



## RESEARCH ARTICLE - ANTS

## *Thaumatomyrmex fraxini* sp. nov. (Hymenoptera: Formicidae), a New Ant Species from the Brazilian Atlantic Forest

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### Abstract

A new species of Ponerinae, *Thaumatomyrmex fraxini* D'Esquivel and Jahyny (Hymenoptera: Formicidae), is described from several localities in Northeastern Brazil, after the morphology of the worker. This species is easily distinguished from any other ones in the genus by a unique combination of characters that justify its allocation to the species-group *ferox*, *sensu* Kempf (1975). The known distribution of this species reveals that it inhabits different ecosystems of the Atlantic Forest biome.

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### Introduction

*Thaumatomyrmex* (Hymenoptera: Formicidae) is a small Neotropical ant genus originally proposed by Mayr (1887) for the Brazilian species *Thaumatomyrmex mutilatus* in the subfamily Ponerinae Lepeletier de Saint-Fargeau, 1835. The genus remained monotypic during a long time until the second known species, *Thaumatomyrmex ferox*, was described by Mann (1922). Currently the genus accounts 12 valid species (Bolton et al., 2016). Weber (1939) offered the first available species identification key and this was later updated by Kempf (1975) who first revised the genus, also describing *Thaumatomyrmex contumax* from Brazil. Due to its very peculiar morphology, Emery (1901) first placed this genus in its own tribe Thaumatomyrmecini [Thaumatomyrmii] but, recently, based on the results of a detailed phylogenetic analysis using molecular and morphological data, Schmidt

and Shattuck (2014) combined the genus *Thaumatomyrmex* inside the tribe Ponerini Lepeletier de Saint-Fargeau, 1835. Further additional information on the species taxonomy for this genus is offered in Bolton et al. (2016).

*Thaumatomyrmex* species are distributed between Mexico and Northern Argentina, with occurrence in Caribbean islands (Jahyny et al., 2015). They are small to median ants inhabiting a range of environments, such as tropical wet or dry forests, savannas and semi-arid regions with xerophytic vegetation, being collected up to 2000m altitude. Their colonies, the smallest for population size in the Formicidae family, with about 3-4 individuals for some species, live in natural cavities in the soil, the leaf-litter or the tree trunks (Delabie et al., 2000; Jahyny, unpub. data). They are specialist-predator feeding on polyxenid millipedes (Diplopoda: Penicillata) (Brandão et al., 1991; Jahyny et al., 2008; Rabeling et al. 2012).



Hereafter we describe a new species of *Thaumatomyrmex* after the morphology of the worker. This was discovered in a remnant fragment of forest from Southern Bahia, Brazil belonging to the “Tabuleiro Forest” ecological system, native vegetal formation known as “Floresta Ombrófila Densa das Terras Baixas” (IBGE, 2012) or “Floresta Pluvial dos Tabuleiros” (Thomas, 2003). In the Central Corridor of Atlantic Forest biome, the ant’s fauna inhabiting this ecosystem remains poorly known (Oliveira et al., 2015), since very few studies on its diversity were published for this region. The only available studies on ant’s communities were published by Leal et al. (1993) and Delabie et al. (1997) who, respectively, recorded a list of 61 and 66 species of ants in a same remnant fragment of Tabuleiro forest from Northern Espírito Santo state. Also, Delabie et al. (2007) studied the ant fauna inhabiting the leaf-litter of a cocoa plantation in the Mucuri region (Southern Bahia state), farmed following the “Cabruca” production system in a such remnant fragment of Tabuleiro forest. However, some recent taxonomic studies suggest a strong endemism locally. For example, Fernandez et al. (2009) and Oliveira et al. (2015) respectively described a new myrmicine genus (*Diaphoromyrma*) and a new *Pheidole* species (*Pheidole protaxi*) from a same remnant fragment of Tabuleiro Forest from Southern Bahia, all being endemic. Also, Fernandez et al. (2014) described a new monotypic genus (*Kempfidris*) from which the type species has *locus typicus* in a remnant fragment of Tabuleiro forest from Southern Bahia. For this reason, since the last remnant fragments of native forest are strongly threatened in the “biodiversity crisis” context (Wilson, 1988), the discovery of a new *Thaumatomyrmex* species here described significantly contributes to increase our knowledge on the ants’ diversity in this ecosystem.

