face weakly sloped in lateral view; postpetiole feebly convex dorsally and without ventral processes.

Gyne. Differing from worker by the larger eyes, with around 14 facets at maximum diameter; propodeal spines straight, without the apexes curved upwards.

Etymology. The name refers to the region from where this species is known, the Amazon Basin.

Comments. The general habitus of this species allies it with *Lachnomyrmex longinoi*, *L. nordestinus*, *L. plaumanni*, and *L. victori*. These species share the irregular body sculpturation, the obsolete metanotal groove, and the absence of long hairs on the first tergite of gaster. However, *L. amazonicus* can be distinguished from these species by the combination of promesonotum strongly convex, propodeal spines directed upwards, and dorsum of postpetiole bearing more than 10 long hairs.

Lachnomyrmex amazonicus is known from Amazonian Brazil, in 60–200m elevation rainforest. It is one of the few species in the genus occurring in lowland forests rather than in submontane localities. All records refer to workers obtained in samples of sifted litter from the forest floor.

Lachnomyrmex fernandezi Feitosa & Brandão, new species

Figures 3, 18

Holotype worker. COLOMBIA: Santander: Mpio. Socorro, Vda. Alto Chochos, Fca. El Laurel, 06°28'37"N 73°13'33"W, 23.iii.2004, G. Zabala col., no. 25403, specimen code CASENT0173880 [IHVL].

Paratypes. same data as holotype, no. 25402 (1 worker) [ICNC]; same data, no. 25404 (1 worker) [MZSP]; **COLOMBIA: Santander:** Charalá Virolin, Cost. El Fara, 06°06'N 73°13'W, 29.iii.1999, E. L. González col., no. 72097 (1 worker) [IHVL]; **Tolima:** Boquerón, 9.ix.1996, E. Palácio col., no. 72099 (1 worker) [IHVL].

Worker diagnosis. Body covered by continuous, vermiculate rugae; promesonotum weakly convex in profile; metanotal groove deeply impressed; teeth of propodeal lobes well developed; dorsum of postpetiole with more than 10 long hairs; surface of first gastral tergite somewhat opaque and entirely covered by long flexuous hairs.

Holotype measurements. HL 0.67; HW 0.65; ML 0.22; SL 0.39; EL 0.14; WL 0.77; PSL 0.19; PL 0.31; PPL 0.16; GL 0.85; TL 2.98; CI 97; SI 61; OI 22.

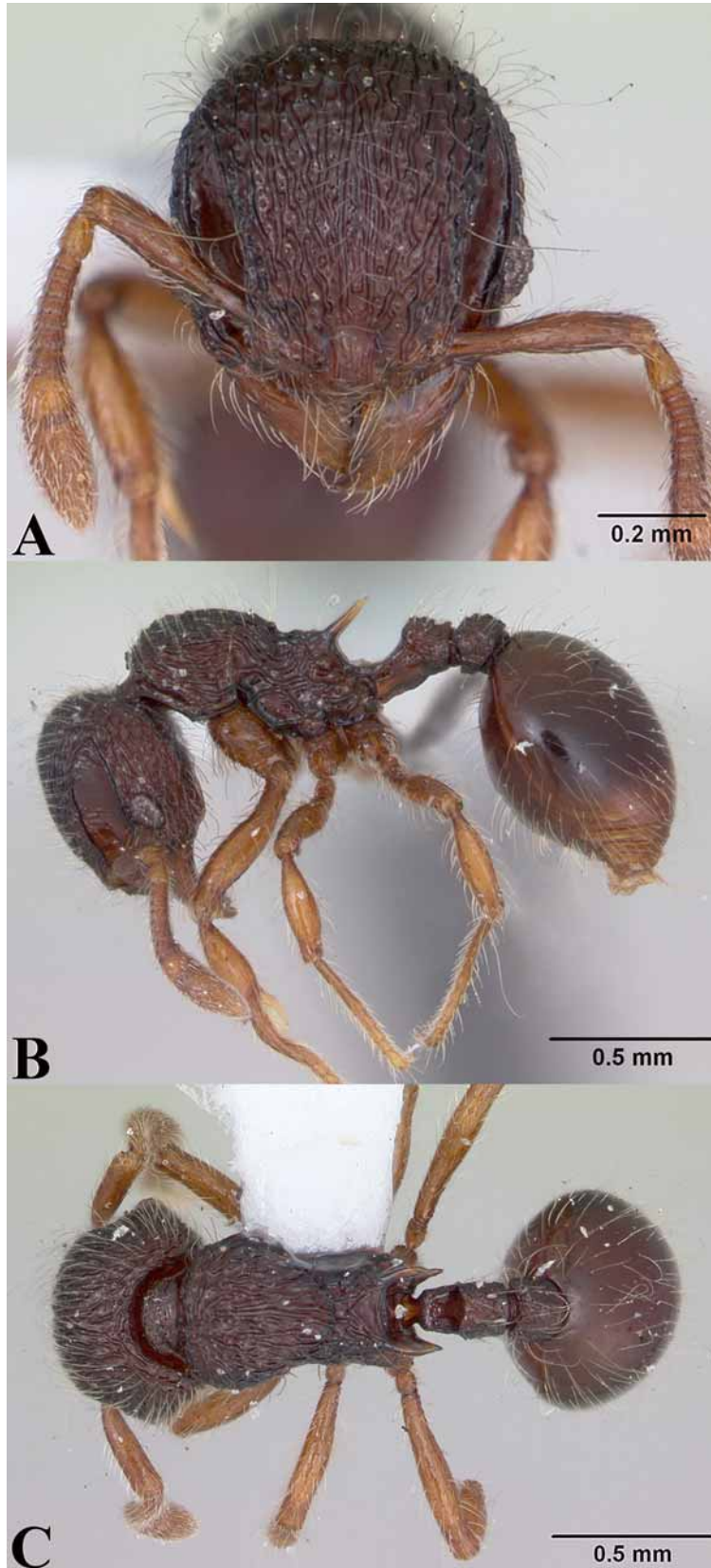


FIGURE 3. Holotype worker of *Lachnomyrmex fernandesi* from Santander, Colombia: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen CASENT0173880.

Worker measurements (n=3). HL 0.66; HW 0.64–0.65; ML 0.22–0.23; SL 0.39; EL 0.13–0.14; WL 0.72–0.77; PSL 0.17–0.19; PL 0.29–0.32; PPL 0.14–0.16; GL 0.80–0.87; TL 2.84–2.99; CI 97–98; SI 59–62; OI 20–22.

Worker description. Color medium to dark brown, with appendages somewhat lighter. Head and mesosoma covered by continuous, somewhat sparse, longitudinal rugae, transverse on anterior portion of pronotum, grading to longitudinal on rest of promesonotum, mesopleura and lateral surfaces of propodeum; mandibles with longitudinal striae restricted to basal portion and external borders; petiole and postpetiole finely and irregularly rugose; surface of gaster opaque, when compared to other species in the genus. Abundant pilosity on head and mesosoma dorsum; dorsum of petiolar node and postpetiole each with more than 10 long hairs; first gastral tergite entirely covered by long flexuous hairs.

Head slightly longer than broad, with vertexal margin strongly convex; frontal lobes discretely angulate laterally; eyes well developed, with about seven facets on maximum diameter. Promesonotum only moderately convex in profile, but higher than level of propodeum; metanotal groove relatively narrow and deeply impressed; propodeal spines long and straight; teeth of propodeal lobes well developed, slightly surpassing half-length of propodeal spines. Petiolar node only moderately elevated, dorsally rounded, and with the posterior face gently sloped in lateral view; postpetiole feebly convex dorsally and without ventral processes.

Gyne. Unknown.

Etymology. This species is named in honor of the Colombian colleague Dr. Fernando Fernández, for his important contribution to Neotropical Myrmecology.

Comments. This species is quite similar to and shares the regular pattern of body sculpturation with *Lachnomyrmex haskinsi*, *L. mackayi* and *L. regularis*. However, *L. fernandezii* differs from these species by the slightly opaque gaster, entirely covered by long flexuous hairs, which are present only near the petiolar insertion in *L. mackayi*, while in *L. haskinsi* and *L. regularis* the gaster is virtually glabrous.

Lachnomyrmex fernandezii has been recorded in Colombian submontane forests (440–1800m). Nothing is known of the natural history of this species.

***Lachnomyrmex grandis* Fernández & Baena, 1997**

Figures 4, 18

Lachnomyrmex grandis Fernández & Baena, 1997: 111, fig. 2. Holotype worker, Colombia: Nariño, Barbacoas, Berlín, El Diviso, 520m, 22.viii.1994, F. Escobar col., no. 277 [ICNC] (examined); Paratype worker, same data as holotype, no. 294 [MCZC] (not examined).

Worker diagnosis. Comparatively large species (HW \geq 0.90mm, WL \geq 1.20mm); metanotal groove broadly impressed; first tergite of gaster with extremely long hairs.

Holotype measurements. HL 0.96; HW 0.91; ML 0.38; SL 0.69; EL 0.16; WL 1.28; PSL 0.32; PL 0.49; PPL 0.25; GL 1.18; TL 4.54; CI 95; SI 76; OI 18.

Worker measurements. HL 0.94; HW 0.91; ML 0.35; SL 0.69; EL 0.17; WL 1.26; PSL 0.30; PL 0.49; PPL 0.25; GL 1.06; TL 4.35; CI 96; SI 75; OI 19.

Gyne measurements. HL 1.04; HW 0.99; ML 0.41; SL 0.72; EL 0.26; WL 1.51; PSL 0.32; PP 0.63; PPL 0.31; GL 1.52; TL 5.43; CI 95; SI 73; OI 26.

Worker description. Color light to dark reddish brown, with lighter appendages. Body densely covered by vermiculate rugae, forming irregular areolae on promesonotum; rugae somewhat longer and longitudinal on cephalic dorsum, and slightly sparser on mesopleura and lateral surfaces of propodeum; mandibles longitudinally striate, except for the apical and masticatory portions; petiole and postpetiole irregularly rugose. Abundant pilosity; dorsum of petiolar node and postpetiole each with more than 10 long hairs; first gastral tergite bearing extremely long flexuous hairs.

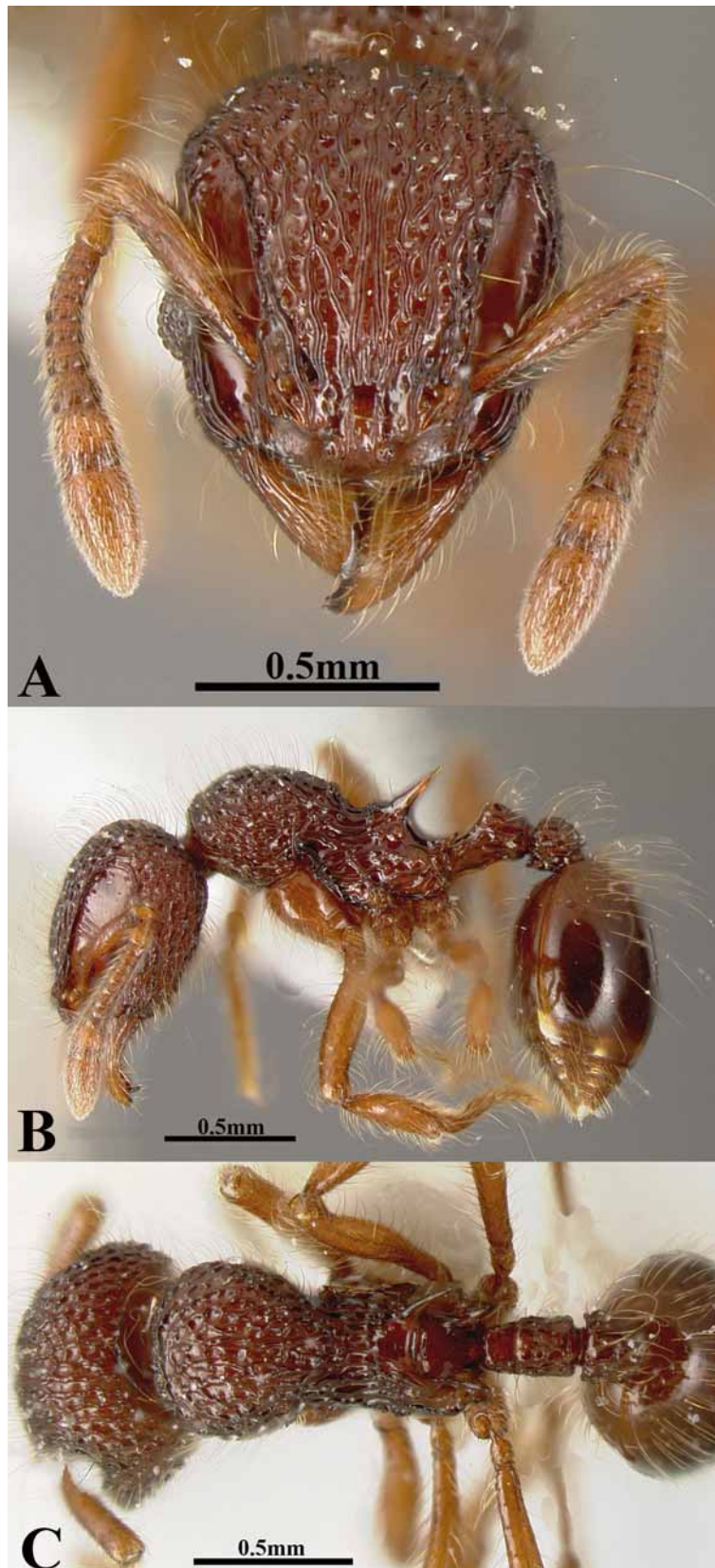


FIGURE 4. Worker of *Lachnomyrmex grandis* from Heredia, Costa Rica: A, head in full face view; B, lateral view; C, dorsal view. Image by John Longino, specimen INBIOCRI002720565.

Head longer than broad, with vertexal margin weakly convex; frontal lobes subquadrate; eyes well developed, with about seven facets on maximum diameter. Promesonotum moderately convex in profile; metanotal groove broadly impressed; propodeal spines long and straight; teeth of propodeal lobes well developed, but not surpassing the half-length of propodeal spines. Petiolar node elevated, almost subtriangular in profile, but dorsally rounded, and with the posterior face gently sloped in lateral view; postpetiole dorsally convex and with a discrete anteroventral projection.

Gyne (first description). Similar to worker. Head and pronotum strongly areolate-rugose; mesopleura and lateral faces of propodeum longitudinally rugose. Eyes with around 16 facets at maximum diameter. Propodeal spines shorter than in the conspecific workers. Petiolar node relatively low (see picture in the “Ants of Costa Rica” website).

Etymology. The name refers to the relative large size of this species. From Latin, *grandis*: large.

Comments. *Lachnomyrmex grandis* is the largest species known for the genus. Besides its size, this species can be separated from the others by the combination of irregular sculpture, metanotal groove broadly impressed, and the presence of very long hairs on the gaster. In some individuals, long hairs occur only on the anterior third, while in other specimens they cover nearly entirely the surface of first gastral tergite.

This species was known previously only by the type series (two workers from Colombia). The study of Costa Rican material revealed new records of this rarely collected species. The presence of this species in Costa Rica and Colombia, suggests that it may probably occur in Panama.

According to the original description, the Colombian specimens were collected manually while foraging in the vegetation of a 520m elevation wet forest. The Costa Rica material was extracted from sifted litter samples from Atlantic slope to 500m elevation forests (Longino 2007).

Additional material examined. COSTA RICA: Heredia: 11km SE La Virgen, 450–550m, 10°20'N 84°04'W, 19.iv.2003, no. INBIOCRI003605521 (1 gyne) [INBC]; same data, no. INBIOCRI003605522 (1 worker) [MZSP]; La Selva Biological Station, SCH, 10°43'N 84°01'W, 18.vi.1999, R. Vargas col., no. INBIOCRI002720565 (1 worker) [INBC].

Lachnomyrmex haskinsi Smith, 1944

Figures 5, 19

Lachnomyrmex haskinsi Smith, 1944: 227, figs. 1–2. Holotype worker, Panama: Canal Zone, Barro Colorado Island, ii-iii.1994, J. Zetek col., no. 5121/56906 [USNM] (examined).

Worker diagnosis. Body covered by continuous vermiculate rugae; petiolar node considerably elevated and subtriangular; dorsum of postpetiole with about six long hairs, and with a raised prominence medially; subpostpetiolar process present and well developed; first tergite of gaster devoid of long hairs.

Holotype measurements. HL 0.60; HW 0.55; ML 0.22; SL 0.38; EL 0.09; WL 0.68; PSL 0.11; PL 0.24; PPL 0.13; GL 0.79; TL 2.65; CI 92; SI 68; OI 17.

Worker measurements (n=2). HL 0.61–0.65; HW 0.60–0.63; ML 0.21–0.24; SL 0.39; EL 0.11–0.13; WL 0.71–0.74; PSL 0.16–0.17; PL 0.25–0.30; PPL 0.13–0.14; GL 0.79–0.80; TL 2.70–2.94; CI 97–98; SI 62–66; OI 17–21.

Worker description. Color red ferruginous to brown, with lighter appendages. Head and mesosoma finely covered by continuous vermiculate rugae, transverse on anterior portion of pronotum, grading to longitudinal on the rest of promesonotum, mesopleura and lateral faces of propodeum; mandibles with few and short longitudinal striae restricted to basal portion; petiole and postpetiole finely and irregularly rugose. Abundant pilosity on head and dorsum of promesonotum; dorsum of petiolar node and postpetiole with about three and six long hairs, respectively; first tergite of gaster entirely devoid of long flexuous hairs.

