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The larva and life history of *Stenophylax nycterobius* (McLachlan, 1875) (Trichoptera: Limnephilidae) in high mountain streams (Sierra Nevada, Spain) and key to the Iberian larvae of the genus

MARTA SÁINZ-BARIÁIN & CARMEN ZAMORA-MUÑOZ

Department of Zoology, Faculty of Science, University of Granada, Campus de Fuentenueva s/n, E-18071, Granada, Spain

Corresponding Author: Marta Sáinz-Bariáin, Tel.: +34 958241000 ext. 20028; Fax: +34 958243238; E-mail: msainzb@ugr.es

Abstract

The larva and pupa of *Stenophylax nycterobius* (McLachlan, 1875) were briefly, although insufficiently, described by Lepneva (1966). Here, the larva is fully described and figured. Its most important diagnostic features to distinguish it from other species are illustrated. A key is presented for the identification of the known *Stenophylax* larvae of the Iberian Peninsula. Descriptions of its habitat, life cycle and its particular life history in high mountain streams from the southeast of the Iberian Peninsula (Sierra Nevada) are included.

Keywords: *Stenophylax*; Larval description; Key; Life cycle; Phenology; Iberian Peninsula.

Introduction

According to Botosaneanu (1992), *Micropterna* Stein, 1874 cannot be considered as a distinct genus separated from *Stenophylax* Kolenati, 1848 because there is no single character that allows the separation of these genera in all cases. Although the trend in check-lists is to follow this suggestion (International Barcode of Life Project 2008; González 2012; Morse 2012), other workers keep both genera (e.g., Malicky 2004, 2005, 2011).

Following Morse (2012), the genus *Stenophylax* is composed of 49 species distributed in the West Palearctic, East Palearctic and Oriental biogeographic regions, but it is most abundant in the first one. In the Iberian Peninsula the presence of 11 species is confirmed: *Stenophylax crossotus* McLachlan, 1884; *S. espanioli* Schmid, 1957; *S. fissus* (McLachlan, 1875); *S. lavandieri* (Décamps, 1972); *S. malatestus* (Schmid, 1957); *S. mitis* McLachlan, 1875; *S. nycterobius*; *S. permistus* McLachlan, 1895; *S. sequax* (McLachlan, 1875); *S. testaceus* (Gmelin, 1789); and *S. vibex* (Curtis, 1834). The presence of another five species requires confirmation or is considered doubtful: *S. barnolanus* Navás, 1917; *S. mucronatus* McLachlan, 1880; *S. nassarei* Navás, 1925; *S. oreinus* Navás, 1921; and *S. serratus* Navás, 1920 (González 2012).

Despite the fact that this genus is very abundant, there are few known larvae included in keys. Of the species of the Iberian Peninsula, only the larvae of five species have already been fully described: *S. crossotus* (Ruiz-García & Ferreras-Romero 2007); *S. permistus* (Frochot 1962; Moretti 1983; Waringer & Graf 1997; Wallace *et al.* 2003); *S. sequax* (Moretti 1983; Waringer & Graf 1997; Wallace *et al.* 2003); *S. testaceus* (Waringer & Graf 1997); and *S. vibex* (Waringer & Graf 1997; Wallace *et al.* 2003). The larva of *S. fissus* has been described (Décamps & Magne 1966; Moretti 1983), but these works are insufficient to separate it from other species (Vieira-Lanero 2000), so a new re-description is necessary (Ruiz-García & Ferreras-Romero 2007). The larva of *S. nycterobius* was briefly described by Lepneva (1966) and is keyed by Waringer and Graf (1997) and by Lechthaler and Stockinger (2005), as *Micropterna nycterobia* McLachlan, 1875. The characters included, however, do not differentiate it from other *Stenophylax* species known from the Iberian Peninsula, and the description of new features are essential for a correct identification and comparison with other species of the genus.