This paper is a partial result of an integrative research project named: “Contribution to the Study of the Ants Fauna in Lowland Ombrophilous Forests from the Atlantic Forest Biome”.

## Material and Methods

The taxonomic definition of the new ant species here described result from the integrative establishment of its diagnosis and taxonomic affinities, based on a complex analytical process of a large amount of elementary morphological and taxonomic data relative to all valid species of *Thaumatomyrmex* Mayr, 1887.

Taxonomic nomenclature follows Bolton et al. (2016). Taxonomic and specimens’ data were managed by using the software Mantis® Version 2.0 (<http://140.247.119.138/mantis/>) (Naskrecki, 2008). All samples bear a unique specimen-level identifier (ID) affixed to the pin, being written in the text as: “[LBSA\_SA\_specimen codes]”, where LBSA refers to the acronym for collection of the Laboratório de Biossistemática Animal, Universidade Estadual do Sudoeste da Bahia, Itapetinga-BA, Brazil. Other depository collections for type material are referred to by the following acronyms: CPDC, Centro de Pesquisas do Cacau, Comissão Executiva do Plano de

Lavoura Cacaueira (CEPLAC), Itabuna-BA, Brazil; MPEG, Museu Paraense Emilio Goeldi, Belém, Pará, Brazil; MZSP, Museu de Zoologia da Universidade de São Paulo, Brazil”. One time this new taxon will be published, in order to avoid the concentration of all types in only Brazilian institutions, we will ask for official governmental authorizations allowing us to send some paratypes in several museum of Europe and U.S.A.

Depending of the morphological structure considered, morphological concepts and terminology in this paper follow Richards (1956), Eady (1968), Kempf (1975), Harris (1979), Gauld and Bolton (1988), Goulet and Huber (1993), Kugler (1994), Bolton (1994) and Keller (2011). Direct morphological examination of specimens was completed at various magnifications using a light stereomicroscope Olympus SZX7. Morphometric measures were made with a Carl Zeiss measuring microscope and recorded to the nearest 0.01 mm. All measurements are given in millimeters, using the following definitions and abbreviations:

EL (Eye Length): the maximum diameter of the eye.

GL (Gaster Length): the length of the gaster in lateral view from the anteriormost point of first gastral segment (third abdominal segment) to the posterior most point.

HL1 (Head Length 1): is the distance between two parallels drawn through the anteriormost point of projecting frontal lobes and the posteriormost point of vertex, in full-face view (this corresponds to the measure of HL in Kempf (1975)).

HL2 (Head Length 2): maximum distance from the mid-point of the anterior clypeal margin to the mid-point of the posterior margin of vertex, measured in full-face view.

HW1 (Head Width 1): the maximum width of cephalic capsule proper measured anterior to the eyes, the head in dorsal view.

HW2 (Head Width 2): the maximum width of cephalic capsule proper measured posterior to the eyes, the head in dorsal view.

HFL (Metafemur Length): maximum length of metafemur, measured from the junction with the trochanter to the junction with the tibia.

IFW (InterFrontal Width): the maximum distance measured between the outer borders of frontal lobes across the front.

ML (Mandible Length): length of a mandible measured in ventral view from its basal articulation to its apex.

PTH (Petiolar Node Height): maximum height of petiolar node measured in lateral view.

PTL (Petiole Length): the maximum length of the petiole in lateral view.

PTW (Petiolar Node Width): maximum petiolar node width, measured in dorsal view.

PW (Pronotal Width): maximum width of pronotum measured in dorsal view.

SL (Scape Length): maximum scape length, excluding basal condyle and neck.

