

A remarkable new species of *Heteragrion* from Brazil (Odonata: Megapodagrionidae)

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(Received 2 March 2014; accepted 14 May 2014; first published online 24 July 2014)

A new species, *Heteragrion cyane* sp. nov., is described and illustrated based on one ♂ collected in the State of Minas Gerais, Brazil. The new species is remarkable for its blue color, a rare character within the species of group A *Heteragrion*.

<http://www.zoobank.org/urn:lsid:zoobank.org:pub:C058B4BD-798A-4A84-A84D-D33C7847DA05>

Keywords: Odonata; damselfly; Megapodagrionidae; Zygoptera; Brazil

Introduction

Heteragrion is a Neotropical genus of forest damselflies with 51 species (Lencioni, 2013). The genus has been recently divided into two species groups: A and B (Lencioni, 2013). The males of species group A lack elongated paraprocts whereas those of group B have well-developed paraprocts. We herein describe a new species of group A, remarkable for its blue color.

Material and methods

The material includes the male holotype collected in a forest stream at Mata do Baú, Barroso and the photo of another live male specimen taken at the same place. Terminology for cercus morphology follows Lencioni (2013) and for venation Riek & Kukulová-Peck (1984). The abbreviations are: Fw: forewing; Hw: hind wing; Ac: arculus; Ax: antenodal crossveins; Px: postnodal crossveins; S1–S10: abdominal segments 1 to 10.

Heteragrion cyane sp. nov. (Figures 1–6)

Heteragrion obsoletum Selys, 1886, Souza et al. (2013: 1369 mention of specimen in checklist). Misidentification.

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Etymology

Cyane from Greek kyanos (= blue). An allusion to the predominantly blue color of the species.

Specimen examined

Holotype ♂, Mata do Baú, Barroso (21°11'13"S, 43°58'34"W) Minas Gerais State, 27 March 2010, Marcos Magalhães leg. Holotype in A.B.M. Machado Collection to be transferred to the collection of the Department of Zoology, Federal University of Minas Gerais, Brazil.

Description of the holotype male

Head. Labium yellowish white, labrum grayish blue with border yellowish white; anteclypeus, postclypeus, genae, base of mandibles, and antefrons grayish blue. Upper part of head (Figure 1) black with a large quadrangular yellowish blue spot lateral to the lateral ocelli, connected with the eye by two yellow bands, a yellowish blue ellipsoidal median spot between the lateral ocelli and a yellow spot in front of median ocelli.

Thorax. Anterior and median prothoracic lobes grayish blue with dorsum black (Figure 1). Hind prothoracic lobe pale with a large rounded black spot (Figure 1). Pterothorax: The color pattern of the pterothorax of the holotype is similar to that of the living specimen (Figure 2) but the blue color is less bright by postmortem effects. The mesepisternum is grayish blue, the mid-dorsal carina and area immediately lateral to it black. Mesepimeron bluish white with a large black stripe (Figure 2) enlarged below, continuing into the mesinfraepisternum, tapering above and ceasing shortly before the upper part of the sclerite. Metapleuron bluish white with a discontinuous dark brown narrow stripe at the dorsoposterior part of the metepisternum. When placed perpendicular to the source of illumination, the metapleuron shows 5–6 silvery iridescent streaks that disappear as it is placed parallel to the source of illumination. Legs: Femora pale with distal part black, tibiae orange brown with flexor surfaces black, tarsi dark brown. Wings: Hyaline, pterostigma uniformly brown, surmounting one cell and two and a half cells on each side, distally straight, proximally oblique. Px in Fw and Hw 15, RP₂ arising at Px 4 in Fw, at Px 3 in Hw, petiolation ceasing distally to CuP for a distance about twice the length of CuP.

Abdomen. Similar to that of the living specimen (Figure 2). S1 bluish white. S2 laterally bluish white and dorsally black, with a mid-dorsal bluish line, S3–S7 dark brown with a proximal ring

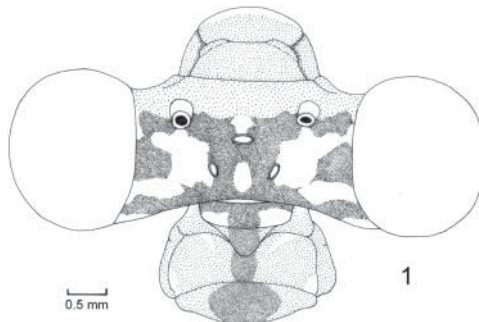


Figure 1. *Heteragrion cyane* ♂ holotype. Head and prothorax in dorsal view.



Figure 2. *Heteragrion cyane* ♂, Photo of specimen alive by Marcos Magalhães, Mata do Baú Barroso, MG, 27 March, 2010.

