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# The *Ophryotrocha labronica* group (Annelida: Dorvilleidae) — with the description of seven new species

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## Abstract

This paper reviews the group of gonochoristic *Ophryotrocha* species, known as the "*O. labronica* group". This informal group is chararacterised by its unique maxillary P- and K-forceps and dorsomedian rosette glands. All members of the group are primarily gonochoristic and almost all have the diploid complement of chromosomes of 2n = 6. External morphological differences within the group are very slight. In males and females of all species the P-type maxillae change at maturity to the K-type with the right forceps being bifid. A jaw fossil from the Upper Cretaceous, attributable to the *O. labronica* group, attests to the long history of the group. As herein defined, the group includes: *O. labronica labronica, O. labronica pacifica, O. costlowi* **sp. nov**., *O. dimorphica, O. japonica* **sp. nov**., *O. macrovifera* **sp. nov.**, *O. notoglandulata, O. permanae* **sp. nov.**, *O. robusta* **sp. nov.**, *O. rubra* **sp. nov.**, *O. schubravyi, O. vellae* **sp. nov.**, *O. olympica*, nom. nud., *O. prolifica*, nom. nud., and *O. sativa*, nom. nud.. Seven species are formally described and diagnoses are provided for all remaining taxa in the taxonomic section. This is followed by an illustrated discussion of the morphology, reproductive traits, and relationships of the members of the informal group.

**Key words:** Polychaetes, taxonomy, reproduction, development, nutrient-rich waters, crossbreeding, *nomina nuda*

## Introduction

Polychaetes of the genus *Ophryotrocha* Claparède & Mecznikow, 1869, found in shallow, nutrient-rich waters such as harbours, are very similar to each other in their external morphology, making species identifications on these criteria often difficult and sometimes impossible. In contrast, their reproductive patterns differ greatly, ranging from hermaphroditism to gonochorism and viviparity (Åkesson 1975). Crossing experiments of laboratory cultures led to the recognition of a number of new species. Many of these studies were published, referring to the animals by their laboratory names without formal descriptions, rendering the names as *nomina nuda*, *i.e.* names not (yet) available (Åkesson 1975, 1978; Pleijel & Eide 1996; Dahlgren *et al.* 2001; Åkesson & Paxton 2005).

We are here treating the group of gonochoristic *Ophryotrocha* sibling species which was first recognised by Åkesson (1973) for *O. labronica* La Greca & Bacci, 1962, two new species from the Mediterranean Sea and *O. notoglandulata* Pfannenstiel, 1972 from Japan. The group has been referred to as the "*O. labronica* group" and reported to include 15 species (Åkesson & Paxton 2005).

The *O. labronica* group is coherent and can be delineated from other *Ophryotrocha* species by its unique maxillary P- and K-forceps and dorsomedian rosette glands. All members of the group are primarily gonochoristic and all but two (or three) have the diploid complement of chromosomes of 2n = 6. External morphological differences within the group are very slight, in all species the P-type maxillae change at maturity to the K-type, with the right forceps being bifid. Monophyly of the *O. labronica* group was shown in an analysis employing morphological, sex strategy, and protein data by Pleijel & Eide (1996), and confirmed by the analyses of the mitochondrial genes 16S (Dahlgren *et al.* 2001), COI (Heggøy *et al.* 2007) and 16S and COI in combination with the nuclear gene H3 with bootstrap support of 100% (Wiklund *et al.* 2009).

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