TL (Total Length):  $TL = HL + WL + PTL + GL$

WL (Weber’s Length): diagonal length, measured in lateral view, from the anterior margin of the pronotum (excluding the collar) to the posterior extremity of the metapleural lobe.

Indices have the following abbreviations and definitions:

CI (Cephalic Index): HW1/HL1x100

HFI (HindFemur Index): HFL/HW1x100

IFI (Inter Frontal Index): IFW/HW1x100

MI1 (Mandibular Index 1): ML/HL1x100

MI2 (Mandibular Index 2): ML/HFLx100

MI3 (Mandibular Index 3): ML/HW1x100

PI (Pronotum Index): HW1/PWx100

Standard high-resolution microphotographs were produced through a multi-focused montage processing using LAS V4.4 software (<https://www.leica-microsystems.com/applications/education/details/product/leica-las-ez/>), from a series of source images taken by a Leica CH-9435 Heerburg digital camera attached to a Leica M165C microscope. Each final microphotograph was improved using the tools of the Photo Editor module in the software Adobe Element Photoshop (version 6.0). When available, high-resolution microphotographs of type and non-type specimens of other valid *Thaumatomyrmex* species and their synonyms were studied, either being downloaded from Internet (i.e.: iconographical banks of MCZ Type Database @ (<http://insects.oeb.harvard.edu/mcz/>), Smithsonian Ant Type Specimen Image Database (<http://ripley.si.edu/ent/nmnhtypedb/public/browse.cfm>) and Antweb ([www.antweb.org](http://www.antweb.org)) or extracted from publications referring to its original descriptions or revisions. Management of all morphological illustrations produced or collected (microphotographs and drawing) with its identification and indexation by key-words was carried out using the organizer module of the software Adobe Photoshop Elements® Version 6.0.

Comparative of all morphological and morphometric data originated from direct observations or from taxonomic literature was performed by using the software Xper<sup>2</sup>® (<http://infosyslab.fr/?q=en/resources/software/xper2>) (LIS, 2016).

## Results

### Taxonomic treatment

Class Insecta Linnaeus, 1758

Order Hymenoptera Linnaeus, 1758

Family Formicidae Latreille, 1809

Subfamily Ponerinae Lepeletier de Saint-Fargeau, 1835

Tribe Ponerini Lepeletier de Saint-Fargeau, 1835

Genus *Thaumatomyrmex* Mayr, 1887

### *Thaumatomyrmex fraxini* D'Esquivel and Jahyny, new species

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**Type material.** Holotype: one worker deposited in CPDC and labeled [see data]: [LBSA\_SA\_14015217], [Brazil: Bahia, Belmonte, Barrolândia, CEPLAC/EGREB, 16°5'33.04"S, 39°12'17.64"W, elev. 109 m] and [Col. S. Lacau, L.B. Godinho, M.R. da Silva Jr, M.L. Oliveira, 05.09.2008].

