

First record of the aquatic earthworm *Sparganophilus tamesis* Benham, 1892 (Clitellata, Sparganophilidae) in Germany

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Discovery

In May 2010 the Hamburg group of Friends of the Earth Germany (BUND) organized an awareness raising event on aquatic biodiversity. In a small open air laboratory, macrozoobenthos samples from the nearby river Alster were presented to the public. Among the commonly known river invertebrates some conspicuously long and slender worms soon attracted everybody's attention. Clearly, they did not belong to the river fauna expected here. Could they be terrestrial earthworms, having fallen into the stream from the steep banks? "But they do not look like any earthworm I have ever seen before", said the soil biologist present at the event...

Further investigations

Sampling in the following weeks provided sufficient material for species determination and revealed that it is the first record of *Sparganophilus tamesis* in Germany.

Sparganophilus tamesis Benham vs. *Sparganophilus eiseni* Smith

After its description from England the species was described several times under different names from North and Central America (Smith 1895, Eisen 1896) and from France (Tétry 1934). The synonymy of these species was repeatedly reviewed (e.g. Černosvitov 1945, Jamieson 1971). Nonetheless, Reynolds (1980, 2008) claimed to maintain the distinction between *S. tamesis* occurring in Europe and *S. eiseni* occurring in North America using as distinctive character the position of the lateral setae below (*tamesis*) or above (*eiseni*) the lateral line. However, this feature was found to be in all examined specimens from Europe as in *eiseni* (Table 1). Therefore, *Sparganophilus eiseni* Smith is considered to be a junior synonym of *Sparganophilus tamesis* Benham. It appears that also *Sparganophilus langi* Bouché & Qiu, 1998, from Switzerland (Lake Geneva) is a junior synonym of *S. tamesis*.

Accidentally introduced vs. ancient endemic presence in Europe

The monogeneric family Sparganophilidae seems to have its evolutionary centre in North America (Reynolds 2008). The first British records being mostly associated with Botanic Gardens, support the assumption that the species has been introduced among the roots of Nearctic water plants (Gates 1982, Sims & Gerard 1985). The occurrence of *S. tamesis* in a larger area of Europe, including England, France, Switzerland and Germany, throws new light on the problem, how to explain this distribution. Against the land bridge theory suggested by Omodeo (1963) it can be argued, considering the synonymy of *S. tamesis* and *S. eiseni*, that there is no sign of divergent evolution which should have happened to species isolated at geological time scales.



The day of the discovery in May 2010



Young researcher fingering *Sparganophilus tamesis*

Table 1. Relative distances between post-clitellar setae in European specimens of *Sparganophilus tamesis* (adapted from Zicsi & Vaucher 1987 and Bouché & Qiu 1998).

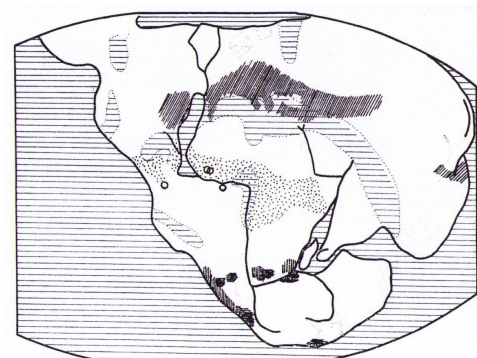
Author	Locality	aa	ab	bc	cd	dd
Tétry, 1934	River Moselle	9.5	: 1	: 7	: 1	: 6
Černosvitov, 1945	Lake Windermere	8.5	: 1	: 4.5	: 1	: 5
Jamieson, 1971	Lake Windermere	4.6	: 1	: 5	: 1	: 8.3
Zicsi & Vaucher, 1987	Lake Geneva	4.5	: 1	: 5.5	: 1	: 7
Bouché & Qiu, 1998	Lake Geneva	4	: 1	: 5	: 1	: 6
Graefe & Beylich	River Alster	5	: 1	: 4.5	: 1	: 8



The geographical locations of *Sparganophilus eiseni* in North America (from Reynolds 2008)



The known European locations of *Sparganophilus tamesis* in England, France, Switzerland and Germany



Distribution of the endemic species of the Lumbricidae and genera of Acanthodrilinae and Benhaminae on Wegener's Mesozoic map (from Omodeo 1963)

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