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 serrata* 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 biogeography of the genus.

Key words: Aloninae, Amphi-Pacific, Chydoridae, *Coronatella circumfimbriata*, *Coronatella cf. trachistiata*, 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