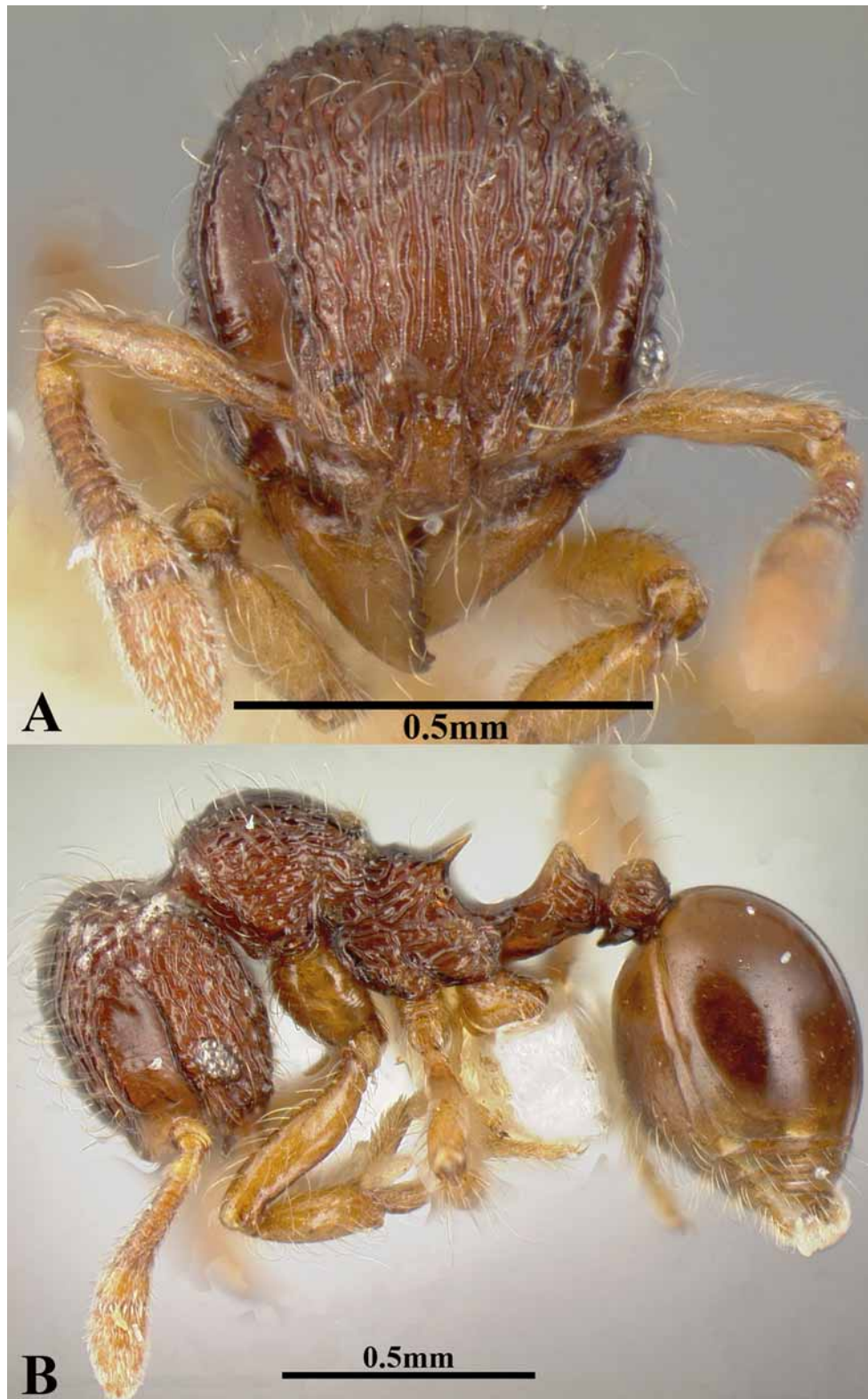


FIGURE 5. Worker of *Lachnomyrmex haskinsi* from Heredia, Costa Rica: A, head in full face view; B, lateral view. Image by John Longino, specimen INBIOCRI001237374.

Head longer than broad, with vertexal margin convex; frontal lobes slightly rounded laterally; eyes with six to seven facets at greatest diameter. Promesonotum evenly convex in profile; metanotal groove relatively narrow and deeply impressed; propodeal spines straight; teeth of propodeal lobes widen basally, with about

half-length of propodeal spines length. Petiolar node strongly elevated and subtriangular in lateral view; dorsum of postpetiole with a raised prominence medially and a well developed anteroventral projection directed anteriorly.

Gyne (first description). Differing from worker by having about 12 facets at eyes maximum diameter; dorsum of petiolar node and postpetiole with about five and 10 long hairs, respectively; first tergite of gaster with around 10 long flexuous hairs on the anterior third, near postpetiolar insertion (see picture in the “Ants of Costa Rica” website).

Etymology. Dr. Marion M. Smith (1944) named this species in honor of Dr. Caryl Parker Haskins (1908–2001), in recognition for his contribution to the study of ant biology.

Comments. This species is most similar to *Lachnomyrmex regularis*, but can be easily distinguished from the latter by the smaller size, more irregular rugulation, and presence of fine short rugae on postpetiole dorsum. Workers of *L. fernandezi* and *L. mackayi* can also be confounded with *L. haskinsi*, but they present long flexuous hairs at least on the anterior third of the first gastral tergite.

Lachnomyrmex haskinsi has been recorded from Costa Rica and Panama, in 200–800m elevation wet forests. Workers are usually collected in samples of sifted leaf litter. Dr. John Longino observed a few workers, one with a larva, scattered throughout the debris of a *Brachymyrmex* nest he was collecting from beneath rotten wood on the forest floor (Longino 2007).

Additional material examined. **COSTA RICA: Alajuela:** Río San Lorencito, 1990, P. Hammond col. (1 worker) [BMNH]; **Heredia:** La Selva Biological Station, CCL, 10°43'N 84°01'W, 15.vii.1986, J. Longino col., no. INBIOCRI002280138 (1 worker) [INBC]; same locality, 23.x.1991, J. Longino col., no. INBIOCRI001237374 (1 gyne, examined by images) [INBC]; **Limón:** Cerro Cocori, Fca. de E. Rojas, 9–30.xi.1992, E. Rojas col., no. INBIOCRI000900198 (1 worker) [MZSP].

Lachnomyrmex laticeps Feitosa & Brandão, new species

Figures 6, 18

Holotype worker. **COSTA RICA: Heredia:** 13Km NE Vara Blanca, 10°16'N 84°05'W, 15.ii.2001, R. Vargas col., no. INBIOCRI0003622583 [INBC].

Paratypes. same data as holotype, no. INBIOCRI0003622582 (1 worker) [MZSP]; same data, no. INBIOCRI0003622585 (1 worker) [INBC]. **COSTA RICA: Alajuela:** Peñas Blancas, Refugio Eladio, 10°19'N 84°43'W, 800m, 7.iii.2006, J. Longino col., no. JTLC000008160 (1 worker) [MZSP]; same data, no. JTLC000008161 (1 worker) [CASC]; **Heredia:** 16km SSE La Virgen, 1050–1150m, 10°16'N 84°05'W, 17.iii.2001, INBIO-OET-ALAS transect, no. INB0003214022 (1 worker) [USNM]; P.N. Braulio Carrillo, 10°20'N 84°02'W, 500m, 17.x.2005, TEAM-OET, no. INB0003679758 (1 worker) [BMNH].

Worker diagnosis. Pilosity exceptionally dense on body, including the first tergite of gaster; vertexal margin of head considerably broad ($HW \geq 0,73mm$); metanotal groove shallow and broadly impressed, without a well definite posterior limit.

Holotype measurements. HL 0.83; HW 0.82; ML 0.30; SL 0.52; EL 0.14; WL 0.99; PSL 0.24; PL 0.42; PPL 0.21; GL 1.10; TL 3.86; CI 98; SI 63; OI 17.

Worker measurements (n=2). HL 0.77–0.83; HW 0.74–0.79; ML 0.29–0.30; SL 0.52; EL 0.12–0.13; WL 0.94–0.98; PSL 0.22–0.24; PL 0.39; PPL 0.20–0.22; GL 1.07; TL 3.69–3.78; CI 94–96; SI 66–70; OI 16.

Worker description. Color reddish to dark brown, with lighter appendages. Body finely and densely covered by vermiculate rugae, somewhat longer and longitudinal on cephalic dorsum, and slightly sparser on mesopleura and lateral surfaces of propodeum; mandibles with short striae restricted to basal portion; petiole and postpetiole strongly and irregularly rugose. Pilosity extremely abundant, except by dorsal surface of propodeum; dorsum of petiolar node and postpetiole and first gastral tergite densely covered by long flexuous hairs.

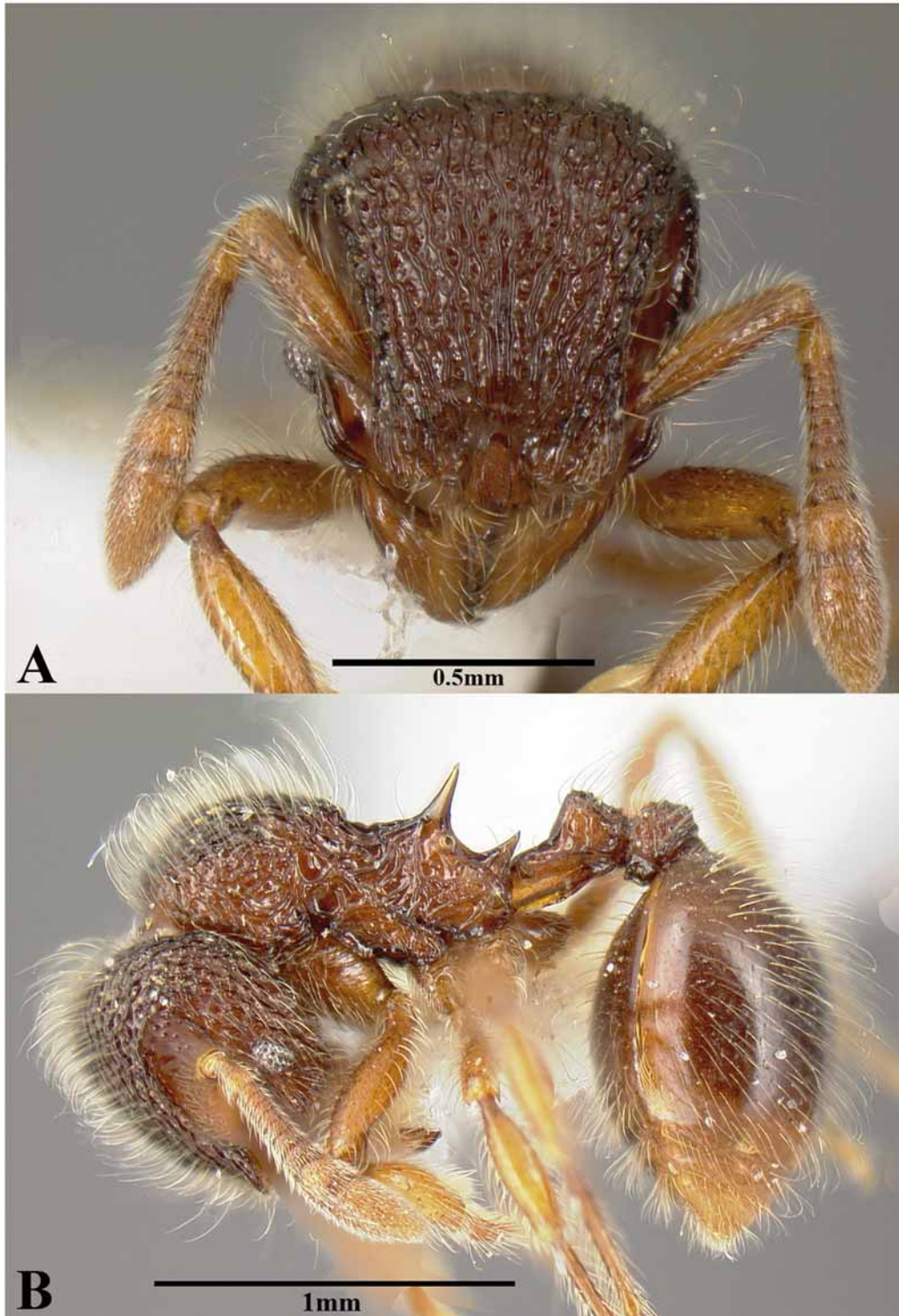


FIGURE 6. Holotype worker of *Lachnomyrmex laticeps* from Heredia, Costa Rica: A, head in full face view; B, lateral view. Image by John Longino, specimen INBIOCRI0003622583.

Head visibly longer than broad, with vertexal margin virtually flat and considerably broad; frontal lobes rounded laterally; eyes with about seven facets on maximum diameter. Promesonotum strongly convex in profile; metanotal groove broadly impressed, without a distinct posterior limit; propodeal spines straight to discretely directed upwards; teeth of propodeal lobes well developed, surpassing propodeal spines half-length. Petiolar node elevated and subtriangular in lateral view; postpetiole dorsally convex and with sternite somewhat projected.

Gyne. Unknown.

Etymology. The name refers to the broad vertexal border of the workers head. From Latin: *latus*: broad, *ceps*: head.

Comments. The excessively dense body pilosity and the dorsally flat head separate this species from the related *Lachnomyrmex grandis* and *L. pilosus*. The collections of *L. laticeps* so far were made during expeditions to 500–1100m mature wet forests in northern Costa Rica. There is a record of workers collected manually beneath a treefern trunk (Longino 2007). John Longino found a *L. laticeps* nest in a clay bank above a small stream, at Refugio Eladio, 800m elevation in the Peñas Blancas river valley. There was a small flask-shaped entrance structure leading to a small chamber. The chamber contained a few workers only, no brood or sexuals (pictures in Longino *op. cit.*).

***Lachnomyrmex lattkei* Feitosa & Brandão, new species**

Figures 7, 18

Holotype worker. VENEZUELA: Falcón: Petit, cia. La Maletta, Haitoncito, 3.vii.1982, J. Lattke col., no. 275, specimen code CASENT0173879 [MIZA].

Worker diagnosis. Body covered by fine, relatively sparse, and partially regular rugulation; promesonotum elevated well above propodeum level, in profile; metanotal groove impressed; propodeal spines straight and thin; teeth of propodeal lobes well developed; surface of first gastral tergite entirely devoid of long hairs.

Holotype measurements. HL 0.76; HW 0.72; ML 0.25; SL 0.49; EL 0.16; WL 0.85; PSL 0.21; PL 0.22–0.39; PPL 0.17; GL 0.99; TL 3.40; CI 96; SI 67; OI 22.

Worker description. Color dark ferruginous, with appendages lighter. Head and mesosoma finely covered by vermiculate and predominantly longitudinal rugae, transverse on anterior portion of pronotum, grading to longitudinal on rest of promesonotum; mesopleura and lateral surfaces of propodeum sparsely covered by irregular rugae; mandibles with few and short longitudinal striae restricted to basal portion; petiole and postpetiole irregularly rugose. Abundant pilosity on head, dorsum of promesonotum and waist; dorsum of petiolar node and postpetiole each with more than 10 long hairs; first tergite of gaster entirely devoid of long flexuous hairs.

Head longer than broad, with vertexal margin gently convex; frontal lobes subquadrate; eyes with about seven facets at greatest diameter. Promesonotum considerably convex in profile, well above propodeum level; metanotal groove relatively broad and deeply impressed; propodeal spines straight and thin; teeth of propodeal lobes well developed, swollen basally, and with little less than the half-length of propodeal spines. Petiolar node only weakly elevated and rounded dorsally, in lateral view; dorsum of postpetiole slightly convex and without a well definite anteroventral projection.

Gyne. Unknown.

Etymology. Species named after its collector, the prominent myrmecologist Dr. John E. Lattke, curator of the MIZA ant collection.

Comments. This species can hardly be confounded with any other in the genus given the body sculpturation pattern and the combination of elevated promesonotum, and the absence of long hairs on the dorsal surface of first gastral tergite.

Lachnomyrmex lattkei is one of the two species in the genus known only from the holotype. The specimen was collected in a leaf litter sample submitted to the Berlese funnel from an 1180m elevation forest in northern Venezuela.

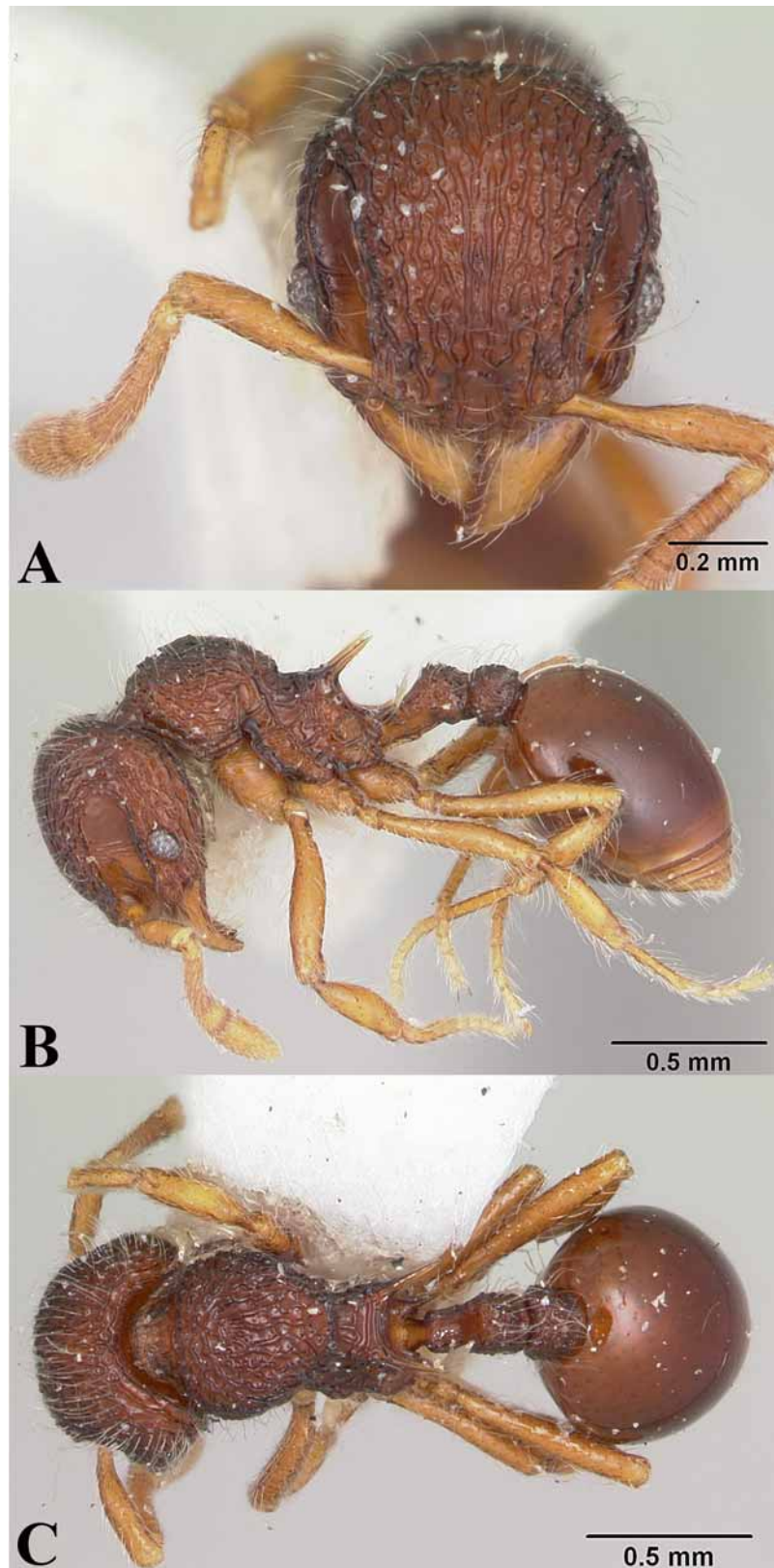


FIGURE 7. Holotype worker of *Lachnomyrmex lattkei* from Falcón, Venezuela: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen CASENT0173879.

