



RESEARCH ARTICLE - ANTS

New records and distribution for the Neotropical ant genus *Ochetomyrmex* Mayr (Hymenoptera: Formicidae)

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Introduction

Recently reclassified in the Myrmicinae tribe Attini (Ward et al., 2014), the Neotropical ant genus *Ochetomyrmex* Mayr, 1878 (Formicidae, Ward et al., 2014) includes two valid species: *O. semipolitus* Mayr, 1878 and *O. neopolitus* Fernández, 2003 restricted to the Neotropical region. Both species are comparatively small, monomorphic and cryptobiotic, found nesting in the leaf litter of tropical lowland forests east of the Andes (Fernández, 2003). Limited information is available about where they are found, as little is known about *Ochetomyrmex* biology.

This study presents an update to known distribution of *Ochetomyrmex*, adding recent information available from several sources (AntWeb, 2014; Baccaro et al., 2010, 2012; Boscardin et al., 2012; Delabie et al., 2009; Groc et al., 2009, 2013; Miranda et al., 2012, 2013; Santos et al., 2008; Souza et al., 2012; Vittar, 2008; Wild, 2007; Wilkie et al., 2007, 2009). Unpublished records from the Collection of Formicidae Cocoa Research Center (CPDC) and samples collected in Pantanal of Mato Grosso state of Brazil were added.

Abstract

New records and known distribution from species of the genus *Ochetomyrmex* (Mayr) in the Neotropics are presented, emphasizing the first occurrence of *Ochetomyrmex neopolitus* (Fernández) in the Mato Grosso Pantanal region, a sub-region of Cáceres, Brazil.

Keywords

Biogeography, distribution, Pantanal.

Ochetomyrmex Mayr, 1887: New records (CPDC Collection):

***Ochetomyrmex neopolitus* Fernández, 2003 - BRAZIL:**
Acre, *Porto Walter*, #12670, #12764, #13202, 08°15'31"S 72°46'37"W, 05.xi-17.iv.1997, J. Caldwell; **Amazonas,** *Manaus*, #4832, Rs1301, 14.xii.1993, A.B. Casimiro; *Manaus*, #4642, BR 174 Km 72, iii.1990, H.L. Vasconcelos; *Manaus*, #72i, Faz. Porto Alegre BR 174, 20.vi.1996, H.L. Vasconcelos; *Rio Jaú*, #F-40i, 01°57'S 61°49'W, 17.vii.1996, H.L. Vasconcelos & J.M. Vilhena; **Bahia,** *Arataca*, Mata A47, 15°16'49"S 39°23'31"W, 25.v.1999, J.R.M. dos Santos; *Arataca*, Mata A48, 15°15'54"S 39°16'00.6"W, 23.v.1999, J.R.M. dos Santos; *Boa Nova*, João-Mata, 13.viii.2003, J.R.M. dos Santos & J.C. do Carmo; *Canavieiras*, 15°39'S 38°58' W, 07.xi.1997, J.R.M. dos Santos; *Ibicaraí*, Km 41, 14°53'75"S 39°29'01"W, 21.xi.1998, J.R.M. dos Santos; *Igrapiúna*, Reserva da Michelin, #5704, v-ix.2012, S.L.S. Varjão; *Itambé*, Leôncio-Mata, 14°38'87"S 40°20'23"W, 08.viii.2003, J.R.M. dos Santos; *Itororó*, C área, 14°57'31"S 40°02'33"W, 08.viii.2000, J.R.M. dos Santos; **Pará:** *Goianésia*, Faz. Rio Capim, v-vi.2003, A.M. Elizabeth;



Marituba, CEPLAC, 01°22'S 48°20'W, 21-22.x.2004, J.R.M. dos Santos; *Oriximiná*, Porto Trombetas, #4552, 01.viii.1992, J. Majer; *Oriximiná*, Porto Trombetas, Platô Bacaba, #5426, 03.viii.2004; J.C. Santos; *Oriximiná*, FLONA de Saracá-Taquera Platô Bacaba, #5542, 09-10.x.2007, J.C. Santos; *Paragominas*, Faz. Rio Capim Empresa Cikel, 03°33'S 48°38'W, vii-viii.2002, A.M. Elizabeth; *Tailândia*, Faz. Santa Marta Empresa Juruá, 30°01'S 49°16'W, 10-28.v.2002, A.M. Elizabeth; *Tailândia*, Faz. Santa Marta, 13.v-08.viii.2003, A.M. Elizabeth; **Rondônia**: *Parque Estadual Guajará Mirim*, #5248B, 17.ii.1998, J.R.M. dos Santos; **ECUADOR**: *Cuyabeno*, #10441, #10427, 12.x-05.xi.1994, J.P. Caldwell; **FRENCH GUIANA**: *Maripasoula*, vi.2000, S. Durou, J. Delabie, A. Dejean & M. Gibernau; *Maripasoula*, vii.2001, A. & A. Dejean; *Petit Saut*, Winkler, 04°59'N 03°08'W, vii.2000, S. Durou & A. Dejean; *Petit Saut*, v.2003, J. Orivel & J. Le Breton; *Petit Saut*, Forêt de Basse-Vie, 04.vii.1999, S. Durou; *Petit Saut*, Forêt de Basse-Vie, vi-vii.2000, S. Durou, J. Delabie, A. Dejean & M. Gibernau; *Petit Saut*, Montagne Plomb, 25.vi.2000, S. Durou, J. Delabie, A. Dejean & M. Gibernau.

