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One new species of *Micronephthys* Friedrich, 1939 and one new species of *Nephtys* Cuvier, 1817 (Polychaeta: Phyllodocida: Nephtyidae) from eastern Australia with notes on *Aglaophamus australiensis* (Fauchald, 1965) and a key to all Australian species

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Abstract

There are currently over 130 described species of Nephtyidae worldwide, with 18 species known from Australian waters belonging to four genera. Two new species are described, *Micronephthys derupeli* **n. sp.**, and *Nephtys triangula* **n. sp.**, from Eastern Australia. Descriptions are provided for all species examined. Comments are given about the recent transfer of *Nephtys australiensis* to *Aglaophamus.* A key to all Australian species of nephtyids is provided.

Key words: Polychaeta, New South Wales, taxonomy, *Nephtys*, *Micronephthys*

Introduction

Nephtyidae is a common family of benthic polychaetes (Wilson 2000; Ravara *et al.* 2010a, b). This family occurs worldwide and is recorded at all depths, although more species have been recorded from shallow waters with sandy and muddy bottoms than other habitats. There are currently five accepted genera found worldwide: *Aglaophamus*, *Inermonephtys*, *Micronephthys*, *Nephtys* and *Bipalponephtys* with over 130 described species (Ravara *et al*. 2010b). The most diverse genera both worldwide and in Australia are *Aglaophamus* and *Nephtys*, with eight and seven species now known in Australia respectively. The genus *Inermonephtys* also occurs in Australia with two described species but was not found in this study. The validity of the new genus *Bipalponephtys* erected by Ravara *et al*. (2010a) has been questioned by Jirkov and Dnestrovskaya (in conversation and in a publication in 2012), but their criticism rejected by Ravara (2011) and while beyond the scope of this paper, the types of some species placed in this new genus certainly need to be re-examined to confirm these relocations. However none of the Australian species possess bifid palps.

A recent phylogenetic study by Ravara *et al*. (2010a) using both molecular and morphological characters found two well supported clades, corresponding mainly to the genera *Aglaophamus* and *Nephtys*. *Nephtys australiensis,* a very common species in sheltered marine habitats in Eastern Australia was transferred to *Aglaophamus*. The genus *Dentinephtys*, which is known only from a single species in Japan and California, U.S.A., was transferred to *Nephtys*. They also found that *Micronephthys* was a sister group to *Nephtys*, and the position of *Inermonephtys* was unresolved.

Nephtyids were first recorded from Australia by Stimpson (1856) who described *Nephtys longipes* from Botany Bay, New South Wales (NSW). Subsequent studies by Augener (1913, 1922), Benham (1915, 1916), Fauchald (1965), Rullier (1965), Knox and Cameron (1971), and Paxton (1974) described additional Australian species. Rainer and Hutchings (1977) undertook a comprehensive survey of the Australian fauna and increased the number of known species to thirteen, describing five new species. Subsequently Rainer and Kaly (1988) described an additional four new species from the North West Shelf, and recorded the presence of another species of *Micronephthys*, bringing the Australian nephtyid fauna to 18 species belonging to four genera.

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distribution of this species will be extended. *Nephtys triangula* **n. sp.**, has only been recorded from exposed sandy beaches. Several of the above species co-occur and therefore careful examination of material from intertidal estuarine and sandy beaches is required to accurately identify species. We have included tables listing the major characteristics of all species of *Micronephthys* and species of *Nephtys* occurring in Australia and the Indo-Pacific to facilitate the identification of the Australian fauna as we suspect that more undescribed species occur in Australian waters especially in deeper water and in northern Australia. However it is worth noting that both the new species were collected from New South Wales where extensive collecting has occurred (Rainer and Hutchings 1977).

In Tables 4 and 5 we have used the data provided in the original description but in many cases we have supplemented the information by using additional references and figures which are listed in the tables. We have only provided the original type locality, rather than the entire reported range for the species as this would have required us to check all these other records which was not feasible in this study. We suspect that in some cases the reported range extensions may not be valid. We accept that nephtyids have one pair of antennae and one pair of palps (Ravara *et al*. 2010a) so in descriptions which state two pairs of antennae we have accepted that the first pair are antennae and the more basal pair are palps.

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