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SHORT NOTE

New Records of the Dorylinae Ant Genus *Cheliomyrmex* for the Brazilian Amazon Basin

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Abstract
The members of Dorylinae are dominant predators in tropical and subtropical terrestrial ecosystems. The most cryptic army ant genus of the New World is *Cheliomyrmex.* The only species recognized until now for the Amazon Brazilian Basin is *C. andicola*, recorded in the state of Acre. We provided the first records of *Cheliomyrmex megalonyx* to Brazil in the Amazon Basin. The major worker of *Cheliomyrmex megalonyx* was collected in the state of Rondônia while the minor was found in the state of Amazonas. These records suggest that more efforts are needed to reveal the diversity, distribution and biology of these cryptic ants.

Introduction

The Dorylinae has currently 18 valid genera, among them the Neotropical army ants, including the genera *Eciton* Latreille, 1804*; Labidus* Jurine, 1807*; Neivamyrmex* Borgmeier, 1894; *Nomamyrmex* Borgmeier, 1939 and *Cheliomyrmex* Mayr, 1870. These ants are dominant predators in tropical and subtropical terrestrial ecosystems (Brady et al., 2014). *Cheliomyrmex* are the most cryptic army ants of the New World (Berghoff & Franks, 2007).

These ants are not usually collected with standard sampling techniques (Agosti et al., 2000). Fortunately, the males of Dorylinae army ants are often sampled in light traps (see Kempf, 1975; Nascimento et al., 2011). Most of these ants have subterranean habits, and little is known about their biology. Chance encounters are still one of the most valuable opportunities to learn more about the occurrence and ecology of such army ants (Berghoff & Franks, 2007). *Cheliomyrmex* have its polymorphism associated with labor division (eg. major and minor workers) (Hölldobler & Wilson, 1990). The gradual size and the morphological transition in worker-polymorphic is demonstrable in the mandible and head of the workers (Gotwald & Kupiec, 1975).

Cheliomyrmex occurs from southern Mexico to Bolivia, including the Brazilian Amazon (Kempf, 1972; 1975; Watkins, 1976; Berghoff & Franks, 2007) with four valid species: *C. andicola* Emery, 1894, *C. audax* Santschi, 1921, *C. megalonyx*, Wheeler, 1921 and *C. morosus* (Smith, 1859).

The only species recorded so far in the Brazilian Amazon Basin is *C. andicola*, with records in the state of Acre (Kempf, 1972; 1975; Watkins, 1976). The elevation of the state of Acre ranges from 135-609m above sea level, so the occurrence of C. andicola indicates that this species is not restricted to the Andean highlands, as pointed out by Kempf (1975).

We provide hereafter the first record of *C. megalonyx* to Brazil in the Amazon Basin.

The major and minor workers were sampled by Winkler extractor (Alonso & Agosti, 2000), in Santo Antônio Hydroelectric

Plant, in the state of Rondônia and near of Benjamin Constant city, during the BiosBrasil project (Moreira et al., 2013), in the state of Amazonas, respectively. Vouchers are deposited in Instituto Nacional de Pesquisas da Amazônia (INPA) at Manaus and Centro de Pesquisas do Cacau (CPDC) at Ilhéus.

The morphological terminology follows Wheeler (1921) and Gotwald and Kupiec (1975). The species was identified using a Zeiss Discovery V12 stereomicroscope. Digital images and measurements were made using a Leica M165C stereomicroscope with a digital camera under a white light lamp. All measurements are given in millimeters, and the abbreviations used are:

HW: Head width. In full-face view, the maximum width of head posterior to compound eyes.

HL: Head length. In full-face view, the midline distance from level of maximum posterior projection of posterior margin of head to level of most anterior projection of anterior clypeal margin.

SL: Scape length. In frontal view, measured from apex of first antennal segment to base, excluding the basal condyle.

WL: Weber's length. In lateral view, the diagonal length of mesosoma in profile, from the midpoint of the anterior pronotal declivity to posterior margin of the metapleuron.

PW: Pronotal width. In dorsal view, the maximum width of pronotum, measured from side to side.

NHl: Nodal height lateral. In lateral view, the distance from lower edge of petiolar sternite to apex of petiolar tergite (node), taken as a vertical measurement perpendicular to the longitudinal axis of the petiole.

NLl: Nodal length lateral. In lateral view, the maximum longitudinal distance between anterior and posterior extremes of petiolar node, excluding anterior and posterior condyles.

GL: Gaster Length. In lateral view, the maximum length of gaster.

TL: Total Length. In lateral view, the summed length of HL, WL, NLl, and GL.