Paratypes (n=28): 2 workers with the same data as Holotype, in CPDC ([LBSA\_SA\_14015192], [LBSA\_SA\_14015582]); 1 worker [Brazil: Bahia, Ilhéus, CEPEC] and [Col. J. Maia, 07.06.1996], in CPDC ([LBSA\_SA\_14015569]); 1 worker [Brazil: Bahia, Ilhéus, CEPEC] and [Col. P. Terra, 14.04.1987], in CPDC ([LBSA\_SA\_14015570]); 1 worker [Brazil: Bahia, Ilhéus, Cacaul] and [Col. J.C.S. Carmo, 05.1998], in CPDC ([LBSA\_SA\_14015572]); 1 worker [Brazil: Bahia, Ilhéus, CEPEC] and [Col. J.C.S. Carmo, 04.1996], in CPDC ([LBSA\_SA\_14015573]); 1 worker [Brazil: Bahia, Ilhéus, CEPEC, Zoologia] and [10.07.1998], in CPDC ([LBSA\_SA\_14015580]); 2 workers [Brazil: Bahia, Ilhéus, Banco do Pedro, 144051 S, 0391524 W] and [Col. J.R.M. Santos, J.C.S. do Carmo, 12.01.1998], in CPDC ([LBSA\_SA\_14015571], [LBSA\_SA\_14015583]); 2 workers [Brazil: Bahia, Ilhéus] and [Col. J.C.S. Carmo, 06.1997], in CPDC ([LBSA\_SA\_14015574], [LBSA\_SA\_14015575]); 3 workers [Brazil: Bahia, Ilhéus, Olivença] and [Col. V.R.L. Mello, 06-09.08.1996], deposited in CPDC ([LBSA\_SA\_14015576], [LBSA\_SA\_14015577]), MZSP ([LBSA\_SA\_14015578]) and MPEG ([LBSA\_SA\_14015579]); 2 workers [Brazil: Bahia, Camacan] and [Col. J.R.M. dos Santos, 27.08.1999], in CPDC ([LBSA\_SA\_14015592], [LBSA\_SA\_14015593]); 2 workers [Brazil: Bahia, Una] and [Col. J.R.M. dos Santos, 24.08.1998], in CPDC ([LBSA\_SA\_14015612], [LBSA\_SA\_14015613]); 1 worker [Brazil: Bahia, Mascote] and [Col. J.R.M. dos Santos, 18.06.1999], in CPDC ([LBSA\_SA\_14015562]); 2 workers [Brazil: Bahia, Canavieiras, Oiticica] and [Col. J.R.S. Carmo, 30.03.1998], in CPDC ([LBSA\_SA\_14015563], [LBSA\_SA\_14015564]); 3 workers [Brazil: Bahia, Canavieiras, Oiticica], [Col. J.C.S. Carmo, J.R.M. Santos, 09.10.1998], in CPDC ([LBSA\_SA\_14015565]), MZSP ([LBSA\_SA\_14015566]) and MPEG ([LBSA\_SA\_14015567]); 3 workers [Brazil: Bahia, Itapebi] and [Col. J.R.M. Santos, 16.07.1997], in CPDC ([LBSA\_SA\_14015609], [LBSA\_SA\_14015610], [LBSA\_SA\_14015611]); 1 worker [Brazil: Bahia, Santa Cruz Cabrália, 455321 S, 8203867 W] and [Col. J.R.M. Santos, J.C.S. Carmo, 08.08.2006], in CPDC ([LBSA\_SA\_14015568]).

**Other examined material:** 5 workers [Brazil: Sergipe, Crasto, Santa Luzia] and [Col. J. Jardim, 28.11.1993], in CPDC ([LBSA\_SA\_14015594], [LBSA\_SA\_14015595], [LBSA\_SA\_14015596], [LBSA\_SA\_14015597], [LBSA\_SA\_14015598]); 2 workers [Brazil: Bahia, Taboquinha] and [Col. J.R.M. Santos, 06-20.12.1996], in CPDC ([LBSA\_SA\_14015602], [LBSA\_SA\_14015603]); 1 worker [Brazil: Bahia, Ilhéus, CEPEC, Zoologia] and [10.07.1998], in CPDC ([LBSA\_SA\_14015581]); 1 worker, [Brazil: Bahia, Ilhéus] and [Col. J.R.M. Santos, 22.09.1997], in CPDC ([LBSA\_SA\_14015587]); 1 worker [Brazil: Bahia, Ilhéus] and [J.R.M. Santos, J.C.S. Carmo, 06.10.1997], in CPDC ([LBSA\_SA\_14015588]); 1 worker [Brazil: Bahia, Ilhéus, Olivença] and [Col. J.C.S. Carmo, J.R.M. Santos, 09.11.1998], in CPDC ([LBSA\_SA\_14015584]); 1 worker

