

## Description of the final stadium larva of *Telebasis obsoleta* (Selys, 1876) (Odonata: Coenagrionidae)

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### Abstract

The final stadium larvae of *Telebasis obsoleta* is described and illustrated based on one reared specimen from Argentina. Notes on habitat and new provincial records of Odonata are also provided. The larva of *Telebasis obsoleta* has five palpal setae, a feature shared only with the larva of *T. demerara*. All other known *Telebasis* species have six or seven palpal setae. *Telebasis obsoleta* and *T. demerara* can be distinguished by the presence of two small denticles near the tip of the prementum in *T. obsoleta*, and by the color pattern of the distal half of the caudal lamellae.

### Key words:

### Resumen

Se describe e ilustra el último estadio larval de *Telebasis obsoleta* sobre la base de un ejemplar de Argentina criado hasta su emergencia. Se proveen además notas sobre el hábitat y nuevos registros provinciales de Odonata. La larva de *Telebasis obsoleta* posee cinco setas en el palpo labial, característica que comparte únicamente con la larva de *T. demerara*. Todas las restantes larvas de *Telebasis* conocidas hasta el momento poseen seis o siete setas en el palpo. *Telebasis obsoleta* y *T. demerara* pueden diferenciarse por la presencia de dos pequeños dentículos cerca del extremo distal del prementón de *T. obsoleta* y por el patrón de coloración de la mitad distal de las laminillas caudales.

### Introduction

*Telebasis* Selys is, after *Argia* Rambur, the second-most speciose genus of New World Coenagrionidae. It comprises 58 species distributed from the southern United States to central Argentina (Garrison *et al.* 2010). Despite being common inhabitants of lentic waters, the final instar larva of only eight species (14% of the total) has been thoroughly described: *T. boomsmae* Garrison, *T. byersi* Westfall, *T. demarara* (Williamson), *T. digiticollis* Calvert, *T. salva* (Hagen), *T. simulata* Tennessen, *T. vulnerata* (Hagen), and *T. willinki* Fraser (Needham 1904, García Díaz 1938, Geijskes 1941, 1943, Westfall 1957, Bulla 1970, Garrison 1994, Novelo Gutiérrez & Gómez Anaya 2005). Westfall & May (2006) keyed the larvae known for the United States, including those of *T. corallina* (Selys), *T. dominicana* (Selys), and *T. filiola* (Perty); however, none of these was formally described.

In Argentina, eight species of *Telebasis* have been recorded: *T. carmesina* Calvert, *T. carminita* Calvert, *T. griffinii* (Martin), *T. inalata* (Calvert), *T. obsoleta* (Selys), *T. simulacrum* (Calvert), *T. theodori* (Navás), and *T. willinki* Fraser (von Ellenrieder & Muzón 2008); only the larva of *T. willinki* has been described to date.

*Telebasis obsoleta* was originally described by Selys (1876) under the genus *Leptagrion*. Calvert (1909) described *Acanthagrion chirihuanum*, which was later transferred to *Helveciagrion* by Machado (1980). Lencioni (2006) considered that *L. obsoletum* belonged to the genus *Helveciagrion* and synonymized *H. chirihuanum* with *H. obsoletum*. Recently, Garrison (2009), in his synopsis of the genus *Telebasis*, considered *Helveciagrion* a junior

synonym of *Telebasis*, transferring and correcting the specific epithet of *Helveciagrion obsoletum* to *Telebasis obsoleta*.

In this contribution we describe the larva of *T. obsoleta*, based on a reared specimen from Corrientes province, Argentina, and compare it with that of *T. willinki*.

## Methodology

Nomenclature used to describe the mandibular formula follows Watson (1956). Classification of caudal lamellae follows Corbet (1999). The specimens are deposited in the Collection of the Departamento Científico Entomología, Museo de La Plata, Argentina. At the collecting site, the pH, water temperature, electrical conductivity, salinity, and turbidity were measured using a handheld multiparameter water-quality meter (Model: Horiba U-10). Elevation and longitude/latitude coordinates were obtained by using a handheld GPS unit (Model: Garmin eTrex Vista Cx). Drawings were made with the aid of a camera lucida coupled to a Leica MS5 stereomicroscope; photographs of caudal lamellae were taken with a digital camera (Model: Leica DFC290) coupled to a Leica DM1000 optic microscope.

Abbreviations: S = abdominal segment, L = length, W = width.

