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The larvae of *Stenophylax mitis* McLachlan 1875 and *Allogamus hilaris* (McLachlan 1876a) (Trichoptera: Limnephilidae), with notes on ecology and zoogeography

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Abstract

The paper gives a description of the hitherto unknown larvae of *Stenophylax mitis* McLachlan 1875 and *Allogamus hilaris* (McLachlan 1876a) (Trichoptera: Limnephilidae: Limnephilini; Vshivkova *et al.* 2007). Information on the morphology of the larvae is given and the most important diagnostic features are illustrated. In the context of published keys, the larva of *Stenophylax mitis* keys together with *Stenophylax permistus* McLachlan 1895, *S. vibex* (Curtis 1834), *Stenophylax crossotus* McLachlan 1884, *Platyphylax frauenfeldi* (Brauer, in Brauer & Löw 1857), *Micropterna lateralis* (Stephens 1837) and *M. sequax* McLachlan 1875. These species are easily separated by a combination of the following features: spatial extent of the head spinule areas, setation on femora and on the 9th abdominal dorsum, and on the number of posterior sclerites behind each lateral protuberance. *Allogamus hilaris* keys with *Allogamus uncatulus* (Brauer, in Brauer & Löw 1857), *A. mendax* (McLachlan 1876a) and *Alpopsyche ucenorum* (McLachlan 1876b). These species are very similar except in head width which is < 1.50 mm in *A. mendax* and *A. ucenorum* and > 1.61 mm in *A. hilaris* and *A. uncatulus*; the two species in each of the pairs are not separable. With respect to distribution, *S. mitis* ranges from the Iberian Peninsula to the Balkan Peninsula and from southern Italy and Greece to the Central European Highlands. *Allogamus hilaris* is restricted to the Western Alps and the northern half of the Apennine Peninsula. In addition, ecological characteristics are briefly discussed.

Key words: 5th instar larva, description, identification, distribution

Introduction

Botosaneanu (1992) synonymized genera *Micropterna* Stein 1874 and *Stenophylax* Kolenati 1848 because they are indistinguishable. However, mostly based on the fact that frequent changes of long-accepted names are detrimental to the consistency of data bases and the aspired universality and stability in nomenclature, the valid status of genus *Micropterna* Stein 1874 has been retained in the Atlas of European Trichoptera (Malicky 2004, 2005) and in other European inventories and national records (e.g., Graf *et al.* 2008; Ibrahim *et al.* 2013). Based on this background, Malicky (2004, 2005) listed 13 valid species and 11 doubtful names of uncertain application (*nomina dubia*) of genus *Stenophylax*, with the 10 following species being reported from Europe: *Stenophylax alex* Mey & Müller 1979, *S. bischoffi* Malicky 1992, *S. crossotus* McLachlan 1884, *S. espanioli* Schmid 1957, *S. meridiorientalis* Malicky 1980, *S. minoicus* Malicky 1980, *S. mitis* McLachlan 1875, *S. mucronatus* McLachlan 1880, *S. permistus* McLachlan 1895 and *S. vibex* Curtis 1834. Although we follow Malicky's classification here, this controversy emphasizes the need for a revision of the genera of Limnephilini subtribe Stenophylacina Schmid 1955.

We are aware of larval descriptions of the following 3 species of *Stenophylax*: *S. crossotus* (Ruiz-Garcia & Ferreras-Romero 2007), *S. permistus* and *S. vibex* (Wallace *et al.* 2003, Waringer & Graf 2011). A key for the identification of *Stenophylax* (including *Micropterna*) larvae of the Iberian Peninsula was presented by Sáinz-

Mesophylax aspersus McLachlan 1882 was studied in detail by Salavert et al. (2008). *Stenophylax mitis* has been reported from the Iberian Peninsula, the Pyrenees, Italy, the Alps, the Balkan peninsula, and the Western and Central European Highlands (Graf et al. 2008).

Allogamus hilaris has a short emergence period and is on the wing from late August to November (Zobodat 2013) which matches our sampling date of 13th October. *Allogamus hilaris* is restricted to streams of the Western Alps and the Apennines, including the Abruzzo mountains (Cianficconi 2002; Graf et al. 2008) at elevations >800 m a.s.l. and up to the alpine region. Larvae frequent stretches of cold, oxygen-rich headwaters up to the immediate spring regions (Graf et al. 2008). *Allogamus uncatius* lives in mountainous streams of the Alps, the Western and Central Highlands, the Apennines, the Carpathians and the Balkans while *Alpopsyche ucenorum* is restricted to mountainous swampy areas of the Western Alps in Italy and France.

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