

**DESCRIPTION OF THE LAST INSTAR LARVA OF
BRECHMORHOGA TRAVASSOSI SANTOS AND COMPARISON
WITH OTHER *BRECHMORHOGA* SPECIES
(ANISOPTERA: LIBELLULIDAE)**

T.C. SANTOS and J.M. COSTA

Sector de Insetos Aquáticos, Departamento de Entomologia, Museu Nacional, UFRJ,
Quinta da Boa Vista, São Cristóvão, BR-20940-040 Rio de Janeiro, Brazil

Received November 6, 1998 / Revised and Accepted March 4, 1999

The ultimate instar larva from streams of Ilha da Marambaia, Rio de Janeiro, is described, illustrated and compared with other known *Brechmorhoga* larvae, from which it is separated by the presence of erect dorsal abdominal spines on segments 2-9. A key to *Brechmorhoga* larvae is appended.

INTRODUCTION

The immature stage of four species of *Brechmorhoga* Kirby have been described, viz. *B. mendax* (Hag.), *B. nubecula* (Ramb.), *B. rapax* Calv. and *B. vivax* Calv. Here the larva of *B. travassosi* Santos is described, based on reared material. The species inhabits forest streams.

DESCRIPTION OF FINAL INSTAR EXUVIAE

Figures 1-6

M a t e r i a l . – BRAZIL: Ilha da Marambaia, Rio de Janeiro, RJ 1 reared ♂, IX-1993, J.M. Costa, T.C. Santos & S.M.V. Carneiro leg., deposited at Museu Nacional, UFRJ, Rio de Janeiro.

Body brown with dark brown markings, not hairy (Fig. 1). Head globoid with broad eyes. Antennae filiform, seven-segmented (0.75 mm), 3rd segment longest. Prementum with 11 setae; 5-6 spiniform setae on anterior margin near base of lobe articulation; lateral lobes with 8-9 lateral and 2 spiniform setae at the base (Fig. 2). Length of prementum 4.80 mm, width 4.5 mm; 10 smooth crenulations on internal margin of lateral lobes. Mandibles stout, right mandible with 3 unequally sized

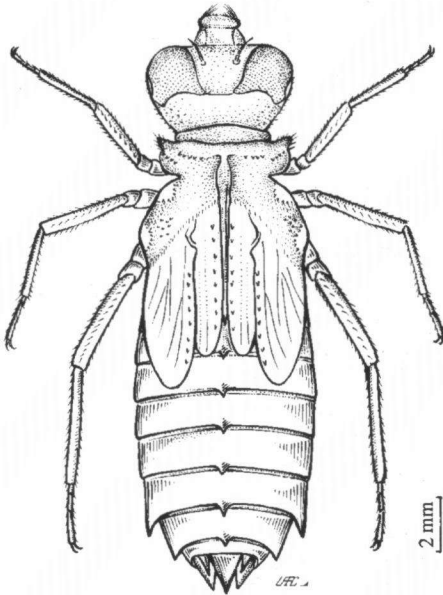


Fig. 1. *Brechmorhoga travassosi* Santos, final instar, general aspect.

dal appendages: superior 1.50, lateral 0.95, inferior 1.48; maximum head width 5.20, length 3.5 (including mouthparts); posterior wing cases 5.0, anterior pair 7.0.

teeth, left mandible with 4 teeth. Both mandibles with 1 small accessory tooth (Fig. 3).

Prothorax rectangular with large apophyses (Fig. 4). Legs brown with pigmented rings on femora and tibia.

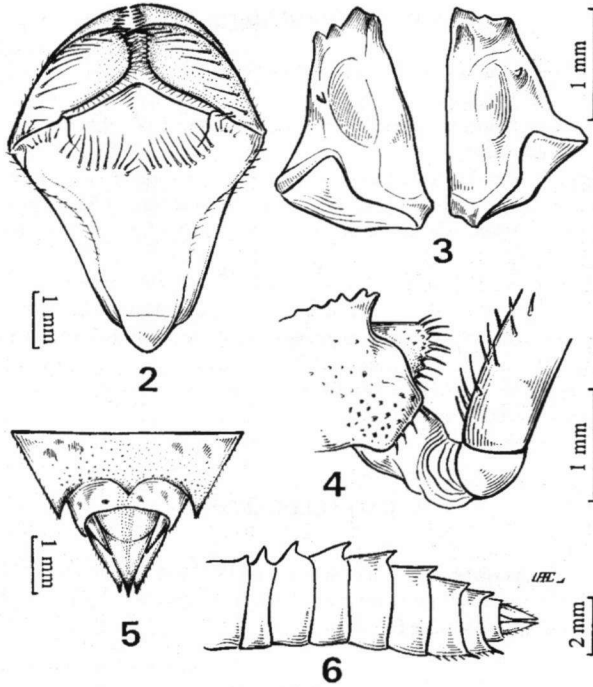
Wing cases parallel, anterior pair reaching the posterior side of tergum 5 (Fig. 1).