***Lachnomyrmex longinodus* Fernández & Baena, 1997**

Figures 8, 20

Lachnomyrmex longinodus Fernández & Baena, 1997: 110, fig. 1. Holotype worker, COLOMBIA: Nariño: Barbacoas, Reserva Natural Privada Río Nambí, 1200–1300m, 30.iv.1994, F. Escobar col., no. 0423 [ICNC] (examined).

Worker diagnosis. Body slender, with fine and primarily longitudinal rugulation; propodeal spines at least twice longer than the distance between their basis; petiole elongate, at least three times longer than broad, in dorsal view; first tergite of gaster sparsely covered by long flexuous hairs.

Holotype measurements. HL 0.72; HW 0.63; ML 0.24; SL 0.49; EL 0.15; WL 0.85; PSL 0.26; PL 0.39; PPL 0.16; GL 0.87; TL 4.49; CI 87; SI 77; OI 24.

Worker measurements (n=1). HL 0.69; HW 0.63; ML 0.24; SL 0.52; EL 0.16; WL 0.84; PSL 0.24; PL 0.36; PPL 0.16; GL 0.82; TL 4.37; CI 90; SI 82; OI 25.

Worker description. Body and appendages reddish to dark brown, contrasting with darker gaster. Head and mesosoma with long, fine, predominantly longitudinal rugulation; mandibles almost entirely smooth and shining, with very short longitudinal striae restricted to the most basal portion; rugae transverse on anterior portion of pronotum, grading to longitudinal on rest of mesosoma; lateral surfaces of pronotum, meso and metapleura, dorsum of propodeum, coxae, and waist coarsely punctate. Pilosity very long, slightly denser on appendages; dorsum of petiole and postpetiole each with around eight long hairs; first tergite of gaster sparsely covered by long flexuous hairs.

Head visibly longer than broad, with vertexal margin only discretely convex; frontal lobes somewhat reduced and rounded laterally; antennal scrobes relatively narrow; eyes well developed, with around nine facets at greatest diameter. Mesosoma considerably slender; promesonotum moderately convex in profile, but well above propodeum level; metanotal groove shallow and broad, with an ill definite posterior limit; propodeal spines straight and very long, about two times longer than the distance between its bases; teeth of propodeal lobes well developed and acute, with little less than propodeal spines half-length. Petiole elongate, around three times longer than broad in dorsal view; petiolar node low, dorsally rounded, and with posterior margin only minimally sloped in lateral view; postpetiole with dorsal surface convex and ventral surface without projections.

Gyne. Unknown.

Etymology. The authors (Fernández & Baena 1997) named this species after its long petiolar node. From Latin, *longi*: long and *nodus*: node.

Comments. This species is immediately recognizable by the singular body sculpturation, slender mesosoma, and the long propodeal spines and petiole.

Since the original description, *L. longinodus* was known only by the holotype. However, some weeks before the conclusion of this work, the Colombian colleague Mónica Ospina kindly sent us one *Lachnomyrmex* specimen from the same region where the *L. longinodus* holotype was collected. The detailed study of this individual led us to confirm its identity as a worker of *L. longinodus*; nevertheless, the worker from Ospina's sample presents some slight differences in comparison to the holotype, including longer body rugulation and denser pilosity. These differences could be an effect of the bad condition of the holotype, which has the head mounted apart from the body, antennae lacking apical segments, and the body covered by a great quantity of glue.

The two workers known for this species were collected in the leaf litter of montane wet forests in the occidental slope of the Colombian Andes.

Additional material examined. COLOMBIA: Nariño: Barbacoas, RNA El Pangán, 1155m, 01°20'04"N 78°05'24"W, 29–31.iv.1994, A. Miranda & O. Reyes cols, no. TIT6 (1 worker) [MZSP].

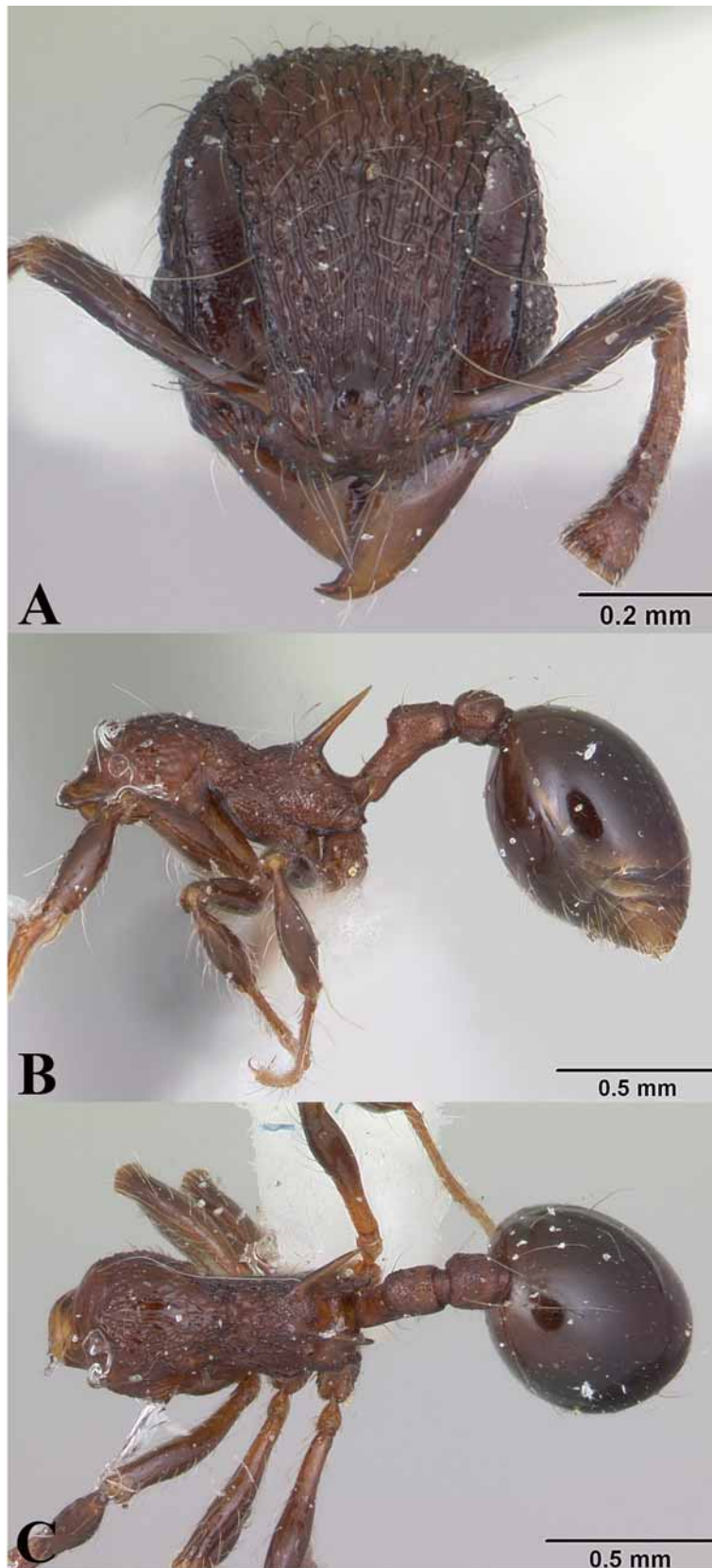


FIGURE 8. Holotype worker of *Lachnomyrmex longinodus* from Nariño, Colombia: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen CASENT0173875.

Lachnomyrmex longinoi Feitosa & Brandão, new species

Figures 9, 18

Holotype worker. COSTA RICA: Guanacaste: Est. Pitilla, 9km S Sta. Cecília, LN 330200_380200, 16–18.viii.1993, P. Ríos col., no. INBIOCRI0001657358 [INBC].

Paratypes. same data as holotype, no INBIOCRI001657147 (1 worker) [MZSP]; no INBIOCRI0001657202 (1 worker) [INBC]; **COSTA RICA: Alajuela:** Río San Lorencito, 1990, P. Hammond col. (2 workers) [BMNH]; same data (1 worker) [MZSP]; **Guanacaste:** Pitilla Field Station, 2.v.1995, R. Anderson col., no. 17721 (1 worker) [WPMC]; **Heredia:** La Selva, 15.iv.1985, J. Memmott col. (3 workers) [BMNH]; **Limón:** Cerro Cocori, Fca. de E. Rojas, vi.1991, E. Rojas col., no. INBIOCRI000636130 (1 worker) [INBC]; 30km N Cariari, i.1993, E. Rojas col., no. INBIOCRI000675271 (1 worker) [INBC]; **Puntarenas:** Península Osa, Aenn. Fund. Neotrop., 23.vi.1997, R. Anderson col., no. 18686/18687 (5 workers and 1 gyne) [WPMC]; same data (1 gyne) [MZSP]; same data (1 worker) [CASC]; same data (1 worker) [CPDC]; same data (1 worker) [USNM]; Cerro Helado, 15km NE Rincón, 24.vi.1997, R. Anderson col., no. 18689 (1 worker and 1 gyne) [WPMC]; Península Osa, Cerro Helado, 21.vi.1997, R. Anderson col., no. 18685 (2 workers and 1 gyne) [WPMC].

Worker diagnosis. Body densely and irregularly rugose; metanotal groove obsolete; teeth of propodeal lobes well developed and projected over petiolar peduncle; petiolar node high and subtriangular; pilosity on dorsum of postpetiole exceptionally dense; first tergite of gaster completely devoid of long flexuous hairs.

Holotype measurements. HL 0.72; HW 0.74; ML 0.24; SL 0.43; EL 0.16; WL 0.84; PSL 0.19; PL 0.35; PPL 0.18; GL 0.88; TL 3.21; CI 102; SI 58; OI 21.

Worker measurements (n=20). HL 0.66–0.72; HW 0.65–0.74; ML 0.22–0.25; SL 0.39–0.46; EL 0.13–0.17; WL 0.76–0.87; PSL 0.16–0.19; PL 0.31–0.36; PPL 0.16–0.19; GL 0.85–0.94; TL 2.98–3.32; CI 98–102; SI 58–66; OI 20–24.

Gyne measurements (n=5). HL 0.65–0.79; HW 0.65–0.79; ML 0.21–0.24; SL 0.39–0.44; EL 0.17–0.20; WL 0.87–1.06; PSL 0.16–0.20; PL 0.36–0.43; PPL 0.17–0.24; GL 0.96–1.12; TL 3.24–3.86; CI 100–102; SI 56–61; OI 26–27.

Worker description. Color dark brown to black, with lighter appendages. Body densely covered by vermiculate short rugae, forming irregular areolae on head and promesonotum, and slightly sparser on mesopleura and lateral surfaces of propodeum; mandibles with short longitudinal striae restricted to basal portion; petiole and postpetiole irregularly rugose. Abundant pilosity on head and promesonotum dorsum; dorsum of petiolar node with about six long hairs; dorsum of postpetiole densely covered by long flexuous hairs; first gastral tergite entirely devoid of long hairs.

Head as long as broad, with vertexal margin weakly convex; frontal lobes subquadrate; eyes with about seven facets on maximum diameter. Promesonotum elevated well above the level of propodeum in profile; metanotal groove virtually obsolete; propodeal spines straight; teeth of propodeal lobes widen basally and slight longer than the half-length of propodeal spines. Petiolar node elevated and subtriangular in lateral view; postpetiole strongly convex dorsally and without ventral projections.

Gyne. Similar to worker. In addition, eyes with around 12 facets at maximum; wings with the basic pattern of venation for the genus; propodeal spines and teeth of propodeal lobes reduced; petiolar node comparatively lower; ventral face of postpetiole moderately projected; surface of first gastral tergite covered by long flexuous hairs, relatively dense anteriorly, becoming sparser posteriorly.

Etymology. This species is named in honor of Dr. John “Jack” Longino in recognition of his many years of devoted work on the ants of Costa Rica and for his valuable support during the elaboration of this work.

Comments. The well developed teeth of propodeal lobes allied to the dense pilosity on postpetiole dorsum separate this species from the related *Lachnomyrmex amazonicus*, *L. nordestinus*, *L. plaumanni*, and *L. victori*. Gynes of *L. longinoi* can be confounded with *L. scrobiculatus* by the subtriangular petiolar node and

the presence of long hairs on first gastral tergite. However, gynes of *L. scrobiculatus* present an anteroventral projection in the postpetiole, which is absent in this species.

Apparently, *L. longinoi* is commonly encountered in leaf litter samples from wet forests (100–1200m) of Costa Rica and Panama.

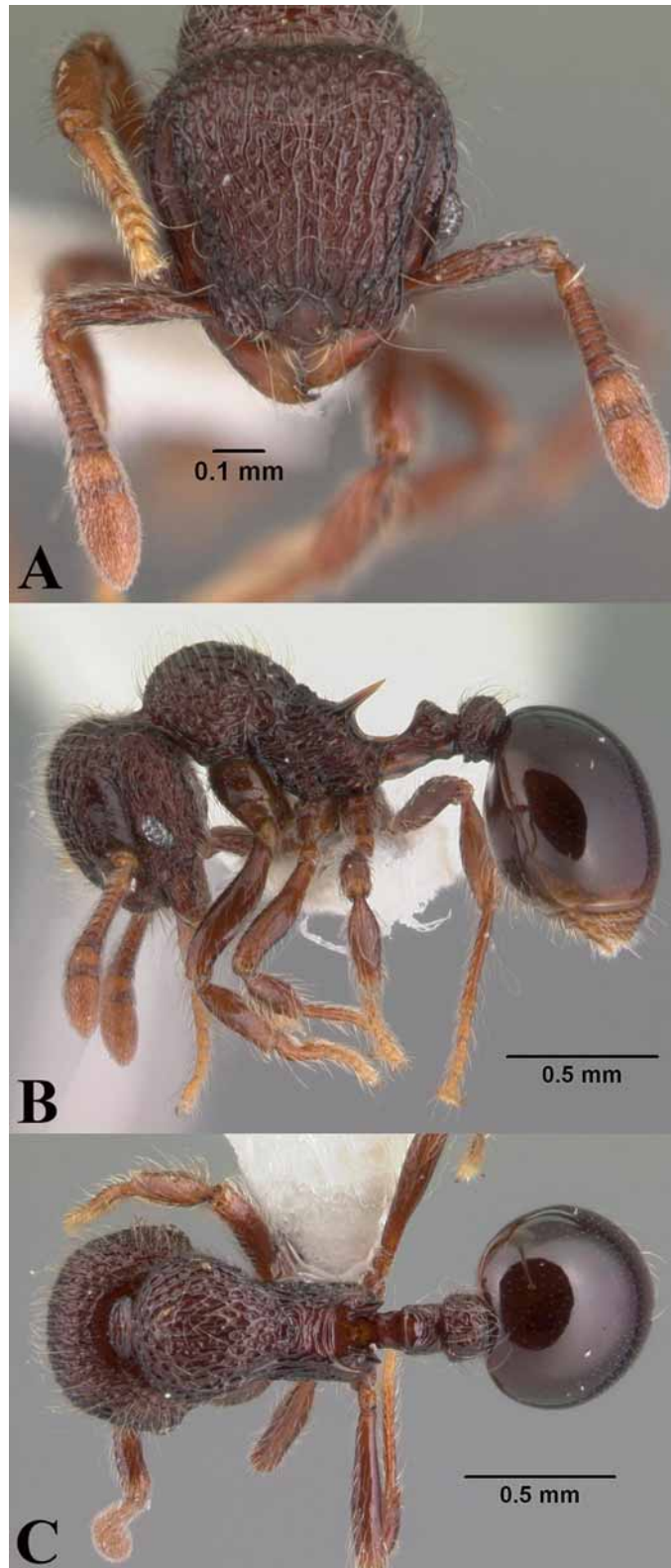


FIGURE 9. Worker of *Lachnomyrme longinoi* from Puntarenas, Costa Rica: A, head in full face view; B, lateral view; C, dorsal view. Image by April Nobile, specimen PSW7771-6.

Additional material examined. COSTA RICA: Puntarenas: 3km N Ciudad Neily, 8°41'N 82°57'W, 210m, 31.viii.1985, P.S. Ward col., no. 7771–6 (1 worker, examined by images) [UCDC]; Carara Biological Reserve, Estación Quebrada Bonita, 30m, 23.vii.1985, J. Longino col., no. INBIOCRI002280159 (1 gyne, examined by images) [INBC]; Manuel Antonio Nat. Park, 20m, 27.vii.1985, J. Longino col., no. INBIOCRI002280165 (1 worker, examined by images) [JTLC]. **PANAMA: Canal Zone:** Barro Colorado, vii–viii.1946, J. Zetek col., no. 5239 (1 worker) [USNM]; 1976, S. Levings col. (1 worker) [MIZA]; **Chiquiri:** Cerro Campana, 5.iv.1995, R. Anderson col., no. 17837 (4 workers) [WPMC]; same data (1 worker) [ICNC]; same data (1 worker) [MZSP]; 20.4km North San Félix, 8.vi.1995, R. Anderson col., no. 17768 (2 workers) [WPMC].

***Lachnomyrmex mackayi* Feitosa & Brandão, new species**

Figures 10, 19

Holotype worker. PANAMA: Chiriqui: Bocas del Toro, Cont. Div., 9.vi.1995, R. Anderson col., no. 17840, specimen code CASENT0173883 [MCZC].

Paratypes. PANAMA: Chiriqui: 20.4km N. San Félix, 8.vi.1995, R. Anderson col., no. 17767 (1 worker) [WPMC].

Worker diagnosis. Body covered by continuous vermiculate rugae; in lateral view, petiolar node considerably elevated and subtriangular; dorsum of postpetiole with more than 10 long hairs; subpostpetiolar process moderately developed; first tergite of gaster with of long flexuous hairs restricted to the anterior third.

Holotype measurements. HL 0.68; HW 0.65; ML 0.22; SL 0.44; EL 0.17; WL 0.79; PSL 0.18; PL 0.31; PPL 0.17; GL 0.88; TL 3.06; CI 95; SI 68; OI 26.

Worker measurements (n=1). HL 0.61; HW 0.60; ML 0.20; SL 0.39; EL 0.14; WL 0.72; PSL 0.16; PL 0.27; PPL 0.14; GL 0.74; TL 2.69; CI 97; SI 66; OI 24.

