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# The *Ophryotrocha diadema* group (Annelida: Dorvilleidae), with the description of two new species

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## Abstract

This paper reviews a group of hermaphroditic *Ophryotrocha* species, here designated as the *O. diadema* group. This informal group is characterised by its unique P-maxillae and paired mammillate rosette glands. The three members of the group are simultaneous hermaphrodites and have the chromosome complement of 2n = 8. As herein defined, the group includes *O. diadema*, *O. alborana* **sp. nov.**, and *O. birgittae* **sp. nov.**. The three species can be distinguished by the appearance of their eyes and other morphological and reproductive differences. The species are described, and their life table data is presented.

**Key words:** Polychaetes, taxonomy, reproduction, development, nutrient-rich waters, life tables, population parameters

## Introduction

Polychaetes of the genus *Ophryotrocha* Claparède & Mecznikow, 1869, found in shallow, nutrient-rich waters such as harbours, have been collected and cultured by us for more than forty years. While the species are very similar in their external morphology, they differ greatly in their reproductive patterns, ranging from hermaphroditism to gonochorism and viviparity (Åkesson 1975a). Crossing experiments of laboratory cultures led to the recognition of a number of new species, resulting in numerous publications, serving as models for developmental bioassays (Åkesson 1970, 1975b) and reproductive and life cycle studies (Åkesson 1978, 1982; Thornhill *et al.* 2009). Phylogenetic analyses based on morphology, reproductive and electrophoretic characters (Pleijel & Eide 1996) and DNA sequences (Dahlgren *et al.* 2001; Heggøy *et al.* 2007) identified some well supported clades. Studies of the *O. labronica* group of species (referred to as clade B by Dahlgren *et al.* 2001) have recently been completed, presenting formal descriptions of seven species that were formerly known only by their laboratory names or *nomina nuda* (Paxton & Åkesson 2010). We are here treating the *O. diadema* group of species (referred to as clade A2 by Dahlgren *et al.* 2001).

Members of the *O. diadema* group are characterised by the combination of the following features: (1) palps absent, replaced by ciliary pads; (2) ciliary bands separated by gaps; (3) parapodial cirri absent; (4) mammillate rosette glands present, known previously only for *Mammiphitime* Orensanz, 1990; (5) pygidial dorsal stylus absent; (6) unique P-maxillae with forceps lacking the serrated comb-like plate and anterior denticles having additional oval ventral plates; (7) simultaneous hermaphroditism, chromosome complement of 2n = 8; and relatively few, large eggs in fusiform egg cases. While the three species are morphologically very similar, they can be distinguished by their eyes and other morphological and reproductive differences. This paper will formally describe the two new species and compare life table data for the three members of the *Ophryotrocha diadema* group.

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