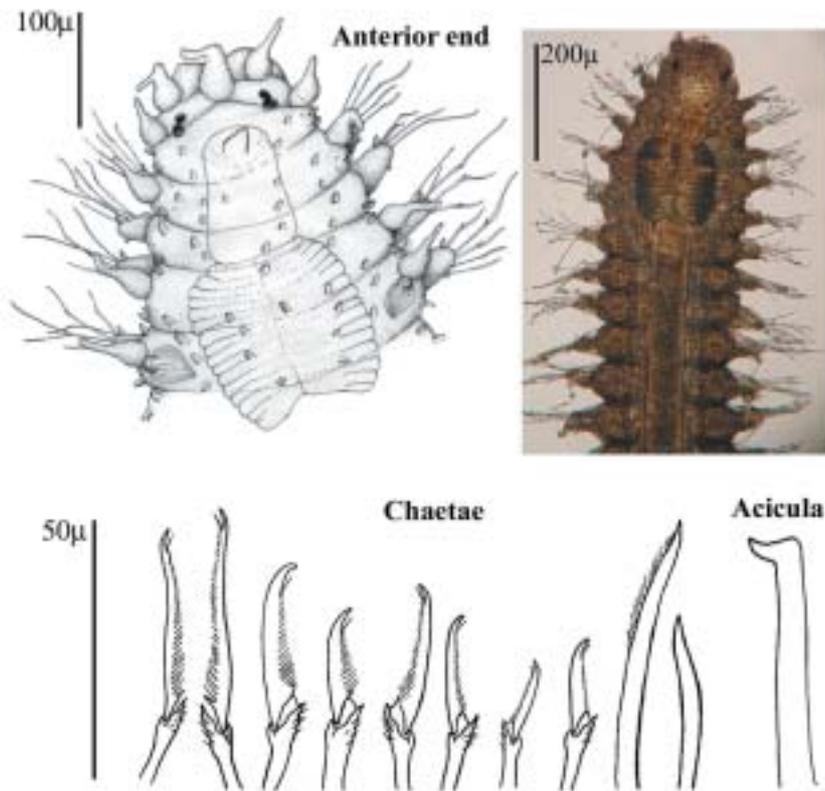


New Species

When taxonomy meets ecology: a new polychaete species from the Mediterranean Sea

By Luigi Musco & Adriana Giangrande

POLYCHAETE ANNELIDS ARE one of the numerically dominant macrobenthic taxa, since they play a major role in the functioning of benthic communities and also because of the diversity of their feeding modes, morphometric features and habits (both sessile and vagile species).



Sphaerosyllis boeroi adult in dorsal view, chaetae and acicula (Musco, Çinar & Giangrande 2005: *The Italian Journal of Zoology* 72: 161-166).

Among benthic groups, polychaetes have been largely utilised as indicators of environmental disturbance, since this taxon contains both sensitive and tolerant species distributed in a gradient from pristine to heavily disturbed habitats. Among hard-bottom polychaetes, Syllidae is the most representative family both in number of individuals and species, numbering about 667 taxa worldwide distributed in a large array of habitats, especially in the littoral fringe. The family ranks first among polychaete families in terms of number of species reported from the Mediterranean Sea, with more than 170 species. They are often charmingly coloured and relatively small-sized (rarely reaching 10cm) vagile bristle worms, characterised by a muscular proventriculus, used as a suction pump in feeding, and one or more aciculae in the uniramous parapodium used as a lever in the movement.

From an ecological point of view, syllids were frequently found to be highly sensitive to pollution or other kind of stress, decreasing in number of species and individuals or even disappearing. Moreover, they seem to be indicative in measuring the “positive” impact due to protection, and their highly descriptive capabilities led to them being proposed as indicators of large-scale ecological changes, particularly within the Mediterranean area.

The array of significant results in environmental impact studies, obtained on the basis of a good taxonomic resolution (effort made in identifying syllids to species level), highlighted the general importance of taxonomy in the ecological field, once again suggesting the priority of its re-evaluation.

Among syllids, the subfamily Exogoninae is represented by relatively small-sized species inhabiting a number of biotopes and depths, from intertidal to deep water. Of the genera, *Sphaerosyllis* sensu lato are diverse, possessing circa 80 nominal species worldwide, 25 species in the Mediterranean Sea.

The faunistic analysis of benthic materials collected from the Marine Reserve of Porto Cesareo (Ionian Sea, Italy) and the coast of northern Cyprus (Levant Sea) revealed a new syllid species, *Sphaerosyllis boeroi* Musco, Çinar & Giangrande 2005. This species is mainly characterised by having compound bristles (chaetae) with discernable subdistal spine and a strong dorso-ventral gradation in size of bristle blades throughout the body, particularly due to sigmoid elongated slender blades of superior compound chaetae on anterior and middle parapodia. Some conical adhesive papillae bind sediment and detrital particles on the body surface.

S. boeroi was encountered on superficial hard sciaphilous substratum (5m, cave), hard photophilous substratum with *Chondrilla nucula* (13m), coralligenous formations (25m), mud with *Caulerpa racemosa* and *Udotea petiolata* (37-150m), and *Posidonia oceanica* (ca.30m). However, it was reported only in shallow-water hard-bottom communities from the Italian coasts and in a variety of habitats in depths ranging from 27 to 150m off Cyprus. *S. boeroi* appears at present to exclusively inhabit the Eastern Mediterranean.

Some recent ecological analyses carried out along the south Italian Ionian coast revealed *S. boeroi* to be sensitive to urban pollution, decreasing in number of individuals in affected areas, thus following the general characteristics of the family. This last observation enhances the importance of the correct identification of the species, thus stressing the central role of taxonomy in environmental studies, as previously underlined by several authors, including Ferdinando Boero, to whom the new species is dedicated.

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