[Brazil: Bahia, Ilhéus, Olivença] and [Col. J.R.M. dos Santos, 16.11.1998], in CPDC ([LBSA\_SA\_14015591]); 1 worker [Brazil: Bahia, Buerarema] and [Col. J.R.M. Santos, 22.11.1996], in CPDC ([LBSA\_SA\_14015586]); 1 worker [Brazil: Bahia, Una] and [Col. H.J. Santos, 24.08.1996], in CPDC ([LBSA\_SA\_14015590]); 3 workers [Brazil: Bahia, Una, Cacaul] and [Col. J.C.S. Carmo, 09.05.1998], in CPDC ([LBSA\_SA\_14015599], [LBSA\_SA\_14015600], [LBSA\_SA\_14015601]); 2 workers [Brazil: Bahia, Ibicaraí, Km 41] and [Col. J.R.M dos Santos, 21.11.1998], in CPDC ([LBSA\_SA\_14015607], [LBSA\_SA\_14015608]); 1 worker [Brazil: Bahia, Itororó, 14°58'28S, 40°03'01W] and [Col. J.C. Carmo, 11.08.2000], in CPDC ([LBSA\_SA\_14015589]); 6 workers [Brazil: Bahia, Itapetinga, Mata UESB] and [Col. M. Oliveira, 2008], in CPDC ([LBSA\_SA\_14015614], [LBSA\_SA\_14015615], [LBSA\_SA\_14015616], [LBSA\_SA\_14015617], [LBSA\_SA\_14015618], [LBSA\_SA\_14015619]); 3 workers [Brazil: Bahia, Itambé] and [20.08.2006], in CPDC ([LBSA\_SA\_14015604], [LBSA\_SA\_14015605], [LBSA\_SA\_14015606]); 1 worker [Brazil: Bahia, Vitória da Conquista, Pau Brasil] and [Col. J.R.M. dos Santos, 16.07.2003], in CPDC ([LBSA\_SA\_14015585]).

**Etymology:** This species is named in honor to the Professor Dominique Fresneau, a French ethologist who devoted his life studying the behavior of Neotropical ponerines. The specific name “*fraxini*” is the genitive of *Fraxinus*, the Latin genus name of the ash tree (Oleaceae) described by Linnaeus, 1753. The family name Fresneau is an old French name for these trees.

**Diagnosis:** the worker morphology of this new species exhibits all the diagnostic characters of the genus *Thaumatomyrmex*. It differs from all other known species by the unique combination of the following characters:

1. Head in dorsal view, with cephalic capsule subquadrate, slightly longer than wide (CI = 88.1-98.3).
2. Maximal width of head less than 1,5 times the maximal width of pronotum (PI = 130-147.4).
3. Maximal width of frons greater than that of pronotum.
4. Mesosoma in lateral view, with outline of the dorsal face of mesonoto-propodeal complex drawing a single convexity (metanotal groove and suture absent), weak and symmetrical.
5. Mesosoma in lateral view, with outline of the dorsal face of mesonoto-propodeal complex separated from that of the postero-lateral margin of propodeum by a nearly right angle.
6. Propodeum with postero-lateral margins sharply marked and straight, nearly angulated but without defining any carinae.
7. Segment abdominal 2 (petiole) in lateral view, with the node not differentiating a dorsal face, the outline of anterior face meeting that of posterior face in an acute angle.
8. Mandible with a proximal tooth well differentiated (triangular shaped, as long as wide basally).
9. Mandibles slightly shorter than the maximal head width in front of eyes (MI3 = 86.8-98.2).
10. Mandibles slightly shorter or longer than the maximal length

of femur (MI2 = 88.9-111.1).

11. Median part of clypeus smooth and shining.
12. Lateral parts of clypeus with longitudinal carinae.
13. Frontal lobes with longitudinal carinae.
14. Front mostly smooth and shining, except its more antero-lateral parts at the posterior end of frontal carinae with dense longitudinal rugulae.
15. Vertex smooth and shining.
16. Genae smooth and shining, except the supra-ocular areas with some longitudinal microrugulae.
17. Mesosoma smooth and shining.
18. Metasoma smooth and shining.
19. Clypeus with two pair of erect setae (long, slightly curved, forward directed, thin, only apically acute) situated at lateral margin of anterior half of clypeus, the most anterior being one third longer.
20. Postero-lateral margins of propodeum with two erect setae (long, strongly curved, inward directed, thin, only apically acute).