## Results

### Description of the final instar larva of *Telebasis obsoleta*

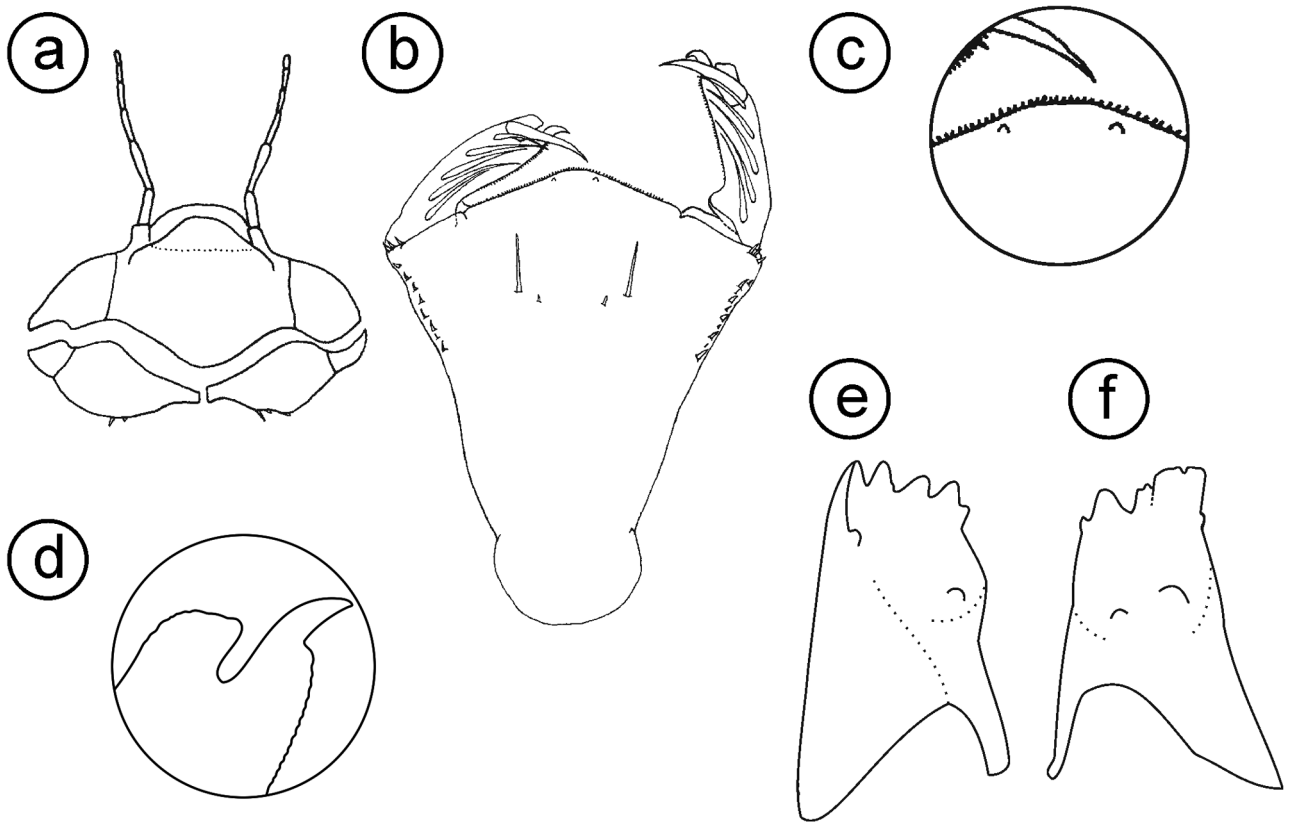
**Head** (Fig. 1a). Almost 1.56 times as wide as long at its widest point. Posterolateral margins rounded, with 16–18 spinules. Antennae seven-segmented; third antennomere the longest. Mandibular formula (Figs. 1e–f):  $L\ 1+2\ 3\ 4+5\ y\ a\ b\ (1<3=2<4<5) / R\ 1+2\ 3\ 4\ 5\ y\ a\ (1<2=3<4<5)$ . Labium: articulation of pre- and postmentum between first and second coxae; prementum (Fig. 1b) sub-triangular, ratio of maximum length to maximum width 1.27; anterior margin convex and slightly crenulated, with two small blunt denticles near tip (Fig. 1c); 4 premental setae (2+2), inner ones approximately 0.18 as long as outer ones; lateral margin with 8–10 spiniform setae; latero-distal margin with 3 spiniform setae. Labial palp (Fig. 1b): outer margin with 5 subequal setae; distal margin with a truncate external lobe, without discernible denticles, and a long and sharply pointed internal tooth (Fig. 1d); movable hook longer than half the length of outer margin.

