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## Description of the final instar larva of *Limnetron antarcticum* Förster and notes on its female (Anisoptera: Aeshnidae)

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### Abstract

The final instar larva of *Limnetron antarcticum* Förster is described and illustrated for the first time based on one specimen collected in Misiones Province, Argentina. It is compared with *L. debile* (Karsch). Color pattern and ovipositor morphology of the female imago are described.

**Key words:** Anisoptera, Aeshnidae, *Limnetron*, larva, female

### Introduction

The neotropical genus *Limnetron* Förster comprises two medium to large aeshnids, *L. antarcticum* Förster and *L. debile* (Karsch). It has been included in Brachytrini (Santos 1970) or Gynacanthini (De Marmels 2000), and based on vesica spermalis morphology, it is considered related to the genera *Allopetalia* Selys and *Boyeria* McLachlan (von Ellenrieder 2002).

*Limnetron* species are inhabitants of streams within forests (Garrison et al. 2006), for which there are few records restricted to small areas in Peru, Paraguay, southeastern Brazil and northern Argentina. In Argentina *Limnetron antarcticum* was recorded from the paranaense forest in Misiones province, and an unidentified species from the yungas forest in Salta and Jujuy provinces (von Ellenrieder & Muzón 2008).

At present, only the last larval instar of *Limnetron debile* has been described (Santos 1970; Assis et al. 2000). The aim of this paper is, based on recent collections in natural protected areas from Misiones province, Argentina, to provide a description and diagnosis of the larva of *L. antarcticum*. Due to the fact that *L. antarcticum* is known only from males, we provide also a brief description of the female imago.

### Methodology

**Specimens examined.** Argentina, Misiones, Parque Provincial Salto Encantado, 27° 03' 45.90" S, 54° 50' 27.80" W, 325 m; 11/I/2013, coll. A. del Palacio, 1 ♀ exuvia. Parque Provincial Cruce Caballero, 17 km NE San Pedro, 580 m, 26° 30' 20" S, 53° 59' 54" W, 12–14/III/2011, coll. J. von Tschirnhaus, 1 ♂, 1 ♀. Parque Provincial Saltos del Moconá, 33 km NE El Soberbio, 290 m, 27° 09' S, 53° 54' W, 9–12/II/2011, coll. J. von Tschirnhaus, 2 ♂. Parque Provincial Uruguay-í, Destacamento de Guardaparques Uruzú, 30 km SE Andresito, Arroyo Yatebó, 270 m, 25° 53' S, 54° 13' W, 5–6/III/2011, coll. J. von Tschirnhaus, 1 ♂, 1 ♀. Parque Provincial Cuña Pirú, 5–6/IV/2011, coll. J. von Tschirnhaus, 1 ♂.

**Study sites.** All the specimens were collected in natural protected areas of the Paranaense Forest ecoregion in Misiones province, Argentina. The exuvia was collected in Parque Provincial Salto Encantado, on the wall of a cascade, about 2.5 m above the ground, and it was assigned to *Limnetron antarcticum* because a newly emerged female was collected close to it. The specimens are deposited in the Museo de La Plata collection, La Plata, Argentina.

**Terminology.** Larval mandibular formula follows Watson (1956). Abbreviations: S = abdominal segment, L = length, W = width, Fw = forewing, Hw = hindwing.

*Thorax.* Prothorax pale brown, except posterior lobe pale greenish blue. Pterothorax brown with green stripes as in Fig. 4a. Femur I pale brown except apical 0.20 black, internal surface pale greenish blue; tibia I black; femora and tibiae II–III reddish brown, darker at apical 0.20; tarsi black. Wings hyaline or infumated, 20–23 and 16 antenodal crossveins in Fw and Hw respectively.

*Abdomen* (Fig. 4). Brown, with pale greenish spots on S1–7 (Fig. 4a). On S1 only a dorsally diffuse pale spot; S2 in lateral view with three pale stripes, anterior, posterior and medial (following the transverse carina), all stripes confluent mid-laterally, in addition a latero-ventral pale stripe almost as long as S2; S3 as S2 but without connection between medial and posterior stripes and latero-ventral stripe reduced to anterior 0.25 of S3 length; S4–6 as S3 but connection between anterior and medial stripes becoming lost progressively caudad and without latero-ventral pale stripe; S7 only with traces of stripes; S8–10 dark brown; cerci, epiproct and paraprocts black. Cerci broken, but longer than S10. Epiproct with subapical spine; posterior process of S10 bearing 4–5 apical spines (Figs. 4b-c).

**Measurements** (N=3). Total length (without cerci)  $5.26 \pm 0.07$  cm; femur III length  $6.5 \pm 0.1$  mm, Fw length  $4.07 \pm 0.002$  cm, Hw length  $3.93 \pm 0.002$  cm, Fw pterostigma length  $2.91 \pm 0.003$  mm.

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