



Article

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Systematics and ecology of species of the *Polydora*-complex (Polychaeta: Spionidae) of the Black Sea

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Abstract

The taxonomic, morphological, biological, behavioural and ecological characteristics of three species of spionid polychaetes from the Black Sea belonging to the *Polydora*-complex are summarised and discussed on the basis of the author's collections along Romanian coasts as well as on material from other parts of the Black Sea. It is apparent that at least two species have been included under the name '*Polydora ciliata*' in the Black Sea literature. All previous records of *Polydora* that bore into calcareous substrates are most likely *Polydora websteri*. The individuals building muddy tubes on all types of substrata at depths less than 20 m, previously identified as *P. ciliata* or *P. limicola*, are *P. cornuta*. The presence of true *P. ciliata* in the Black Sea is questionable and older records must be re-evaluated. *Dipolydora quadrilobata* is a new record for the Romanian coast of the Black Sea, and has established dense populations in deeper (>30 m) soft bottom sediments. Descriptions and figures of these species, as well as a key to actual species of the *Polydora*-complex occurring in the Black Sea, are provided.

Key words: *Polydora cornuta*, *Polydora websteri*, *Dipolydora quadrilobata*, identification key, non-native species, cryptogenic species

Introduction

Species of the '*Polydora*-complex', often termed 'polydorids', represent a group of morphologically similar polychaetes belonging to the family Spionidae that have a modified fifth chaetiger bearing stout specialised notopodial chaetae or spines (Blake 1996). The polydorids currently include the genera *Polydora*, *Dipolydora*, *Boccardia*, *Boccardiella*, *Pseudopolydora*, *Carazziella*, *Amphipolydora*, *Tripolydora*, and *Polydorella*, with over 145 recognized species (Walker 2011).

The most important recent taxonomic revision of the *Polydora*-complex was provided by Blake (1996). Major taxonomic characters used in their identification include: the morphology of the modified spines and companion chaetae of chaetiger 5, the first appearance and structure of ventral hooded hooks, the shape of prostomium, the presence or absence of an occipital antenna, the extent of the caruncle, the presence and nature of pigmentation on the body, the morphology of the pygidium, and the first appearance and extent of branchiae (Fauvel 1927; Blake & Kudenov 1978; Ramberg & Schram 1983; Blake 1996).

In the Black Sea the first species reported was *Polydora cornuta* Bosc, 1802 by Perejaslavzeva (1891). Subsequent authors (Jakubova 1930; Vinogradov 1949; Marinov 1957, 1977; Codreanu & Mack-Firă 1961; Dumitrescu 1962, 1973; Kisseleva 2004) identified this species as *P. ciliata* (Johnston, 1838). Dumitrescu (1960) reported the presence of *Dipolydora caulleryi* (Mesnil, 1897) (as *Polydora caulleryi*) and *Pseudopolydora antennata* (Claparède, 1869) (as *Polydora (Carazzia) antennata*) from the Prebosphoric waters (Fig. 1). Losovskaya and Nesterova (1964) reported a non-boring species found in 1962 in the Sukhoi Liman Lagoon as *P. ciliata limicola* Annekova, 1934. Surugiu (2005a) recorded *P. cornuta* and *P. websteri* Hartman in Loosanoff & Engle, 1943 as new species to the Black Sea fauna. Todorova and Panayotova (2006) recorded *D. quadrilobata* (Jacobi, 1883) on the Bulgarian Black Sea coast. Thus seven species names belonging to the genera *Polydora*, *Dipolydora*, and *Pseudopolydora* have been cited for the Black Sea to date.