New Records of *Syscia* Roger, 1861 (Hymenoptera: Formicidae: Dorylinae) in South America

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**Abstract.** There are 11 genera of Dorylineae in the Neotropics, but *Syscia* Roger, 1861 is the only one with a discontinuous distribution between the Nearctic, Neotropical and Indomalayan regions. The present study reports a new record of *Syscia* in northern Brazil and confirms its distribution in South America, in accordance with previous reports. The *Syscia* specimens corresponds to an undescribed species and were collected along the margins of the Madeira River, in the National Forest of do Jamari, in the southwestern Brazilian Amazon.

**Keywords:** Amazon, ants, biomonitoring, *Neocerapachys*, taxonomy.

The genera members of *Syscia* Roger, 1861; *Neocerapachys* Borowiec, 2016 and *Cerapachys* Smith, 1857, were grouped into the single genus *Cerapachys* since the genus creation, although in 1972 Kempf synonymized *Syscia* under *Cerapachys*. The status of the genus *Cerapachys* was questioned and modified by Brady et al. (2014: phylogeny) and Borowiec (2016: genus review). Borowiec (2016) concluded that the species recorded in the Neartic, Neotropical regions belonged to *Neocerapachys* and *Syscia*, making *Syscia* the only Dorylineae genus with a discontinuous distribution between the Neartic, Neotropical and Indomalayan regions (except for *Ooceraea biroi* (Forel, 1907), which has non-native records in the West Indies). This is supported by molecular and taxonomic evidence that the Neartic, Neotropical and Indomalayan species form a clade (Brady et al. 2014, Borowiec 2016).

The taxonomic situation has contributed to misunderstanding the distribution of some species; for a long time, the species belonging to *Syscia* were classified in *Cerapachys*, which today is only found in Indomalayan, and *Neocerapachys*, found in the Neotropics. In 1972 and 1978 W.W. Kempf recorded the species *S. tolteca* (Forel, 1909) in São Paulo (Brazil) and later, Silva & Silvestre (2000, 2004) and Ulyssee et al. (2011) recorded the same species in Santa Catarina (Brazil). In 2016, Souza et al. recorded the species *S. augustae* (Wheeler, 1902) and *N. splendens* (Borgmeier, 1957) (both species formerly belonged to *Cerapachys*) to Rondônia state (Brazil). After the generic revision done by Borowiec (2016), the presence of *S. augustae* was also confirmed in South America, in Rondônia state (Fernandes & Souza 2018). All those records were not considered by Borowiec (2016) in the recent revision, which emphasized the distribution of *Syscia* as present or likely present up to Antiocquia (Colombia), although literature existed to confirm the distribution in other sites in South America.

Currently, five species are known to *Syscia*: *S. augustae* (USA and Mexico), *S. honduriana* (Mann, 1922) (Belize and Honduras), *S. humicola* (Ogata, 1983) (South Corea and Japan), *S. tolteca* (Forel, 1909) (Mexico to Colombia), and *S. typhla* (Roger, 1861) (Indomalayan). However, according to Borowiec (2016) and Longino (personal communication, September 14, 2017) at least fifteen additional morphospecies are present in collections from the Old World and more than 30 undescribed species are present in the New World. The only recognized species on the continent is *S. tolteca*, recorded in Colombia (Vergara-Navarro & Serna 2013).

Although the distribution of *Neocerapachys* overlaps with that of *Syscia*, the former can be easily differentiatied from *Syscia* by the presence of antennae with 12 segments, a pronotomesopleural suture either completely or partially fused, an abdominal tergite IV that does not fold over the sternite, and the anterior portions of the sternite and tergite being equally visible (Fig. 1), whereas in *Syscia*, the antennal segments are composed of 9–11 segments, the pronotomesopleural suture is present as a deep cut in the cuticle, the abdominal tergite IV folds over the sternite, and the anterior portion of the sternite conceals the tergite (Fig. 2).

The present study reports a new record of *Syscia* in northern Brazil and also confirms, following previous reports, its distribution in South America. *Syscia* specimens were collected during a long-term monitoring program in the areas influenced by the Santo Antônio Hydroelectric Power Plant along the margins of the Madeira River, Rondônia state. The sites cover approximately 100 km of latitudinal gradient in the Brazilian Amazon Basin (Fernandes & Souza 2018). The sampling of ground-dwelling ants was based on the ALL (Ants of the Leaf Litter) protocol, which is globally standardized for inventories of ant fauna in litter (Bestelmeyer et al. 2000). We also obtained one specimen collected by direct sampling in the National Forest of Jamari (Flona Jamari), 190 km away from Porto Velho (Rondônia state). To identify the specimens we used an available taxonomic key (Borowiec 2016) and compared the *Syscia* individuals with specimens in collections previously identified by experts. Voucher specimens were deposited in the Invertebrate Collection of the Instituto Nacional de Pesquisas da Amazônia (INPA).

A total of four individuals of *Syscia* have now been documented in South America, in the Brazilian state of Rondônia. The material examined was labeled: BRAZIL, Rondônia, Módulo de Búfalos, Km 4, subparcela 250, 04.ix.2011, I. O. Fernandes leg., (1 worker); BRAZIL, Rondônia, Módulo de Pedras, Km 4, subparcela 50, 13.xi.2014, I. O. Fernandes leg., (1 worker); BRAZIL, Rondônia, Módulo de Teotônio, Km 2, subparcela 250, 23.xi.2014, I. O. Fernandes leg., (1 worker); BRAZIL, Rondônia, Floresta Nacional do Jamari, Mina 14 de Abril, 05.i.2018,
Floresta Madura 48°07′31″ 89°99′99.9″, D.C. Castro leg., Fernandes I.O. det. 2018 (1 worker) (Fig. 2). All the individuals recorded in the present study belonged to the Syscia augustae group, which possesses numerous undescribed species (Longino & Borowiec personal communications, September 14, 2017).

Figure 1. Neocerapachys splendens: Lateral view (A); Head front view (B); Antennae front view (C); Petiole, postpetiole and gaster in lateral view (D).

This is the first study, to the best of our knowledge, to reinforce and confirm the Syscia distribution in South America after the Borowiec (2016) generic revision.

The area where the workers were sampled is part of a conservation and monitoring project; at the time the ants were collected, the water level of the Madeira River had risen 19 m above the maximum limit for the first time in four years of monitoring. In the Amazon, the level of the water table is correlated with changes in the abundance, richness, and composition of ground-dwelling ants (Baccaro et al. 2013). Due to the rise in the water level of the river, the groundwater level also rose, perhaps forcing normally subterranean or cryptic species to the surface (Fernandes et al. 2015, Fernandes & Souza 2018). Following the risen of the river water, no additional specimens of Syscia were encountered in the same sites.

Figure 2. Syscia specimen: Lateral view (A); Head front view (B); Antennae front view (C); Petiole, postpetiole and gaster in lateral view (D).

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