

**A new species of *Neocordulia* Selys, 1882
(Odonata: Corduliidae) from Minas Gerais State, Brazil**

Tatiana Chrysostomo Santos^{1,3}, *Janira Martins Costa*¹ & *César Carriço*^{1,2}

¹*Departamento de Entomologia, Museu Nacional, Universidade Federal do Rio de Janeiro – UFRJ,
Quinta da Boa Vista, CEP 20940-040, São Cristóvão, Rio de Janeiro, RJ, Brasil*

²*Instituto de Biologia, Programa de Pós-graduação em Biologia Animal – PPGBA,
Universidade Federal Rural do Rio de Janeiro – UFRRJ,*

BR 465, Km 7, CEP 23890-000, Seropédica, Rio de Janeiro, RJ, Brazil

³*Autor para correspondência: Tatiana Chrysostomo Santos, e-mail: taticasantos42@yahoo.com.br*

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Abstract: A new species of *Neocordulia* is described and illustrated based on a reared male, collected at Cachoeira da Eubiose stream, São Tomé das Letras, Minas Gerais State, Brazil. The Holotype is deposited in the Museu Nacional, UFRJ, Rio de Janeiro, Brazil.

Keywords: dragonfly, Anisoptera, stream, taxonomy, Brazil.

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Resumo: Uma nova espécie de *Neocordulia* é descrita e ilustrada com base em um macho obtido a partir de criação de ninfa, coletada no riacho da Cachoeira da Eubiose, São Tomé das Letras, Estado de Minas Gerais, Brasil. O Holótipo está depositado no Museu Nacional, UFRJ, Rio de Janeiro, Brasil.

Palavras-chave: libélula, Anisoptera, riacho, taxonomia, Brasil.

Introduction

The genus *Neocordulia* was established by Selys-Longchamps (1882) based on *Gomphomacromia androgynis* (Selys, 1871) including *G. batesi* (Selys, 1871) and *G. setifera* (Hagen in Selys, 1871) with 13 species and one subspecies all neotropical (Garrison et al. 2006, Costa & Machado 2007, Costa et al. 2008). Out of these, ten occur in Brazil. Most of the ten Brazilian species are concentrated in the Southeastern states, with two records from the State of Rio Grande do Sul (Santos 1968) and Santa Catarina (Costa et al. 2008). We describe herein one new species of *Neocordulia* from Minas Gerais State, based on a reared male larva.

Neocordulia machadoi sp. n. differs from the other species of *Neocordulia* by the small conical protuberance of S8 with a concave contour in its distal end.

Material and Methods

The larva was collected with sieve (500 μ) from shallow riffles and reared during 18 days, emerging on 2.XI.2009. All drawings were made with the aid of a camera lucida attached to a stereoscopic microscope; measurements were made with the aid of a Starrett digital caliper. Terminology for wing venation follows Riek & Kukulová-Peck (1984). S1-10 refers to abdominal segments 1-10, FW to fore wing and HW to hind wing.

