

A Puzzle No More: The Identity of *Spirobranchus tetraceros* (Schmarda, 1861) (Annelida, Serpulidae) is Revealed

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ABSTRACT. *Spirobranchus tetraceros* (Schmarda, 1861) originally briefly described from New South Wales, Australia was later reported as a widely distributed species of Indo-Pacific origin. The species was assumed to be a highly successful invasive Lessepsian migrant to the Mediterranean *via* the Suez Canal. However, recently, such wide distributions have been questioned and *S. tetraceros* was treated as a complex of morphologically similar species. Moreover, genetic evidence proved that the species that invaded the Mediterranean originated neither in warm temperate Australia nor in the Red Sea. This study examines the taxonomic status of *Spirobranchus tetraceros* populations along the east coast of Australia. Given the absence of the holotype, we re-described *Spirobranchus tetraceros* from New South Wales, designated the neotype supported by DNA sequence data, and fixed Port Botany as the type locality. The phylogenetic analysis revealed the existence of a sympatric cryptic species with a mean genetic distance of 36% (described here as *S. schmardai* sp. nov.) and proved that the tropical coral-associated specimens from Queensland belong to at least two distinct species. We also suggest resurrecting the name *S. multicornis* Grube, 1862 for the Red Sea population of the *Spirobranchus tetraceros* complex. This study calls for a worldwide revision of the complex.

Introduction

Morphological variation in opercular morphology within the genus *Spirobranchus* de Blainville, 1818 appears to be so large that earlier taxonomists (e.g., Fauvel, 1923, 1932; Rullier, 1972) lumped most of the tropical forms under *S. giganteus*. Ever since, many of the identifications of “*S. giganteus*” have included a number of different

taxa. An initial morphological separation of the taxa within *Spirobranchus* was made by ten Hove (1970), who differentiated at least three geographically separated morphologies in the *Spirobranchus giganteus* / *corniculatus* complex (tropical forms with spiral radioles). He also separated forms with circular arrangement of radioles from those with spiral arrangements. However, following the cosmopolitan concept, which was dominant at the time

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