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***Paradiopatra* (Annelida: Onuphidae) from eastern Australian waters, with the description of six new species**

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Abstract

This study recognises eight species of *Paradiopatra* from eastern Australian waters, of which only one, *Paradiopatra ehlersi*, had been previously recorded. Six species are newly described: *P. acirrata* n. sp., *P. imajimai* n. sp., *P. longicappa* n. sp., *P. piccola* n. sp., *P. spinosa* n. sp., *P. variabilis* n. sp., and one species is reported as *P. cf. papillata*. Descriptions of all species (with the exception of *P. ehlersi*) are given, accompanied by detailed illustrations, including scanning electron micrographs and drawings. A key to all 32 species of the genus is included plus a table summarising specific diagnostic characters of the Australian representatives.

Key words: polychaetes, taxonomy, slope, bathyal, key, Australian waters

Introduction

Paradiopatra is a cosmopolitan genus of tubicolous onuphids with a wide range of vertical distribution from 13–6350 m, living predominantly in slope to abyssal depths. The genus has recently been the subject of an extensive revision, recognising 26 species, providing illustrated descriptions and a key to all species (Budaeva & Fauchald 2011). Only one species, *P. ehlersi* (McIntosh, 1885), had previously been reported from off eastern Australia (Kirkegaard 1994). Yet, the presence of a number of undescribed species had been noted and reported in a small note (Paxton 2000).

Here we document the *Paradiopatra* species collected from the southeastern Australian continental slope by the Museum Victoria, Melbourne, in a sampling program designed principally to study the crustacean fauna (Poore et al. 1994). The polychaete material yielded seven species of *Paradiopatra*, of which six are described as new species, and the seventh, represented by only one specimen, is treated as *P. cf. papillata* (Kucheruk, 1979).

Material and methods

This study is based mainly on material collected by the Museum Victoria, Melbourne (MV) from the southeastern Australian continental slope on three transects, at depths greater than 200 m perpendicular to the coast: NSW (south of Sydney, New South Wales at 35°S); BS (off eastern Victoria in Bass Strait at 38°30'S); and TAS (off Freycinet Peninsula, eastern Tasmania at 42°S). Samples were collected by the O.R.V. *Franklin* in July 1986 and October 1988, using a modified WHOI epibenthic sled (Poore et al. 1994). *Paradiopatra* specimens were found from 429 to 2250 m depth. Detailed station data is given in Table 1.

The material was fixed in 5% formalin, later transferred to alcohol (Poore et al. 1994) and is now stored in 80% ethanol. Specimens were examined with light microscopy, small specimens and body parts as temporary mounts in diluted glycerine. Drawings were prepared with the aid of a camera lucida. Specimens used for scanning electron