



Zootaxa 3719 (1): 001–102
www.mapress.com/zootaxa/

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Monograph

ISSN 1175-5326 (print edition)

ZOOTAXA

ISSN 1175-5334 (online edition)

<http://dx.doi.org/10.11646/zootaxa.3719.1.1>

<http://zoobank.org/urn:lsid:zoobank.org:pub:1F275DB9-0D3B-4322-9F21-A402F1384D8C>

ZOOTAXA

3719

New species and new records of Ampithoidae (Peracarida: Amphipoda) from Australian Waters

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Magnolia Press
Auckland, New Zealand

Accepted by S. Ahyong: 1 Jul. 2013; published: 10 Oct. 2013

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(*Zootaxa* 3719)

102 pp.; 30 cm.

10 Oct. 2013

ISBN 978-1-77557-272-5 (paperback)

ISBN 978-1-77557-273-2 (Online edition)

FIRST PUBLISHED IN 2013 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: zootaxa@mapress.com

<http://www.mapress.com/zootaxa/>

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ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)

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Abstract

Forty-eight species from the algal dwelling family Ampithoidae are recorded from five genera *Ampithoe*, *Cymadusa*, *Paragrubia*, *Peramphithoe*, and *Plumithoe*. New distribution records are provided for 18 species including five new records from Australian waters and an additional 18 new species are described. Twenty-two *Ampithoe*, 23 *Cymadusa*, six *Paragrubia*, two *Peramphithoe*, and one *Plumithoe* species are now known from Australian waters. The generic concepts of both *Cymadusa* and *Paragrubia* are revised to accommodate the new species diversity within the Ampithoidae. The new species are: *Ampithoe mantissa*; *A. prolata*; *Cymadusa botulus*; *C. drummondiae*; *C. euclidius*; *C. hadros*; *C. hallex*; *C. hentyana*; *C. jubata*; *C. lumanus*; *C. platys*; *C. priscileo*; *Paragrubia apoorei*; *P. cassini*; *P. dongara*; *P. dwyeri*; *P. springthorpei* and *Peramphithoe bungareei*.

Key words: Amphipoda, Ampithoidae, Australia, taxonomy, Crustacea

Introduction

Ampithoids are algae associated amphipods found in benthic shallow-waters. Over 150 species of Ampithoidae have been described in 12 genera (Horton *et al.* 2013; Myers & Lowry 2003). *Ampithoe* Leach, 1914, and *Cymadusa* Savigny, 1816, dominate the species diversity, together accounting for 140 of the known ampithoid species. As part of a broader research program describing the dominant shallow-water amphipod species of Australia for both species richness and/or abundance, this paper focuses on the description of new species of *Ampithoe*, *Cymadusa*, *Paragrubia* Chevreux, 1901, *Peramphithoe* Conlan & Bousfield, 1982, and *Plumithoe* Barnard & Karaman, 1991, which are the most prolific ampithoid genera in Australian waters. Twenty-two *Ampithoe*, 23 *Cymadusa*, six *Paragrubia*, two *Peramphithoe*, and one *Plumithoe* species are now known from Australian waters. As a result of this work, a group of species were identified as exceptional within the Ampithoidae inciting a rediagnosis of the genera *Cymadusa* and *Paragrubia* to more accurately reflect the morphological variation between these genera.

Nine of the 18 species described here do not conform to the present generic concepts within the Ampithoidae but are closely associated with *Cymadusa* or *Paragrubia*. Prior to this study, an additional six species were also acknowledged within the literature as exceptions within *Cymadusa*, having one or two atypical generic level characters. Revised generic diagnoses are provided based on character traits supported by these aberrant known and new species. The history of characters used to distinguish *Cymadusa* from *Paragrubia* is outlined below. New characters and diagnoses are proposed for both genera. Additional distribution records are also provided for known species of ampithoid amphipods in Australian waters.

Cymadusa and *Paragrubia*

The genus *Paragrubia* was established by monotypy for *Paragrubia vorax* (Chevreux, 1901). *Paragrubia* was originally diagnosed by the following features: gnathopod 1 is more robust than gnathopod 2, the antenna 1 accessory flagellum is multi-articulate and the telson is subovate. Three characters separated *Paragrubia* from the closely related genus *Cymadusa* in which gnathopod 1 is smaller than gnathopod 2, the accessory flagellum has only 1-article and the telson was less rounded.

Conlan (1983) expanded the diagnosis of *Cymadusa* to include a multi-articulate accessory flagellum to accommodate *C. uncinata* (Stout, 1912). However, this was later overlooked in the synonymy and generic diagnoses proposed by Barnard & Karaman (1991) and also Poore & Lowry (1997). In Poore & Lowry (1997), two species with a multi-articulate accessory flagellum on antenna 1, *P. uncinata* and *P. variata*, were transferred into *Paragrubia*. Consequently, the diagnosis of *Paragrubia* was expanded to include gnathopod 1 larger or stouter or subequal in size to gnathopod 2 to accommodate these two species. *Cymadusa* was also diagnosed to include gnathopod 1 as smaller than or subequal to gnathopod 2, which created overlap between gnathopod characterization of *Paragrubia* and *Cymadusa* (Poore & Lowry 1997). Currently, the two characters used to separate *Cymadusa* from *Paragrubia* are the relative sizes of gnathopods 1 and 2, and the number of articles in the antenna 1 accessory flagellum.