

# Mysid Subfamily Boreomysinae (Crustacea: Mysida: Mysidae) in the Southeast Australian Deep-sea

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**ABSTRACT.** The deep-water mysid crustaceans of Australia have been barely known. Recent explorations of RV *Investigator* (CSIRO) in the southeast Australian waters discovered a unique fauna. In this special study of the marine subfamily Boreomysinae (family Mysidae) in Australia, five species from both genera *Boreomysis* and *Neobirsteiniamysis* are reported, including two new species for science: *B. inopinata* sp. nov., *B. sibogae*, *B. sphaerops*, *B. urospina* sp. nov. and *N. inermis*. Among the members of the subfamily, only *B. sibogae* has been previously known from Australia. The genus *Neobirsteiniamysis* and its bipolar-amphitropical species *N. inermis* are firstly recorded in Australia. *Boreomysis inopinata* sp. nov. has additional spinules on the outer spine of the antennal scale, which are not found in other species of the subfamily. *Boreomysis urospina* sp. nov. has the longest first segment of the uropodal exopod, laterally terminated by three spiniform setae; and its uropodal endopod is armed with up to five medial spiniform setae, the largest number in the subfamily. This species is included in a newly established subgenus *Petryashovia* subgen. nov., which unites epi-mesopelagic boreomysines, lacking the rostral projection, having rather small ventrolateral lobes of the carapace, and the 1-segmented propodus of the pereopods. The subfamily and generic diagnoses are updated. Additionally, a fragment of the mtDNA COI gene was sequenced for most of the studied species.

## Introduction

Systematic exploration of the Australian deep sea began in 2014 with the commission of RV *Investigator*. In 2015–2018, a series of marine research expeditions were conducted by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in the poorly known southeast Australian deep waters. Rich biological material was sampled onboard RV *Investigator* by a number of Australian and overseas researchers (O'Hara *et al.*, 2020; Gunton *et al.*, 2021). The mysid crustacean collection, housed at the Australian Museum (AM), which came to my disposal,

contained taxonomically unique material. In this paper I report the results of the work on the part of this collection, concerning the subfamily Boreomysinae Holt et Tattersall, 1905 (family Mysidae Haworth, 1825).

Members of the subfamily are the largest mysids (body length up to 85 mm) and are commonly considered exclusively deep-water oceanic organisms (Birstein & Tchindonova, 1958; Kathman *et al.*, 1986; Wittmann *et al.*, 2014). However, there has not been clear evidence of the species bathymetric separation (Hargreaves, 1997). The name Boreomysinae can be translated as “northern mysids” (Boreas was the god of the northern winds and winter in

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