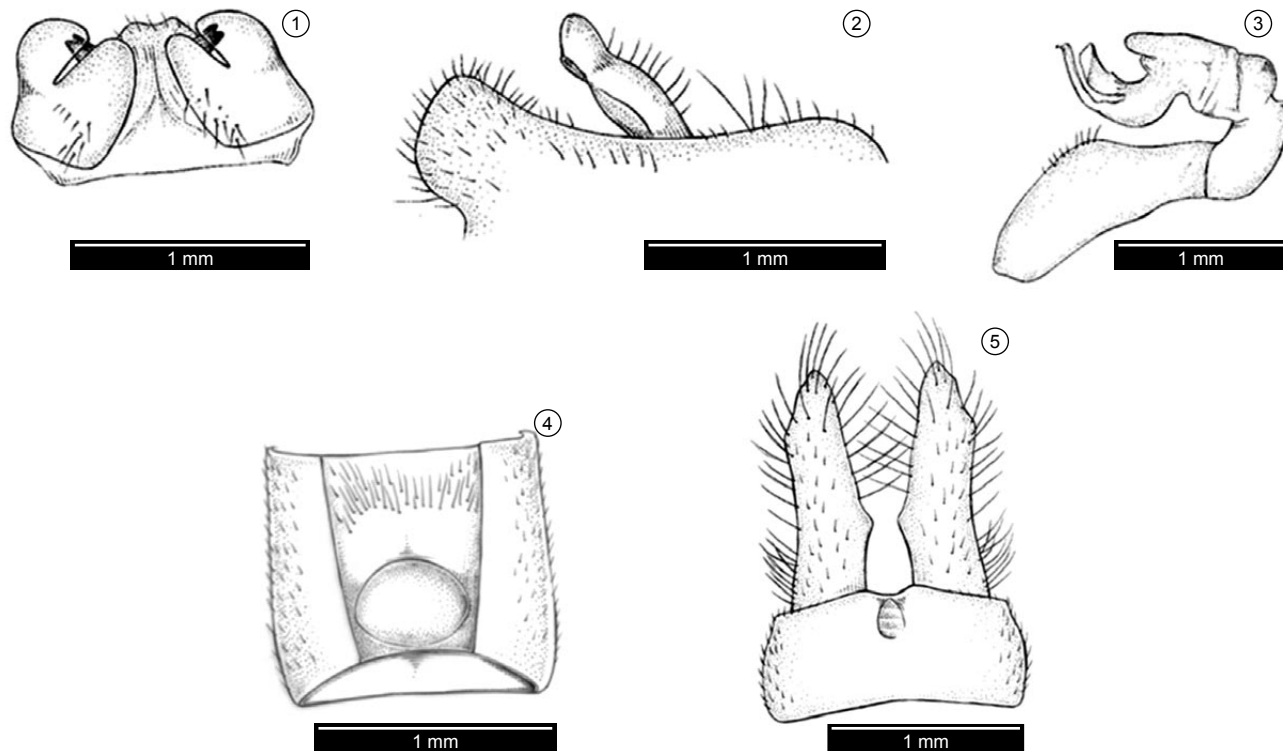
Results

1. *Neocordulia machadoi* sp. n. (Figures 1-5)

Male (holotype). Head. Postfrons, antefrons, postclypeus and anteclypeus light brown; labium pale, with long black setae uniformly distributed; mandibles dark brown and maxillae yellowish; frons divided by a strongly deep median furrow with flattened facets. Vertex light brown, rounded, with regularly distributed setae. Occipital triangle large, light brown, with concentrated setae. Antennae dark brown; ocellus dark brown; rear of head light brown.

Thorax: Prothorax yellowish. Pterothorax light brown and iridescent metallic green covered with brown and golden yellow setae. Mesepisternum with a longitudinal light brown stripe and green reflections. Legs black, except coxae and trochanter. All tibiae with a ventral keel along distal third. Wings hyaline and light yellowish; venation black; pterostigma light brown; membranule enlarged, white, ending before apex of anal triangle. Wing margin at distal end of anal triangle entire, without a distinct excavation. Anal angle rounded.

Venation: Antenodals in FW 10/10; in HW 7/7; postnodals in FW 8/10, in HW 10/10. Arculus proximal to second antenodal. Sectors of arculus stalked in both wings. All triangle free. One CuA crossvein in FW, two in HW. FW discoidal field parallel sided with two rows of cells except three rows on distal end. Discoidal field in HW with two



Figures 1-5. *Neocordulia machadoi* sp. nov. Holotype ♂. 1) hamule, ventral view; 2) hamule and genital lobe, lateral view; 3) vesica spermalis, lateral view; 4) S8, ventral view; and 5) cerci, dorsal view.

rows of cells. Msp1 indistinct. RP2 slightly undulate. Rspl distinct with six cells. Anal loop elongate surpassing level of distal angle of triangle, with 15/15 cells. Space between anal loop and triangle with two cells at base. Space between posterior border of anal area and distal end of anal loop with 2-3 rows of cells. Posterior border of anal loop with two cells.

