



The atyid shrimps from Lake Lindu, Central Sulawesi, Indonesia with description of two new species (Crustacea: Decapoda: Caridea)

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Abstract

The atyid shrimp *Caridina linduensis* Roux, 1904, has not been reported since its description more than a century ago. We here redescribe and figure this poorly known species based on new material from its type locality, Lake Lindu, Central Sulawesi, Indonesia. Two new species, *C. dali* sp. nov. and *C. kaili* sp. nov. are also found in this lake and they are described and illustrated. Compared to *C. linduensis*, *C. dali* sp. nov. is distinguished by its relatively shorter rostrum which only overreaches the end of basal segment of antennular peduncle and the fewer teeth on the incisor process of the mandible. *Caridina kaili* sp. nov. can be separated from *C. linduensis* by its extremely short rostrum, which reaches almost or just reaches the end of the basal segment of the antennular peduncle, proportionately stouter second pereopod and larger egg size. The two new species also prefer different habitats; *C. linduensis* is a true lake inhabitant, *C. dali* sp. nov. can be found both in the lake itself and associated streams while *C. kaili* sp. nov. is an obligate stream species.

Key words: Decapoda, Atyidae, *Caridina*, new species, Lake Lindu, Sulawesi, Indonesia

Introduction

Lake Lindu is a relatively small lake of 34.5 km² in the central highlands of Sulawesi (Lukman 2007) at an altitude of 982 m above sea level. This tectonic lake is found along a strike-slip fault zone, the Palu-Koro Fault, formed from convergence of three major tectonic plates, i.e. Pacific, Indo-Australia and Eurasia. This fault zone is a fast slipping area but with a relatively low level of seismicity (Bellier *et al.* 2001).

The age of Lake Lindu was estimated by Sarasin & Sarasin (1905) based on the lake mollusk fauna, and it is believed that geologically, it is a very recent structure that was formed through the sinking of a part of a mountain range during the Pleistocene. However, the exact age of Lake Lindu is still not known. Lake Lindu is drained by the Rawa River towards the north and at a point turns left to join the Sopo River through a long, deep gorge. The confluence of Rawa and the Sopo rivers marks the start of the Gumbasa River (Deschamps & Turland 2001) which runs into Palu River and empties to Palu Bay.

So far, 52 species of atyid shrimps have been reported from Sulawesi and nearby islands (Roux 1904; Bouvier 1925; Chace 1997; Cai & Ng 2005; Zitzler & Cai 2006; Cai & Wowor 2007; Klotz *et al.* 2007; von Rintelen *et al.* 2008; von Rintelen & Cai 2009; Cai & Ng 2009; Cai *et al.* 2009; Klotz & von Rintelen 2013). Most of the atyid species reported from this island belong to the genus *Caridina*, with more than half of them are lacustrine species and endemic to the island.

The taxonomy of the lacustrine atyid shrimps of several lakes in Sulawesi such as Lake Poso and Malili lakes system has received some attention over the last decade. Before 2006, there are only nine species known from the two lake systems. Recent studies record 12 new *Caridina* species from the lakes, viz. *C. caerulea*, *C. dennerli*, *C.*