Worker description. Color light reddish-brown, with yellowish appendages. Head and mesosoma finely covered by continuous, vermiculate rugae, transverse on anterior portion of pronotum, grading to longitudinal on rest of promesonotum, mesopleura and lateral surfaces of propodeum; mandibles with few and short longitudinal striae restricted to basal portion; petiole and postpetiole irregularly rugose. Abundant pilosity on head and dorsum of promesonotum; petiolar node with about six long hairs; dorsum of postpetiole with more than 10 long hairs; first tergite of gaster with long flexuous hairs restricted to the most anterior portion, near the insertion of postpetiole.

Head slightly longer than broad, with vertexal margin only moderately convex; frontal lobes weakly rounded laterally; eyes comparatively large, with approximately eight facets at greatest diameter. Promesonotum gently convex in profile; metanotal groove relatively narrow and deeply impressed; propodeal spines mostly straight, with apexes minimally directed upwards; teeth of propodeal lobes swollen basally, with about half-length of propodeal spines. Petiolar node elevated and subtriangular in dorsal view; dorsum of postpetiole strongly convex and with a discrete anteroventral projection, directed anteriorly.

Gyne. Unknown.

Etymology. This species is named after Dr. William “Bill” Mackay, myrmecologist at the University of Texas, El Paso. Mackay sent us important material for this study, including the type series of this species.

Comments. The absence of a median prominence on the dorsum of postpetiole and the presence of long flexuous hairs on the first tergite of gaster separate this species from the related *Lachnomyrmex haskinsi* and *L. regularis*. In addition, the cited species bear less than 10 long hairs on the postpetiole dorsum. *Lachnomyrmex mackayi* is also similar to *L. fernandezi*; however, the latter has the petiolar node rounded dorsally and the long flexuous hairs covering the entire surface of the first gastral tergite.

The only two collections of this species so far were extracted from the leaf litter of wet montane forests of Panama.

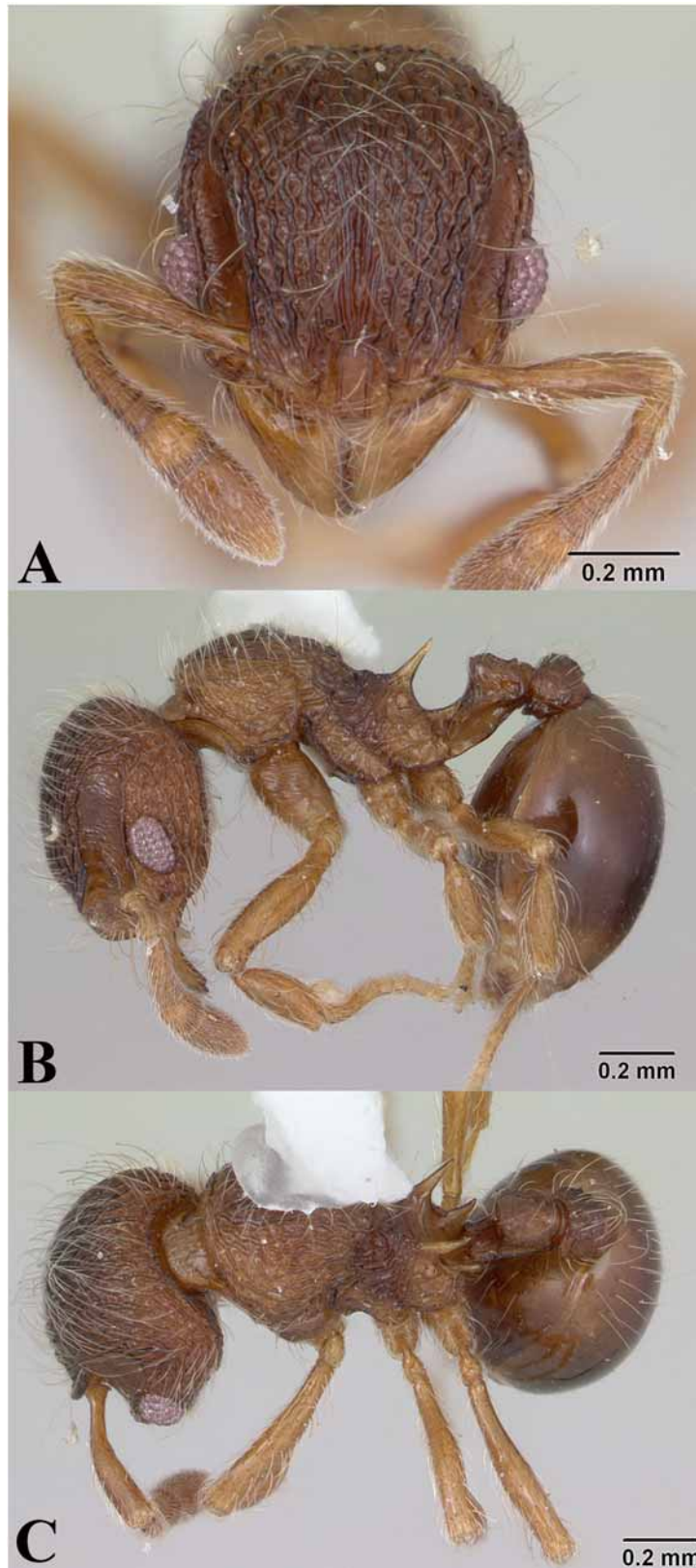


FIGURE 10. Holotype worker of *Lachnomyrmex mackayi* from Chiriqui, Panama: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen CASENTO173883.

***Lachnomyrmex nordestinus* Feitosa & Brandão, new species**

Figures 11, 18

Holotype worker. BRAZIL: Paraíba: João Pessoa, Mata do Buraquinho, 07°08'24"S 34°51'33"W, 25.vii.2002, R.R. Silva & F. Eberhardt cols, no. 5 [MZSP].

Paratypes. same data as holotype (1 worker) [MZSP]; **BRAZIL: Ceará:** Maranguape, viii.2003, Y. Quinet col., no. 80 (2 workers) [UFCE]; same data (1 worker) [MZSP]; **Pernambuco:** Jaqueira, Usina Colônia, M. do Espelho, 30.vii.2003, A. Bieber & I. Leal cols, no. P.05 (1 gyne) [UFPE]; Recife, Horto Dois Irmãos, 08°00'32"S 34°56'40"W, 15–24.vii.2002, R.R. Silva & F. Eberhardt cols, nos. 2/7/13/28/32/34/36/38 (7 workers and 1 gyne) [MZSP]; same data, no. 32 (1 worker) [AMNH]; same data, no. 33 (1 worker) [BMNH]; same data, no. 34 (1 worker) [CASC]; same data, no. 36 (1 worker) [CPDC]; same data, no. 38 (1 worker) [ICNC]; **Sergipe:** Areia Branca, P. E. da Serra de Itabaiana, 10°45'54"S 37°19'57"W, 19–25.v.2003, R.R. Silva, B.H. Dietz & L.S. Ferreira cols, nos. 10/17/26/30/46/47 (6 workers and 2 gynes) [MZSP]; same data, no. 38 (1 worker) [MIZA]; same data, no. 46 (1 worker) [USNM]; same data, no. 46 (1 worker) [WPMC].

Worker diagnosis. Promesonotum strongly convex and elevated well above the level of propodeum, in profile; metanotal groove obsolete; apex of propodeal spines slightly curved upwards; teeth of propodeal lobes reduced; dorsum of postpetiole with around six long hairs; first gastral tergite entirely devoid of long flexuous hairs.

Holotype measurements. HL 0.65; HW 0.65; ML 0.22; SL 0.38; EL 0.13; WL 0.72; PSL 0.19; PL 0.31; PPL 0.13; GL 0.80; TL 2.84; CI 100; SI 59; OI 19.

Worker measurements (n=16). HL 0.63–0.74; HW 0.61–0.72; ML 0.20–0.24; SL 0.37–0.46; EL 0.12–0.14; WL 0.68–0.80; PSL 0.15–0.24; PL 0.30–0.36; PPL 0.11–0.14; GL 0.77–0.93; TL 2.71–3.18; CI 96–100; SI 59–67; OI 19–22.

Gyne measurements (n=3). HL 0.71; HW 0.69–0.71; ML 0.21–0.24; SL 0.44–0.46; EL 0.18–0.19; WL 0.90–0.94; PSL 0.19–0.20; PL 0.33–0.38; PPL 0.15–0.16; GL 0.93–0.98; TL 3.27–3.40; CI 98–100; SI 62–66; OI 25–26.

Worker description. Color light brown to blackish, contrasting with yellowish appendages and gaster. Body densely covered by vermiculate short rugae, forming irregular areolae on promesonotum dorsum; rugae somewhat longer and longitudinal on head dorsum, and slightly sparser on mesopleura and lateral surfaces of propodeum; mandibles with short longitudinal striae restricted to basal portion; petiole and postpetiole finely and irregularly rugose. Abundant pilosity on head and promesonotum dorsum; dorsum of petiolar node and postpetiole with around 10 and six long flexuous hairs, respectively; first gastral tergite entirely devoid of long hairs.

Head as long as broad to slightly longer than broad, with vertexal margin only minimally convex; frontal lobes laterally rounded; eyes with about six facets on maximum diameter. Promesonotum strongly convex in profile, elevated well above the level of propodeum; metanotal groove virtually obsolete; propodeal spines well developed and slightly directed upwards; teeth of propodeal lobes reduced, with approximately one-third of propodeal spines length. Petiolar node moderately elevated and rounded dorsally, with the posterior face weakly sloped in lateral view; postpetiole gently convex dorsally and without ventral processes.

Gyne. Differing from the conspecific worker by the larger size of eyes, with about 15 facets at maximum diameter; propodeal spines comparatively shorter and straight apically; petiolar node only feebly elevated; ad dorsum of postpetiole with more than 10 long flexuous hairs.

Etymology. The epithet *nordestinus* refers to the northeastern Brazil (from Portuguese: *Nordeste*), the geographical region where this species occurs.

Comments. This species is very similar to *Lachnomyrmex amazonicus* and *L. victori*, but can be readily distinguished mainly by the scarcer pilosity on postpetiole dorsum. Gynes of *L. nordestinus* can be separated

from *L. victori* by the absence of long flexuous hairs on the dorsum of the first gastral tergite.

All specimens known for *L. nordestinus* were collected in the leaf litter of the northeastern Brazilian Atlantic Forest (100–800m). This biome is seriously threatened by human activity, especially in this region.

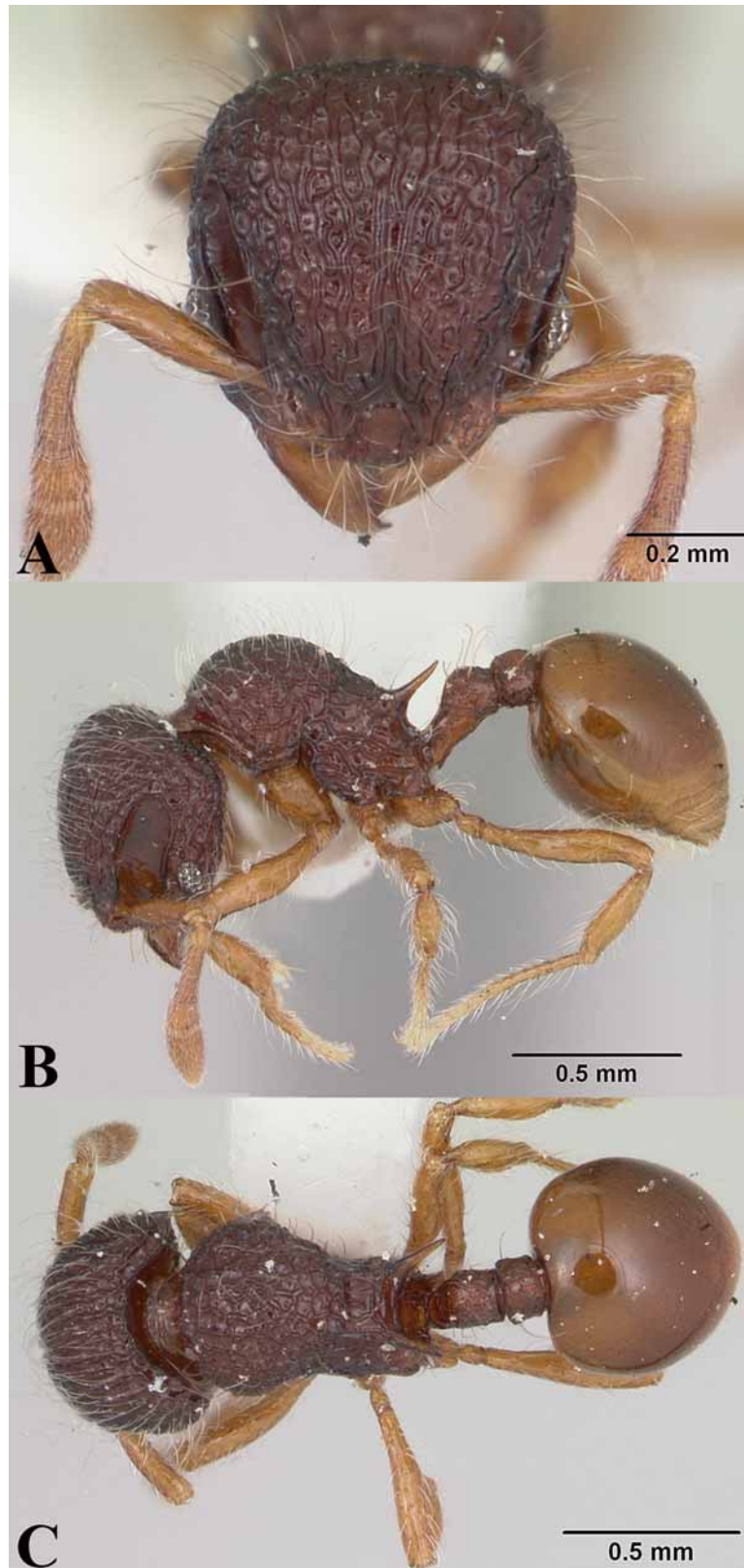


FIGURE 11. Paratype worker of *Lachnomyrmex nordestinus* from Pernambuco, Brazil: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen CASENT0173878.

Lachnomyrmex pilosus Weber, 1950

Figures 1, 12, 18

Lachnomyrmex pilosus Weber, 1950: 1. Holotype worker, TRINIDAD: British West Indies, Macqueripe Bay, 5.viii.1935, N. Weber col., no. 260 [AMNH] (examined); Wheeler & Wheeler 1989: 321 (larvae description, as *L. scrobiculatus*); Lattke 1991: 60 (first record for Venezuela, as *L. scrobiculatus*).

Worker diagnosis. Body irregularly rugose; metanotal groove narrow and deeply impressed; apex of propodeal spines curved upwards; petiolar node rounded dorsally; dorsum of petiolar node and postpetiole each with more than 10 long hairs; first tergite of gaster entirely covered by long flexuous hairs.

Holotype measurements. HL 0.70; HW 0.68; ML 0.24; SL 0.43; EL 0.16; WL 0.77; PSL 0.16; PL 0.30; PPL 0.17; GL 0.92; TL 3.10; CI 97; SI 63; OI 24.

Worker measurements (n=30). HL 0.54–0.72; HW 0.55–0.72; ML 0.18–0.26; SL 0.46–0.35; EL 0.11–0.17; WL 0.60–0.85; PSL 0.13–0.20; PL 0.25–0.35; PPL 0.18–0.13; GL 0.66–0.96; TL 2.37–3.30; CI 93–102; SL 59–70; 19–27.

Gyne measurements (n=7). HL 0.60–0.73; HW 0.57–0.73; ML 0.20–0.25; SL 0.35–0.49; EL 0.16–0.21; WL 0.76–1.04; PSL 0.15–0.20; PL 0.31–0.39; PPL 0.16–0.19; GL 0.94–1.10; TL 2.98–3.71; CI 96–100; SI 60–66; OI 27–30.

Worker description. Color light reddish-brown to dark brown, with appendages lighter. Body densely covered by vermiculate short rugae, forming irregular areolae on promesonotum; rugae somewhat longer and longitudinal on head dorsum and slightly sparser on mesopleura and lateral surfaces of propodeum; mandibles with short striae restricted to basal portion; petiole and postpetiole irregularly rugose. Abundant pilosity, except by dorsal surface of propodeum; dorsum of petiolar node and postpetiole and first gastral tergite densely covered by long flexuous hairs.

Head as long as broad to longer than broad, with vertexal margin relatively short and only weakly convex; frontal lobes rounded laterally; eyes with about seven facets on maximum diameter. Promesonotum considerably convex in profile; metanotal groove narrow and deeply impressed; apex of propodeal spines curved upwards; teeth of propodeal lobes well developed, reaching propodeal spines half-length. Petiolar node elevated and rounded dorsally in lateral view; postpetiole moderately convex and with sternite only feebly projected.

Gyne (first description). Eyes with about 13 facets at greatest diameter; wings with the basic pattern of venation for the genus (Fig. 1); bases of propodeal spines with around five long flexuous hairs; petiolar peduncle slightly longer than in the conspecific workers, with a discrete anteroventral tooth.

Mature larva (after Wheeler & Wheeler 1989). Length (through spiracles) 2.4–2.9mm. Head hairs 0.038–0.125mm long, scarce (about 25), shaft curved and smooth. Body hairs very sparse, long, generally distributed. Four types present: (1) 0.06–0.10mm long, with slightly curved shaft and short frayed tip, on ventral half of body; (2) 0.125–0.3mm long, with curved shaft and small apical bulb, on dorsal half of body; (3) about 0.016mm long, few, smooth, with flexuous shaft and uncinat tip; and (4) 0.19–0.22mm long, with flexuous shaft, anchor-tipped, four hairs in a transversal row across dorsum of abdominal segments I–III and V, and six on abdominal segment IV. Cranium subhexagonal, slightly wider than long, dorsal border feebly concave. Antennae at midlength of cranium, large, three closely spaced sensilla on a sclerotized slight elevation on a feebly stained, large raised teardrop-shaped base. Maxilla small with abruptly narrowed apex; palp and galea subequal in height; palp subcylindrical with five (two apical with a spinule each, two large subapical and encapsulated, and one lateral with a rather long spinule) sensilla; galea subconical with two apical sensilla. Labrum small, bilobed, anterior surface with 12 sensilla on and near the ventral surface; ventral surface with minute spinules in the impression; posterior surface spinulose, the spinules coarse and isolated, with about 20 sensilla; anterior surface of labrum with short transverse rows of rather long spinules; palp short paxilliform, with five sensilla similar in length to maxillary sensilla; sericteries opening as a short transverse slit in a slight

depression. Hypopharynx with a few short transverse rows of minute spinules dorsally. Mandibles heavily sclerotized laterally and apically, blade less sclerotized; apical tooth narrow and curved medially; blade with a rather stout-based apical tooth, a smaller subapical tooth, and a few denticles near teeth. Body with few distinct somites. Spiracles small, decreasing slightly posteriorly. Integument on venter of thoracic segments I–III and abdominal segments I–III with a few minute spinules; abdominal segments VII–X more spinulose.

