

## Description of a new leech species, *Erpobdella wuttkei* nov. sp. (Hirudinea: Erpobdellidae)<sup>1</sup>

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With 1 figure

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A new species of leech, *Erpobdella wuttkei* nov. sp., is described based on individuals discovered in a freshwater aquarium in Germany. The *nova species* shows the following characteristics: length of adult individuals 15–19 mm, width 2,0–2,5 mm, fully extended up to 25 mm long. Dorsal side with two longitudinal stripes of black pigments. Gonopores separated by four annuli; six eyes. Cocoons 2,0–2,5 mm long with only one egg. *E. wuttkei* is the smallest member of its genus and may be an imported leech species from South America or Asia.

### 1 Introduction

The Erpobdellidae are freshwater or amphibious leeches that usually prey on invertebrates such as insect larvae or oligochaetes. These leeches are macrophagous predators that have lost (or never developed) the power of penetrating the tissue of a host organism and sucking blood (Siddall 2002). The type species *Erpobdella octoculata* Linnaeus, 1758 is one of the most common and widely distributed leeches from European freshwater ecosystems (Herter 1968, Elliott & Mann 1979, Sawyer 1986, Neesemann & Neubert 1999). These agile predators inhabit the underside of stones and roots, where they forage by night (Kutschera & Wirtz 2001, Kutschera 2003). In Europe, five species have been recorded: *E. octoculata*, *E. testacea*, *E. nigricollis*, *E. vilnensis* and *E. monostrata* (Neesemann & Neubert 1999).

In 2003, an unusually small *Erpobdella* sp. was found by Mr. Matthias Wuttke (Germany) in a freshwater aquarium. This taxon is described here as a new species.

### 2 Material and Methods

In October 2003 Mr. M. Wuttke (Backnang, Germany) sent me 12 adult leech individuals that he had discovered in his freshwater aquarium. Four weeks later I received eight additional leeches from the same source. These twenty mature *Erpobdella* sp. were maintained in the laboratory at 18–22 °C in rainwater (5-L glass vials that contained the water fern *Microsorium pteropus*; samples were

<sup>1</sup> Correct species name: *Erpobdella wuttkei* Kutschera 2004

obtained from the original aquarium). The leeches were fed on *Chironomus* sp. larvae and produced numerous cocoons that were attached to the bottom of the containers.

Morphological characters including annulation, colour pattern, eye number (and placement) and the structure of the body surface were all examined in the laboratory on mature live and preserved (70 % ethanol) specimens using a dissecting microscope (5–100 x magnification) that was equipped with a camera.

Six specimens were relaxed, flattened between glass plates, preserved in 70 % ethanol and photographed.

### 3 Results

#### *Erpobdella wuttkei* nov. sp. (Fig. 1 A–C)

Derivation. The specific name is in honour of M. Wuttke, who discovered this leech in his aquarium. The specimens were identified as belonging to the genus *Erpobdella*, DeBlainville, 1818, that are characterised as follows: cylindrical "worm-like" leeches of medium size (length: 30–100 mm) with up to eight eyes. The somites are homonomously quinqueannulate, i.e., each body segment is subdivided into five annuli of equal size. Type species: *E. octoculata* Linnaeus, 1758 (Soos 1966, Sawyer 1986, Neesemann & Neubert 1999).

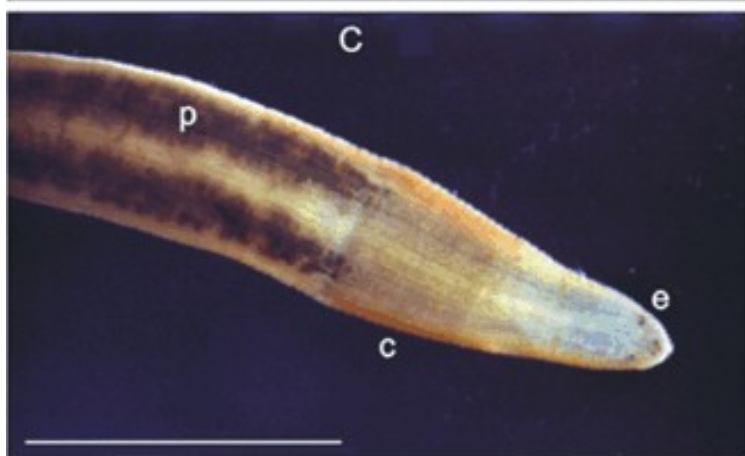
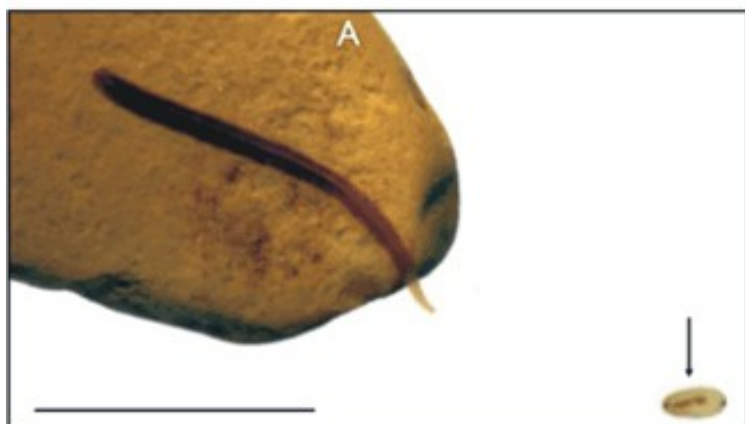
External morphology. The length of mature *Erpobdella wuttkei* at rest is 15–19 mm with a greatest width of 2,5 mm. Fully extended leeches can reach a length of 25 mm (Fig. 1A). The "worm-like" body is very flat dorso-ventrally, similar to that of the type species *E. octoculata*. Adult specimens have a reticulum of dark pigment below the dorsal surface, which form two brown-black parallel lines running longitudinally from the anterior region of the clitellum to the posterior sucker. Papillae or whitish spots are absent (Figs. 1B and C).