**Thorax**. Wing pads reaching anterior margin of S4. Legs (Fig. 2a): Femora with short spines scattered on flexor and extensor margins; with two dark brown rings, one near base and one on distal fourth. Tibiae with short spines on distal 0.66 of flexor and extensor margins, distally with tridentate setae; with a brown irregular spot near base. Tarsi with numerous thin setae on ventral surface.

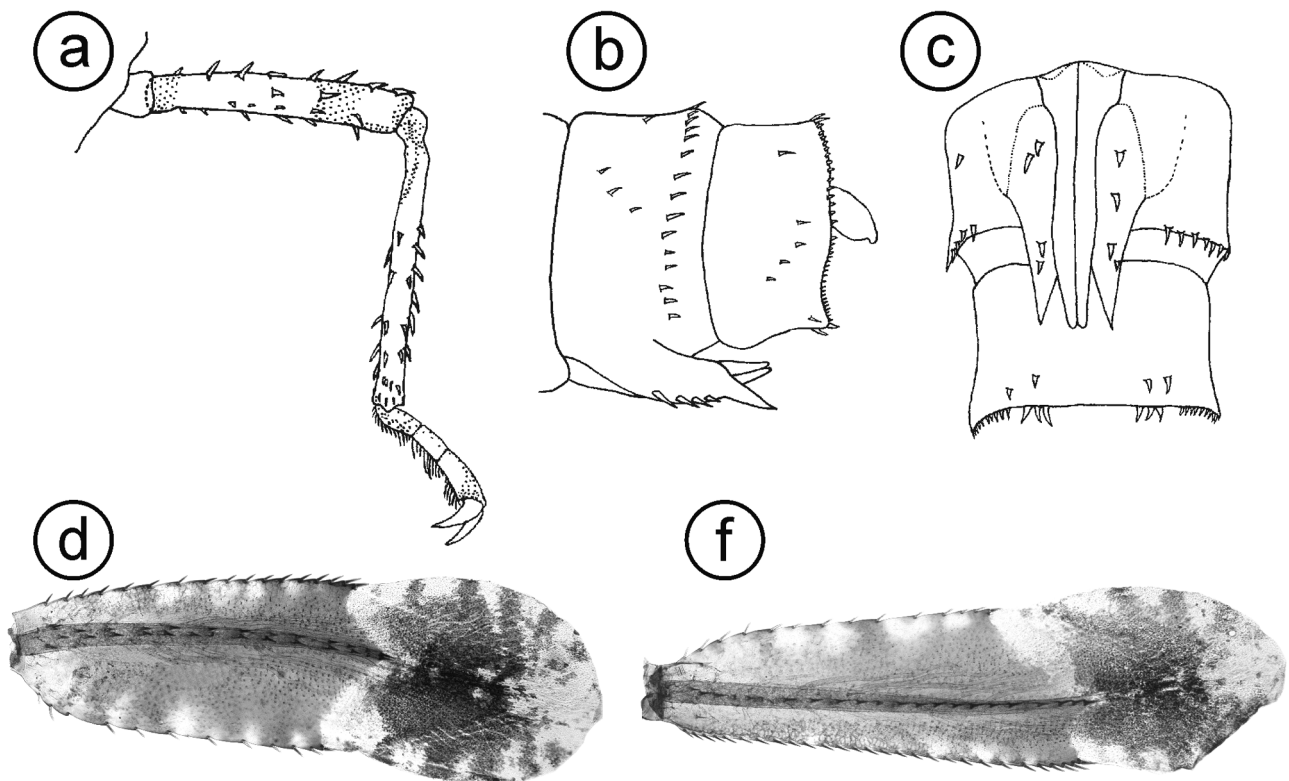
**Abdomen**. Cylindrical. S2–7 with lateral carina, spines present posteriorly on S5–7; posterior margins of S5–10 with a row of spines. Cerci (Fig. 2b) shorter than 0.5 length of S10. Female gonapophyses (Fig. 2b–c) reaching half length of S10, outer ones with ventral row of denticles. Caudal lamellae (Fig. 2d–e) type D (NN) with unbranched tracheae directed caudad. Medial caudal lamella (Fig. 2d) widened at distal third; ratio of maximum length to maximum width 2.86; nodus at approximately 0.59 lamella length, without transverse suture, but pre- and postnodal areas clearly distinct by color pattern (Fig. 2d); 17 dorsal spines, 13 ventral spines. Lateral caudal lamella (Fig. 2f) slightly widened distally to nodus; ratio of maximum length to maximum width 3.52; nodus at approximately 0.67 lamella length, without transverse suture, but pre- and postnodal areas clearly distinct by color pattern (Fig. 2f); 14 dorsal spines, 28 ventral spines.

