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Three new species of *Caridina* (Decapoda: Atyidae) from Central Sulawesi and Buton Island, Indonesia, and a checklist of the islands' endemic species

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Abstract

Three atyid shrimp species of the genus *Caridina* Milne Edwards, 1837, *Caridina boehmei* n. sp., *C. laroeha* and *C. butonensis* n. sp., are described from the Indonesian islands Sulawesi and Buton. *Caridina boehmei* n. sp. differs from its apparently next congener *C. sulawesi* Cai & Ng, 2009 by the shape of the spinulation of the male sexual appendages. *Caridina laroeha* resembles *C. mahalona* and *C. opaensis*, but can be distinguished by the length and armature of the rostrum, the length ratio of segments of the third maxilliped and the number of spinules on the uropodal diaeresis. *Caridina butonensis* n. sp. resembles to *C. boehmei* n. sp. and *C. opaensis* but can be distinguished by its peculiar truncated rostrum and by a more reduced podobranch on the second maxilliped.

Key words: Indonesia, Crustacea, freshwater shrimp, new species, endemism, taxonomy, *Caridina*

Introduction

Recently, taxonomic research has more than doubled the number of known endemic species of atyid freshwater shrimps from the Indonesian island of Sulawesi (Cai & Ng 2005, 2007, 2009; Zitzler & Cai 2006; Klotz et al. 2007; Cai & Wowor 2007; Cai et al. 2009; von Rintelen & Cai 2009; von Rintelen et al. 2010). While most studies focused on the spectacular shrimp fauna of the two ancient lake systems of Sulawesi, which arose through adaptive radiations (Rintelen et al. 2007, 2010, 2011), a couple of species were described from the rivers of Sulawesi (Cai & Ng 2005, 2007, 2009). We here describe three additional riverine species and provide a checklist of the endemic species of atyids currently known from Sulawesi and nearby small islands. The freshwater atyid diversity of Sulawesi is then discussed in comparison to other regions in insular Southeast Asia.

Material and methods

Specimens were caught by hand net and preserved in 75–95% ethanol during fieldtrips to Sulawesi in 2005, 2007, and 2010. Morphometric measurements were taken from microphotographs of at least four dissected specimen using AxioVision LE photo analysis software (Zeiss, Germany). Rostral characters were taken from all specimens examined. Drawings were made from microphotographs using Adobe Illustrator following Coleman (2003, 2006). Type specimens are deposited in the collections of the Museum Zoologicum Bogoriense, Bogor, Indonesia (MZB), the Museum für Naturkunde (Museum of Natural History), Berlin, Germany (ZMB) and the Oxford University Museum of Natural History, Oxford, Great Britain (OUMNH). The abbreviation cl is used for carapace length, measured from the postorbital margin to the posterior median margin of the carapace and expressed in mm; rl for rostrum length, measured from the tip of the rostrum to the postorbital margin; vs. for versus; asl for above sea level. The length of the antennular peduncle was measured from the orbital margin to the distodorsal margin of the third segment. The comparative material examined was taken from the collection of the Raffles Museum of