



<http://dx.doi.org/10.11646/zootaxa.3884.3.5>

<http://zoobank.org/urn:lsid:zoobank.org:pub:513BEEBE-2F47-433B-88EB-3018D109B6BB>

Description of the final instar larva of *Rhionaeschna vigintipunctata* (Ris, 1918) (Odonata: Aeshnidae)

JOSÉ SEBASTIÁN RODRÍGUEZ & CARLOS MOLINERI¹

Instituto de Biodiversidad Neotropical, CONICET (Argentine Council of Scientific Research), Facultad de Ciencias Naturales e IML, Universidad Nacional de Tucumán, M. Lillo 205, 4000, San Miguel de Tucumán, Argentina.

E-mail: josephum@hotmail.com; carlosmolineri@gmail.com

¹Corresponding author

Abstract

The final instar larva of *Rhionaeschna vigintipunctata* (Ris) (Odonata, Aeshnidae) is described for the first time. The description is based on a series of mature female larvae collected in Tucumán (NW Argentina) and reared to imago. It shares the U-shaped distal excision of epiproct with other larvae of the *Marmaraeschna* group (only *R. pallipes* and *R. brevicercia* known from this stage); but the minute tubercle at each side of the cleft of ligula is absent. Other characters unique to *R. vigintipunctata* include: open ligula (vs. closed in other "*Marmaraeschna*"), and mandibular formula. A table to distinguish the larvae of the three species of "*Marmaraeschna*" and biological and distributional data of *R. vigintipunctata* are included.

Key words: *Rhionaeschna vigintipunctata*, larva, description, Anisoptera, *Marmaraeschna* group, South America

Resumen

Se describe por primera vez el último estadio larval de *Rhionaeschna vigintipunctata* (Ris) (Odonata, Aeshnidae). La descripción se basa en una serie de larvas maduras hembras colectadas en Tucumán (noroeste de Argentina) y criadas a imago. La larva comparte con las otras especies del grupo *Marmaraeschna* (solo *R. pallipes* y *R. brevicercia* son conocidas en este estadio) la presencia de una hendidura distal en forma de U en el epiprocto, pero el pequeño tubérculo a ambos lados de la ranura media de la lígula está ausente. Otros caracteres son únicos para *R. vigintipunctata*: lígula abierta (vs. cerrada en otros "*Marmaraeschna*"), y fórmula mandibular. Se incluye una tabla para distinguir la larva de las tres especies de "*Marmaraeschna*" y se ofrecen datos biológicos y de distribución para *R. vigintipunctata*.

Introduction

Rhionaeschna Förster is a New World genus with 41 described species distributed from S Canada to S Argentina (Garrison *et al.*, 2006; von Ellenrieder, 2003). The group is mainly neotropical with its highest diversity along the Andes (von Ellenrieder, 2003). The knowledge of the biology of most species of this genus is still scarce; the species of *Rhionaeschna* occur at almost any body of water (Garrison *et al.*, 2006).

The genus is characterized by having a conical tubercle bearing denticles on abdominal sternum I in the imago (von Ellenrieder, 2003), but unique characters for the larval stage are unknown.

Within the genus *Rhionaeschna* seven species belong to the Neotropical *Marmaraeschna* group (Muzón & von Ellenrieder 2001). These species are distributed mainly in the Andes from 400 to 4000 m (Muzón & von Ellenrieder, 2001) and are limited to South America. Currently, the larvae of only two species of the *Marmaraeschna* group are known: *R. pallipes* (Fraser) described by von Ellenrieder & Muzón (2003) and *R. brevicercia* (Muzón & von Ellenrieder), described by de Marmels (2001) as *Aeshna* (*M.*) *vigintipunctata* (later transferred to *R. brevicercia* by Muzón & von Ellenrieder, 2001).

blunt apical hook present on labial palp (absent in *R. brevicercia*); 3) ligula with open medial cleft, without minute denticles at sides; 4) occipital lobes not bulging (bulging in *R. brevicercia*); 6) pronotum shield not strongly extended laterally (in *R. brevicercia* lateral angles are strongly extended in to a blunt point); 7) abdominal lateral spine IX surpassing half of abdominal segment X; 8) epiproct with U-shaped distal excision. Concerning the described "*Marmaraeschna*" larvae, character 3 is unique for *R. vigintipunctata*, while other species show a closed ligula.

