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Forest understory ant (Hymenoptera: Formicidae) assemblage in a Meridional Amazonian landscape, Brazil

Ensamblaje de hormigas (Hymenoptera: Formicidae) arbóreas en un paisaje amazónico meridional, Brasil

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ABSTRACT

Ants inhabit and exploit the most varied habitats from the underground to the forest canopy. However, studies on the diversity of arboreal ants are less frequent in the Amazon. In this paper we list arboreal ant species sampled in understory along four transects in a forest remnant in a South Amazonian landscape. The list includes 32 species, of which three (9 %) are new records for the state of Mato Grosso, Brazil, one of these species being sampled for the first time in Brazil.

Key words. Amazon, biodiversity, arboreal ants, Formicidae, neotropical region

RESUMEN

Las hormigas habitan y explotan los hábitats más variados desde el subsuelo hasta el dosel del bosque. Sin embargo, los estudios sobre la diversidad de hormigas de la vegetación son menos frecuentes en el Amazonas. En este artículo enumeramos las especies de hormigas recogidas en el sotobosque de un remanente de bosque en un paisaje del sur de la Amazonia. La lista incluye 32 especies, de las cuales tres (9 %) son nuevos registros para el estado de Mato Grosso, Brasil, siendo una de estas especies muestreadas por primera vez en Brasil.

Palabras clave. Amazonas, biodiversidad, hormigas arborícolas, Formicidae, región neotropical

Ants represent only 1.5 % of known insect species, yet they are abundant, making up 10% to 15 % of animal biomass in terrestrial ecosystems (Alonso 2000, Rico-Gray and Oliveira 2007) and playing important roles in ecosystem processes (Del Toro *et al.* 2012). Therefore, regional species lists, particularly of ants, are an important tool for the development of scientific research and for the creation of conservation projects (Lewinsohn *et al.* 2005, Vicente *et al.* 2016). Although the ants occupy areas from the subsoil to the forest canopy, studies on the diversity of arboreal ant fauna are not so frequent in Neotropical regions, being scarce in the Amazon (Ryder-Wilkie *et al.* 2010, Vicente *et al.* 2016). Thus, to contribute to the knowledge of the Neotropical ant fauna,

this paper lists for the first time the arboreal ant fauna found in an Amazonian forest remnant in the municipality of Paranaíta, State of Mato Grosso, Brazil.

Understory ants were sampled in December 2013 in a forest remnant of 400ha (9°48' South, 56°20' West). Ants were sampled with a beating-tray method adapted in 24 points equidistant at least 25m and 200m from the edge. Then all vegetation in each point within 4m² between 1-3 meters in height was steadily shaken and the ants that fell on the canvas were collected (Vicente *et al.* 2016). All sampled ants were identified to as to genus with Baccaro (2015) and posteriorly, the specimens were sent to specialists to confirm species identification (see acknowledgments) at the ant collection from the Museu Paraense Emílio Goeldi (MPEG) and Coleção Entomológica Padre Jesus Santiago Moure (DZUP), both in Brazil, where vouchers were deposited.

A total of 32 ant species was recorded, belonging to 18 genera and six subfamilies. The most frequent species were *Azteca* sp. 1 and *Solenopsis* sp. 1 (sampled in 50 % of the samples), *Brachymyrmex* sp.1 (41 %), *Pseudomyrmex tenuis* (Fabricius, 1804) (37.5 %), *Ectatomma tuberculatum* (Olivier, 1792) (28 %), *Crematogaster limata* Smith, 1858 and *Nylanderia steinheili* (Forell, 1893) (22 % each species). As for the other species, each species was sampled at a maximum of 12.5 % of the samples, being: *Camponotus burtoni* Mann, 1916, *C. latangulus* Roger, 1863, *C. planatus* Roger, 1863, *Camponotus* sp.1, *Camponotus* sp. 3, *Crematogaster carinata* Mayr, 1862, *C. longispina* Emery, 1890, *C. limata*, *C. nigropilosa* Mayr, 1870, *Dolichoderus attelaboides* (Fabricius, 1775), *D. ghilianii* Emery, 1894, *D. imitator* Emery, 1894, *Gnamptogenys horni* (Santschi, 1929), *G. pleurodon* (Emery, 1896), *G. striatula* Mayr, 1884, *Neoponera inversa* (Smith, 1858), *N. unidentata* (Mayr, 1862), *Nesomyrmex* aff. *wilda*, *Nylanderia steinheili* (Forel, 1893), *Ochetomyrmex semipolitus* Mayr, 1878, *Pheidole* sp.1, *Pheidole* sp. 2, *Pheidole* nr. *radoszkowskii*, *Pseudomyrmex* sp.1, *Rasopone arhuaca* (Forel, 1901), *Solenopsis* sp.1, *Solenopsis* sp. 2, *Strumigenys* sp.1, *Tapinoma melanocephalum* (Fabricius, 1793), *Tapinoma* sp.1, *Wasmannia auropunctata* (Roger, 1863). It is also worth mentioning that among these species sampled using the described method, *G. striatula* was also sampled manually in the locality nesting in an unidentified Araceae species.

Camponotus is the most specious genus in this study contributing with two of the four new distribution records. *Camponotus burtoni* and *C. planatus* were collected for the first time in the state of Mato Grosso, with *C. planatus* being recorded for the first time in Brazil. The other ant species that was recorded for the first time in the state of Mato Grosso was *N. steinheili*. This species is native to the Neotropical region, occurring from the Southeast region of Brazil (State of Rio de Janeiro) to Mexico (Brandão 1991) having been introduced into other countries (Kallal and LaPolla 2012, Moreau *et al.* 2014). The other species sampled for the first time in Mato Grosso, was *Crematogaster longispina*. Most of the ant species that were sampled for the first time in the state of Mato Grosso show the lowest frequencies of occurrence. Probably these ants had not been registered in the region because of their natural low abundance combined with the scarcity of studies with arboreal ants and the lack of reviews of some local taxonomic groups such as *Camponotus*, *Crematogaster* and *Nylanderia*.

AUTHOR´S CONTRIBUTION

JFL collected data and wrote the text; REV collected data, identified the specimens and wrote the text and reviewed the text; LCO reviewed the text.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

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