**Measurements** (N=1). Total L (without caudal lamellae) 14.5. Head: max. L 1.99, max. W 3.10. Prementum: max. L 2.46, max. W 1.94; movable hook L 0.49. Thorax: femur I 1.94, femur II 2.50, femur III 2.93, tibia I 1.87, tibia II 2.43, tibia III 3.05; inner wing pads max. L 3.37, outer wing pads max. L 3.33. Abdomen: total L 7.90, S9 L 0.66, S10 L 0.62, cerci L 0.21, female gonapophyses L 1.03. Lateral caudal lamella: max. L 4.22, max. W 1.22, W at nodus 1.09, dorsal row of spines L 2.27, ventral row of spines L 2.83. Median caudal lamella: max. L 3.92, max W 1.37, W at nodus 1.12, dorsal row of spines L 1.20, ventral row of spines L 2.20.

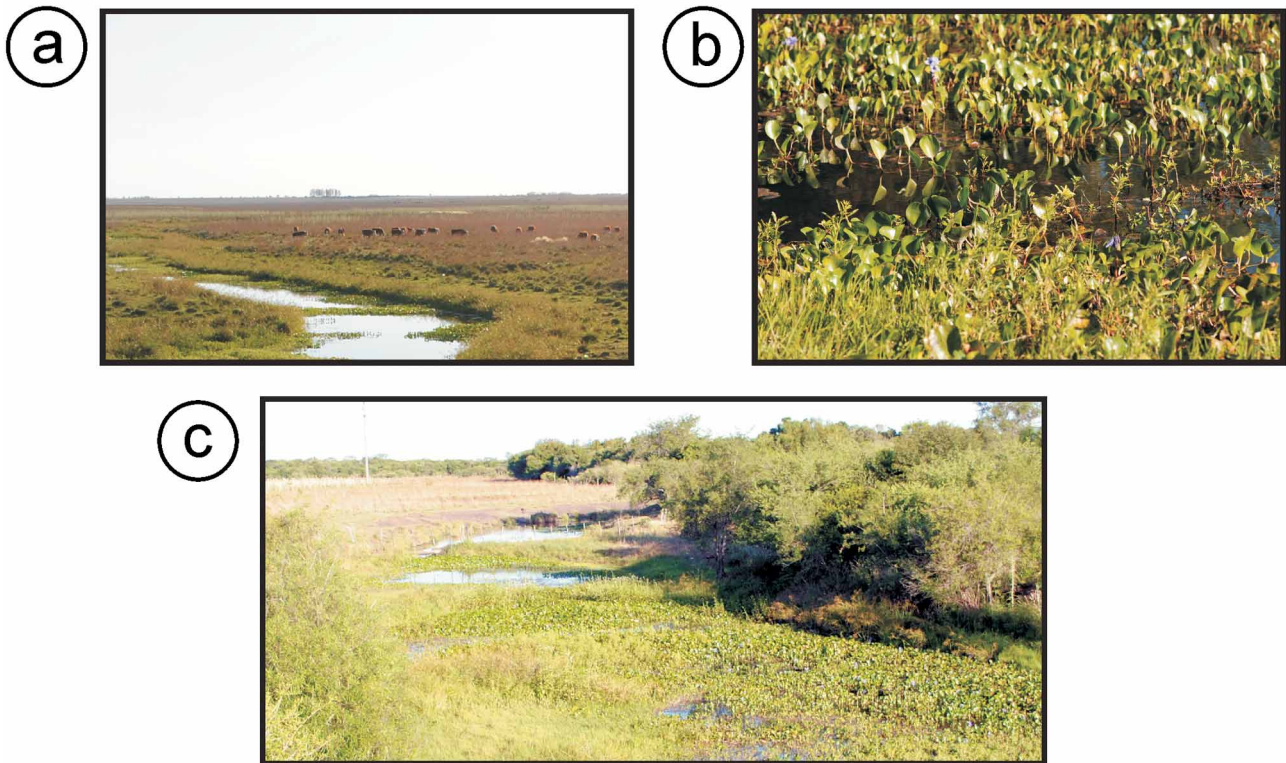
**Specimens examined**. *Telebasis obsoleta*: Argentina, Corrientes Province, route 119, 21 km N of Curuzú Cuatiá, 29° 36' 45.4''S, 58° 07' 07.7''W, 75 m; 30/XI/2010, coll. F. Lozano, J. Muzón & L. Ramos, 1 female exuvia (reared).



