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Redescription of *Coronatella poppei* (Richard, 1897) (Crustacea, Branchiopoda, Chydoridae) and a revision of the genus in Brazil, with descriptions of new taxa

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Abstract

The description of the genus *Coronatella* Dybowski & Grochowski, 1894 (Cladocera: Chydoridae: Aloninae) pointed towards the need for a revision of species on a worldwide scale. For the Neotropical region, the main challenge noted was the redescription of *Coronatella poppei* (Richard, 1897). We redescribed this species and revised populations from Brazil that had previously been assumed to be *Alona poppei* (= *C. poppei*). Our results indicate that *C. poppei* is distributed in the southern part of South America. In Brazil, two other taxa are recognized, *Coronatella paulinae* **sp.nov.** and *Coronatella serratalhadensis* **sp.nov.**, which are morphologically distinguished both from each other and from *C. poppei*. These species also have different geographic distributions. The Brazilian *Coronatella* fauna also comprises *Coronatella monacantha* (Sars, 1901) and a related species, *Coronatella undata* **sp.nov.** Our results point towards a previously unknown high diversity of *Coronatella* in the Neotropical region with several implications for to biogeography of the genus.

Key words: Aloninae, Amphi-Pacific, Chydoridae, *Coronatella circumfimbriata*, *Coronatella* cf. *trachistriata*, morphometry, taxonomy

Introduction

Since the redescription of the genus *Alona* Baird, 1843 based on the *quadrangularis*-group (Van Damme & Dumont 2008a), the focus of studies concerning the taxonomy of Chydoridae shifted to the allocation of species of *Alona* s.l. into several natural groups (Van Damme *et al.* 2010). Recent studies resulted in the separation of species complexes and in the description of new genera, based mostly on morphological traits (Van Damme *et al.* 2005; Van Damme & Dumont 2008b; Van Damme *et al.* 2009; Van Damme *et al.* 2011; Sinev & Kobayashi, 2012; Elmoor-Loureiro *et al.* 2013). Furthermore, the inclusion of information regarding biogeographic patterns and ecological specializations has also supported the creation of new natural groups (Kotov *et al.* 2010; Van Damme & Sinev 2011; Sinev & Shiel 2012).

Approximately 17 genera were created from *Alona* s.l. (Van Damme *et al.* 2010). The genus *Coronatella* Dybowski & Grochowski, 1894, re-established by Van Damme & Dumont (2008b), is the most diverse so far, with species registered in Africa, Asia, South America, Central America, North America, and parts of Europe (Van Damme & Dumont 2008b; Van Damme *et al.* 2010). Recently, Van Damme & Dumont (2008b) listed some species that could potentially be placed in *Coronatella*, and highlighted the need for a revision of the records of *Coronatella rectangula* (Sars, 1861) outside of the Afrotropical-Palaearctic region. Several undescribed taxa of *Coronatella* are known from different continents (Van Damme *et al.* 2010; Kotov *et al.* 2013).

Indeed, what was formerly known as *C. rectangula* in the Neotropical region can be attributed to a species of the *pulchella*-group (Sousa *et al.* in preparation). Besides, there are also records of populations of *C. monacantha* with pronounced morphological variations (e.g., absence of a denticle on the labral keel and on the posteroventral