Zootaxa 2779: 1–38 (2011)
www.mapress.com/zootaxa/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

Freshwater planarians (Platyhelminthes, Tricladida) from the Iberian Peninsula and Greece: diversity and notes on ecology

MIQUEL VILA-FARRÉ[1,5], RONALD SLUYS[2], ÍO ALMAGRO[3],
METTE HANDBERG-THORSAGER[4] & RAFAEL ROMERO[1]

[1]*Departament de Genètica, Facultat de Biologia, Universitat de Barcelona, Spain*
[2]*Institute for Biodiversity and Ecosystem Dynamics & Zoological Museum, University of Amsterdam, Ph. O. Box 94766, 1090 GT Amsterdam, The Netherlands*
[3]*Departamento de Biología Evolutiva y Biodiversidad. Museo Nacional de Ciencias Naturales, Madrid, Spain*
[4]*European Molecular Biology Laboratory, Developmental Biology Programme, Meyerhofstrasse 1, 69012 Heidelberg, Germany*
[5]*Corresponding author. E-mail: mvilafarre@gmail.com*

Table of contents

Accepted by W. Sterrer: 6 Jan. 2011; published: 28 Feb. 2011

Abstract

Few studies have examined the diversity of freshwater planarians in the Iberian Peninsula and Greece. We have searched extensively for specimens, mainly in the Iberian Peninsula, and have gathered information on their taxonomy and biogeography. Two new species of *Dendrocoelum* and six new species of *Phagocata* are described. We also review the status of five other species and present distribution maps that summarize records of freshwater planarians in the Iberian Peninsula. The diversity of three ecological groups of freshwater planarians in this area is discussed and we show that it has a rich, stream-dwelling freshwater triclad fauna, contrary to the findings of earlier studies. But our findings support the traditional viewpoint that European lake-dwelling species are scarce in Spain. The distribution pattern of *Girardia tigrina* is also discussed. We conclude that the critical status of *Schmidtea mediterranea* in this area is partly due to habitat alteration through human interference.

Key words: *Dendrocoelum*, *Phagocata*, *Girardia*, *Schmidtea*, *Polycelis*, taxonomy, biogeography, biology

Introduction

There are few taxonomic studies of planarians from the Iberian Peninsula (see Vila-Farré *et al.* 2008). Recent studies have yielded interesting results (Vila-Farré *et al.* 2008; Mateos *et al.* 2009; Vila-Farré *et al.* 2010). However, they have focused mainly on the regions of Catalonia and Valencia (Baguñà *et al.* 1980; Ribas *et al.* 1989; Sluys *et al.* 1990; Sluys *et al.* 1995), while the rest of the Iberian Peninsula is largely ignored

Baguñà *et al.* (1980, 1981) reviewed the few papers that contain Iberian and Balearic records of freshwater planarians before 1981. García-Mas & Jiménez (1984) updated the list, although most of their data was repeated in Baguñà *et al.* (1981). Since then, our knowledge of the Iberian fauna of freshwater planarians has hardly increased (Gamo, 1987; Ribas, 1990; Carranza & Giribet, 1997). Consequently, the studies by Baguñà *et al.* (1980, 1981) still hold true for several species.

The freshwater planarian diversity of Greece is poorly documented, apart from species of *Dugesia*, several of which have been reported from Greek islands, and three from the mainland (De Vries, 1984, 1988/89). Common, widespread European species such as *Polycelis felina* (Dalyell, 1814), *Polycelis nigra* (Müller, 1774), *P. tenuis* Ijima 1884 and *Dendrocoelum lacteum* (Müller, 1774), may be present in Greece. However, to our knowledge, this has not been documented.

Here we describe two new species of *Dendrocoelum* Örsted, 1844 and six new species of *Phagocata* Leidy, 1847. We also provide new distribution records for the species *Phacocata* sp., *Schmidtea polychroa* (Schmidt, 1861) (Fig. 1), *Girardia tigrina* (Girard, 1850) (Fig. 2), and *Polycelis nigra* (Fig. 3).

The genus *Dendrocoelum* is widely distributed in Europe and adjacent areas of Asia and North Africa. However, only a few dendrocoelids have been reported in the Iberian Peninsula (Fig. 3). *Dendrocoelum lacteum* is present at a single locality near the Ebro Delta (Carranza & Giribet, 1997). Another, *Dendrocoelopsis brementi* (De Beauchamp, 1919), has been reported in the Bujaruelo Cave, Huesca, in the Pyrenees (De Beauchamp, 1920). De Beauchamp (1932) mentioned two dendrocoelids in two caves in the Basque Country (northern Spain). Further, one unidentified dendrocoelid has been reported on Menorca (Ribas, 1990).

The genus *Phagocata* has a Holarctic distribution (cf. Sluys *et al.* 1995, Fig. 1). However, records for Spain are scarce. *Phagocata vitta* (Dugès, 1830) is restricted to Tarragona and Girona (northeastern Spain; Arndt, 1926; Baguñà *et al.* 1980). Arndt's (1926) conclusion that specimens from Tarragona belonged to *Ph. vitta* was based only on their external appearance. Here, we assign these specimens to *Ph.* cf. *vitta*, as a study of the copulatory apparatus is required to assign them to a particular species. Gourbault (1972, Fig. 4; see also Sluys, 1995) reports *Ph. vitta* on Mallorca. Unfortunately, we could not trace the original reference. In addition, a cave planarian was reported by Racovitza (1905) from the Coves del Drac in Mallorca (cf. Gourbault & Lescher-Moutoue, 1979). We believe that the record of *Ph. vitta* mentioned in Gourbault (1972) and this record of a cave planarian are based on the same specimen, i.e. an unidentified cave planarian that could be a *Phagocata* or a dendrocoelid (both taxa have several cave-dwelling species; cf. Gourbault, 1972). Furthermore, Orghidan (cf. Gourbault & Lescher-Moutoue, 1979) collected an interstitial triclad in a temporary creek near Alaró that could be a *Phagocata* or a dendrocoelid. Gourbault & Lescher-Moutoue (1979) mentioned that they did not collect any true hypogean triclads in the island's caves. *Phagocata ullala* (Sluys, 1995) has been reported in the Ebro Delta and in the Pyrenees (cf. Sluys *et al.* 1995). Gourbault (1981) reported an unidentified species of *Phagocata* in Nerja (Málaga, Southern Spain; reported as *Ph.* sp. 2 in Fig. 3).