



New insights in the taxonomy of Trichobranchidae (Polychaeta) with description of a new *Terebellides* species from Australia

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Abstract

During taxonomic studies on the Trichobranchidae housed at the Australian Museum, Sydney morphological characters of specimens were found to serve taxonomists on four taxonomic levels – family, genus, species and specimen level. The number of neuropodial uncini per torus and abdominal segments, long considered holding information for species determination, proved to be highly variable within species. Characters found to be consistent within species were e.g., the position of nephridial papillae, shape of branchiae and chaetae, and the development of anterior segments and lateral lappets. Also, staining in methyl green resulted in a clear pattern without intraspecific variability in most cases and is since considered a helpful tool for identification of Trichobranchidae. In this study an overview of morphological characters of Trichobranchidae and their information for taxonomy is given based on the trichobranchid collection of the Australian Museum. Additionally, description of a new species *Terebellides jitu* sp. nov., formerly treated as a variation of *Terebellides narribri*, is given. The description of *T. narribri* is revised.

Key words: Southern hemisphere, Annelida, Terebellida, *Terebellides jitu* sp. nov., *Terebellides narribri*

Introduction

Trichobranchidae are common polychaetes in shallow and deep waters (Hutchings 2000). However, due to a lack of distinct well documented characters, especially in preserved material, their taxonomy and systematic position is still unresolved and controversially discussed (Garraffoni & Lana 2004, Rousset *et al.* 2003, Hutchings & Peart 2000). With only four genera and about 50 distinguished species to date the family, often treated as a subfamily Trichobranchinae among the Terebellidae (Rouse & Pleijel 2001) or as a separate family (compare Rouse & Fauchald 1997, Hutchings 2000), represents a small group within the Polychaeta. One of the main reasons for the small number of species is a long practiced misidentification of the type species of the genus *Terebellides stroemii* Sars, 1835 (Hutchings & Peart 2000). Because of the distinct shape of the branchiae of *Terebellides* where four lobes originate from one fused stem structure, specimens have almost always been identified as *T. stroemii* without further study and regardless that the type locality is Norway and the species appeared to be one of the most ubiquitous cosmopolitan species of the world reported from a wide variety of habitats and depths. Already in 1984, Williams presented a thorough review of specimens identified as *T. stroemii* from collection all over the world. She was able to find apparent differences especially in the branchial structure and the methyl green staining between observed specimens and described several new species and variations. Despite her discovery that *T. stroemii* might not be the cosmopolitan species once thought, her approach was often neglected and specimens continued to be misidentified. Only in the last decade or so have taxonomists developed an interest in the taxonomy of the Trichobranchidae and of the genus *Terebellides*. The most voluminous study on its taxonomy was presented by Hutchings and Peart (2000) from Australian waters who described nine new species of Trichobranchidae, four of them belonging to *Terebellides*. Much of the material from this study is housed at the Australian