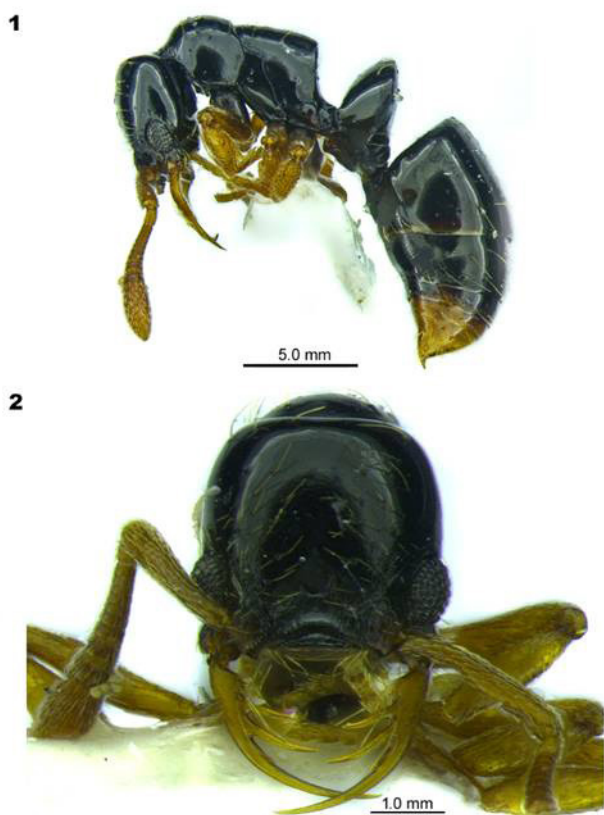
**Description:** here we provide some complementary descriptive elements of the morphology of this new species through the presentation of high resolution microphotographs (see figures 1-12) and the following morphometric data:

Data for holotype given in [brackets]; means with standard deviations for paratypes (n=15) given in (parenthesis); maximum range for paratypes (n=15) given in {brace}. **Measurements:** EL [0.17] (0.16±0.01) {0.14 – 0.18}, GL [1.11] (1.10±0.14) {0.95 – 1.47}, HFL [0.50] (0.52±0.03) {0.45-0.57}, HL1 [0.60] (0.59±0.02) {0.55-0.62}, HL2 [0.58] (0.55±0.02) {0.52-0.58}, HW1 [0.57] (0.55±0.02) {0.52–0.59}, HW2 [0.57] (0.56±0.02) {0.54–0.60}, IFW [0.40] (0.39±0.02) {0.36-0.42}, ML [0.52] (0.51±0.03) {0.46-0.57}, PTH [0.55] (0.46±0.05) {0.40-0.55}, PTL [0.32] (0.26±0.02) {0.23-0.32}, PTW [0.52] (0.48±0.03) {0.44-0.54}, PW [0.41] (0.40±0.01) {0.38-0.42}, SL [0.43] (0.41±0.02) {0.40-0.45}, TL [2.86] (2.77±0.17) {2.57-3.19}, WL [0.83] (0.81±0.03) {0.73-0.86}. **Indices:** CI [95] {88.1-98.3}, IFI [70.2] {64.3-75}, MI1 [86.7] {79.3-95}, MI2 [104] {88.9-111.1}, MI3 [91.2] {86.8-98.2}, PI [139] {130-147.4}.

**Geographic range:** *Thaumatomyrmex fraxini* sp. nov. is only known from the states of Bahia and Sergipe in Brazil, with a geographic distribution limited to a latitudinal range between 11°21'S - 16°15'S and a longitudinal range between 37°25'W - 40°43'W. Its altitudinal distribution reaches 1010m. It is encountered in several types of native forests in the Central corridor of the Atlantic Forest biome where it may be locally sympatric either with *T. mutilatus* or *T. contumax*. Also, *T. fraxini* may be found in agroecosystem like cocoa plantation, and in others anthropic environments.