Etymology. Weber (1950) certainly named this species after its abundant pilosity. From Latin, *pilosus*: hairy.

Comments. The smaller size and well defined metanotal groove separate this species from the related *L. laticeps*. Although the workers of *L. pilosus* and *L. scrobiculatus* are easily distinguishable, the gynes of these species are quite similar. Gynes of *L. pilosus* can be separated from *L. scrobiculatus* by the rounded petiolar node and by the absence of an anteroventral process on the postpetiole.

There is considerable geographical variation among specimens of *L. pilosus*, mainly in body size. Individuals collected in the eastern Amazon Basin are relatively small, while specimens from central Brazil and Peru are usually large. Intermediate forms can be found in the remaining localities of northern South America.

In the description of *Lachnomyrmex* larvae (Wheeler & Wheeler 1989) and in the first record of the genus for Venezuela (Lattke 1991), the authors refer to the examined specimens as *L. scrobiculatus*. However, we have studied the material mentioned in both studies and concluded that these specimens actually belong to *L. pilosus*.

Lachnomyrmex pilosus occurs in Trinidad and central-northern South America, including many localities in northern Brazil, Bolivia, Colombia, Ecuador, Peru, and Venezuela. Individuals are commonly encountered in the leaf litter of wet forests, from lowland to submontane areas (200–1430m).

Additional material examined. BRAZIL: Amazonas: Manaus, iii-iv.1994, R. Didham col. (12 workers) [BMNH]; 20.x.1994, A.B. Casimiro col., no. 4832 (1 gyne) [CPDC]; **Amapá:** Macapá, Rod. Duque de Caxias, Km 9, 19.x.1997, J.M. Vilhena col., no. 261 (1 worker) [INPA]; **Pará:** Marituba, 1°22'S 48°20'W, 22.x.2004, J.R.M. Santos col. (1 worker) [CPDC]; Melgaço, Caxiuanã, 1°42'23"S 51°27'32"W, 30.x.2003, A.Y. Harada, E.P. Fagundes, C.E.D. Sanhudo, C.A.R. Moura & J.L.P. Souza cols (1 worker) [INPA]; 23–25.i.2004, A.Y. Harada, E.P. Fagundes, C.E.D. Sanhudo & Joca cols (4 workers) [MPEG]; **Tocantins:** Novo Jardim, 11°50'26"S 46°41'11"W, 9.x.2004, R.R., Silva & B.H. Dietz (2 workers) [MZSP]; **BOLIVIA: Cochabamba:** Lagunitas, 109km E Cochabamba, 1.ii.1999, R. Anderson col., no. 18644 (2 workers) [WPMC]; **COLOMBIA: Amazonas:** Aracacura, Cor. via Putumayo, 10.vii.1994, G. Ganghi col., nos. 72098/72100 (2 workers) [IHVL]; **Meta:** R. Neeva, Rod. Vallaro, 15.v.1977, D. Jackson col. (1 worker) [BMNH]; **Nariño:** Orito, Territorio Kofan, 00°30'N 77°13'W, 25–28.ix.1998, E. L. González col., nos. 72101–72108 (11 workers and 1 gyne) [IHVL]; same data, nos. 72109/72110 (2 workers) [MZSP]; **ECUADOR: Morona Santiago:** Los Tayos, 3.vii.1976, Tjitte de Vries col. (1 gyne) [MZSP]; **Napo:** Limoncocha, 00°24'S 76°36'W, 12.viii.1973, L. Morales col., no. 304 (1 worker) [MZSP]; **PERU: Amazonas:** Ramón Castillo, 5km NW Letícia, 23.ii.1972, S. Peck & J. Peck cols (2 workers) [MZSP]; **Cuzco:** Campamento Cashiriari, 11°51'1"S 72°46'45"W, 15–17.vi.1997, J. Santisteban *et al.* cols, nos. 0201596/0201597 (2 workers) [MUSM]; **Madre de Dios:** Los Amigos Field Station, Huangana, 12°34'8"S 70°6'3"W, 6–9.x.2004, T.R. Schultz, C. Marshall & J. Sosa-Calvo cols, nos. 446595–446597 (3 workers) [USNM]; **TRINIDAD:** Blue Basin, 21.vi.1972, B. Pitkia col. (1 worker) [BMNH]; **VENEZUELA: Bolívar:** Campamento Río Grande, 08°07'N 61°42'W, 14.viii.1986, P.S. Ward col., no. 8571.4 (1 worker) [MIZA]; no. PSW8571–4 (1 worker, examined by images) [UCDC]; **Sucre:** El Pilar, 10°33'N 63°09'W, 1.ix.1986, J.E. Lattke col., no. 1027 (7 workers) [MIZA]; same data (2 workers) [MZSP]; **Táchira:** Las Cuevas, 44 NW S. Cristóbal, 07°48'N 71°46'W, 29.xii.1999, J.E. Lattke col. (1 worker and 1 gyne) [MIZA]; S. Cristóbal, La Florida, 9.xii.1985, J.E. Lattke & W.L. Brown cols, no. 727 (5 workers) [MIZA]; Via Sta. Ana, Río Frío, 14.viii.1983, J.E. Lattke & G. Borges col. (1 worker) [MIZA].

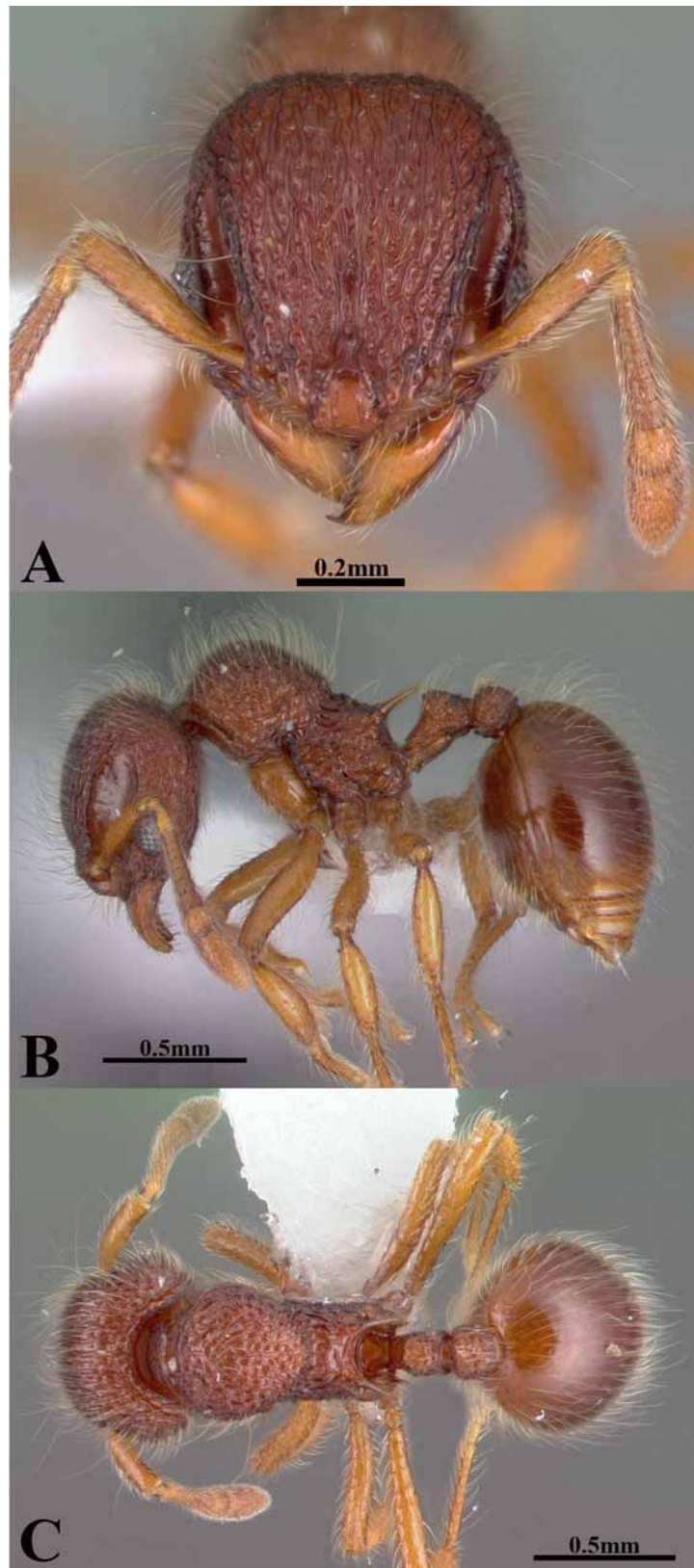


FIGURE 12. Worker of *Lachnomyrmex pilosus* from Bolívar, Venezuela: A, head in full face view; B, lateral view; C, dorsal view. Image by April Nobile, specimen PSW8571-4.

Lachnomyrmex platynodus Feitosa & Brandão, new species

Figures 13, 18

Holotype worker. GUYANA: Guyana Esequiba: Mt. Ayanganna, 5°22.483N 59°57.969W, 13.x.2002, T.R. Schultz, J. Lapolla, C. Marshall & R. Williams cols, no. 413878, specimen code CASENT0173881 [USNM].

Worker diagnosis. Body predominantly blackish and irregularly rugose; promesonotum strongly convex and elevated well above propodeum level; metanotal suture obsolete; teeth of propodeal spines relatively thin; petiolar node dorsally flat, without a posterior slope; postpetiolar dorsum only minimally convex and mostly smooth; first tergite of gaster with around five long flexuous hairs.

Holotype measurements. HL 0.72; HW 0.72; ML 0.22; SL 0.46; EL 0.14; WL 0.87; PSL 0.16; PL 0.35; PPL 0.19; GL 0.94; TL 3.28; CI 101; SI 63; OI 19.

Worker description. Color predominantly black, with ferruginous reflections, appendages dark brown. Body covered by vermiculate, relatively sparse short rugae, forming irregular areolae on promesonotum; rugae somewhat longer and longitudinal on head dorsum, and slightly sparser on mesopleura and lateral surfaces of propodeum; mandibles with longitudinal striae barely visible and almost reaching the masticatory margin; lateral faces of petiole and postpetiole irregularly rugose; dorsum of petiolar node and postpetiole predominantly smooth, with a few short, fine irregular rugae. Abundant pilosity, except by dorsal surface of propodeum; dorsum of petiolar node and postpetiole each with more than 10 long hairs; first gastral tergite with around five long, sparse flexuous hairs.

Head as long as broad, with vertexal margin virtually flat; frontal lobes subquadrate; eyes with approximately five facets on maximum diameter. Promesonotum strongly convex in profile, elevated well above the propodeum level; metanotal groove obsolete, so that the promesonotum outline reaches the propodeum in a slight declivity; propodeal spines straight; teeth of propodeal lobes relatively thin, slightly surpassing propodeal spines half-length. In lateral view, petiolar node moderately elevated and flat, without a posterior slope; postpetiole somewhat elongate and only weakly convex, with sternite feebly projected.

Gyne. Unknown.

Etymology. This species is named after its flat petiolar node. From Greek, *platy*: flat and from Latin, *nodus*: node.

Comments. This species is known only by the holotype; however, it is unlikely to be confounded with any other congener. The combination of blackish color, dorsum of waist predominantly smooth, petiolar node flat, and first gastral tergite with a few sparse hairs is unique in the genus.

The only individual known for *Lachnomyrmex platynodus* was collected in a leaf litter sample from a submontane wet forest (1300m) at Mt. Ayanganna, Guyana. A high ant endemicity at Mt. Ayanganna is indicated by taxonomic and survey studies (LaPolla 2004; LaPolla *et al.* 2006).

Lachnomyrmex plaumanni Borgmeier, 1957

Figures 14, 19

Lachnomyrmex plaumanni Borgmeier, 1957: 125, fig. 47. Syntypes, BRAZIL: Rio de Janeiro: Itatiaia, i.1956, Dr. Barth col. (2 workers and 1 gyne) [MZSP] (examined); Santa Catarina: Nova Teutônia, iv.1954, F. Plaumann col. (3 workers and 1 gyne) [MZSP] (examined, 1 worker here designated **lectotype** in order to improve nomenclatural stability); same locality, xi.1954, F. Plaumann col. nos. 66111/64824 (1 worker and 1 gyne) [USNM] (examined); same data (1 worker) [MZSP] (examined); same data (2 workers) [MCZC] (not examined).

Worker diagnosis. Body sparsely covered by short, fine rugae; promesonotum elevated minimally above propodeum level; apex of propodeal spines curved downwards; teeth of propodeal lobes swollen and extremely reduced; dorsum of postpetiole with about six long hairs; first tergite of gaster entirely devoid of long flexuous hairs.

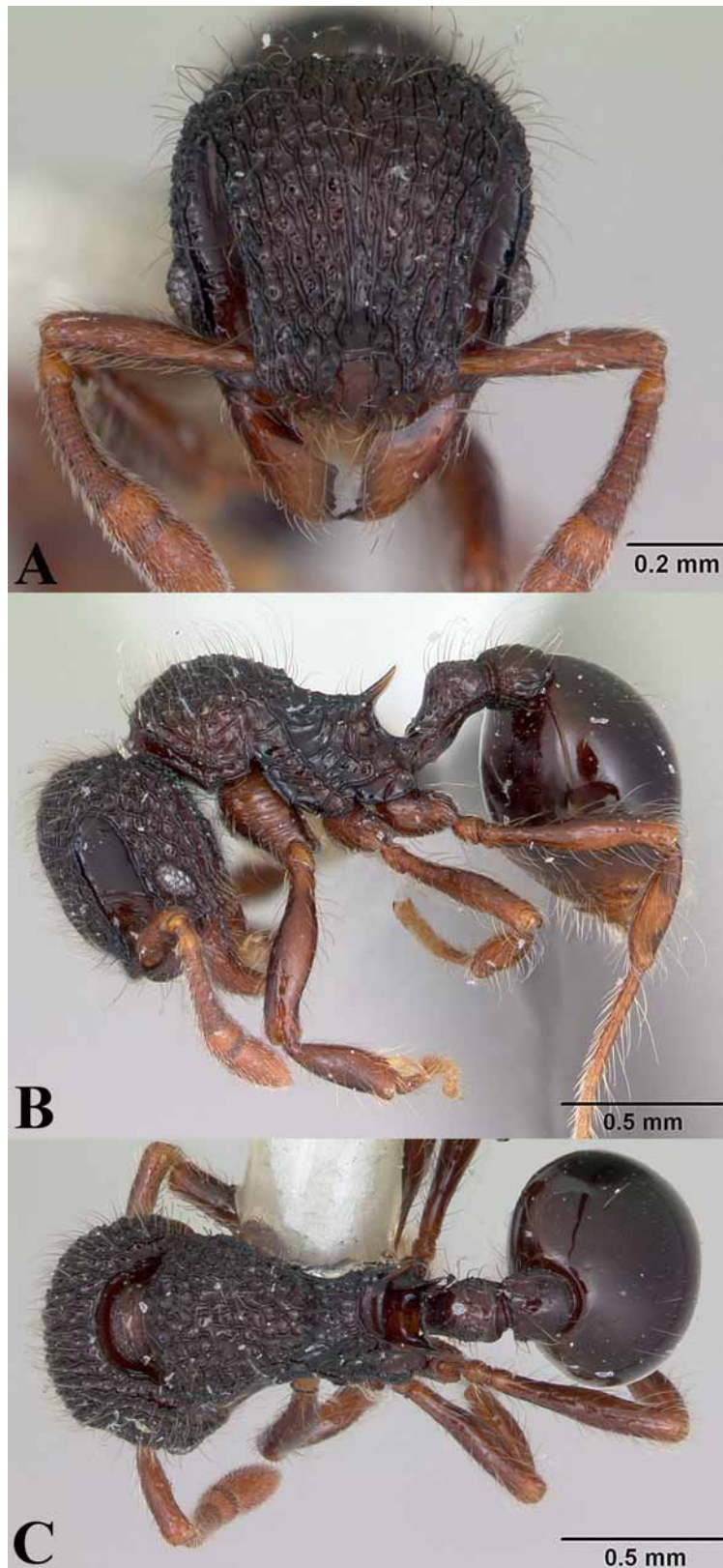


FIGURE 13. Holotype worker of *Lachnomymex platynodus* from Mt. Ayanganna, Guyana: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen CASENT0173881.

Lectotype measurements. HL 0.65; HW 0.63; ML 0.19; SL 0.38; EL 0.11; WL 0.71; PSL 0.14; PL 0.30; PPL 0.14; GL 0.79; TL 2.77; CI 97; SI 60; OI 17.

Worker measurements (n=58). HL 0.57–0.69; HW 0.57–0.68; ML 0.17–0.20; SL 0.35–0.42; EL 0.09–0.14; WL 0.61–0.80; PSL 0.13–0.15; PL 0.25–0.35; PPL 0.11–0.14; GL 0.68–0.93; TL 2.51–3.07; CI 96–101; SI 56–65; OI 14–22.