Material examined: Brazil, Rondônia, Santo Antônio, Ilha da Pedra, km 0.5, 09°17'45"S 64°60'83"W, 20.x.2013, leg. I. O. Fernandes, 1 major worker (INPA) (Fig 1A-C); Amazonas, Benjamin Constant, Projeto BioBrasil/GEF/UNEP, 4°23' 0"S 70°1'53"W, leg R. Zanetti & N. Dias, 1 minor worker (CPDC).

The specimens were compared with the type material housed at National Museum Natural History (NMNH) of Smithsonian Institution (W. M. Mann 1954 Collection). Three cotypes of major worker and six minor workers (non-type W. M Wheeler Collection) labeled "Kartabo, B. G. Jul. Ago. 1920 *Cheliomyrmex megalonyx* Wheeler from British Guiana" were studied.

Measurements of major workers (n=4) (type material between parentheses): HL: 1.240 (1.144-1.248); HW: 1.342 (1.445-1.636); SL: 0.681 (0.702-0.810); WL: 1.993 (2.099-2.196); PW: 0.764 (0.789-0.816); NHl: 0.391 (0.408-0.435); NLl: 0.365 (0.397-0.415); GL: 1.770 (2.113-2.240); TL: 5.368 (5.857-5.995).

Measurements of minor workers (n=7) (non-type W. M. Wheeler Collection): HL: 1.210 (1.117-1.201); HW: 1.330 (1.289-1.312); SL: 0.670 (0.624-0.648); WL: 1.901 (1.715-1.810);

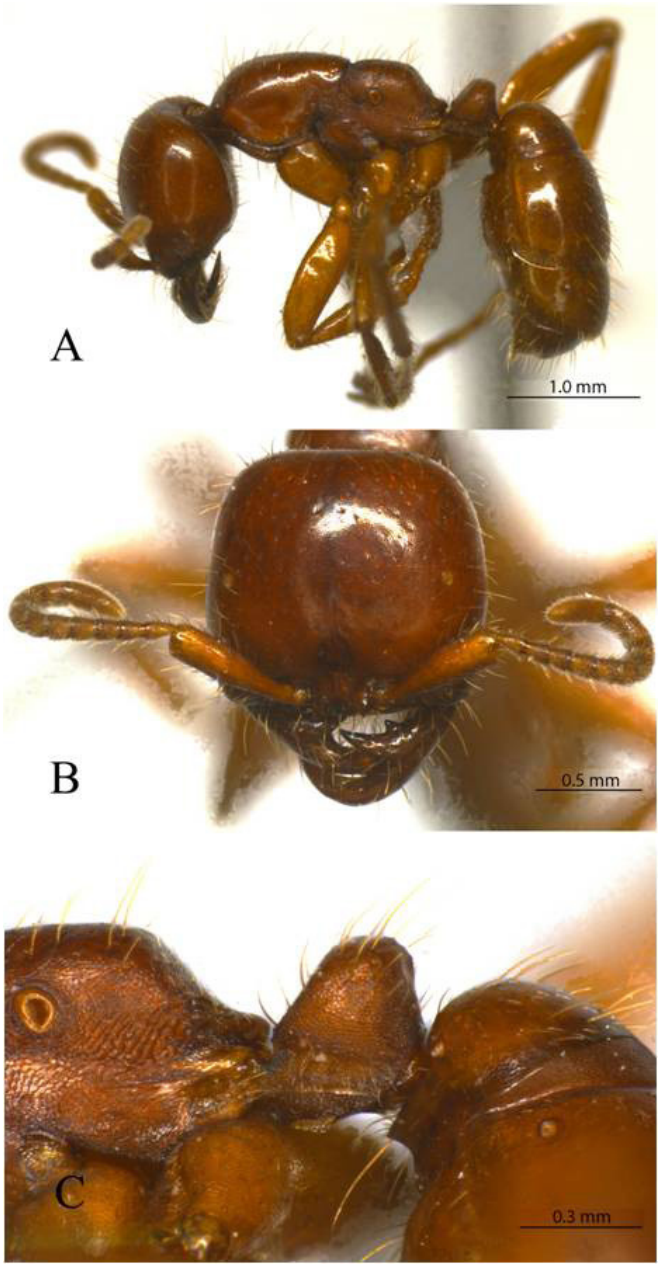

Fig 1. Major worker of *Cheliomyrmex megalonyx*, (A) lateral view, (B) full-face view and (C) lateral view of metapleuron and petiole.

