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NOTES ON *EMBIRATERMES* FONTES (ISOPTERA, TERMITIDAE, NASUTITERMITINAE), WITH DESCRIPTIONS OF TWO NEW SPECIES FROM AMAPÁ STATE, BRAZIL

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RESUMO – Soldados e operários de *Embiratermes parvirostris* sp.n., de *E. robustus* sp.n., ambas de florestas do Estado do Amapá, Brasil, são descritas com apresentação de desenhos da cabeça dos soldados e das mandíbulas do operário. Novas localidades são adicionadas à distribuição geográfica conhecida de *E. festivellus* e *E. latidens*, com notas biológicas.

PALAVRAS-CHAVE: *Embiratermes*; Isoptera; Termitidae; Nasutitermitinae; Cupins; Taxonomia.

ABSTRACT – Soldiers and workers of *Embiratermes parvirostris* sp.n., and of *E. robustus* sp.n., both from forests of Amapá State, Brazil, are described with drawings of the soldiers' heads and workers' mandibles. New localities are added to the known geographical distributions of *E. festivellus* and *E. latidens*, with biological notes.

KEY WORDS: *Embiratermes*; Isoptera; Termitidae; Nasutitermitinae; Termites; Taxonomy.

The genus *Embiratermes* was erected by Fontes (1985) including 11 species previously described as *Armitermes*. All the species of this genus are Neotropical, one (*E. chagresi*) known from Central America and the remainder from South America. *E. heterotypus* has the southernmost distribution, occurring in Argentina, Paraguay and southern Brazil.

The biology of *Embiratermes* species is poorly known, but the majority seem to live in nests built by other species. *E. neotenicus* builds an epigeal, earthen nest (described in detail in Mathews 1977) and is one of the most abundant termite species in Amazonian forests.

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In this paper, two new species of *Embiratermes* are described, and new locality records of *E. festivellus* and *E. latidens* are presented.

METHODS

Measurements were taken with an ocular micrometer, according to the suggestions of Roonwal (1969). The correspondence with Roonwal's measurement numbers is as follows: (1) length of head with nasus = no. 12; (2) length of head to side base of mandibles = no. 5; (3) width of head = no. 17; (4) height of head = no. 21; (5) width of pronotum = no. 68; (6) length of left mandible = no. 37; (7) length of nasus = no. 13; (8) length of hind tibia = no. 85. Terms used for chaetotaxy are comparative. Bristles are long and hard, with well-marked bases. Hairs are shorter and more slender than bristles. Colors are described using the scheme proposed by Sands (1965). All the material listed is deposited in the entomological collection of the Museu Paraense Emílio Goeldi (MPEG).