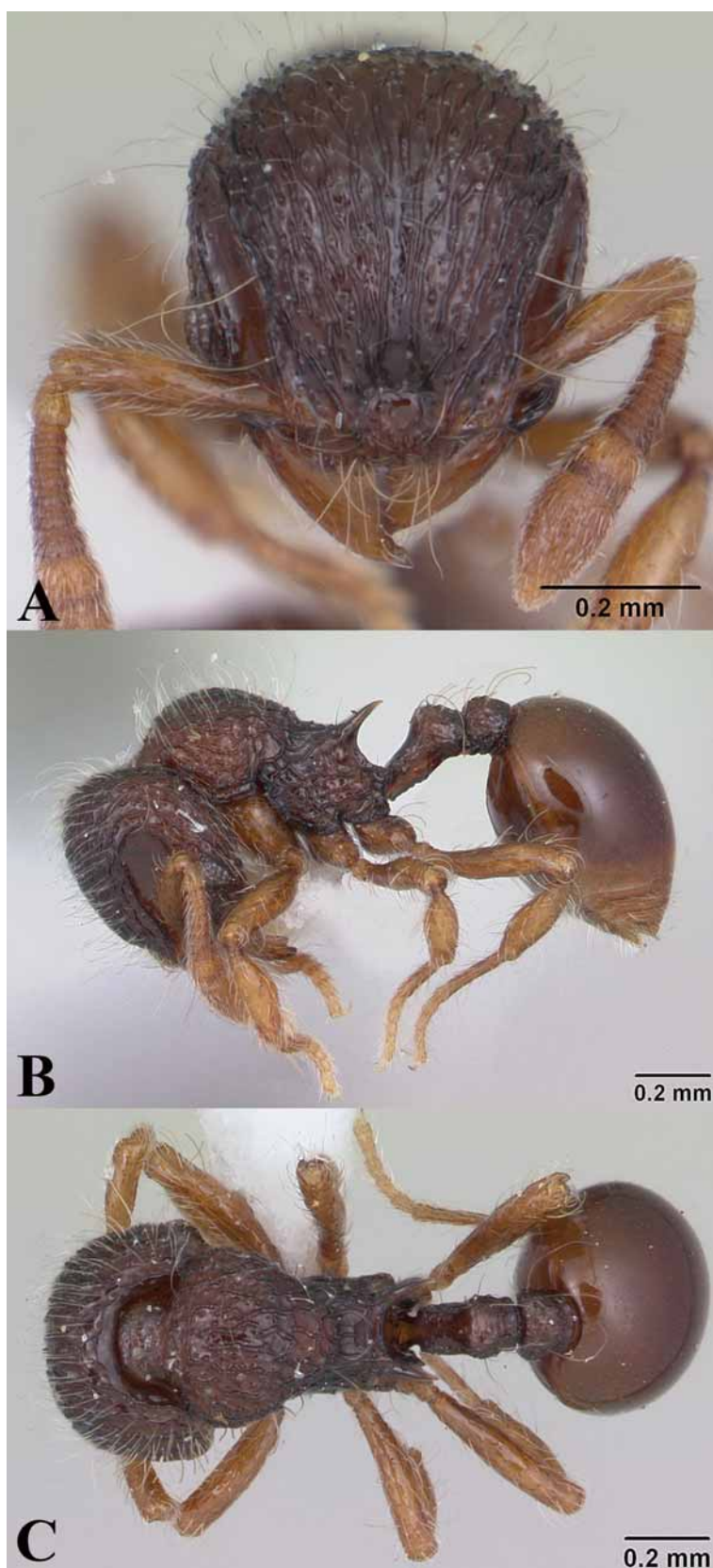


FIGURE 14. Worker of *Lachnomyrmex plaumanni* from São Paulo, Brazil: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen CASENT0173876.

Gyne measurements (n=20). HL 0.58–0.71; HW 0.58–0.71; ML 0.17–0.25; SL 0.36–0.44; EL 0.13–0.19; WL 0.73–0.91; PSL 0.13–0.16; PL 0.30–0.39; PPL 0.13–0.16; GL 0.79–1.02; TL 3.45–2.70; CI 97–102; SI 58–62; OI 21–28.

Worker description. Color light reddish-brown to dark brown, with appendages lighter. Body sparsely covered by irregular short rugae, somewhat longer and longitudinal on head dorsum; mandibles with short longitudinal striae restricted to basal portion; petiole and postpetiole finely and irregularly rugose. Abundant pilosity on head and promesonotum dorsum; dorsum of petiolar node and postpetiole with about four and six long hairs, respectively; first gastral tergite entirely devoid of long flexuous hairs.

Head as long as broad, with vertexal margin strongly convex; frontal lobes laterally rounded; eyes with about six facets on maximum diameter. Promesonotum moderately convex in profile, only discretely higher than level of propodeum; metanotal groove shallow to virtually obsolete; apex of propodeal spines distinctly curved downwards; teeth of propodeal lobes swollen and reduced, with less than one-third of propodeal spines length. Petiolar node moderately elevated, dorsally rounded, and with the posterior face weakly sloped in lateral view; postpetiole feebly convex dorsally and without ventral processes.

Gyne. Differing from worker by the larger eyes, with around 12 facets at maximum diameter; propodeal spines relatively wider basally and with the apexes only minimally curved downwards.

Etymology. Father Thomas Borgmeier (1957) named this species in honor of the Lithuanian entomologist, Fritz Plaumann (1902–1994), collector of the *L. plaumanni* type-series and known for his exhaustive work on the insect fauna of the state of Santa Catarina, Brazil. Plaumann is considered the most important insect collector of Latin America in the 20th century.

Comments. *Lachnomyrme plaumanni* is one of the smallest species in the genus and can be immediately recognized by the combination of sparse sculpturation, propodeal spines curved downwards, and dorsum of postpetiole with about six long hairs.

This species has been collected from northern Argentina to southeastern Brazil, along the submontane areas of the Brazilian Atlantic Forest (400–1200m).

Despite the constant presence of *L. plaumanni* in leaf litter samples from the Atlantic Forest, all attempts to maintain colonies in artificial conditions so far have failed. Gynes and workers usually die a few days after capture. There is a single record of a *L. plaumanni* worker foraging in the vegetation. It was collected manually in a bromeliad fixed in a high live tree from Serra do Itapeti, state of São Paulo, Brazil (M.S. Morini, pers. comm.).

Additional material examined. **ARGENTINA: Misiones:** 20km SE Pto. Iguazu, 31.xii.1990, S. Peck & J. Peck cols, no. 1660/CASENT0006151 (1 worker, examined by images) [CASC]; **BRAZIL: Paraná:** Morretes, P.E. do Pau-Oco, 25°34'05"S 48°53'19"W, 6–11.v.2002, R.R. Silva & B.H. Dietz cols, nos. 22/24 (2 workers) [MZSP]; Tunas, P. das Lauráceas, 24°51'16"S 48°43'00"W, 21–29.ii.2001, R.R. Silva & F. Eberhardt cols, nos. 1/6/19/34/42 (5 workers and 2 gynes) [MZSP]; **Santa Catarina:** Blumenau, P.E. das Nascentes, 27°06'15"S 49°09'14"W, 20–27.x.2000, R.R. Silva & F. Eberhardt cols, no. 31 (1 worker) [MZSP]; same locality, 27°01'–06'S, 49°01'–10'W, 10.ii.2001, F. Eberhardt col., no. 10 (1 worker) [MZSP]; Chapecó, vii–viii.1960, F. Plaumann col., no. 8333 (5 workers) [MZSP]; Concórdia, ix.1959, F. Plaumann col., no. 8296 (2 workers) [MZSP]; Ibicaré, viii.1959, F. Plaumann col., no. 3128 (3 workers) [MZSP]; same locality, ix.1960, no. 3619 (2 workers) [MZSP]; Linha Facão, v.1957, F. Plaumann col. (1 worker e 1 gyne) [MZSP]; Morro do Serro, xii.1958, F. Plaumann col., no. 8318 (1 worker) [MZSP]; Nova Teutônia, ix.1954, F. Plaumann col., no. 8216 (8 workers and 1 gyne) [MZSP]; same locality, v–xii.1957, F. Plaumann col. (9 workers and 2 gynes) [MZSP]; same locality, vii.1958, F. Plaumann col. (1 worker and 1 gyne) [MZSP]; same locality, v.1960, F. Plaumann col. (2 workers and 1 gyne) [MZSP]; same locality, vi.1963, F. Plaumann col., no. 3755 (1 worker) [MZSP]; same locality, iv.1972, F. Plaumann col., no. 8000 (1 worker and 1 gyne) [MZSP]; same locality, vi.1963, F. Plaumann col., no. 3755 (1 worker) [MZSP]; same locality, iv.1976, F. Plaumann col., no. 13629 (1 worker) [MZSP]; Palhoça, P.E. da Serra do Tabuleiro, 27°44'28"S 48°41'50"W, 2–10.vi.2003, R.R. Silva, B.H. Dietz &

A.A. Tavares cols, nos. 2/9/10/14 (4 workers) [MZSP]; São Bento do Sul, A.P.A. Rio Vermelho, 26°21'51"S 49°16'16"W, 30.iii–4.iv.2001, R.R. Silva & F. Eberhardt cols, nos. 4/25/29/31/32/33/34/35/38/44/46/48/49 (12 workers and 1 gyne) [MZSP]; same data, no. 25 (1 worker) [INBC]; same data, no. 29 (1 worker) [MIZA]; same data, no. 46 (1 worker) [MPEG]; Seara, viii.1958, F. Plaumann col. (3 workers) [MZSP]; same locality, v–xii.1998, R.R. Silva col. (4 workers) [MZSP]; **São Paulo**: Cananéia, P.E. da Ilha do Cardoso, 18–24.xi.2002, 25°05'48"S 47°55'47"W, R.R. Silva, C.R.F. Brandão & C. Scott cols, nos. 1/7/13/16/18/25/28/34/43/48 (8 workers and 3 gynes) [MZSP]; same data, no. 7 (1 worker) [AMNH]; same data, no. 13 (1 worker) [BMNH]; same data, no. 25 (1 worker) [CASC]; same data, no. 28 (1 worker) [CPDC]; same data, no. 43 (1 worker) [ICNC]; same data, no. 48 (1 worker) [IHVL]; Cunha, P.E. da Serra do Mar, Núcleo Indaiá, 23°15'03"S 45°00'26"W, 21–22.iv.2001, R.R. Silva & A.A. Tavares cols, nos. 5/11/19/32/43 (7 workers and 1 gyne) [MZSP]; Iguape, E.E. Juréia-Itatins, Núcleo Rio Verde, 24°32'39"S 47°14'08"W, 5–15.ii.2001, R.R. Silva & A.A. Tavares cols, nos. 4/22/25/27 (3 workers and 1 gyne) [MZSP]; Miracatu, Serra do Mar, Clube Pesca & Cia, 4–7.ix.2004, R.M. Feitosa col., nos. 1/9/11/12 (10 workers and 2 gynes) [MZSP]; Mogi das Cruzes, P.N.M. da Serra do Itapeti, 20.v.2003, 23°29'22"S 46°11'55"W, M.S. Morini col., no. 8 (1 worker) [MSMC]; Praia Grande, P.E. da Serra do Mar, Núcleo Pilões, 23°58'31"S 46°32'24"W, 26–27.v.2001, R.R. Silva & A.A. Tavares cols, nos. 5/10/13/24/35/36/39/41 (12 workers) [MZSP]; Ribeirão Grande, P.E. Intervalos, Barra Grande, 24°18'30"S 48°25'10"W, 2.ii.1999, A.A. Tavares col., nos. T1 3/7/16/17/22/23–T2 1/4/7/12/13/14/15/17/18 (21 workers and 1 gyne) [MZSP]; Salesópolis, E.B.B. Boracéia, 23°31'S 45°50'W, 2–6.v.1997, D. Agosti, C.R.F. Brandão & C.I. Yamamoto cols, nos. 5/7/9/15/16 (8 workers and 2 gynes) [MZSP]; same data, no. 5 (1 worker) [MUSM]; same data, no. 15 (1 worker) [USNM]; same data, no. 16 (1 worker) [WMPC]; same locality, 12–17.vi.1997, B.H. Dietz & C.I. Yamamoto cols, nos. 7/10/13/14/16/17/25 (15 workers and 2 gynes) [MZSP]; same locality 5–7.vii.1997, C.I. Yamamoto col., no. 9 (2 workers) [MZSP]; same locality, 20–26.x.1997, C. Klingenberg & C.I. Yamamoto cols, nos. 10/13/21 (3 workers) [MZSP]; Serra dos Agudos Grandes, xi.1963, F. Plaumann col., no. 3865 (1 worker) [MZSP]; Tapiraí, 24°01'55"S 47°27'56"W, 8–14.i.2001, R.R. Silva & F. Eberhardt cols, nos. 1/2/5/8/11/12/13/14/15/16/22/23/24/27/29/31/33/34/36/39/40/44/47/50 (35 workers and 6 gynes) [MZSP]; Ubatuba, P.E. da Serra do Mar, Núcleo Picinguaba, 23°20'10"S 44°50'15"W, C.R.F. Brandão *et al.* cols, nos. 23/24 (2 workers) [MZSP]; same locality, 23°18'21"S 44°48'25"W, 5.i.2006, C.P. Scott & E.F. Santos cols, nos. 2/7 (3 workers) [MZSP]; same locality, 23°17'54"S 44°47'49"W, 23.i.2006, C.P. Scott & E.F. Santos cols, nos. 1/7 (5 workers) [MZSP]; same locality, 23°17'49"S 44°47'31"W, 26.i.2006, C.P. Scott & E.F. Santos cols, no. 9 (1 worker) [MZSP]; same locality, 23°17'56"S 44°47'13"W, 7.iii.2006, C.P. Scott & E.F. Santos cols, nos. 3/8/9 (6 workers and 1 gyne) [MZSP]; **Rio Janeiro**: Nova Iguaçu, ReBio Tinguá, 22°34'14"S 43°24'51"W, 4.ii.2002, A. Mayhé & S. Veiga-Ferreira cols, no. A32 (1 worker) [MZSP]; Sta. Maria Madalena, P.E. do Desengano, 21°58'41"S 41°57'00"W, x.2002, A. Mayhé & S. Veiga-Ferreira cols, nos. 1/2/14/18/22 (5 workers) [MZSP].

Lachnomyrmex regularis Feitosa & Brandão, new species

Figures 15, 19

Holotype worker. COSTA RICA: Guanacaste: Estr. Pitilla, 9km S Sta. Cecília, 11°04'N 85°24'O, 6–19.viii.1993, P. Ríos col., no. INBIOCRI001613693 [INBC].

Paratypes. same data as holotype; no. INBIOCRI001613661 (1 worker) [BMNH]; same data, nos. INBIOCRI001613662/INBIOCRI001613666/INBIOCRI001613673/INBIOCRI001613676 (4 workers) [INBC]; same data, nos. INBIOCRI001613677/INBIOCRI001613681 (2 workers) [MZSP].

Worker diagnosis. Body densely covered by fine and continuous rugae; eyes well developed, with about 10 facets at maximum diameter; dorsum of postpetiole entirely smooth and shining, bearing around four long hairs; gaster distinctly darker than body and with the first tergite completely devoid of long flexuous hairs.

Holotype measurements. HL 0.84; HW 0.79; ML 0.29; SL 0.55; EL 0.20; WL 0.98; PSL 0.30; PL 0.39; PPL 0.20; GL 1.02; TL 3.73; CI 93; SI 70; OI 26.

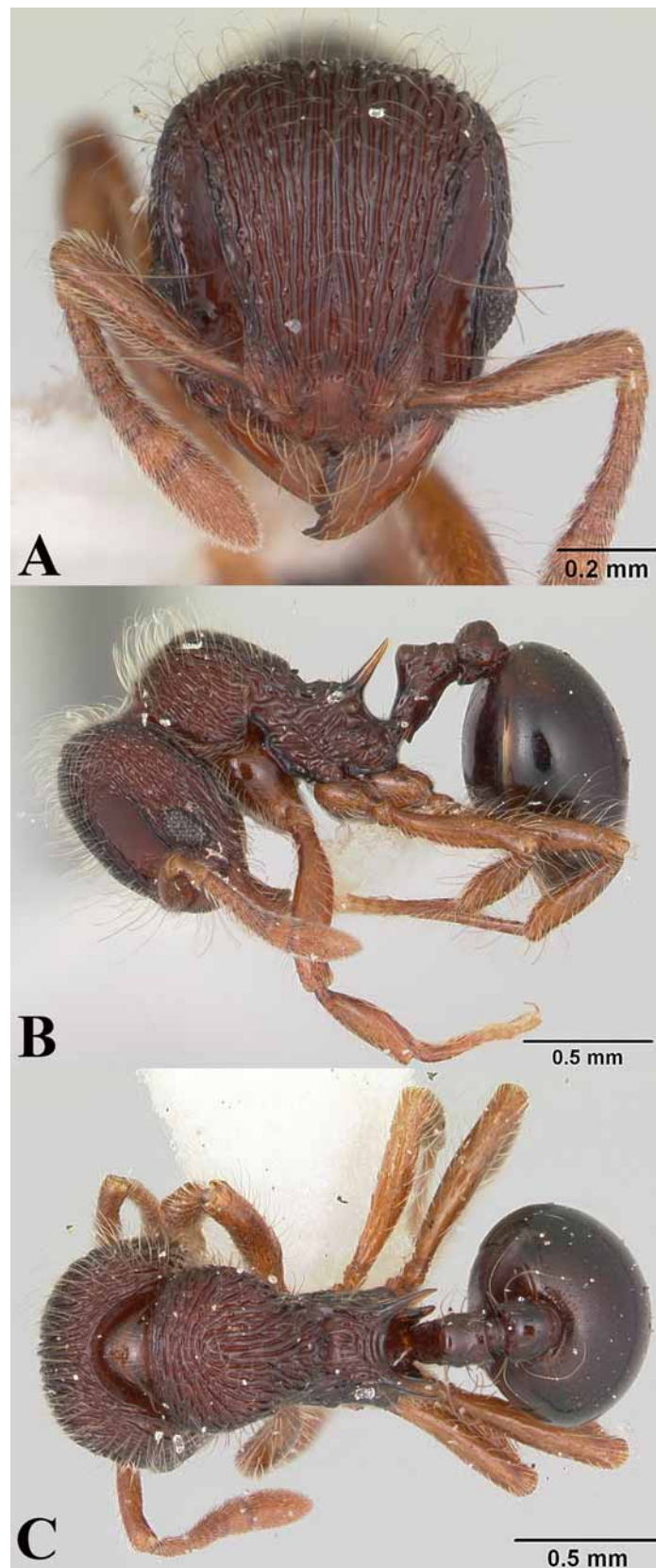


FIGURE 15. Holotype worker of *Lachnomyrmex regularis* from Guanacaste, Costa Rica: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen INBIOCRI001613693.

Worker measurements (n=7). HL 0.82–0.90; HW 0.76–0.83; ML 0.25–0.31; SL 0.53–0.58; EL 0.19–0.22; WL 0.98–1.09; PSL 0.27–0.31; PL 0.38–0.47; PPL 0.17–0.24; GL 0.96–1.10; TL 3.57–4.11; CI 91–93; SI 69–71; OI 25–28.

Worker description. Color light reddish-brown to dark brown, contrasting with blackish gaster; appendages slightly lighter than body. Head and mesosoma densely covered by continuous, fine rugae, transverse on anterior portion of pronotum, grading to longitudinal on rest of promesonotum, mesopleura, and propodeum; rugae on cephalic dorsum subparallel and exceptionally dense, leaving no spaces among them; mandibles with short longitudinal striae restricted to basal portion; petiole and postpetiole only feebly rugose on lateral faces. Abundant pilosity on head and dorsum of promesonotum; dorsum of petiolar node and postpetiole with about six and four long hairs, respectively; first tergite of gaster entirely devoid of long flexuous hairs.