**Biology:** the colonies inhabit small cavities in the leaf-litter, with a preference for snail shells. This very small species is not a strict predator of Penicillata (Myriapoda, Diplopoda), but also capture specimens of Collembola (Hexapoda, Insecta), not so much small comparatively to its size. This species forms very small colonies without queen.

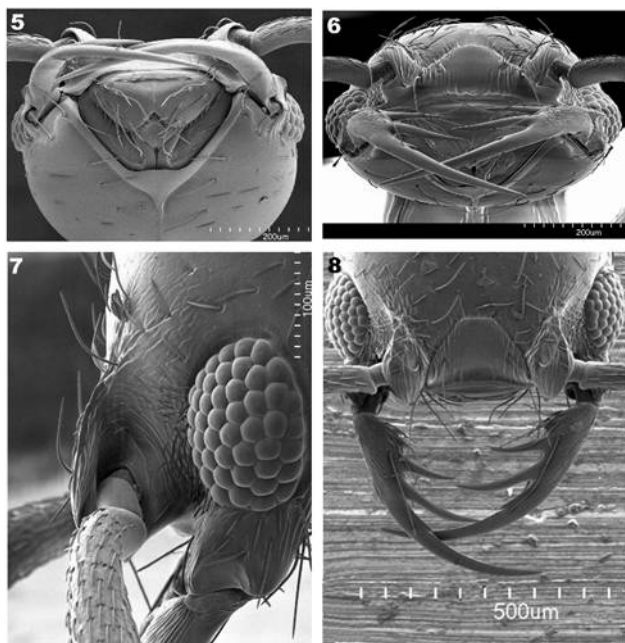




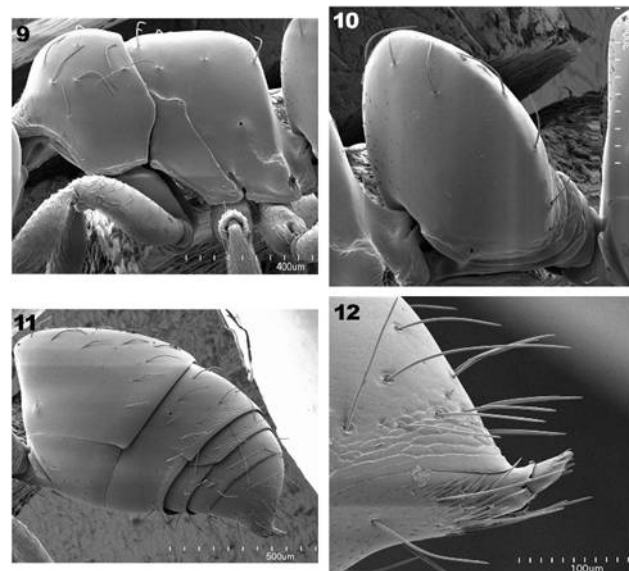
**Plate 1.** *Thaumatomyrmex fraxini* sp. nov., holotype worker [LBSA\_SA\_14015217]. Fig. 1: habitus, left lateral view. Fig. 2: head, dorsal view.



**Plate 2.** *Thaumatomyrmex fraxini* sp. nov., holotype worker [LBSA\_SA\_14015217]. Fig. 3: mesosoma, dorsal view. Fig. 4: petiole, dorsal view.



**Plate 3.** *Thaumatomyrmex fraxini* sp. nov., worker [LBSA\_SA\_14015561]. Images from Antweb (www.antweb.org); photographer R. Keller. Fig. 5: head with detail of mouthparts, antero-ventral view. Fig. 6: head, anterior view. Fig. 7: Head with details of eye and gena, left lateral view. Fig. 8: Head (partial) with detail of mandibles shape, dorsal view.



**Plate 4.** *Thaumatomyrmex fraxini* sp. nov., worker [LBSA\_SA\_14015561]. Images from Antweb (www.antweb.org); photographer R. Keller. Fig. 9: mesosoma, left lateral view. Fig. 10: petiole, left lateral view. Fig. 11: gaster, left lateral view. Fig. 12: gaster (partial) with detail of pygidium and hypopygium, left lateral view.

