

Notes on the Taxonomy and Biology of Leeches of the Genus *Helobdella* Blanchard 1896 (Hirudinea: Glossiphoniidae)

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With 1 Figure and 1 Table

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Abstract

The European leech *Helobdella striata* Kutschera 1985 was renamed as *H. europaea*, since the species-name *striata* was found to be preoccupied. The most important features separating *H. europaea* from the similar American species *H. triseriatis* are compiled in a table. It is shown, that *H. europaea* and *H. triseriatis* differ also in their host specificity.

Introduction

The genus *Helobdella* was established by BLANCHARD in 1896 and comprises small glossiphoniid leeches characterized by one pair of eyes, diffuse salivary glands, maximally 6 pairs of crop caeca and one annulus between the gonopores (BLANCHARD 1896, SOOS 1969, SAWYER 1986). The vast majority of the described species are distributed in South- and North America (SOOS 1969, SAWYER 1972, 1986). Until recently only one *Helobdella*-species was known from Europe, *H. stagnalis* L. 1758 (AUTRUM 1958, SAWYER 1986). In 1982 I discovered a new *Helobdella*-species in a brook nearby Freiburg i.Br., West Germany and described this leech as *H. striata* (KUTSCHERA 1985). The reproductive biology and parental care of *H. striata* was reported recently (KUTSCHERA and WIRTZ 1986).

In the meantime, I discovered that the species-name *striata* is preoccupied. RINGUELET (1943) described a new variety of the common polymorphic American species *H. triseriatis* E. Blanchard 1849 (syn. *H. lineata* Verrill 1872), *H. triseriatis* var. *striata* nov. var. Since this leech was found to be different from *H. triseriatis* in anatomical features RINGUELET considered it later as a separate species, *H. striata* Ringuelet (1978).

In the present contribution I have renamed *H. striata* Kutschera (1985) and reported, which features separate this second European *Helobdella*-species from its similar American relative, *H. triseriatis*.

Material and Techniques

Approximately 100 *H. triseriatis*-specimens were collected from the underside of stones and leaves in two different waters in California: Stow Lake, Golden Gate Park, San Francisco, and an unnamed creek in Stanford. The leeches were kept at room temperature (18–24°C) in aquaria or petri dishes

which contained a few aquatic plants from the leeches' habitats. For anatomical studies fixed specimens were cut at 10 μ m and stained in haematoxylin and eosin using standard techniques.

Results and Discussion

Genus *Helobdella* Blanchard 1896

Helobdella europaea syn. *H. striata* Kutschera 1985

H. europaea is well separated from *H. stagnalis* by morphological and anatomical features (KUTSCHERA 1985). *H. europaea* resembles the polymorphic warm-water species *H. triserialis* which is widely distributed in South- and North America (KUTSCHERA 1985, SAWYER 1986). In the following Tab. 1 I have compiled the most important features separating *H. europaea* from *H. triserialis*, based on *H. triserialis*-specimens collected in California.

Fig. 1 shows the morphology of the crop (stomach) of both species after feeding. *H. striata* Ringuelet (1978) differs from *H. triserialis* basically by a distinct reproductive system. This species is only known from Central and North Argentina and Uruguay (RINGUELET 1943, 1978).

Table 1. Features separating *H. europaea* from *H. triserialis*

Feature	<i>H. europaea</i>	<i>H. triserialis</i>
body length [mm]	15–18	15–27
body width [mm]	4–6	5–8
pigmentation on neural annulus	1–5 white spots	6 white spots
pairs of crop caeca	5, not branched	6, branched
pairs of testes	5	6
ovaries	2, not branched	2, branched
hosts	oligochaeta (<i>Tubifex</i>) watersnails, crustaceans (<i>Asellus aquaticus</i>)	watersnails bivalves (<i>Pisidium</i>)
color of specimens fixed in 80% ethanol	white	brown

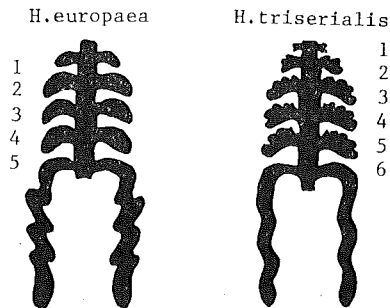


Fig. 1. Crop of *H. europaea* and *H. triserialis* after feeding. 1–6: number of pairs of crop caeca

The hosts of *H. europaea* are oligochaeta (*Tubifex*), watersnails (*Physa acuta*, *Radix peregra*) and crustaceans (*Asellus aquaticus*) (KUTSCHERA 1985). In captivity the leeches preferred *Tubifex*-worms as hosts over watersnails and *Asellus aquaticus*, i.e. in the presence of all three potential hosts the *Tubifex*-worms were sucked off first (unpublished results). Moreover, *H. europaea* carrying young on their ventral side were found to feed their offspring with captured *Tubifex*-worms (KUTSCHERA and WIRTZ 1986).

In contrast to *H. europaea*, *H. triserialis* was found under laboratory conditions to feed on a variety of different watersnails and bivalves (*Pisidium*), see SAWYER (1986). In order to determine, whether *H. triserialis* feeds also on oligochaeta I have kept 10 adult *H. triserialis* (5 carrying young) isolated in petri dishes in the presence of *Tubifex*-worms as a potential host. None of the leeches took up haemolymph from the *Tubifex*-worms over the next subsequent 4 weeks. Likewise the young carried on the belly of 5 of the leeches took up no food. After 4 weeks watersnails (*Physa gyrina*) were added to the dishes. Within one h the leeches sucked off the blood of the snails; the young took up food by sucking with the parent on the host. This experiment was repeated three times with the same result.

This shows that *H. triserialis* does ignore the preferred host of *H. europaea*, i.e. the two species are well separated by their host specificity. In summary the results of the present report indicate that *H. europaea* and *H. triserialis* are two well separated species.

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