



A new leech species of *Helobdella* (Hirudinea, Glossiphoniidae) from San Carlos de Bariloche, Río Negro, Argentina

Una especie nueva de sanguijuela del género *Helobdella* (Hirudinea, Glossiphoniidae) de San Carlos de Bariloche, Río Negro, Argentina

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Abstract. A new freshwater leech species *Helobdella fantasmae* n. sp. is described. This description is based on the examination of 12 specimens collected in Laguna Fantasma, Bariloche (41° 05'S 71° 28'W), during December 2002. Leeches were found attached to submerged plants. They were relaxed with gradual addition of 70% ethanol, fixed in 10% formalin, stored in 70% ethanol and stained with borax carmine. Examination of external morphology, dissections and microphotographs were accomplished with a Leica Wild M3Z stereo microscope aided with an Olympus C-4000 digital camera. *H. fantasmae* n. sp. differs from other species of the genus by the presence of 1 pair of eyes on somite III, crop without gastric chambers, digitiform caeca and postcaeca., short sperm ducts reaching the back of somite XV, atrium pyriform, short ovisacs reaching somite XIII. This is the first record of leeches from an ephemeral wetland in North Patagonia. This finding expands current knowledge of the biodiversity of Hirudinea in South America, increasing the number of known *Helobdella* spp. from the Río Negro province (North Patagonia) to 10 species.

Key words: leech, freshwater, wetland, South America, Patagonia, Argentina.

Resumen. Se describe una especie de sanguijuela dulceacuática *Helobdella fantasmae* n. sp. Esta descripción se basa en el examen de 12 ejemplares recolectados en la Laguna Fantasma, Bariloche (41° 05'S 71° 28'O) durante diciembre de 2002. Los individuos se hallaron asociados a la vegetación sumergida. Fueron relajados con la adición gradual de etanol 70%, fijados en formalina al 10%, preservados en etanol 70% y teñidos con carmín borácico. El examen de la morfología externa, disecciones y microfotografías fueron realizados con la ayuda de un estereomicroscopio Leica Wild M3Z con cámara digital Olympus C-4000. *H. fantasmae* n. sp. difiere de otras especies del género por los siguientes caracteres: un par de ojos en el somito III, estómago recto sin cámaras, ciegos laterales ni postciegos, espermiductos cortos que descienden hasta el somito XV, atrio piriforme, ovisacos cortos que se extienden hasta el somito XIII. Este es el primer registro de hirudíneos en un humedal efímero del norte patagónico. El hallazgo incrementa el conocimiento actual de la diversidad biológica de hirudíneos sudamericana alcanzando las 10 especies de *Helobdella* spp. descritas hasta el momento para la provincia de Río Negro (Norte de la Patagonia).

Palabras clave: sanguijuela, agua dulce, humedal, Sudamérica, Patagonia, Argentina.

Introduction

Glossiphoniidae is a freshwater leech family in Hirudinea that comprises 23 genera (Sawyer, 1986). Members of this family are characterized by the presence of a protrusible proboscis that is used to feed on invertebrate and vertebrate preys (Soós, 1969; Klemm, 1975, 1976; Sawyer, 1986; Davies, 1991). This family is cosmopolitan, with representatives found on all continents except Antarctica. Within the genus *Helobdella*, there are more

than 30 species described from South America. However, recent taxonomic reviews of the Glossiphoniidae genera have increased the number to approximately 40 species. Sidall and Borda (2003) transferred species of the genera *Adaetobdella*, *Desmobdella*, *Dacnobjdella* and *Gloiobdella* to the genus *Helobdella* based on the presence of the following traits: gonopores separated by 1 annulus, 1 pair of cephalic eyespots, absence of oesophageal organs, absence of mycetomes, and the presence of a triannulate somite. Members of these species are not sanguivorous on vertebrate hosts.

Recently, 6 new species of *Helobdella* were described

from Bolivia and Chile (Siddall, 2001a, b; Siddall and Borda, 2004). Two other *Helobdella*, *H. atli* Ocegüera-Figueroa and León-Règagnon, 2005 from central Mexico, and *H. nahuelhuapensis* Gullo, 2006 from Bariloche, Argentina, were described. In this study, the author describes a new species of *Helobdella* from Laguna Fantasma, Bariloche (Argentina).

