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A new species of *Marphysa* Quatrefages, 1865 (Polychaeta: Eunicida: Eunicidae) from northern Australia and a review of similar taxa from the Indo-west Pacific, including the genus *Nauphanta* Kinberg, 1865

CHRISTOPHER J. GLASBY[1,3] & PAT A. HUTCHINGS[2]

[1]*Museum and Art Gallery Northern Territory, GPO Box 4646, Darwin NT 0801, Australia. E-mail: chris.glasby@nt.gov.au*
[2]*Australian Museum, 6 College Street, Sydney, NSW 2010, Australia. E-mail: Pat.Hutchings@austmus.gov.au*
[3]*Corresponding author*

Abstract

A taxonomic survey of *Marphysa* species (Polychaeta: Eunicida: Eunicidae) from coastal regions of northern Australia including recently collected specimens from a fish farm near Darwin, yielded three species: *M. mullawa* Hutchings & Karageorgopolous, 2003, a first record from northern Australia; *M. mossambica* (Peters, 1854; was *Nauphanta mossambica*), first confirmed record from Australia; and a new species, *M. fauchaldi.* The new species was recorded from intertidal muddy shores as well as in the sediments of fish farm ponds, where it was extremely abundant. It is characterised by a unique combination of chaetal features. A newly proposed informal subgroup of *Marphysa*, the Teretiuscula-group, is erected to contain the new species and other *Marphysa* species that share the possession of compound spinigerous chaetae in anterior parapodia only and the peculiar behaviour of encapsulating embryos in jelly cocoons. Morphologically, the new species falls between a group of *Marphysa* species having only compound spinigers and the recently resurrected genus *Nauphanta*, which completely lacks compound chaetae. The discovery of this new species necessitated a re-evaluation of the morphological features of *Nauphanta* and *Marphysa* species lacking falcigers, in particular homology of fan chaetae, the only apparent synapomorphy of *Nauphanta*. Fan chaetae appear to be a specialised type of pectinate chaetae, which are found also in species of *Marphysa* including the new species. Based on this finding, and an evaluation of other characters, *Nauphanta* is returned to synonymy with *Marphysa*. Further, an analysis of size-related variation of key morphological characters in *M. mossambica* and comparison with those in the types of *M. novaehollandiae* (Kinberg, 1865; formerly *Nauphanta*) and *M. simplex* Treadwell, 1922, indicated that both species should be synonymised with *M. mossambica*. A key is provided to identify *Marphysa* species of the Indo-west Pacific.

Key words: Annelida, taxonomy, systematics, Barra bloodworm, aquaculture, fish farm

Introduction

Surveys of an aquaculture pond in the Darwin region stocked in 2002 with Tiger Prawns (*Penaeus monodon*) and later in 2008 and 2009, with Barramundi (*Lates calcarifer*), revealed specimens of a suspected new species of *Marphysa* (Polychaeta: Eunicida: Eunicidae). *Marphysa* is a speciose genus, probably polyphyletic (Orensanz 1990), that has not been subject to taxonomic revision, so species identification is often problematical. Nevertheless, distinctive morphological subgroups within the genus can be recognised, for example, eight morphotypes based on the type of chaetae present and the distribution of branchiae along the body (Fauchald 1970). Morphotype Group A (compound chaetae absent) was formally recognised by resurrection of an old nominal genus, *Nauphanta* (Fauchald 1987). Based on Fauchald's (1970) scheme, the aquaculture pond specimens are close to Group B2 species which have compound spinigers, lack compound falcigers, and have branchiae present to the end of the body. However, detailed comparison with other Group B2 species from the Indo-west Pacific, showed the worms to be an undescribed form belonging to a new group, which is described herein. An examination of all *Marphysa* specimens lacking falcigers from northern Australia held in the collections of the Museum and Art Gallery of the Northern Territory, Darwin, and the Australian Museum, Sydney, established the range of the new species, and yielded two additional records:

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