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Serpulidae (Annelida) of Lizard Island, Great Barrier Reef, Australia

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Abstract

Serpulidae are obligatory sedentary polychaetes inhabiting calcareous tubes that are most common in subtropical and tropical areas of the world. This paper describes serpulid polychaetes collected from Lizard Island, Great Barrier Reef, Australia in 1983–2013 and deposited in Australian museums and overseas. In total, 17 serpulid genera were recorded, but although the study deals with 44 nominal taxa, the exact number of species remains unclear because a number of genera (i.e., *Salmacina*, *Protula*, *Serpula*, *Spirobranchus*, and *Vermiliopsis*) need world-wide revisions. Some species described herein are commonly found in the waters around Lizard Island, but had not previously been formally reported. A new species of *Hydroides* (*H. lirs*) and two new species of *Semivermilia* (*S. annehoggettae* and *S. lylevaili*) are described. A taxonomic key to all taxa found at Lizard Island is provided.

Key words: Serpulidae, taxonomy, new records, new species

Introduction

The annelid family Serpulidae *sensu lato* is large, currently comprising 70 valid genera and over 500 species (ten Hove & Kupriyanova 2009; Rzhavsky *et al.* 2013). Traditionally the family was divided into the subfamilies Spirorbinae, Serpulinae, and Filograninae (e.g., Rioja 1923; Fauvel 1927). Pillai (1970) elevated the Spirorbinae to family status, but a number of later phylogenetic studies (e.g., ten Hove 1984; Smith 1991; Kupriyanova 2003; Kupriyanova *et al.* 2006) showed that spirorbins are monophyletic and are nested within the Serpulidae. Moreover, the results of analyses of both molecular (Lehrke *et al.* 2007; Kupriyanova *et al.* 2009) and combined morphological and molecular data (Kupriyanova *et al.* 2006) indicate that neither Serpulinae nor Filograninae is monophyletic and that Spirorbinae is a sister group to a clade containing mostly “filogranins” and some “serpulins”. Therefore, currently the spirorbids are lowered to subfamily rank (Rzhavsky *et al.* 2013) and the traditional subfamilies Serpulinae and Filograninae have been abandoned pending revision and re-formulation.

Studies of serpulids in Australia are scarce. Haswell (1883, 1885) was the first zoologist who described 11 Australian serpulid species from the British Museum collections. Early studies of Australian serpulids were published by Bush (1905), Augener (1914), Benham (1916), Fauvel (1917, 1922), Johansson (1918), Bretnall (1921), and Monro (1938). Among those, only Bretnall (1921) mentions a serpulid (*Ditrupa*) from Queensland. Dew (1959) and Straughan (1967a, b) were the first authors dealing exclusively with serpulid polychaetes, together mentioning over 50 taxa from Thursday Island in North Queensland to Cape Jarvis in Southern New South Wales. Between 1979 and 1991 Hartmann-Schröder published 11 papers on polychaetes (including some serpulid records)