Head noticeable longer than broad, with vertexal margin weakly convex; frontal lobes somewhat angulate laterally; eyes relatively large, with around 10 facets at greatest diameter. Promesonotum considerably convex in profile, well above propodeum level; metanotal groove relatively narrow and markedly impressed; propodeal spines straight and relatively long; teeth of propodeal lobes widen basally, with about one-third of propodeal spines length. Petiolar node strongly elevated and subtriangular in lateral view; dorsum of postpetiole with a raised prominence medially and a well developed anteroventral projection directed anteriorly.

Gyne. Unknown.

Etymology. This species is named after its regular pattern of body sculpturation in comparison with other *Lachnomyrmex* species. From Latin, *regularis*: regular.

Comments. The sculpturation pattern and the presence of a subpostpetiolar projection are similar to *L. haskinsi*. However, *L. regularis* is easily distinguishable by its larger body size, rugae on head dorsum distinctly denser, eyes more developed, postpetiole dorsum entirely smooth, and body color variably brown contrasting with darker gaster.

The only collection of *L. regularis* so far was made in northern Costa Rica, at 700m elevation. There is no information on the biology of this species.

***Lachnomyrmex scrobiculatus* Wheeler, 1910**

Figures 16, 19

Lachnomyrmex scrobiculatus Wheeler, 1910: 263, fig. 3. Syntypes, GUATEMALA: Alta Vera Paz: Trece Aguas, Cacao, 24.iii.1906, E.A. Schwarz & H.S. Barber cols, no. 21059 (1 worker) [MCZC] (examined by images); same data; no. 13199 (1 worker) [USNM] (examined); same locality; 29.iii.1906, E.A. Schwarz & H.S. Barber col., no code data (1 worker) [AMNH] (examined); same locality, 4.iv.1906, E.A. Schwarz & H.S. Barber cols, no. 13199 (1 worker, here designated **lectotype** in order to improve nomenclatural stability) [USNM] (examined); same locality, 25.iv.1906, E.A. Schwarz & H.S. Barber cols, no. 13199 (1 gyne) [USNM] (examined); same locality, 26.iv.1906, E.A. Schwarz & H.S. Barber cols, no. 13199 (1 worker) [USNM] (examined); same data (1 worker) not located; Gotwald 1969: 106 (mouthparts).

Worker diagnosis. Body densely covered by continuous irregular rugae; metanotal groove obsolete; teeth of propodeal lobes widen basally; petiolar node subtriangular; dorsum of postpetiole convex and strongly rugose; first tergite of gaster entirely covered by long flexuous hairs.

Lectotype measurements. HL 0.65; HW 0.61; ML 0.17; SL 0.38; EL 0.12; WL 0.75; PSL 0.19; PL 0.33; PPL 0.16; GL 0.80; TL 2.86; CI 95; SI 61; OI 19.

Worker measurements (n=18). HL 0.60–0.66; HW 0.58–0.65; ML 0.17–0.22; SL 0.36–0.40; EL 0.12–0.15; WL 0.69–0.76; PSL 0.14–0.19; PL 0.27–0.33; PPL 0.14–0.18; GL 0.74–0.87; TL 2.80–2.99; CI 95–100; SI 58–64; OI 19–24.

Gyne measurements (n=5). HL 0.66–0.68; HW 0.65–0.66; ML 0.22–0.24; SL 0.38–0.42; EL 0.16–0.19; WL 0.87–0.88; PSL 0.17–0.20; PL 0.31–0.33; PPL 0.17–0.20; GL 0.96–1.10; TL 3.23–3.36; CI 96–99; SI 57–65; OI 24–29.

Worker description. Color dark brown to black, with appendages lighter. Body densely covered by vermiculate and somewhat thick rugae, transverse on anterior portion of pronotum, grading to longitudinal on rest of promesonotum, metapleura and lateral faces of propodeum; rugae somewhat longer and longitudinal on head dorsum and relatively sparser on metapleura and lateral faces of propodeum; mandibles with short striae restricted to the most basal portion; in dorsal view, metanotal area with long transversal rugae extending laterally towards metapleura; petiole and postpetiole irregularly rugose. Abundant pilosity, except by dorsal surface of propodeum; petiolar node, dorsum of postpetiole and first gastral tergite covered by long flexuous hairs; pilosity on first tergite of gaster concentrated at the most dorsal portion.

Head usually slightly longer than broad, with vertexal margin minimally convex; frontal lobes relatively well developed and laterally rounded; eyes with about six facets on maximum diameter. Promesonotum moderately convex in profile; metanotal groove obsolete; propodeal spines straight; teeth of propodeal lobes well developed and considerably swollen basally, reaching propodeal spines half-length. Petiolar node elevated and subtriangular, in lateral view; postpetiole strongly convex and with a discrete anteroventral projection.

Gyne. Similar to worker; body pilosity considerably denser; eyes with about 12 facets at greatest diameter; wings with the basic pattern of venation for the genus; petiolar peduncle somewhat elongate; petiolar node faintly lower than in the conspecific worker.

Etymology. The species name refers to the presence of the deep antennal scrobes, observed by Wheeler (1910) in the original description of *Lachnomyrmex*.

Comments. This species is uniquely characterized by the pattern of sculpturation, absence of an impressed metanotal groove, and the presence of the small subpostpetiolar process. Gynes are somewhat more generalized morphologically (see comments under *L. pilosus*).

In the description of the *Lachnomyrmex* sting apparatus (Kugler 1978), the author identifies the examined species as closely related to *L. scrobiculatus*. However, we have not examined this material, and thus it was not possible to confirm Kugler's identification.

Lachnomyrmex scrobiculatus is a relatively common species occurring from southern Mexico (Chiapas) throughout continental Central America to southern Panama. Workers and gynes occur in samples of sifted leaf litter from the forest floor in different elevations (100–1100m). Michael Kaspari collected a specimen at a barley bait in the La Selva successional plots, Costa Rica (Longino 2007).

Additional material examined. **BELIZE: El Cayo:** Caves Branch, viii.1972, S. Peck & J. Peck col. (5 workers) [MZSP]; **COSTA RICA: Alajuela:** Casa Eladio, Río Penas Blancas, 2.iii.2004, J.T. Longino col., no. INBIOCRI000005395 (1 worker) [INBC]; Río San Lorencito, 1990, P. Hammond col. (6 workers) [BMNH]; same data (1 worker) [MZSP]; **Guanacaste:** Estr. Pitilla, 9km S Sta. Cecília, i.1991, I Curso Microhym., nos. INBIOCRI000305058/ INBIOCRI000384713 (2 workers) [INBC]; same locality, 3–18.x.1991, P. Ríos col., no. INBIOCRI000377966 (1 worker) [INBC]; Pitilla Field Station, 2.v.1995, R. Anderson col., no. 17722 (7 workers and 3 gynes) [WPMC]; same data (2 workers and 1 gyne) [MZSP]; same locality, 14.ii.1996, R. Anderson col., nos. 17739/17741 (3 workers) [WPMC]; **Limón:** P.N. Tortuguero, Cerro Tortuguero, ii.1993, R. Delgado col., nos. INBIOCRI001289301/INBIOCRI001289339 (2 workers and 1 gyne) [INBC]; same data, INBIOCRI001289337 (1 worker) [MZSP]; **Puntarenas:** Península Osa, Aenn. Fund. Neotrop., 23.vi.1997, R. Anderson col., nos. 18686/18687 (1 worker and 1 gyne) [WPMC]; Cerro Helado, 15km NE Rincón, 24.vi.1997, R. Anderson col., no. 18689 (1 gyne) [WPMC]; **PANAMA: Canal Zone:** Barro Colorado Island, 1976, S. Levings col. (1 worker) [MIZA].

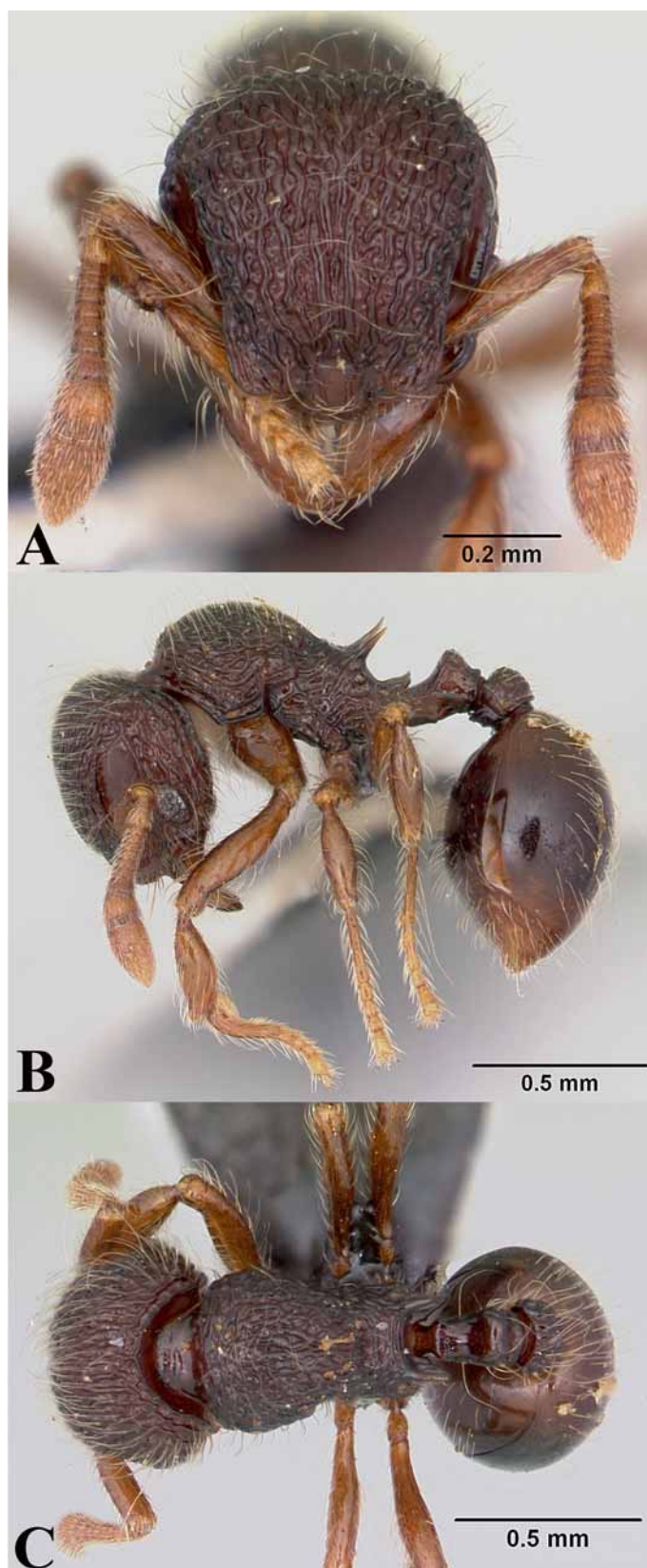


FIGURE 16. Worker of *Lachnomyrmex scrobiculatus* from Heredia, Costa Rica: A, head in full face view; B, lateral view; C, dorsal view. Image by April Nobile, specimen CASENT0103243.

***Lachnomyrmex victori* Feitosa & Brandão, new species**

Figures 17, 20

Holotype worker. BRAZIL: Santa Catarina: São Bonifácio, P.E. da Serra do Tabuleiro, 27°49'06"S 48°54'41"W, 8–13.iii.2004, R.R. Silva, B.H. Dietz & N.L. Albuquerque cols, no. 27 [MZSP].

Paratypes. same data as holotype, nos. 3/27 (3 workers and 1 gyne) [MZSP]; same data, no. 27 (1 worker) [CASC]; **BRAZIL: Espírito Santo:** Santa Teresa, E.B. Santa Lúcia, 19°58'09"S 40°32'15"W, 20–24.i.2002, J.H. Schoereder & C.R. Ribas cols, no. 37 (2 workers) [MZSP]; same data, no. 37 (1 worker) [USNM]; **Santa Catarina:** Blumenau, P.E. das Nascentes, 27°06'15"S 49°09'14"W, 20–27.x.2000, R.R. Silva & F. Eberhardt cols, nos. 13/17/20/24 (4 workers) [MZSP]; **Paraná:** Tunas, P. das Lauráceas, 24°51'16"S 48°43'00"W, 21–29.ii.2001, R.R. Silva & F. Eberhardt cols, nos. 7/9/11/13/17/28/50 (6 workers e 1 gyne) [MZSP]; same data, no. 7 (1 worker) [AMNH]; same data, no. 7 (1 worker) [BMNH]; same data, no. 7 (1 worker) [ICNC]; same data, no. 7 (1 worker) [IHVL]; same data, no. 9 (1 worker) [INBC]; same data, no. 28 (1 worker) [MIZA]; **São Paulo:** Salesópolis, E.B.B., 12–17.iv.1997, B.H. Dietz & C. I. Yamamoto cols, nos. 4/24 (2 workers and 1 gyne) [MZSP]; same data, no. 7 (1 worker) [WPMC]; same locality, 20–26.x.1997, C. Klingenberg & C.I. Yamamoto cols, no. 22 (1 worker) [MZSP].

Worker diagnosis. Body irregularly covered by vermiculate, short, relatively sparse rugae; promesonotum moderately convex; metanotal groove shallowly impressed to obsolete; propodeal spines straight; teeth of propodeal lobes reduced and swollen basally; dorsum of postpetiole with more than 10 long hairs; first tergite of gaster devoid of long flexuous hairs.

Holotype measurements. HL 0.73; HW 0.72; ML 0.24; SL 0.47; EL 0.14; WL 0.85; PSL 0.17; PL 0.36; PPL 0.14; GL 0.98; TL 3.30; CI 98; SI 66; OI 20.

Worker measurements (n=33). HL 0.52–0.76; HW 0.54–0.76; ML 0.16–0.25; SL 0.30–0.51; EL 0.08–0.16; WL 0.57–0.93; PSL 0.11–0.21; PL 0.22–0.39; PPL 0.12–0.19; TL 2.26–3.51; GL 0.68–1.02; CI 97–103; SI 51–66; OI 15–22.

Gyne measurements (n=9). HL 0.69–0.78; HW 0.69–0.79; ML 0.21–0.26; SL 0.44–0.49; EL 0.18–0.21; WL 0.85–1.06; PSL 0.16–0.22; PL 0.35–0.41; PPL 0.13–0.18; GL 0.94–1.17; TL 3.21–3.83; CI 99–101; SI 61–66; OI 24–279.

Worker description. Body reddish-brown to black, with gaster and appendages slightly lighter. Body irregularly covered by short, relatively sparse rugae, somewhat longer and longitudinal on head dorsum; mandibles with short longitudinal striae restricted to basal portion; petiole and postpetiole finely and irregularly rugose. Abundant pilosity on head and promesonotum dorsum; dorsum of petiolar node and postpetiole each with more than 10 long hairs; first gastral tergite entirely devoid of long flexuous hairs.

Head usually as long as broad, with vertexal margin moderately convex; frontal lobes laterally rounded; eyes with about seven facets on maximum diameter. Promesonotum moderately convex in profile, but distinctly higher than propodeum level; metanotal groove shallow to virtually obsolete; propodeal spines straight; teeth of propodeal lobes swollen and very reduced, with less than one-third of propodeal spines length. Petiolar node moderately elevated, dorsally rounded, and with the posterior face weakly sloped in lateral view; postpetiole weakly convex dorsally and without ventral processes.

Gyne. Differing from worker by the following combination of characters: body pilosity denser and shorter, with first tergite of gaster bearing around 10 long flexuous hairs at the anterior portion, near postpetiole insertion; eyes with around 13 facets at greatest diameter; petiolar node comparatively lower.

Etymology. The name of this species is an homage to Victor Vieira da Silva, son of the colleague myrmecologist Rogério Rosa da Silva.

Comments. While examining specimens of *Lachnomyrmex plaumanni* from the MZSP collection, one of us (RMF) noticed that there was a morphologically distinct subgroup of individuals, all collected in the same range of *L. plaumanni*. In the pin of one of these individuals there was a manuscript note made by Father Tho-

mas Borgmeier in which he recognized a group of workers that differed from the typical *L. plaumanni* by the larger size and straight propodeal spines, rather than the curved ones of the latter. The study of recently collected *Lachnomyrmex* specimens deposited in the MZSP collection, led us to recognize these specimens and several others as a different and undescribed species sympatric with *L. plaumanni*.

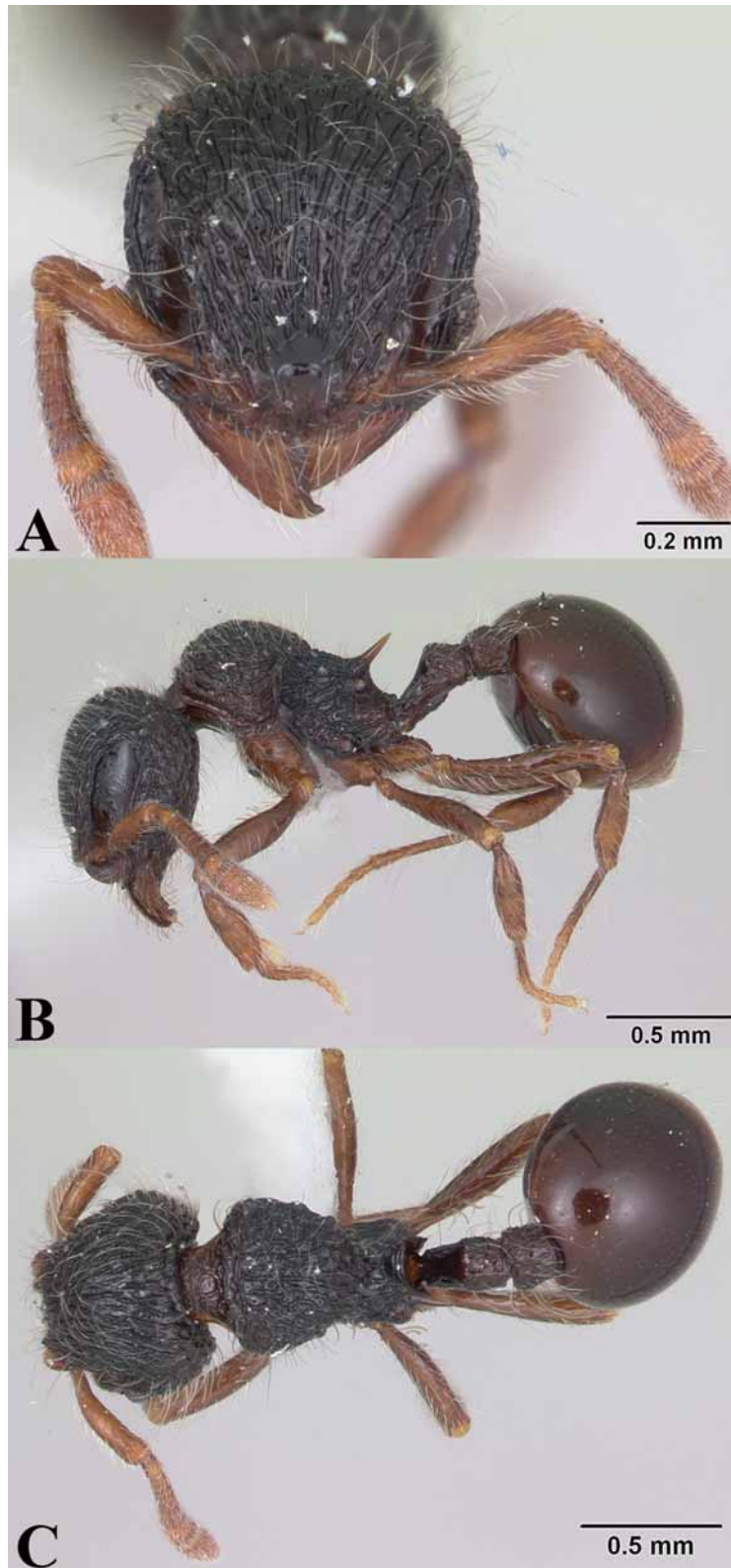


FIGURE 17. Paratype worker of *Lachnomyrmex victori* from Santa Catarina, Brazil: A, head in full face view; B, lateral view; C, dorsal view. Image by Michele Esposito, specimen CASENT0173877.