A typical mid-body segment comprises five annuli of equal size. The ventral surface is unpigmented; male and female gonopores are separated by four annuli. In mature leeches, the clitellum is visible on the dorsal side of the body (Figs. 1B and C).

Three pairs of cephalic eyes; one single pair of large labial eyes and four more eyespots posteriorly in two pairs (Fig. 1C).

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**Fig. 1:** Dorsal view of a live *Erpobdella wuttkei* (A). The extended leech is attached to a stone with its posterior (caudal) sucker. A cocoon with one enclosed juvenile leech is fixed to the bottom of the glass container (arrow). Bar = 1 cm  
 Ventral (v) and dorsal (d) views of two adult individuals (B). The leeches were flattened between glass microscope slides and preserved in 70 % ethanol. Bar = 1 cm  
 C. Anterior part of the body of a preserved individual, dorsal view (C). The six eyes are visible in the head region of the leech. Bar = 0,5 cm  
 a.s. = anterior sucker, c = clitellum, e = eyes, p = pigmentation, p.s. = posterior sucker



**Cocoons.** As in all members of the Erpobdellidae, the cocoons are helmet-shaped, flat capsules that are attached directly to the substrate (Fig. 1A). Cocoons are characterized by two terminal plugs; they are 2,0–2,5 mm long and 1,0–1,5 mm wide and contain only one egg from which one young leech develops that leaves the capsule through a hole after removal of one of the plugs.

**Type locality.** The original *locus typicus* (natural habitat) of *Erpobdella wuttkei* is not known. Holotype: Senckenberg-Museum, Frankfurt/Main, Germany (SM 13711). Paratypes: Five individuals and five cocoons, the same locality (SM 13710).

#### 4 Discussion

Leech systematists have published numerous reports on the taxonomic status of the European Erpobdellidae (Herter 1968, Elliott & Mann 1979). In general, species of *Erpobdella* have the characteristic of five equal annuli per segment, whereas erpobdellids possessing a widened and subdivided fifth annulus are placed into the genus *Dina*. The considerably larger leeches of the genus *Trocheta* have a different pattern of annulation: three broad annuli are typically followed by five narrow ones (Nesemann & Neubert 1999, Siddall 2002). The new species *Erpobdella wuttkei* belongs to the first category of Erpobdelliformes, i.e., the pattern of annulation in mid-body segments is as in the type-species *E. octoculata*. In contrast to this common leech, which is about twice as large as *E. wuttkei*, the *nova species* described here has only six eyes. However, the pattern of eye spots in the head region is similar to that in *E. octoculata*; the only difference is the change from one pair of labial eyes (*E. wuttkei*) into two pairs in the type species (see Siddall 2002 for a scheme of eye patterns in *Erpobdella*, *Dina* and *Trocheta*).

Elliott & Mann (1979) have pointed out that all members of the Erpobdellidae lay cocoons, which are basically alike but which, with some practice, can be used to determine the identity of the parent leech. The shape of the hardened cocoon of *E. wuttkei* is similar to that of the type species, but the egg capsules are only about half as large (length ca. 2,0–2,5 mm versus 4,0–5,0 mm, respectively). Moreover, the small cocoons produced by *E. wuttkei* contain only one egg, whereas in all members of the Erpobdellidae investigated so far capsules with 3–12 (or more) eggs are produced (Soos 1966, Herter 1968, Elliott & Mann 1979, Sawyer 1986, Kutschera & Wirtz 2001). Hence the new leech described here is the only member of the Erpobdellidae known so far that produces genus-specific cocoons with only one egg.

According to Soos (1966) leeches of the genus *Erpobdella* are usually 30–70 mm long. With a relaxed length of 15–19 mm *E. wuttkei* is considerably smaller and

about the size of some members of the family Salifidae. However, these leeches are characterized by one single pair of cephalic eyes and six pairs of accessory eyes (Sawyer 1986). Such serially homologous eyes behind the head of the body are absent in *E. wuttkei* (Fig. 1C).

In summary, the new leech described here is the smallest member of the genus *Erpobdella* discovered so far. *E. wuttkei*, a jawless predator, has only been found in a freshwater aquarium, i.e., its natural habitat is unknown. It is likely that this small erpobdellid leech has been imported through the German aquarium trade and its original habitat (ponds or streams) is in South America or Asia.

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