

## News records of species of Neotropical Ants in the Meridional Amazon

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### ABSTRACT

Although they occupy the most varied habitats from the soil to the forest canopy and are involved in several ecological processes, little is known about the biology and distribution of many species of neotropical ants. In this paper, we communicate the distribution of two rarely sampled ants species and ecological informations about them. The distribution of *Neoponera luteola* is extended to another 500 km more in straight line and the distribution of *Gnamptogenys caelata* is extended to another 1.500 km in straight line from its closest available records from Brazilian Amazon.

**Keywords:** Ants; Mato grosso; *Gnamptogenys caelata*; *Neoponera luteola*.

### Novos registros de espécies de formigas neotropicais na Amazônia Meridional

### RESUMO

Embora ocupem os mais variados habitats do solo e dossel da floresta e estejam envolvidos em vários processos ecológicos, pouco se conhece sobre a biologia e distribuição de muitas espécies de formigas neotropicais. Neste artigo, comunicamos a distribuição de duas espécies de formigas raramente amostradas e informações ecológicas sobre elas. A distribuição de *Neoponera luteola* é expandida em mais de 500 km em linha reta e a distribuição de *Gnamptogenys caelata* é ampliada por cerca de 1,500 km em linha reta de seus registros mais próximos, em uma região da Amazônia Brasileira.

**Palavras-chave:** Formigas, Mato grosso, *Gnamptogenys caelata*, *Neoponera luteola*.

Ants (Formicidae, Hymenoptera) have a high adaptive success, being able to live and explore various habitats from underground to emergent tree canopies (RYDER-WALKIE, 2010; VICENTE et al., 2012; 2016; DÁTILLO et al., 2012; DAROCHA et al., 2016). They are widely distributed throughout the world, occupying various ecological niches, especially in the neotropical region, already known for its high diversity (FERNÁNDEZ; SENDOYA, 2004; BATTIROLA et al., 2005; SÁNCHEZ et al., 2015; FEITOSA et al., 2016).

The poneromorph ants have cosmopolitan distribution with approximately 1,700 species inserted in 49 genera of six subfamilies including Ectatomminae and Ponerinae (ANTONIALLI-JUNIOR et al., 2015). Poneromorphs are commonly reported as an active hunter (JIMÉNEZ et al., 2007; ZABALA et al., 2013; DELABIE et al., 2015). However, its important collecting role in forest ecosystems, involving the transportation and processing of plant material has been suggested (ALMEIDA; QUEIROZ, 2015). Thus, they can positively affect the germination, subsistence and dispersion of seeds in these ecosystems (ALMEIDA et al., 2013).

Even with the importance of ants playing ecological roles, little is known about the biology and distribution of many species of Neotropical ants (DÁTILLO et al., 2012; SCHMIDT et al., 2013; VICENTE et al., 2015; CAMACHO et al., 2016; PRADO et al., 2016). In Amazon, although large and heterogeneous, the studies of the ants' fauna have been mostly restricted to the north, central and oriental regions (LAPOLLA et al., 2007; VASCONCELOS et al., 2010; GROC et al., 2013; HARADA et al., 2013; SOUZA et al., 2015). Few inventories were performed in the meridional amazon (SANTOS-SILVA et al., 2016; VICENTE et al., 2016). Nevertheless, efforts should be made to extend the knowledge of the regional ants, contributing to the conservation of species in this ecologically important and extensive Amazon.

The presence of two species of ants (not yet sampled) in the state of Mato Grosso, southern portion of the Brazilian Amazon, was confirmed during research excursions (XI-2011) and the field Course conducted by the Programa de Pós-graduação em Ciências Ambientais (XI-2016) of the Universidade Federal de Mato Grosso (UFMT). The ants were sampled in the São Nicolau Farm (lat 9°48' S, long 58°15' W; 254 masl), located in the municipality of Cotriguaçu, north of the state of Mato Grosso, Brazil (Figure 1). According to the Köppen classification, the climate is tropical humid (Am) with an annual average of 24-26°C and precipitation

of 3.000 mm year<sup>-1</sup>. The area comprises of 10.134,43 hectares, of which 6.932,64 are partially exploited forests, 500 are permanent preservation areas and 2.500 are pastures with reforestation (IZZO; PETINI-BENELLI, 2011). The vegetation of permanent preservation areas is classified as open ombrophilous forest and dense ombrophilous forest and reforestation areas are of teak (*Tectona grandis* Lf.) (VICENTE et al., 2011) and jambolan (*Syzygium jambolanum* DC.) plantations (DÁTILLO et al., 2012).



**Figure 1.** Map of South America and the area where the ants were sampled São Nicolau Farm, Cotriguaçu, MT, Brazil, marked with a red circle.