***Ochetomyrmex semipolitus* Mayr 1878: BRAZIL: Minas Gerais**, *Bom Despacho*, #5301, vi-ix.2000, L.S. Ramos & C.G. Marinho; *Paraopeba*, cerrado, iii.2001, C.R. Ribas; *Santana do Riacho*, 19.ii.2001, S.M. Soares; **FRENCH GUIANA: Haut-Itany**, ix.1994, R. Garrouste.

Here we provide the first record of *O. neopolitus* in the Pantanal of Brazilian state of Mato Grosso. During a survey for epigeic ants assemblages using traps (see Bestelmeyer et al., 2000 see Bestelmeyer et al., 2000 and Adis, 2002), at the Baía de Pedra ranch, Cáceres, Mato Grosso (16°28'49"S 58°08'25"W), 195 individuals were collected. Of those, 99 in deciduous seasonal forest, 52 in a relatively closed savanna, 31 in an open savanna, and the remaining in open areas. All specimens are deposited in the Reference Collection of the Laboratório de Ecologia e Taxonomia de Artrópodes (LETA) of the Biosciences Institute of the Federal University of Mato Grosso (UFMT) and the CPDC Collection, under reference number #5574.

The occurrence of *O. neopolitus* in the Pantanal of Mato Grosso is possibly a consequence of Amazonian vegetation in the floristic composition of the study area, as the vegetation here is strongly influenced by adjacent phytogeographic areas, including the Amazon and Chaco biomes (Adámoli, 1982; Silva et al., 2000; Alho & Gonçalves, 2005; Junk et al., 2006). Although other studies were carried out in this biome (e.g. Marques et al., 2010, 2011; Silva et al., 2013, Corrêa et al., 2006), this species has not yet been documented in other regions of the Pantanal.

The genus *Ochetomyrmex* is endemic to South America and it is rarely collected at east of the Andes, between 6° N and 30° S (Fernández, 2003). *O. neopolitus* occurs in Guiana, Suriname, French Guiana, Brazil (Acre, Pará, Amazonas, Mato Grosso, Tocantins, and Bahia), Bolivia, Peru, Ecuador and Colombia. On the other hand, *O. semipolitus* seems to

be more common in the Amazon and Cerrado and is not found in the Atlantic Forest of southeastern Brazil. It is found in Guyana, Suriname, French Guiana and Brazil (Acre, Amazonas, Rondônia, Mato Grosso, Goiás, Minas Gerais, Pará, Rio Grande do Sul, and Roraima), Argentina, Peru, Bolivia, Ecuador and Colombia. The transition between the forest fragment and riparian, and terra firma forests appears as a gradient of occurrence for several ant species, particularly *Odontomachus* spp., *Pachycondyla* spp., *Camponotus rapax*, and *Ochetomyrmex semipolitus*. Finally, the habitat quality of the pristine, terra firma forest was mostly marked by the diversity of the genus *Pheidole*, and the occurrence of other species such as *O. semipolitus* (Delabie et al., 2009).

The distribution of *Ochetomyrmex* in Brazil and in the Neotropics is possibly underestimated in the literature, because their morphology is rather close to *Pheidole*, frequently provoking taxonomical confusion between genera.