TABLE 2: Comparison of species from the *Marmaraeschna* group (last instar / exuvia)

character	brevicercia De Marmels (2001)	pallipes n=7	vigintipunctata n=5
head, max width / max length	1.4	1.9	1.8
prementum, max length / max width	1.1	1.1	1.2
mandibular formula	unknown	left: 1234 0 a b right: 1234 y a (m ^{1,2}) b	left: 1234 0 a b right: 1234 y a b
prothoracic apophyses, tip of apexes and cleft	Sharp	Sharp in male, blunt in female	blunt, orthogonal
epiproct, distal excision	U-shaped	U-shaped	U-shaped
appendages, ratio length cerci / paraprocts	0.5	0.5	0.6

The presence of tooth "y" in the right mandible is shared with *R. pallipes* (in *R. brevicercia* this is not described). In the description of *R. pallipes* larva, von Ellenrieder & Muzón (2003) mentioned the absence of "y" tooth in this species, but its presence on the left mandible of all other "Aeschna". We studied seven larvae of *R. pallipes* that present this tooth in the right mandible, but not in the left. Intraspecific variation in mandibular dentition is not known in Aeshnidae, and as we had studied very few individuals, the differences reported should be treated tentatively. Table 2 may be useful to distinguish the known larvae of the group.

Acknowledgements

We thank Natalia von Ellenrieder for constant help, Eduardo Domínguez for the photographs of the larval habitus and Guillermo Hankel for helping in field work. Joachim Hoffmann made useful suggestions that greatly improved the manuscript.

This work was financed by research projects PIP0330 and PICT1067 from the Argentine National Council of Scientific Research (CONICET), and National Agency for the Promotion of Science and Technology (ANPCyT), respectively. This work is dedicated to the memory of José Busnelli and Fernando Navarro.

References

- De Marmels, J. (2001) *Aeshna (Hesperaeschna) condor* sp. nov. from the Venezuelan Andes, with a redescription of *A. (H.) joannisi*, comments on other species, and descriptions of larvae (Odonata: Aeshnidae). *International Journal of Odonatology*, 4, 119–134.
<http://dx.doi.org/10.1080/13887890.2001.9748166>
- Garrison, R.W., von Ellenrieder, N. & Louton, J.A. (2006) *Dragonfly genera of the New World. An illustrated and annotated key to the Anisoptera*. The Johns Hopkins University Press, Baltimore, 490 pp.
- Morrone, J.J. (2001) *Biogeografía de América Latina y el Caribe. M&T–Manuales & Tesis SEA. Vol. 3*. Zaragoza, 148 pp.
- Muzón, J. & von Ellenrieder, N. (2001) Revision of the subgenus *Marmaraeschna* (Anisoptera, Aeshnidae). *International Journal of Odonatology*, 4, 135–166.
<http://dx.doi.org/10.1080/13887890.2001.9748167>
- Romero, F., Fernández, H.R., Molineri, C. & Domínguez, E. (2010) Ecología de ríos y arroyos de la sierra de San Javier. In: Grau, H.R. (Ed.), *Ecología de una interfase natural-urbana. La Sierra de San Javier y el Gran San Miguel de Tucumán. 1ª Edition*. EDUNT, Tucumán, pp. 77–92.

- von Ellenrieder, N. (2003) A synopsis of the Neotropical species of 'Aesna' Fabricius: The genus *Rhionaeschna* Förster (Odonata: Aeshnidae). *Tijdschrift voor Entomologie*, 146, 67–207.
<http://dx.doi.org/10.1163/22119434-900000120>
- von Ellenrieder, N. & Garrison, R.W. (2007a) *Dragonflies and damselflies (Insecta: Odonata) of the Argentine Yungas: Species composition and identification*. Scientific Reports 7 – Società Zoologica “La Torbiera”, Italy, pp. 1–103.
- von Ellenrieder, N. & Garrison, R.W. (2007b) *Dragonflies of the Yungas. A field guide to the species from Argentina*. Pensoft Series Faunística 67, Sofia-Moscow, Pensoft Publishers, pp. 1–116.
- von Ellenrieder, N. & Muzón, J. (2003) Description of the last instar larval of *Aeshna* (*Marmaraeschna*) *pallipes* Fraser, 1947 (Anisoptera: Aeshnidae). *Odonatologica*, 32, 95–98.
- Watson, M.C. (1956) The utilization of mandibular armature in taxonomic studies of anisopterous nymphs. *Transactions of the American Entomological Society*, 81, 155–202.