Abdomen: Posterior margin of anterior lamina with medial arched rim bearing a tuft of setae on each lateral; inner branch of hamule wider than outer branch, with three small teeth (Figure 1); vesica spermalis with one short apical flagellum (Figure 3); S7-8 moderately widened, depressed dorsoventrally; dorsolateral carinae present on S3-7; sternum of S8 with a small conical protuberance and a pilose area (Figure 4). S1-10 dark brown. Segment 10 with middorsal keel indistinct, except for a blunt apical tooth. Genital lobe quadrangular; hamule long, surpassing half the height of genital lobe (Figure 2). Cerci (Figure 5) divergent tips, shorter than S9 + 10, covered with long setae. Epiproct much shorter than cerci with distal margin slightly angulate medially with two teeth.

Measurements (mm): Total length (including anal appendages) 56; maximum width of head 8.0; total length of thorax 10.0; length of metepisternal stripe 6.0; length of femur I 5.3; II 7.5, III 8.3; tibiae I 6.0, II 7.0, III 8.5; tibial keel I 4.0, II 4.0, III 7.0; length of FW 38.5, HW 38.0; maximum width of HW 15.0; FW pterostigma length 3.0, HW 3.0; distance from base to nodus 20.0, distance from nodus to apex 18.5; total length of abdomen 35.0; length of hamule 1.2; maximum width of hamule 0.1; length of genital lobe 1.5, width of genital lobe 1.0; length of cerci 4.0, length of epiproct 2.0.

Material examined: Holotype ♂, BRAZIL, Minas Gerais, Cachoeira da Eubiose stream, São Tomé das Letras; 21° 43' 0" S and 44° 58' 60" W, 15.X.2009, J.M.Costa & C. Carriço leg. (emerged 02.XI.2009).

Etymology: This species is named after Prof. Angelo B. Machado from Universidade Federal de Minas Gerais (UFMG).

Diagnosis: *Neocordulia machadoi* can be readily separated from the other species of the genus by having a small conical protuberance of S8 with a contour in its distal end.

Discussion

This new species belongs to the genus *Neocordulia* Selys (sensu May 1991) by the following characters: 1) posterior margin of anterior lamina with medial arched rim bearing a tuft of setae on each lateral end; 2) hamule divided into lateral and medial branches or lobes and 3) long legs (May 1991, Garrison et al. 2006, Machado 2005, Costa & Machado 2007, Costa et al. 2008).

Conclusion

Based on shape of cerci we believe that *Neocordulia machadoi* shows closer affinities to *Neocordulia setifera* (Hagen in Selys, 1871) but differs (characters for *N. setifera* in parenthesis) by distal end of cerci with few setae (with tuft of setae) and vesica spermalis with one short apical flagellum (large) and the small conical protuberance of S8 (large).

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References

- COSTA, J.M. & MACHADO, A.B.M. 2007. Two new species of *Neocordulia* Selys, 1882 from southern Brazil (Anisoptera: Corduliidae). *Lundiana* 8(2):143-146.
- COSTA, J.M., RAVANELLO, C.T. & SOUZA-FRANCO, G.M. 2008. Description of a new species of *Neocordulia* Selys, 1882 (Odonata: Libellulidae, Corduliinae) from Southern Brazil. *Zootaxa* 1704:64-68.
- MACHADO, A.B.M. 2005. *Neocordulia matutuensis* spec. nov. from Brazil (Anisoptera: Corduliidae). *Odonatologica* 34(3):299-302.
- MAY, M.L. 1991. A review of the genus *Neocordulia*, with a description of *Mesocordulia* Subgen. nov. and of *Neocordulia griphus* spec. nov. from Central America, and on *Lauromacromia* (Odonata: Corduliidae). *Folia Entomol. Mex.* 82:17-67.
- 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, p.1-359.
- RIEK, E.F. & KUKALOVÁ-PECK, J. 1984. A new interpretation of dragonfly wing venation based upon Early Upper Carboniferous fossils from Argentina (Insecta: Odonatoidea) and basic character states in pterygote wings. *Can. J. Zool.* 62(6):1150-1166.
- SANTOS, N.D. 1968. Notas sobre *Neocordulia androgynis* (Selys, 1871) (Odonata, Corduliidae). *Atas Soc. Biol. do Rio J.* 31:239-316.
- SELYS-LONGCHAMPS, E. 1882. Note sur le genre *Gomphomacromia* Brauer. *Ann. Soc. Entomol. Belg.* 26:166-169.

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