PW: 0.751 (0.605-0.687; NHl: 0.381 (0.311-0.350); NLl: 0.390 (0.318-0.340); GL: 1.763 (1.567-1.600); TL: 5.264 (4.717-4.951).

Minor and major workers are similar, but the minor worker has the following differences: mandibles subtriangular, apical tooth and 1st subapical tooth separated by diminutive teeth, and 2nd subapical tooth slightly distinguishable.

We found initially some difficulties to differentiate between the major workers of *C. megalonyx* and *C. morosus*. The species are separated by variable characters, such as the sixth flagellar segment broader than long or longer than broad (Watkins, 1976) and the position of the teeth (Wheeler, 1921). After the exam of the type material, was clear the separation of these two species by the metapleuron area, well marked by oblique striae in *C. megalonyx*.

The area where the major worker was sampled in Rondônia is included in a program of conservation monitoring supported by the Santo Antônio Energia hydroelectric plant, and for the first time in four years of monitoring the water level had risen 19m above the maximum limit. *Cheliomyrmex megalonyx* was collected on the 0.5 km (Ilha de Pedras) of Santo Antônio, and due to the elevation of the river water, the groundwater was also climbing, perhaps forcing some species to the surface. Following the elevations of the river water, no additional specimens were encountered.

Cheliomyrmex megalonyx was previously recorded from Guyana and Venezuela (Wheeler, 1921; Kempf, 1972; Watkins, 1976). We expanded its occurrence in more than 1.500 km, and also provided a map with the occurrences of the others species of the genus (Fig 2). This first record of *C. megalonyx* on the Amazon basin reinforces that efforts need to be increased to reveal the real distribution of cryptic ants.

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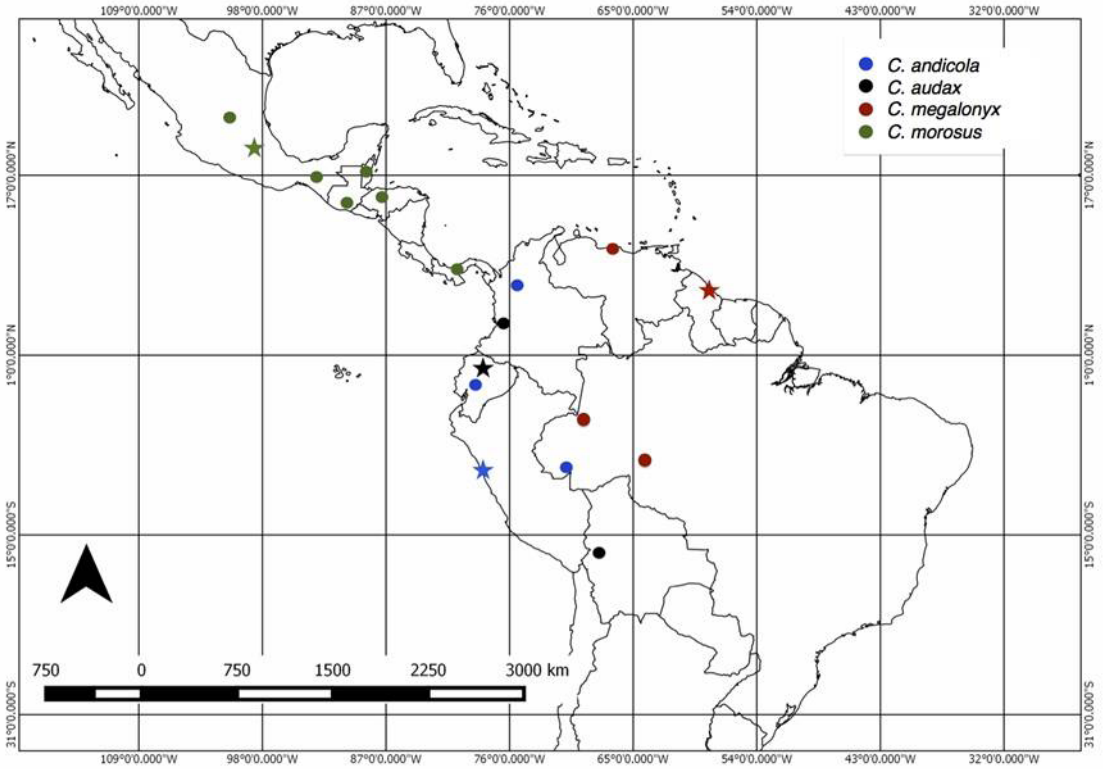

Fig 2. Sites with occurrence of *Cheliomyrmex* spp. in South America.

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