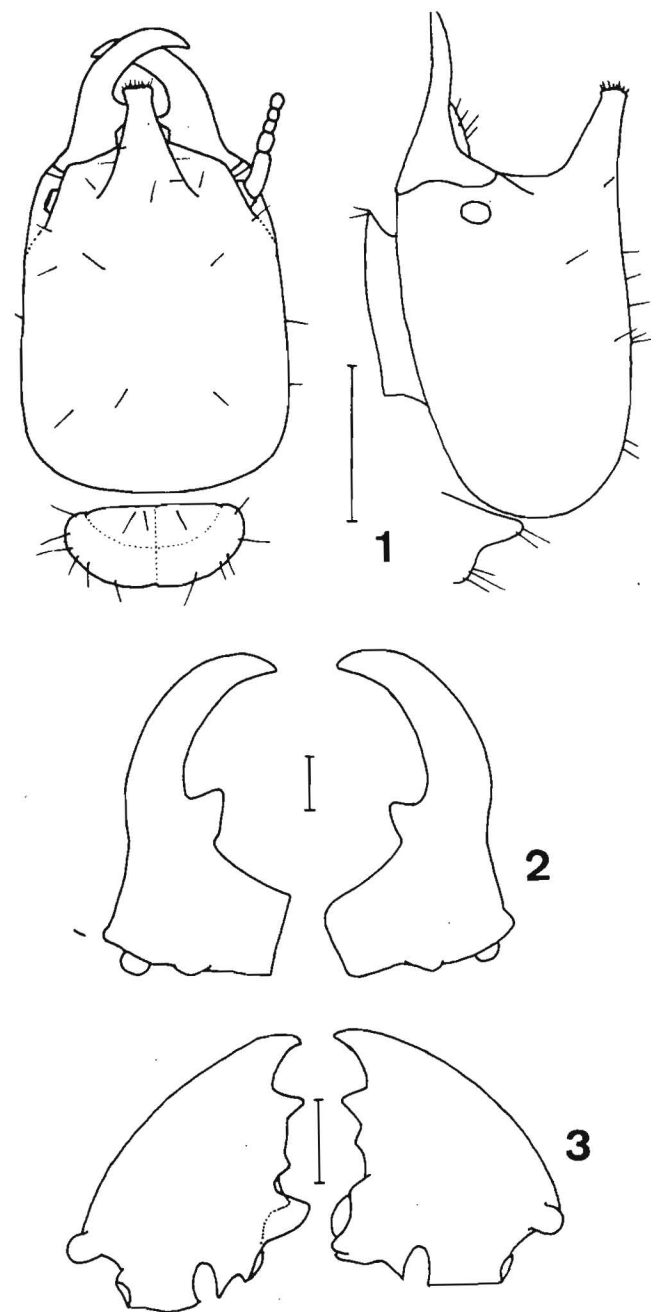
Embiratermes parvirostris, sp.n.
(Figures 1-3)

Imago - Unknown.

Soldier - Head capsule with sides straight, converging slightly towards front; top almost straight in profile. Nasus short, conical, directed upwards. Labrum wide, visible from above. Mandibles robust, strongly curved, with one marginal tooth each. Antennae with 14 segments, first longer than second, second longer than fifth, third and fourth the shortest. Postmentum strongly inflated. Anterior margin of pronotum emarginate; posterior margin rounded. Fore-coxae without projection outside. Head capsule with few, scattered bristles on top. Frontal tube with short hairs on tip and one or two short bristles near base. Labrum with approximately 10 bristles arranged in two longitudinal rows. Postmentum with 4 bristles on anterior margin. Pronotum with long bristles on margins. Meso and metanotum with a row of long bristles on posterior margin. Tibial spurs 2:2:2. Tergites and sternites with hairs and short bristles orientated backwards and a row of long, perpendicular bristles on posterior margin. Head without short hairs. Head capsule yellow; mandibles brown. Nasus ferruginous orange. Pronotum, legs and abdomen yellowish, transparent.

Measurements (in millimeters) of six soldiers from the two colonies: length of head with nasus 1.24-1.31; length of head to side base of mandibles 1.00-1.11; width of head 0.80-0.89; height of head 0.65-0.70; width of pronotum 0.56-0.57; length of left mandible 0.55-0.52; length of hind tibia 0.65-0.69; length of nasus 0.23-0.25.

Worker - Head capsule rounded. Postclypeus short and inflated. Antennae with 13 segments, 1st longer than 2nd, 2nd longer than 5th, 5th longer than 4th, 3rd subdivided, Mandibles as in Figure 3. Anterior margin of pronotum rounded. Head



Figures 1 - 3 - *Embiratermes parvirostris*, sp.n. 1. Soldier head; 2. Soldier mandibles; 3. Worker mandibles. (Scales = 0.5 mm for Figure 1 and 0.1 mm for Figures 2 and 3.)

with many hairs and a few bristles. Labrum with approximately 10 bristles. Pronotum with long bristles on margins and hairs on surface. Meso and metanotum with long bristles on posterior margin and hairs on surface. Tergites and sternites with numerous hairs and short bristles orientated backward. Sternites with a row of long bristles orientated forward. Legs with many hairs and a few long bristles. Head yellowish white; remainder of body whitish.