**Discussion**

Regarding its morphological definition, the new species here described is easily distinguished from any other one in the genus.

If using the taxonomic identification key of Kempf (1975), *Thaumatomyrmex fraxini* sp. nov. differs from *T. contumax* and *T. mutilatus* by its diagnostic characters 1, 11, 13, 14, 15, 16, 17, 18 and 19 (see dichotomy 1 and 2). Moreover, *T. fraxini* also differs from these species by its diagnostic characters 5 and 6. Also, *T. fraxini* differs from *Thaumatomyrmex cochlearis* Creighton, 1928 by its diagnostic characters 11, 14, 16, 17, 18 and 20 (see dichotomy 1 and 2). Finally, *T. fraxini* may not be any one of the species keyed at dichotomy 4 (*Thaumatomyrmex atrox* Weber, 1939; *T. ferox*; *Thaumatomyrmex manni* Weber, 1939, *Thaumatomyrmex paludis* Weber, 1942 and *Thaumatomyrmex zeteki* Smith, 1944) because of its diagnostic character 5 and 6. Moreover, *T. fraxini* differs from *T. atrox*, *T. ferox* and *T. manni* by its diagnostic characters 1 and 4. Also, *T. fraxini* differs from *T. zeteki* by its diagnostic characters 4.

Considering the *Thaumatomyrmex* species described posteriorly to the revision of Kempf (1975), *T. fraxini* differs from *Thaumatomyrmex bariay* Fontenla Rizo, 1995 by its diagnostic characters 1, 5, 7 and 14. Also, *T. fraxini* differs from *Thaumatomyrmex mandibularis* Baroni Urbani & De Andrade, 2003 by its diagnostic characters 1, 5, 7 and 14. *Thaumatomyrmex fraxini* differs from *Thaumatomyrmex nageli* Baroni Urbani & De Andrade, 2003 by its diagnostic characters 5 and 7. *Thaumatomyrmex fraxini* differs from *Thaumatomyrmex soesilae* Makhan, 2007 by its diagnostic characters 1 and 2.

We attempted to attribute *Thaumatomyrmex fraxini* to one of the species groups proposed by Kempf (1975). We concluded that this new species may not belong to the *mutilatus* or *cochlearis* groups, since it exhibits several incoherence's with their respective definition. Thus, *T. fraxini* differs from the members of the *mutilatus* group by the following morphological characteristics: different patterns for the sculpture (diagnostic characters 11 to 18) and chaetotaxy (diagnostic characters 19 and 20). Also, *T. fraxini* differs from members of the *cochlearis* group by the following morphological characteristics: a different petiolar shape (diagnostic character 7); a different pattern for the sculpture (diagnostic characters 11, 14 and 15); a different pilosity on propodeum (character 20). Moreover, the small denticle present at basis of apical tooth of mandible in *T. fraxini* lacks in all species of the *cochlearis* group. Finally, we could attribute this new species to the *ferox* group since its morphology agrees with the definition of this (see diagnostic characters: 4, 7, 11, 13-18, 19, 20). Inside the *ferox* group, it should be noted that *T. fraxini* is morphologically more similar to *T. paludis* and *T. zeteki* (subgroup 1 *sensu* Kempf (1975)) than to other members since it shares exclusively with these two species a subquadrate head shape (diagnostic character 1; CI [95] {88,1-98,3}), a similar interfrontal index (IFI [70,2] {64,3-75}), a more similar petiole in scalelike shape (diagnostic character 7) and some mandibles with apex not noticeably projecting laterad beyond genae when in closed position. After all, *T. fraxini* seems to be more related to *Thaumatomyrmex paludis* since these two species share

exclusively a mesosomal shape without a metanotal suture and transverse groove (see diagnostic character 4).

Finally, beside the morphological peculiarities of this new species above discussed, the comparison of its morphometrical pattern with all other valid species reveals that *T. fraxini* is the smaller species of the genus.

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