Material and methods

Leeches were collected in Laguna Fantasma, Bariloche (41° 05'S 71° 28'W), during December 2002. Laguna Fantasma is situated 14 km from San Carlos de Bariloche (41° 05'S 71° 28'W), and 780 m above the sea level. This is an ephemeral pond which receives slipping water from neighbouring heights. It reaches its maximum level in spring and begins drying up in December. Its area is approximately 1 ha, and its maximum depth is 2 m.

Leeches were found attached to submerged plants. They were collected with a sieve (mesh 1mm) and transported to the laboratory in plastic containers with tightly sealed lids. They were relaxed with the gradual addition of 70% ethanol and fixed in 10% formalin. Specimens were stored in 70% ethanol and stained with borax carmine following Davies (1991). Examination of external morphology, dissections and microphotographs were done with a Leica Wild M3Z stereo microscope aided with an Olympus C-4000 digital camera.

Description

Helobdella fantasmae Gullo n. sp. (Figs. 1-6)

Body thin and lanceolate, annuli not subdivided. Dorsum with brown stripes with 1 to 2 pairs of transverse lines per annulus (Fig. 1). Ventral side pale beige without paramedial lines. Dorsum surface lacking both papilla and tubercles. Nuchal scute and glands absent in somite VIII. One pair of eyes, well separated, in somite III (Fig. 2). Somite I-II fused, III-IV uniannulate, V-XXV triannulate, XXVI biannulate, XVII uniannulate. Anterior sucker ovoid; mouth pore, subterminal. Caudal sucker ovoid, concave, subterminal and even pigmented. Anus at somites XXVI/XXVII, anterior to caudal sucker (Fig. 3). Male and female gonopores separated by 1 annulus. Male gonopore located at XII a1/a2. Female gonopore located at XII a2/a3 (Fig. 4).

Protrusible proboscis located at the base of at somites XII/XIII. Salivary glands with diffuse parenchymal salivary cells. Oesophagus simple; crop without gastric

chambers, digitiform caeca and postcaeca; intestine with 4 lobes (Fig. 5). Reproductive system composed of 6 pairs of spherical testisacs. Short sperm ducts, reaching the back of somite XV and entering the pyriform atrial lobes, preatrial loops absent. Short ovisacs reaching somite XIII (Fig. 6).

Taxonomic summary

Material examined. Holotype: (Núm. 6407 deposited in Colección División Zoología Invertebrados Museo de La Plata, Buenos Aires, Argentina), fixed in 10% formalin, preserved in 70% ethanol. Length 45 mm, width 4,2 mm. Argentina, San Carlos de Bariloche, Laguna Fantasma, (41° 05'S 71° 28'W); coll. Verónica Flores, December 2002. Paratypes: (Núm. 6408 deposited in Colección Museo de La Plata, Buenos Aires, Argentina). 3 dissected adults dissected, 1 stained with borax carmine and 1 juvenile, locality, collector and date as for holotype.

Additional specimens: (Núm. 6409 deposited in Colección Museo de La Plata, Buenos Aires, Argentina). Seven immature specimens fixed in 10% formalin, preserved in 70% ethanol, locality, collector and date as for holotype.

Type Locality: Laguna Fantasma, San Carlos de Bariloche, Río Negro, Argentina.