Comparisons - The soldier of *E. parvirostris* is among the smallest in the genus. The soldier of *E. brevinasus* is larger, has mandibles proportionally larger, more robust and less curved, and the nasus more upwards directed. The soldier of *E. snyderi* has a much longer and more upward directed nasus; head capsule proportionally shorter with convex sides; mandibles slender, with sharp points.

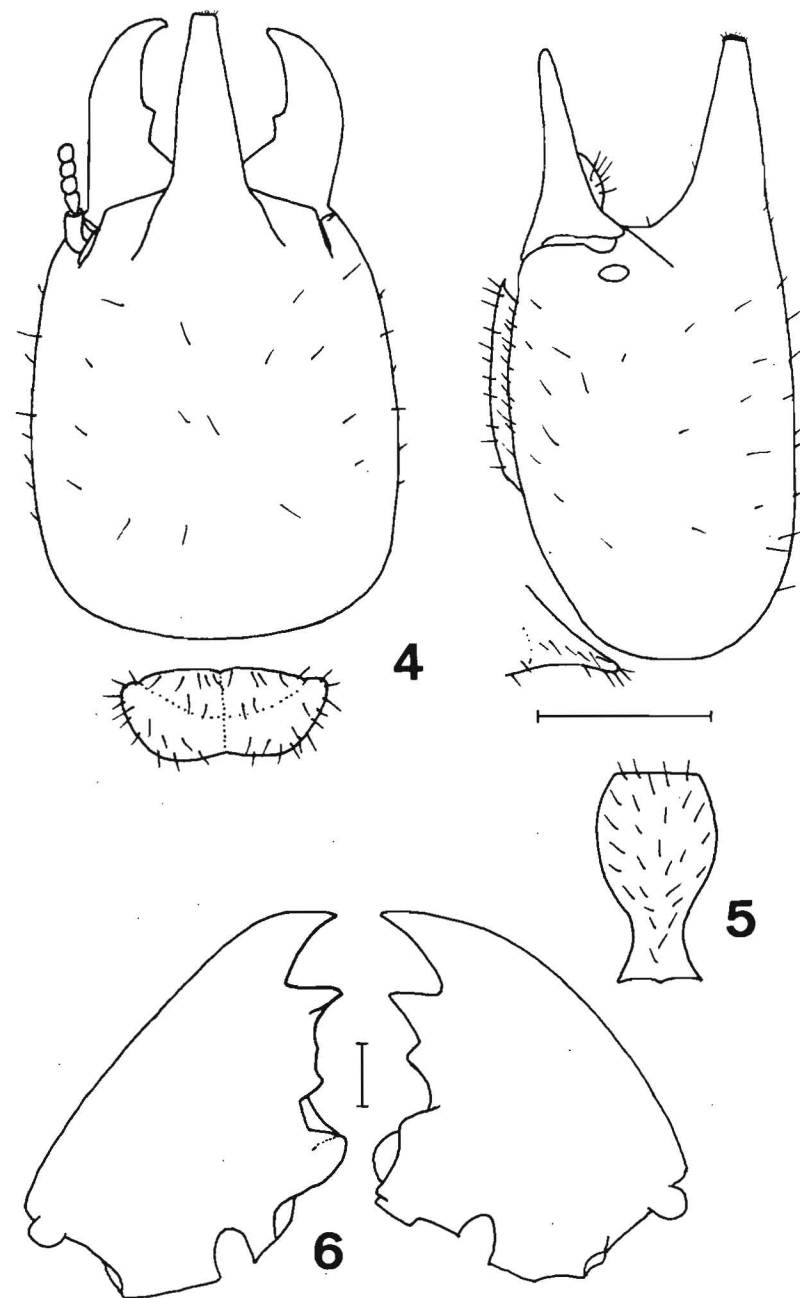
Biology - Colony 3151 was collected in an abandoned epigeal nest together with *Crepititermes verruculosus*. Colony 3203 was found in an epigeal, earthen nest built by *Neocapritermes angusticeps*. Both colonies were collected in a disturbed dry forest near the city of Macapá.