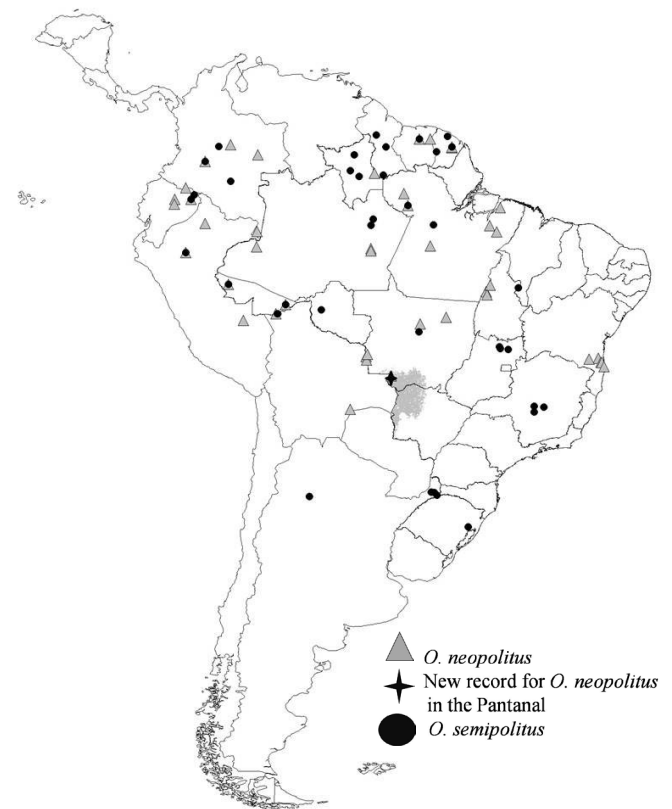


Fig 1. Distribution of *Ochetomyrmex neopolitus* and *Ochetomyrmex semipolitus* in the Neotropics, based on information from literature, new records from the collection of Formicidae Cocoa Research Center (CPDC), and samples collected in Pantanal of Mato Grosso.

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References

- Adámoli JA. 1982. O Pantanal e suas relações fitogeográficas com os cerrados. Discussão sobre o conceito de “Complexo do Pantanal”. In: Anais do 32º Congresso Nacional de Botânica, pp. 109-119.
- Adis J. 2002. Recommended sampling techniques. In: ADIS J (ed) Amazonian Arachnida and Myriapoda. Identification keys to all classes, orders, families, some genera, and lists of known terrestrial species. Pensoft Publishers, Sofia, p. 555-576.
- Alho CJR, Gonçalves H. 2005. Biodiversidade do Pantanal – Ecologia & Conservação. Campo Grande, Ed. UNIDERP, p. 135.
- ANTWEB. Available from: <http://www.antweb.org/descriptio.genus&genus=ochetomyrmex&project=worldants>. Accessed 21 June 2014.
- Baccaro FB, Souza JL, Franklin E, Landeiro VL, Magnusson W. 2012. Limited effects of dominant ants on assemblage species richness in three Amazon forests. *Ecological Entomology*, 37: 1-12. doi: 10.1111/j.1365-2311.2011.01326.x.
- Baccaro FB, Ketelhut SM, Morais JW. 2010. Resource distribution and soil moisture content can regulate bait control in an ant assemblage in Central Amazonian forest. *Austral Ecology* 35: 274-281.
- Bestelmeyer BT, Agosti D, Alonso LE, Brandão CRF, Brown WL, Delabie JHC, Silvestre, R. 2000. Field techniques for the study of ground-living ants: an overview, description, and evaluation. In: D Agosti, JD Majer, L. Tennant DE Alonso & T. Schultz (eds). *Ants: Standard Methods for Measuring and Monitoring Biodiversity*, Smithsonian Institution, Washington, USA, pp.122-144.
- Boscardin J, Garlet J, Costa EC. 2012. Mirmecofauna epigeica (Hymenoptera: Formicidae) em plantios de *Eucalyptus* spp. (Myrtales: Myrtaceae) na região oeste do estado do Rio Grande do Sul, Brasil. *Entomotropica*. 27:119-128.
- Corrêa MM, Fernandes WD, Leal IR, 2006. Diversidade de formigas epigeicas (Hymenoptera: Formicidae) em capões do Pantanal Sul Mato-grossense: Relações entre riqueza de espécies e complexidade estrutural da área. *Neotropical Entomology*, 35(6):724-730.
- Delabie JHC, Céréghino R, Groc S, Dejean A, Gibernau M, Corbara B, Dejean A, 2009. Ants as biological indicators of Wayana Amerindian land use in French Guiana. *Comptes Rendus Biologies*, 332: 673-684.
- Fernández FC, 2003. Myrmicine Ants of the Genera *Ochetomyrmex* and *Tranopelta* (Hymenoptera: Formicidae). *Sociobiology*, 41: 633-661.
- Groc S, Orivel J, Dejean A, Martin J-M, Etienne M-P, Corbara B, Delabie JHC. 2009. Baseline study of the leaf-litter ant fauna in a French Guianese Forest. *Insect Conservation and Diversity*, 2: 183-193.
- Groc S, Delabie JHC, Fernández F, Leponce M, Orivel J, Silvestre, R, Vasconcelos HL, Dejean A. 2013. Leaf-litter ant communities (Hymenoptera: Formicidae) in a pristine Guianese rainforest: stable functional structure versus high species turnover. *Myrmecological News*, 19: 43-51.
- Junk WJ, Nunes-da-Cunha C, Wantzen KM, Petermann P, Strüßmann C, Marques MI, Adis J. 2006. Biodiversity and its conservation in the Pantanal of Mato Grosso, Brazil. *Aquatic Sciences*, 68: 278-309.
- Marques MI, Sousa WO, Santos GB, Battirola LD, Anjos KC, 2010. Fauna de artrópodes de solo. In: Fernandes IM, Signor CA, Penha J (eds) *Biodiversidade no Pantanal de Poconé*. Centro de Pesquisa do Pantanal, pp.73-112.
- Marques MI, Adis J, Battirola LD, Dos Santos GB, Castilho AC, 2011. Arthropods associated with a forest of *Attalea phalerata* Mart. (Arecaceae) palm trees in the Northern Pantanal. In: Junk, WJ, da Silva CJ, Nunes da Cunha C, Wantzen KM, (eds) *The Pantanal: Ecology, biodiversity and sustainable management of a large neotropical seasonal wetland*. Pensoft Publishers, Sofia–Moscow, pp. 127-144.
- Miranda PN, Oliveira MA, Baccaro FB, Morato EF, Delabie JHC, 2012. Check list of ground-dwelling ants (Hymenoptera: Formicidae) of the eastern Acre, Amazon, Brazil. *Check List* 8: 722-730.
- Miranda PN, Morato EF, Oliveira MA, Delabie JHC, 2013. A riqueza e composição de formigas como indicadores dos efeitos do manejo florestal de baixo impacto em floresta tropical no estado do Acre. *Revista Árvore*, 37: 163-173.
- Nunes da Cunha C, Junk WJ, 2011. A preliminary classification of habitats of the Pantanal of Mato Grosso and Mato Grosso do Sul, and its relation to national and international wetland classification systems. In: Junk WJ, da Silva CJ, Nunes da Cunha C, Wantzen KM (eds) *The Pantanal: ecology, biodiversity and sustainable management of a large neotropical seasonal wetland*. Pensoft, Sofia, pp.127–141.
- Ribas CR, Schoederer JH, 2007. Ant communities, environmental characteristics and their implications for conservation in the Brazilian Pantanal. *Biodiversity and Conservation*, 16: 1511-1520.
- Silva FHO, Delabie JHC, Santos GB, Meurer E, Marques MI. 2013. Mini-Winkler Extractor and Pitfall Trap as complementary methods to sample Formicidae. *Neotropical Entomology*, 42: 351-358.
- Silva MP, Mauro RA, Mourão G, Coutinho ME, 2000. Distribuição e quantificação de classes de vegetação do Pantanal através de levantamento aéreo. *Revista Brasileira de Botânica*, 23: 143-152.