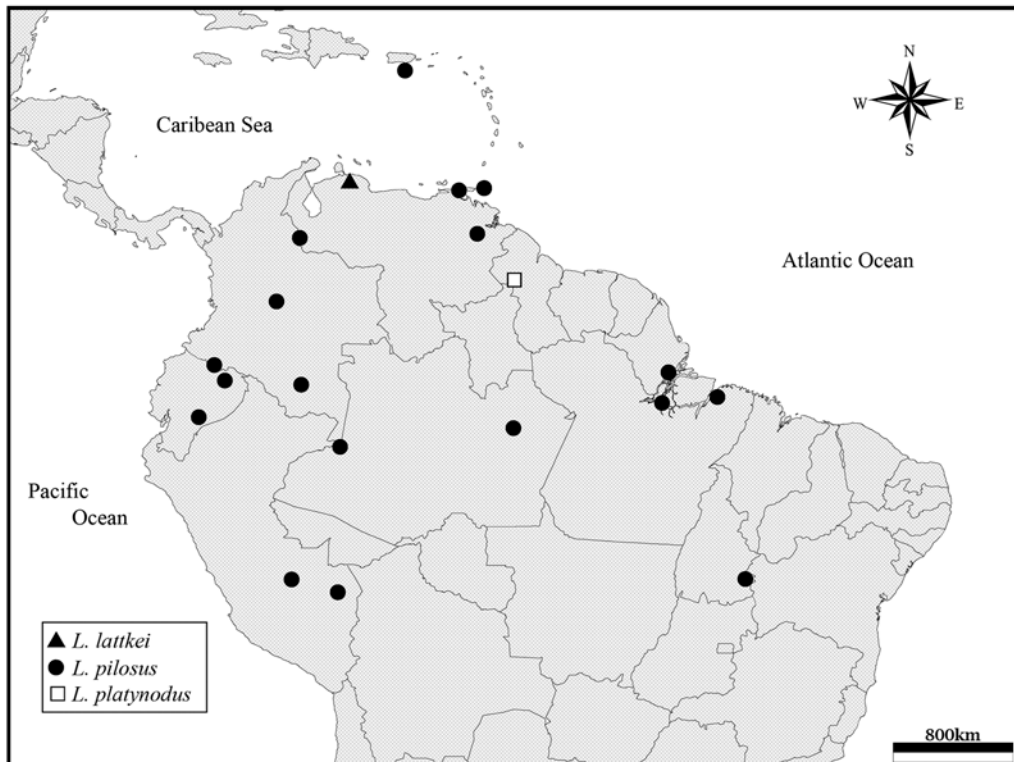
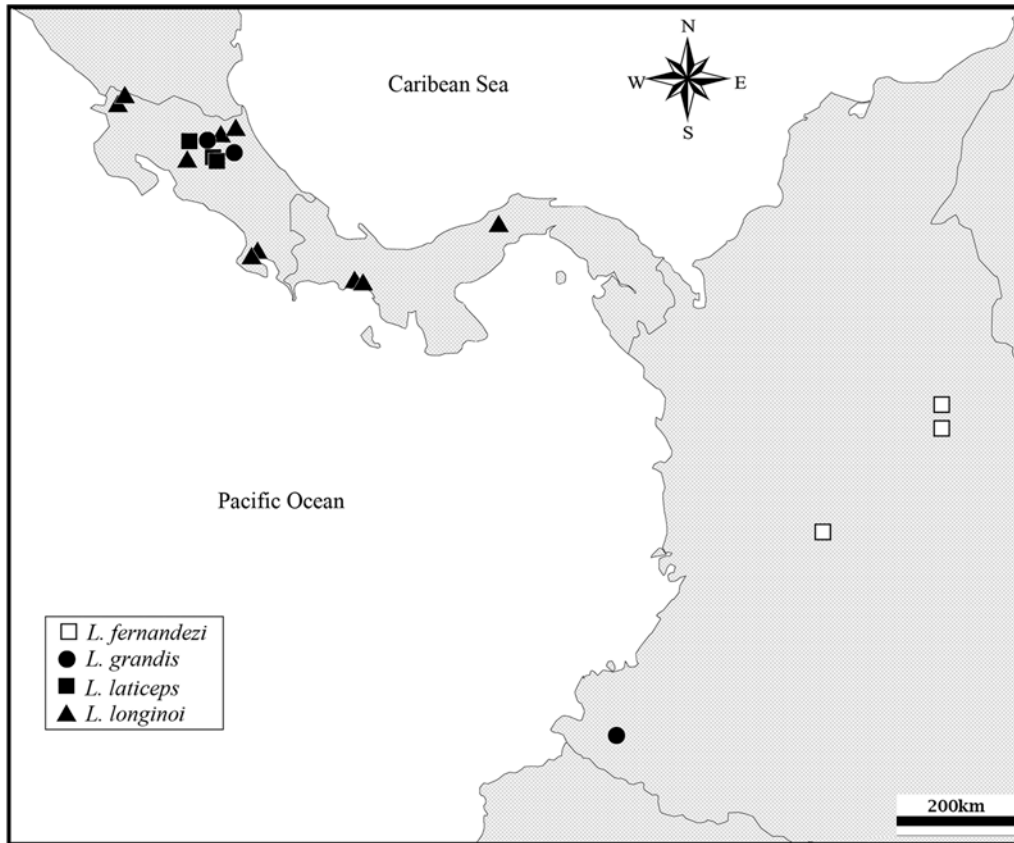


FIGURE 18. Distribution maps for the *Lachnomyrme* species (*L. fernandesi*, *L. grandis*, *L. laticeps*, *L. latkei*, *L. longinoi*, *L. pilosus*, and *L. platynodus*).

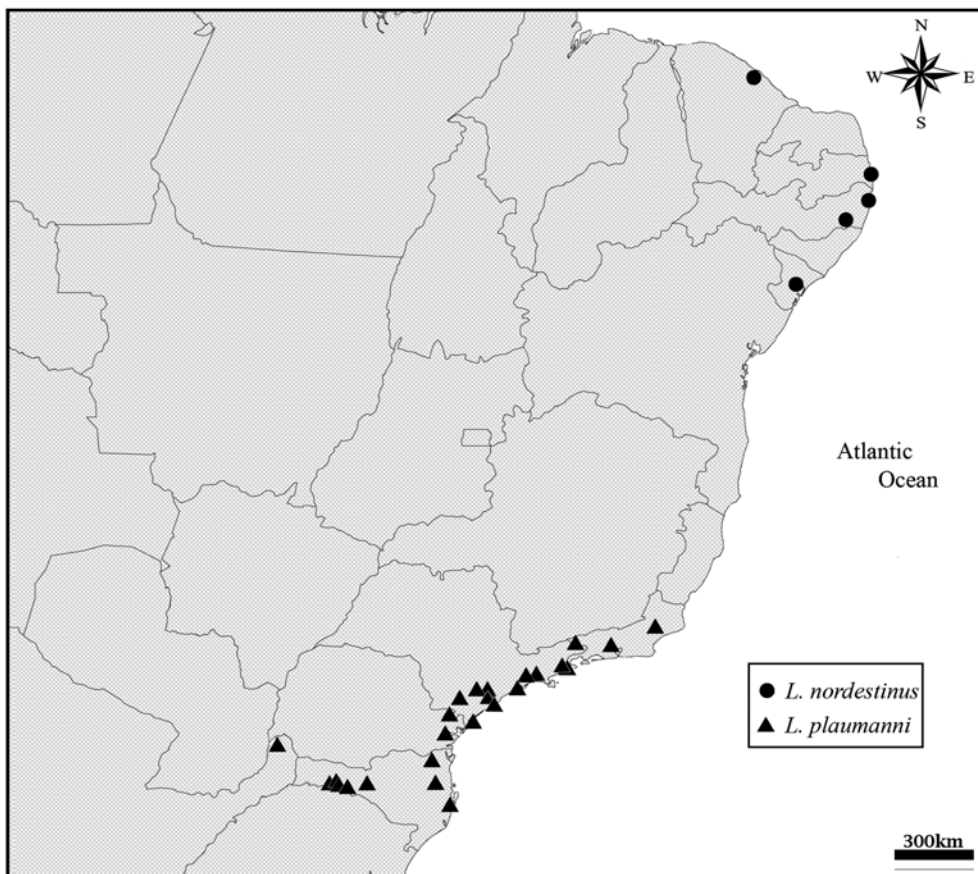
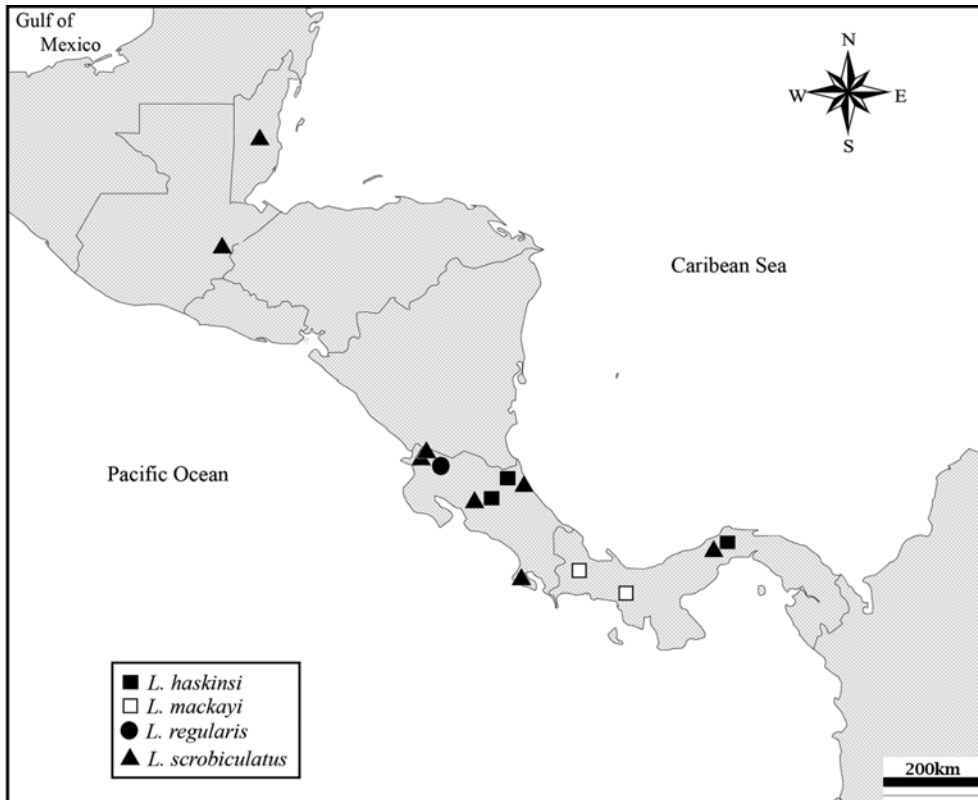


FIGURE 19. Distribution maps for the *Lachnomyrmex* species (*L. haskinsi*, *L. mackayi*, *L. nordestinus*, *L. plaumanni*, *L. regularis*, and *L. scrobiculatus*).

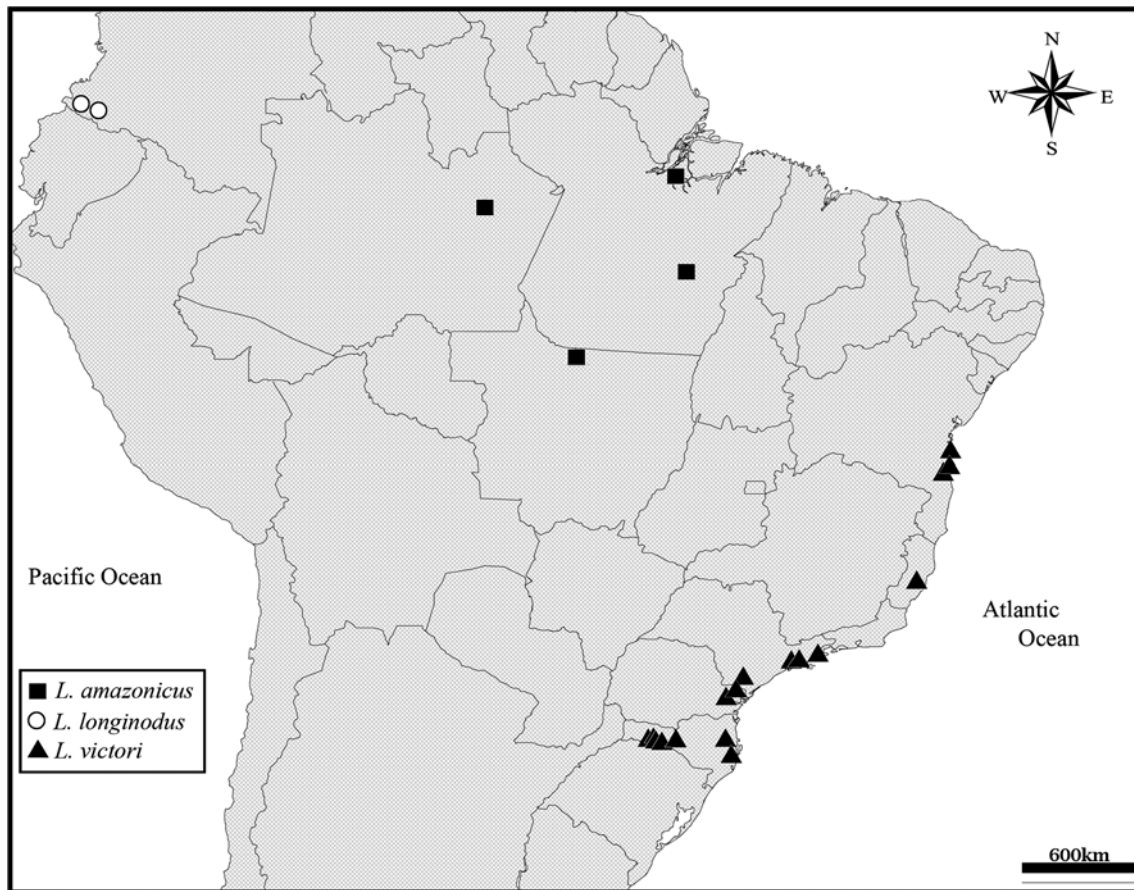


FIGURE 20. Distribution map for the *Lachnomyrmex* species (*L. amazonicus*, *L. longinodus*, and *L. victori*).

Further than the characters pointed out by Borgmeier, workers of *L. victori* can be distinguished from *L. plaumanni* and the other congeners also by the promesonotum only moderately elevated, metanotal suture ill impressed, dorsum of postpetiole with more than 10 long hairs, and first gastral tergite devoid of long hairs.

As far as we know, *L. victori* occurs in the Atlantic Forest of southeastern Brazil, at 300–1050m elevation. As in *L. plaumanni*, there is a single record of a *L. victori* worker foraging in the vegetation. It was collected on the trunk of *Croton floribundus* (Euphorbiaceae), in the state of São Paulo (M.S. Morini, pers. comm.).

Additional material examined. BRAZIL: Bahia: Ilhéus, iv.1996, J. Assis col. (1 gyne) [CPDC]; same locality, x.1996, L.S. Ramos col., no. 5119 (2 workers) [CPDC]; Marajú, 23.x.1998, J.R.M. Santos col. (1 worker) [MZSP]; São José, Vitória Puaías, 15°03'N 39°20'W, 22.v.2000, J.R.M. Santos col., no. A38 (1 worker) [CPDC]; **Paraná:** Bocaiúva, v.1963, F. Plaumann col., no. 4000 (1 gyne) [MZSP]; same locality, xi.1963, F. Plaumann col., no. 3870 (1 worker) [MZSP]; **Santa Catarina:** Chapecó, vi.1960, F. Plaumann col. (1 gyne) [MZSP]; Concórdia, ix.1959, F. Plaumann col., no. 8296a (1 worker) [MZSP]; Ibicaré, vii.1959, F. Plaumann col., no. 3128 (4 workers) [MZSP]; Nova Teutônia, ix.1954, F. Plaumann col., no. 8216 (4 workers and 2 gynes) [MZSP]; same locality, xi.1957, F. Plaumann col. (1 worker) [MZSP]; same locality, xii.1958, F. Plaumann col., no. 8307 (1 worker) [MZSP]; same locality, vii.1959, F. Plaumann col. (1 worker) [MZSP]; same locality, vi.1960, F. Plaumann col., no. 3960 (1 worker and 1 gyne) [MZSP]; same locality, vi.1963, F. Plaumann col., no. 3710 (1 gyne) [MZSP]; Seara, viii.1958, F. Plaumann col., no. 2708 (3 workers) [MZSP]; same data (1 worker) [MZSP]; **São Paulo:** Cunha, P.E. da Serra do Mar, Núcleo Indaiá, 23°15'03"S 45°00'26"W, 21–22.iv.2001, R.R. Silva & A.A. Tavares cols, no. 31 (3 workers) [MZSP]; Mogi das Cruzes, P.N.M. da Serra do Itapeti, Trilha do Esquilo, 22.iv.1999, 23°29'22"S 46°11'55"W, A.S.M. Cassarotti col., no.

C2.2 (1 worker) [CPMS]; Ribeirão Grande, P.E. Intervalles, Barra Grande, 24°18'30"S 48°25'10"W, 5.ii.1999, A.A. Tavares col., no. T2–15 (1 gyne) [MZSP].

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