



Reinstatement of three species of the *Marphysa sanguinea* complex (Polychaeta: Eunicidae) from the Grand Caribbean Region

ISABEL C. MOLINA-ACEVEDO¹ & LUIS F. CARRERA-PARRA

El Colegio de la Frontera Sur. Depto. Sistemática y Ecología Acuática. Estructura y Función del Bentos. Chetumal, Quintana Roo, México

¹Corresponding autor. E-mail: imolina@ecosur.edu.mx, isacrismoliace@gmail.com

Abstract

As part of a study on *Marphysa* de Quatrefages, 1865 from the Grand Caribbean, three species regarded as junior synonyms of *M. sanguinea* (Montagu, 1913) were studied to clarify their taxonomic status. The examination of type and additional materials collected in the southern Gulf of Mexico and the Mexican Caribbean regions, allowed us to clarify that *M. acicularum* Webster, 1884, *M. nobilis* Treadwell, 1917 and *M. viridis* Treadwell, 1917 are distinct species. Therefore, the three species were redescribed and some important morphological features such as maxillary apparatus, shape of parapodial lobes, shape of ventral cirri and pectinate chaetae, among others, were described and evaluated. Furthermore, we consider that previous records of *M. sanguinea* for the Grand Caribbean are doubtful and it is necessary to reassess those specimens to clarify their taxonomic identity.

Key words: Eunicids, maxillary apparatus, pectinate chaeta, synonyms, taxonomy

Introduction

Marphysa sanguinea (Montagu, 1913) has traditionally been regarded as a widely distributed species in temperate and tropical waters of the world; e.g. France (Fauvel 1923), Spain (Parapar *et al.* 1993), Mediterranean Sea (Bellan 1964), South Africa (Day 1967), Australia (Day 1967), Japan (Miura 1977), Northern American Pacific (Hartman 1944, Fauchald 1970), Mexican Caribbean (Salazar-Vallejo & Carrera-Parra 1998), among others. The incomplete original description of the species led to a number of synonyms and the consequent expansion of its distribution area. Webster (1879), von Marenzeller (1888), Monro (1933), Fauvel (1937), Hartman (1944, 1959) and Fauchald (1970) considered 10 species as junior synonyms of *M. sanguinea*: *M. acicularum* Webster, 1884, *M. acicularum brevibranchiata* Treadwell, 1921, *M. sanguinea americana* Monro, 1933, *M. californica* Moore, 1909, *M. haemasoma* de Quatrefages, 1866, *M. iwamushi* Izuka, 1907, *M. leidii* de Quatrefages, 1866, *M. nobilis* Treadwell, 1917, *M. parishii* Baird 1869 and *M. viridis* Treadwell, 1917; however, none of these synonymies were corroborated based upon revision of type specimens.

Hutchings & Karageorgopoulos (2003) proposed a neotype of *M. sanguinea* with topotype specimens (Cornwall, England). Thus, they redescribed the species and restricted its distribution to northern Europe. Additionally, they described a morphologically similar species from Australia, *M. mullawa*. After that, Lewis & Karageorgopoulos (2008) described a new species, *M. elityeni*, with specimens from South Africa previously identified as *M. sanguinea*.

The first records of *M. sanguinea* in North American Atlantic coasts were made in Rhode Island, New Jersey (Leidy 1855) and Virginia (Webster 1879). In the Grand Caribbean, a region that includes the entire Caribbean biogeographic province from Bermuda in the north, down to the central coast of Brazil, and the southern portion of the Caroleinean province from South Carolina to the Northern Gulf of Mexico (Salazar-Vallejo 1996), the first record was made by Ehlers (1887) from Dry Tortugas, Florida and Haiti. Afterwards, three morphologically similar species to *M. sanguinea* were described in the region: *Marphysa acicularum* (from Bermuda), *M. nobilis* and *M. viridis* (both from Florida). Later, Hartman (1944) suggested that *M. acicularum*, *M. a. brevibranchiata*, *M.*

Final remarks

Traditionally, *M. sanguinea* has been regarded as a widespread species; but recent studies and our results show it is a morphologically distinguishable species complex that can be differentiated based on features not previously studied in detail, e.g. form and number of pectinate chaetae and hirsute shaft of spinigers (Hutchings & Karageorgopoulos 2003; Lewis & Karageorgopoulos 2008; Glasby & Hutchings 2010 and herein). In the Grand Caribbean, *M. acicularum*, *M. nobilis* and *M. viridis* were regarded as junior synonyms of *M. sanguinea*; however, we have shown that they are different and consequently reject the synonymy. Herein, we showed morphological differences among these species including some novel features such as the proportion of maxillary carriers, the closing maxillary system in MI, the distribution of branchial filaments along the body, the last chaetiger with ventral cirri having swollen base, and a detailed description of the different types of pectinate chaetae using the width of the blade and the length and thickness of teeth. Our results call into question all records of *M. sanguinea* in the Grand Caribbean; those reports could represent any of the aforementioned three species and the specimens should be reexamined.

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