**FIGURE 1.** *Telebasis obsoleta*. (a) Head (dorsal view); (b) Prementum (dorsal view); (c) Ligula of prementum showing blunt denticles; (d) Distal margin of labial palp showing truncate external lobe and inner tooth; (e) Right mandible (inner view); (f) Left mandible (inner view).



**FIGURE 2.** *Telebasis obsoleta*. (a) Leg III (inner view); (b) ♀ terminalia (lateral view); (c) ♀ terminalia (ventral view); (d) Medial caudal lamella; (e) Lateral caudal lamella.



**FIGURE 3.** (a–c) Larval habitat. Argentina, Corrientes Province, route 119, 21 km N of Curuzú Cuatiá.

## Discussion

A generic diagnosis of the final instar larva of *Telebasis* is not possible because there are still many undescribed larvae (approximately 86% of known species). However, the shape of the lamellae, as stated by Westfall & May (2006), is distinct for all known larvae, corresponding to type D (NN) *sensu* Corbet (1999, p. 604), widened distally with the widest point distal to the nodus and tracheae usually unbranched and directed caudad. In addition, unlike in many other Coenagrionidae genera (e.g. *Acanthagrion* Selys, *Cyanallagma* Kennedy, *Oxyagrion* Selys), the distal margin of the labial palp is truncated and does not form distinct teeth.

The larva of *Telebasis obsoleta* is very similar to that of *T. demarara*, sharing the presence of five palpal setae and less widened caudal lamellae. All other known *Telebasis* species have six or seven palpal setae. *Telebasis obsoleta* and *T. demarara* can be distinguished by the presence of two small denticles near the tip of the prementum (these denticles are small and easily overlooked) in *T. obsoleta* (absent in *T. demarara*), and by the color pattern of the distal half of the caudal lamellae, with pale spots near the margin in *T. obsoleta* and black spots along the margin in *T. demarara*.

In Argentina, the only other larva described so far is that of *Telebasis willinki*, which is sympatric with *T. obsoleta*. They can be easily separated by the presence of five premental setae in *T. obsoleta* (six in *T. willinki*) and a pair of blunt denticles near the tip of the prementum (absent in *T. willinki*). In addition, the prenodal area of the caudal lamellae is longer than the postnodal area in *T. obsoleta* vs. shorter in *T. willinki*, and pale spots on the outer margins of the prenodal area of the caudal lamellae are present in *T. obsoleta* and absent in *T. willinki*.

*Telebasis* species are typical inhabitants of lentic environments such as ponds, swamps, and pools (Novelo Gutiérrez & Gómez Anaya 2005, Garrison 2009). The larva of *T. obsoleta* was found near the edge of a slow-flowing stream where *Eichhornia* (Pontederiaceae) was abundant (Figs. 3a–c). Water was alkaline (pH=8.18), with a turbidity of 2 Nephelometric Turbidity Units, a conductivity of 0.38 mS/cm, and a salinity of 0.01; water temperature was approximately 23.8°C and maximum depth where larva was taken was 50 cm. Adults were also seen perching in riparian vegetation on small ponds.

Other species found at the same locality were (new records for the province indicated with an asterisk): *Acanthagrion lancea* Selys, *Cyanallagma bonariense* (Ris)\*, *Erythrodiplax atroterminata* Ris, *Erythrodiplax nigricans* (Rambur), *Erythrodiplax ochracea* (Burmeister), *Homeoura chelifera* (Selys), *Ischnura fluviatilis* Selys, *Miathyria marcella* (Selys in Sagra), *Micrathyria hesperis* Ris, *Micrathyria spuria* (Selys in Therese), *Perithemis mooma* Kirby, and *Planiplax erythrogya* (Karsch)\*.

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