Type Material - BRAZIL. Amapá State. Macapá, holotype soldier, 15 paratype soldiers and many paratype workers from lot MPEG 3203, 22.X.1989, R. Constantino, col.; 11 paratype soldiers and many paratype workers from lot MPEG 3151, 17.X.1989, R. Constantino, col. Paratypes to be deposited in the collection of the Museu de Zoologia, Universidade de São Paulo.

Embiratermes robustus, sp.n.
(Figures 4-6)

Imago - unknown.

Soldier - Head capsule with parallel, convex sides; top convex in profile. Nasus long and slender, orientated forward. Labrum rounded. Mandibles robust and slightly curved. A small marginal tooth of triangular shape on each mandible. Tooth of left mandible larger than tooth on right one. Antennae with 14 segments, first longer than second; second longer than third; third, fourth and fifth about the same length. Pronotum with anterior lobe strongly elevated in profile; margins anterior and posterior emarginate. Postmentum flattened; anterior part wide. Fore-coxae without projection outside. Head with scattered bristles on top and sides, and numerous on under side; hairs absent. Nasus with few hairs on sides and numerous short hairs on tip. Labrum with 6-8 bristles divided in two longitudinal rows. Pronotum with numerous bristles on margin and scattered ones on surface. Postmentum with numerous bristles. Mesonotum with bristles on posterior margin and scattered ones on surface. Legs with numerous bristles. Tibial spurs 2:2:2. Tergites and sternites with dense, short to long bristles orientated backwards and a row of long, perpendicular ones on posterior margin. Head capsule orange yellow. Frontal tube ferruginous orange. Pronotum yellow. Legs and abdomen yellowish, transparent.



Figures 4 and 5 - *Embiratermes robustus*, sp.n. 4. Soldier head; 5. Soldier postmentum; 6. Worker mandibles. (Scales = 1.0 mm for Figures 4 and 5 and 0.1 mm for Figure 6.)

Measurements (in millimeters) of five soldiers from the type-colony: length of head with nasus 3.39-3.52; length of head to side base of mandibles 2.35-2.39; width of head 2.04-2.13; height of head 1.57-1.61; width of pronotum 1.13-1.17; length of left mandible 1.04-1.09; length of hind tibia 1.52-1.61; length of nasus 1.00-1.04.

Worker - Head rounded. Postclypeus short and inflated. Antennae with 14 segments, 1st longer than 2nd, 2nd and 5th about the same length, 3rd and 4th equal. Mandibles as in Figure 6. Anterior lobe of pronotum strongly raised in profile; anterior margin rounded. Head capsule with 8 bristles. Postclypeus with 2 bristles. Labrum with 8 bristles. Margins of pronotum with long bristles. Posterior margin of meso and metanotum with long bristles. Tergites and sternites with numerous bristles. Sternites with a row of long bristles oriented forward on posterior margin. Legs with many hairs and bristles. Head capsule yellowish white; remainder of body whitish.

Comparisons - The soldier of *E. robustus* seems to be the largest sized in this genus and the closest species are *E. heterotypus* and *E. spissus*. The soldier of *E. heterotypus* has a proportionally longer nasus, mandibles with vestigial dentition, postmentum more inflated and less numerous bristles on entire body. The soldier of *E. spissus* is smaller, has antennae with 15 articles, a prominent conical projection on anterolateral surface of fore-coxae, and less numerous bristles on entire body.

Biology - The single colony was found in an epigeal, earthen nest with loose soil on surface at the base of a tree in primary rain forest.