In November 2016, one worker of *Gnamptogenys caelata* Kempf, 1967 (Figure 2a) was sampled with manual collection from litter in areas located 10 meters from the border of forest. Workers of *Neoponera luteola* (ROGER, 1861) (Figure 2b) were sampled in November 2011 in an unidentified *Cecropia* species between a riverine forest edge and one road, both samplings in.

The ants were stored in bottles with 70% alcohol and properly labeled. In Laboratório de Ecologia de Comunidades – UFMT the ants were using Mackay and Mackay (2010) and Lattke et al. (2007). Then, one worker of each of this species were sent to confirm with a specialist (see acknowledgement) at the Coleção Entomológica Padre Jesus Santiago Moure of the Departamento de Zoologia da Universidade Federal do Paraná (DZUP), Brazil, where the vouchers were deposited (Table 1).



**Figure 2.** Ant species *Gnamptogenys caelata* (A) and *Neoponera luteola* (B) sampled at São Nicolau Farm, Cotriguaçu, MT, Brazil. Photo: ANTWEB, 2018.

**Table 1.** Species of ants sampled in São Nicolau Farm, municipality of Cotriguaçu, MT, Brazil, and deposited in Coleção Entomológica Padre Jesus Santiago Moure of the Departamento de Zoologia da Universidade Federal do Paraná (DZUP).

TAXA	Voucher Code	Sample date
<i>Gnamptogenys caelata</i>	REV16009CM	XI-2016
<i>Neoponera luteola</i>	REV11008CM	XI-2011

The genus *Gnamptogenys* Roger, 1863 comprises of hunting ants with wide distribution in the Australian, Nearctic, Neotropical and Oriental regions (LATTKE et al., 2004) while *Neoponera* comprises of many arboreal species and their distribution is restricted to Neotropics (SCHMIDT; SHATTUCK, 2014). *Gnamptogenys* is distributed among 140 species in the world, 90 species in the neotropics and 33 species in Brazil and *Neoponera* with 54 described species in the neotropics and 22 species in Brazil (ANTMAPS, 2018).

*Gnamptogenys* are ants with affinity for moist forests, where they nest in decomposed wood, soil or litter, rarely in vegetation, under stones or fissures in the soil (FERNÁNDEZ; OSPINA, 2003; ARIAS-PENNA, 2008). Inside the community of arboreal ants, the complex poneromorph includes *Gnamptogenys* species (DAROCHA et al., 2015). They have general habits but can specialize in hunting other ants or other groups, such as Coleoptera and diplopods (LATTKE, 1995; BRANDÃO et al., 2009). Foraging is done at ground level, under the leaf litter or shrubs (CAMACHO; FEITOSA, 2015). Despite being classified as hunters, implying a diet based on proteins, the feeding spectrum of the species is various (FERNÁNDEZ; ARIAS, 2008). This genus is pointed out as an important indicator

of habitat conservation (PACHECO et al., 2013).

Among the species of the genus, the distribution of *G. caelata* is little known, being reported in Argentina (HANISCH et al., 2015), Colombia (LATTKE, 1992), Paraguay (WILD, 2007) and Venezuela (LATTKE, 1992). In Brazil, *G. caelata* is reported from the states of Amazonas (FERNÁNDEZ et al., 1996; LATTKE et al., 2004; 2008), Pará (KEMPF; BROWN, 1968) and Paraná (CALIXTO, 2015). Nothing is known about the biology of these *Gnamptogenys* species. Of the few current records, Calixto (2015) sampled *G. caelata* in a predominantly Ombrophilous forest region. In this paper, we collected one worker of *G. caelata* about 10 meters from the edge of a Ombrophilous forest.

*Neoponera* is one Ponerinae genera, which is most diverse, morphologically and behaviourally, with most species foraging and nesting on trees and some species on the ground, hunting termites (SCHMIDT; SHATTUCK, 2014). Among the arboreal species, *N. luteola* inhabits the hollow stems of *Cecropia pungara* in Peru (YU, 2001). Other records were made in Bolivia and Brazil (FERNÁNDEZ; SENDOYA, 2004). In Brazil, *N. luteola* were collected only from Mato Grosso do Sul and Rio de Janeiro (DEMETRIO et al., 2017).

Therefore, this is the first record of this sparsely distributed species from Mato Grosso. The distribution of two rarely sampled ants species were enriched with ecological information. The closest record of *Neoponera luteola* is from Bolivia, so, this paper extended the distribution of this species by another 500 km in straight line (KEMPF, 1972). Nevertheless, the distribution of *Gnamptogenys caelata* is extended by about 1.500 km in straight line from its closest records (KEMPF; BROWN-JR, 1968; KEMPF, 1972; WILD, 2007). This record is part of efforts to increase knowledge and conservation of neotropical biodiversity.

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