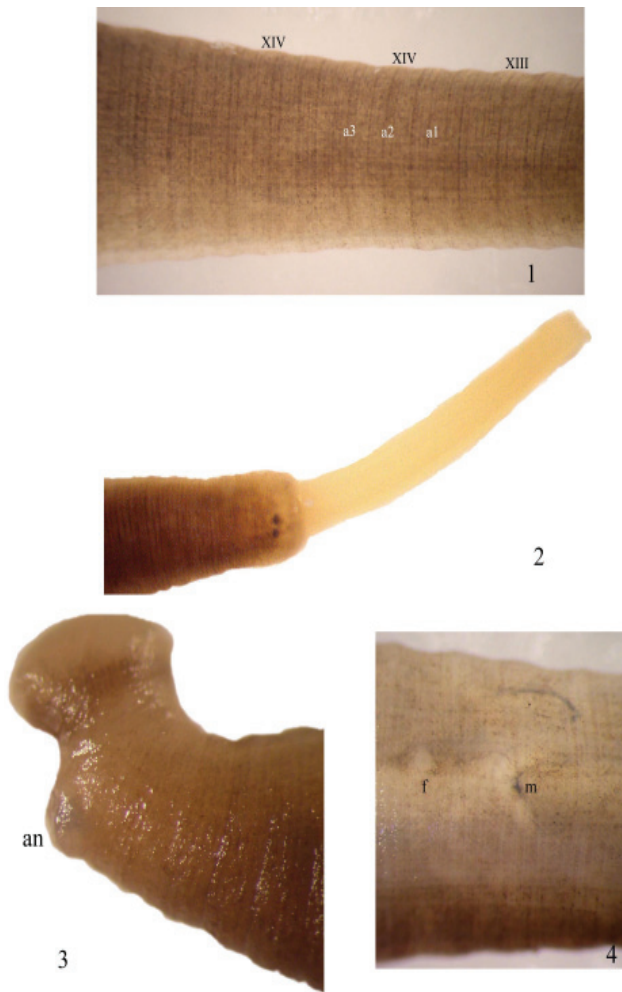
Etymology: *fantasmae* refers to the lake where the new species was collected, Laguna Fantasma.

Remarks

Helobdella fantasmae n. sp. differs from other species of the genus by the presence of 1 pair of eyes on somite III, crop without gastric chambers, digitiform caeca and postcaeca, short sperm ducts reaching the back of somite XV, atrium pyriform, and short ovisacs reaching somite XIII.

The lack of gastric caeca is a trait that *H. fantasmae* n. sp. shares with *H. michaelseni* and *H. obscura* (Blanchard, 1900; Weber, 1915; Ringuélet, 1944). These 2 species were placed in the genus *Gloiobdella* by Ringuélet (1978). *Helobdella fantasmae* n. sp. differs from *H. obscura* and *H. michaelseni* by the presence of short ovisacs and sperm ducts. In these 2 species, the ovisacs reach the back of somite XV, and sperm ducts reach the back of somite XVII/XVIII and XX/XXI; but in *H. fantasmae* n. sp. the sperm ducts reach the back of somite XV and the ovisacs reach the back of somite XIII. Additionally, *H. fantasmae* n. sp. clearly differs from *H. michaelseni* by the presence of 6 pairs of testisacs.

Helobdella fantasmae n. sp. is also the largest species



Figures 1-4. External morphology of *Helobdella fantasmae* n. sp. 1, dorsum of the holotype showing brown stripes with 1 to 2 pairs of transverse lines per annuli a1, a2, a3; 2, cephalic region of paratype exhibiting 2 punctiform eyes and protruded proboscis; 3, caudal region of paratype showing annus (an); 4, clitellar region of the holotype with male (m) and (f) gonopores separated by 1 annulus.

found so far. This trait distinguishes the new species from *H. michaelseni* and *H. obscura*, which are very small species.

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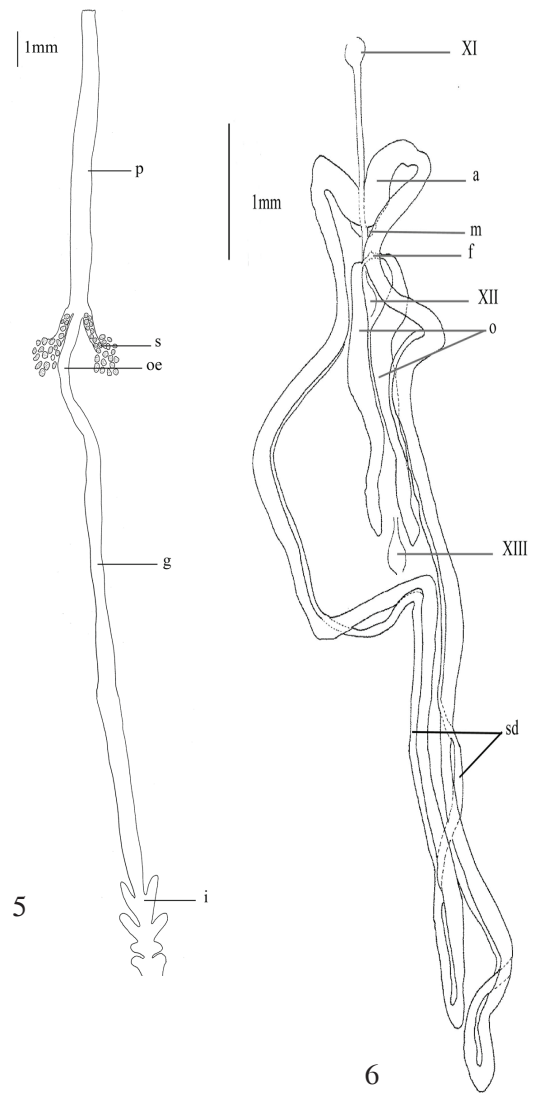