Abdominal segments 8-9 with lateral spines small and pointed (Fig. 1). Dorsal hooks developed on segments 2-9, erect in initial segments and lowering posteriorly (Fig. 6). Anal pyramid short, about as long as length of segments 9+10. Epiproct slightly longer than paraprocts. Cerci about half length of anal pyramid (Fig. 5).

Measurements (in mm). - Body length 20.0, length of abdomen (including caudal appendages) 11.90; maximum abdomen width at 5th segment 6.10; length of cau-

Table I
Some morphological features of *Brechmorhoga* larvae

Features	<i>mendax</i>	<i>nubecula</i>	<i>rapax</i>	<i>travassosi</i>	<i>vivax</i>
Longest antennal segment	2nd	3rd	3rd	3rd	3rd
Premental setae	14-15	8	11-16	11	12-13
Spiniform setae near base of lateral lobe articulation	?	0	0	5-6	5-7
Setae on lateral lobes	8-9	8	8-12	8-9	9
Spiniform setae at base of lateral lobes	?	2	6-10	2	4
Wing cases extending to abdominal segment	6th	5th	posterior side of 5th	middle of 6th	5th
Dorsal hook	developed on abd. segm. 2-9, large and truncated	spiniform projections present on abd. segm. 2-9	visible on abd. segm. 2-5 and vestigial on other segm.	developed on abd. segm. 2-9, erect in initial segm. and lowering posteriorly	visible on abd. segm. 2-5 and vestigial on other segm.
Body length (in mm)	24.0	22.0	21.5-24.5	20.0	21.2



Figs 2-6. *Brechmorhoga travassosi* Santos, larval structural features: (2) prementum; – (3) mandibles; – (4) prothoracic apophyses; – (5) anal pyramid; – (6) abdomen, lateral view.

DISCUSSION

There are 19 *Brechmorhoga* species recorded to date occurring in the neotropical region (DAVIES & TOBIN, 1985). The larval morphology of most of them is still unknown, except for 4 species (SANTOS, 1988). NEEDHAM & FISHER (1926) described the larva of *B. mendax* by supposition and considered it to be similar in length and general appearance to *Paltothemis lineatipes* Karsch. SANTOS (1969) described the larva of *B. nubecula* by supposition, based on a reared female example. Santos was uncertain about differentiating females of *B. nubecula* and *B. travassosi*. DE MARMELS (1982) described *B. vivax* Calv. and reported that in the place where it was collected, *B. rapax* larvae are also found. In the same paper, De Marmels described the larva of *B. rapax* and affirms that for this species the dorsal spines of the abdomen are less developed than with *B. vivax*. Based on the discovery of *B. travassosi* larva, it is concluded that SANTOS (1996) was right in relation to the description of the *B. nubecula* larva.

KEY TO *BRECHMORHOGA* LARVAE

- 1 Antennae with 3rd segment longest, lateral spines on abdominal segments 8 and 9 smaller than mediodorsal length of segment 9 2
 – Antennae with 2nd segment longest, lateral spines on abdominal segments 8 and 9 larger than mediodorsal length of segment 9 *mendax*
- 2 Anterior margin of prementum without spiniform setae near base of lateral lobe articulation .. 3
 – Anterior margin of prementum with 5-7 spiniform setae near base of lateral lobe articulation . 4
- 3 8 premental setae; abdomen with dorsal hooks (smaller spiniform projections) and visible on segments 2-9 *nubecula*
 – 11-16 premental setae; abdomen with dorsal hooks visible on segments 2-5 and vestigial on others *rapax*
- 4 Dorsal hooks visible in lateral view on segments 2-5, on segments 6-9 vestigial and invisible in lateral view *vivax*
 – Dorsal hooks spinelike and well developed, visible in dorsal and lateral view on segments 2-9, erect initially and lowering posteriorly *travassosi*

ACKNOWLEDGEMENTS

This research was supported by Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq), Fundação Universitária José Bonifácio (FUJB), Fundação de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ) and CAPES.

REFERENCES

- CORBET, P.S., 1953. A terminology for the labium of larval Odonata. *Entomologist* 86: 191-196.
- DAVIES, D.A.L. & P. TOBIN, 1985. *The dragonflies of the world: a systematic list of the extant species of Odonata*. Vol. 2: Anisoptera. Soc. Int. Odonatol., Utrecht.
- DE MARMELS, J., 1982. Cuatro nayades nuevas de la familia Libellulidae (Odonata: Anisoptera). *Boln Ent. venez.* (N.S.) 2(11): 94-101.
- NEEDHAM, J.G. & E. FISHER, 1936. The nymphs of North American libelluline dragonflies. *Trans. Am. ent. Soc.* 62: 107-116.
- SANTOS, N.D., 1969. Contribuição ao conhecimento da fauna do Estado da Guanabara, 67: Descrição da ninfa e emergência de *Brechmorhoga nubecula* (?) (Rambur, 1942) Calvert 1898 (Odonata: Libellulidae). *Atas Soc. Biol. Rio de J.* 12(4): 221-223.
- SANTOS, N.D., 1988. Catálogo bibliográfico de ninfas de odonatos neotropicais. *Acta amazon.* 18 (1/2): 265-350.