Type Material - BRAZIL. Amapá State. Serra do Navio, holotype soldier, 10 paratype soldiers and many paratype workers from lot MPEG 3276, 02.XI.1989, R. Constantino, col. Paratypes to be deposited in the collection of the Museu de Zoologia, Universidade de São Paulo.

Embiratermes festivellus (Silvestri 1901)

Material Examined - BRAZIL. Amazonas State. Humaitá, MPEG 3771, 3775 and 3795, 19.IX. 1990, R. Constantino, col.

Biology - According to Mathews (1977), the most common nesting site of this species is inside mounds of *Cornitermes snyderi*, where it take over part of the mound and make alterations in its construction. All the three colonies were found in cerrado vegetation: MPEG 3771 occupying a large portion of an epigeal nest of *Armitermes holmgreni*; MPEG 3775 from a large mound built by *Cornitermes snyderi*; MPEG 3795 in an epigeal nest of irregular shape with no evidence of construction by other species.

Embiratermes latidens (Emerson & Banks 1957)

Material Examined - BRAZIL. Amazonas State. Humaitá, MPEG 3610, 3612, 3621, 3627, 3631 and 3644, 02-05.IX.1990, R. Constantino, col. Pará State. Serra dos Carajás, MPEG 2440, 27.I.1986, A.G. Bandeira, col. Tucuruí, MPEG 1988, 28.III.1984, A.G. Bandeira, col. Rondônia State. Ji-Paraná, MPEG 3902, 25.VIII.1986, W.L. Overal, col.

Biology - All the material from Humaitá was collected in arboreal, earthen nests in primary rain forest. These nests have an irregular shape and other species are frequently found inside them. *Cavitermes tuberosus* or *Cavitermes parvicavus* (but never both) and an *Anoplotermes* species were present in almost every nest. It was not possible to determine what species begins the construction, but there are different structures in parts occupied by different species. Colony MPEG 1988 was found in the inferior part of an abandoned nest of *Labiatermes labralis* and colony MPEG 2440 in an epigeal nest, apparently abandoned (collectors' notes).

Remarks - This species is very close to *E. festivellus* and the only known difference is the wider marginal tooth of the right mandible in *E. latidens*. I have observed some variation in the width of this tooth and a study of larger series will be necessary to clarify this difference. *E. festivellus* seems to be restricted to cerrado vegetation and *E. latidens* to rain forest.

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A NEW SPECIES OF *AMITERMES* SILVESTRI FROM AMAPÁ STATE, BRAZIL (ISOPTERA, TERMITIDAE, TERMITINAE)

Reginaldo Constantino¹

RESUMO – O soldado e o operário de *Amitermes aporema*, sp.n., são descritos a partir de material coletado no cerrado do leste do Estado do Amapá. São apresentados desenhos da cabeça do soldado e das mandíbulas do operário.

PALAVRAS-CHAVE: *Amitermes*; Isoptera; Termitinae; Cupins; Taxonomia.

ABSTRACT – The soldier and worker castes of *Amitermes aporema*, sp.n., are described from material collected in the cerrado vegetation of eastern Amapá State, Brazil. Drawings of the soldier head and worker mandibles are presented.

KEY WORDS: *Amitermes*; Isoptera; Termitinae; Termites; Taxonomy.

The genus *Amitermes* is world-wide in distribution, with nearly 100 known species, most of them living exclusively in savannas, deserts and other arid or semi-arid open environments. An updated world list of species of this genus was presented by Scheffrahn & Su (1987). The American species of *Amitermes* were studied by Light, who attempted to define "groups" among them. These groups, however, may be artificial and more detailed studies are still necessary in order to define phylogenetic relations.

Six species are known from the Neotropical Region, and two, *A. excellens* and *A. beaumonti*, live in forest habitats. A new species collected in the cerrado vegetation of the eastern Amapá State, Brazil, is described in this paper.

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