Figure 5-6. 5, digestive system showing proboscis (pr), oesophagus (oe), salivary glands (s), gastric tube (g) with 4 pairs of intestinal caeca (c) and rectum; 6, male medial reproductive apparatus with atrium (a), sperm ducts (sd), male pore (m). Female reproductive apparatus showing ovisacs (o) and female pore (f).

language revision of the manuscript.

Literature cited

Blanchard, E. 1900. Hirudineen. *In* Hamburger Magalhaensische Sammelreise 3. Hamburg. p. 1-20, 13 fig., 1 lám.
 Davies, R. W. 1991. Annelida: leeches, polychaetes, and acanthobdellids. *In* Ecology and Classification of North American Freshwater Invertebrates, J. H. Thorp and A. P.

- Covich (eds.). Academic Press, San Diego. p. 437-479.
- Gullo, B. S. 2006. *Helobdella nahuelhuapensis* sp. nov. (Hirudinea, Glossiphoniidae), from Bariloche, Argentina. *Zootaxa* 1276:33-38.
- Klemm, D. J. 1975. Studies on the feeding relationships of leeches (Annelida: Hirudinea) as natural associates of molluscs. *Sterkiana* 59:1-20.
- Klemm, D. J. 1976. Leeches (Annelida: Hirudinea) found in North American molluscs. *Malacological Review* 9:63-76.
- Oceguera-Figueroa, A. and V. León-Regagnon 2005. A new freshwater leech species of *Helobdella* (Annelida: Glossiphoniidae) from central Mexico. *Zootaxa* 976:1-8.
- Ringuelet, R. A. 1944. Revisión de los hirudíneos argentinos de los géneros *Helobdella*, *Batracobdella*, *Cylicobdella* y *Semiscollex*. *Revista del Museo de La Plata (Nueva Serie)* 4, *Zoología*: 5-94.
- Ringuelet, R. A. 1978. Nuevos géneros y especies de Glossiphoniidae sudamericanos basados en caracteres endo y ectosomáticos (Hirudinea Glossiphoniiformes). *Limnobiós* 1:269-276.
- Sawyer, R. T. 1986. Leech biology and behaviour, 2. Feeding Biology, Ecology, and Systematics. Oxford University Press. p. 419-793.
- Siddall, M. 2001a. Leeches of Laguna Volcán, Bolivia, including a new species of *Helobdella* (Clitellata: Hirudinea). *American Museum Novitates* 3313:1-11.
- Siddall, M. 2001b. Hirudinea from the Apolobamba in Bolivian Andes, including 3 new species of *Helobdella* (Clitellata: Hirudinea). *American Museum Novitates* 3341:1-14.
- Siddall, M. and E. Borda 2003. Phylogeny and revision of the leech genus *Helobdella* (Glossiphoniidae) based on mitochondrial gene sequence and morphological data and a special consideration of the triserialis complex. *Zoologica Scripta* 32:23-33.
- Siddall, M. and E. Borda 2004. Leech collections from Chile including 2 new species of *Helobdella* (Annelida: Hirudinida). *American Museum Novitates* 3457:1-18.
- Soós, A. 1969. Identification key to the leech (Hirudinoidea) genera of the world, with a catalogue of the species: VI Family: Glossiphoniidae. *Acta zoológica Academiae Scientiarum Hungaricae* 15:397-454.
- Weber, M. 1915. Monographie des hirudinées Sud-Américaines. Thèse por Docteur ès-Sciences. Université de Neuchâtel, France. 1-134 p., 6 lám.