Silva JSV, Abdon MM, 1998. Delimitação do Pantanal Brasileiro e suas sub-regiões. *Pesquisa Agropecuária Brasileira*, 33: 1703-1711.

Santos JC, Delabie JHC, Fernandes WG, 2008. A 15-year post evaluation of the fire effects on ant community in an area of Amazonian forest. *Revista Brasileira de Entomologia*, 52: 82-87.

Souza JLP, Baccaro FB, Landeiro VL, Franklinc E, Magnusson WE, 2012. Trade-offs between complementarity and redundancy in the use of different sampling techniques for ground-dwelling ant assemblages. *Applied Soil Ecology*, 56:63–73.

Vittar F, 2008. Hormigas (Hymenoptera: Formicidae) de la Mesopotamia Argentina. *INSUGEO, Miscelánea*, 17: 447-466.

Ward, PS, Brady, SG, Fisher, BL, Schultz, TR, 2014. The evolution of myrmicine ants: phylogeny and biogeography of a hyperdiverse ant clade (Hymenoptera: Formicidae). *Systematic Entomology*, 40: 61-81.

Wild AL, 2007. A catalogue of the ants of Paraguay (Hymenoptera: Formicidae). *Zootaxa*, 1622: 1-55.

Wilkie KTR, Merlt AL, Traniello JFA, 2007. Biodiversity below ground: probing the subterranean ant fauna of Amazonia. *Naturwissenschaften*, 94: 725-731 doi: 10.1007/s00114-007-0250-2.

Wilkie KTR, Merlt AL, Traniello JFA, 2009. Diversity of ground-dwelling ants (Hymenoptera: Formicidae) in primary and secondary in Amazonian Ecuador. *Myrmecological News*, 12: 139-147.