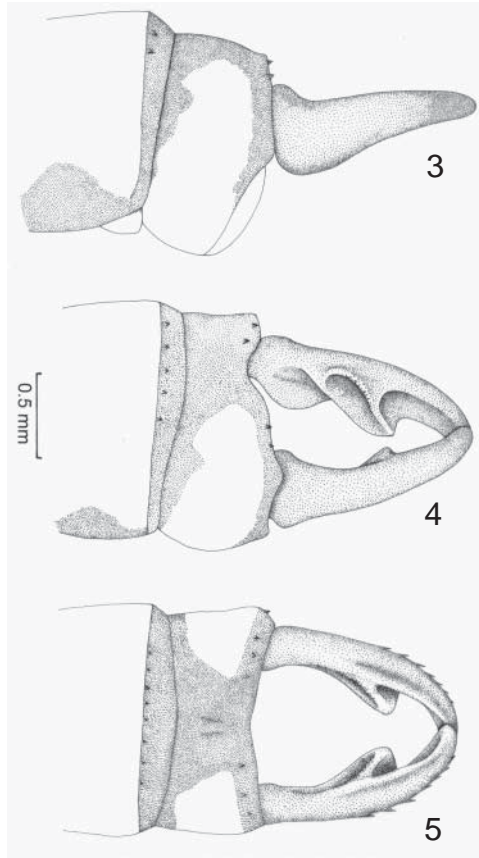
whitish blue and a black distal ring preceded by a lateral pale area. (Figure 2) S3–S8 with a mid-dorsal whitish blue line. S8 black with a whitish blue lateral mark situated distally. S9 whitish blue, ventrally black. S10 black with a lateral bluish white area (Figures 3–5). Cercus black.

Structural characters. Hind prothoracic lobe rounded, narrowed laterally (Figure 1). Cercus about twice as long as S10 in lateral view, with small dorsobasal and ventrobasal expansions (Figure 3). In mediodorsal view (Figure 4) its basal portion is smaller, the medial and distal portions subequal. Ventral branch of medial process plate-like, subtriangular with the apex rounded (Figures 4, 5). Dorsal branch small, subtriangular (Figure 4).

Measurements (mm). Holotype ♂: Hw length 26.0. Abdomen length 35.8. Total length 39.0.

Discussion

Heteragrion cyane is remarkable for its bright blue color, best shown in the living insect (Figure 2), resembling some species of *Cora*, like *C. marina* Selys, 1868 and *C. cyane* Selys, 1858. In *Heteragrion* predominant colors are shades of yellow and orange, and a dominant hue of blue was so far found only in *H. azulum* (Dunkle, 1989), described from a single specimen collected in Mexico (Dunkle, 1989). *Heteragrion azulum* is clearly different from *H. cyane* and *H. obsoletum* as it has well-developed paraprocts, whereas *H. cyane* and *H. obsoletum* lack well-developed paraprocts. In a recent paper (Souza et al., 2013) we regarded the specimen here named *H. cyane* as *H. obsoletum* (Selys, 1886), a species known by a single specimen from Caxambu, a locality situated 130 km SW of the place where *H. cyane* was collected. However, we reexamined the specimen and a photo of another specimen alive and we are now convinced that it is in fact a new species. The description of *H. obsoletum* made by Selys (1886) is very poor in structural characters; no colored illustrations by Selys, as described by Wasscher & Dumont (2013), among others, have been found (K. Verspui, pers. comm., 2014), and the type has disappeared (Jerome Constant, in litt, 2011). Nevertheless, the color description by Selys is good enough to allow its separation from *H. cyane*. The differences between these two species are shown in Table 1. The main color character separating *H. cyane* from *H. obsoletum* is the presence of a black spot on



Figures 3–5. *Heteragrion cyane* ♂, holotype S10 and cercus in (3) lateral; (4) mediodorsal; and (5) dorsal views.

Table 1. Color differences between *H. cyane* and *H. obsoletum*.

Character	<i>H. cyane</i>	<i>H. obsoletum</i>
Labrum	Grayish blue with a yellowish white border	Obscure with a blue border
Anterior and median prothoracic lobes	Grayish blue with dorsum black	Pale with a bluish rounded spot on each side
Hind prothoracic lobe	Pale with a large central rounded black spot	Pale with a large bluish central oval spot
Mesopleuron ground color	Grayish blue	Pale with a greenish tinge

the hind prothoracic lobe, regarded as a good specific character by most authors after [Williamson \(1919\)](#).

Ecological considerations

Heteragrion cyane was collected on a sluggish, shallow stream with marshy borders (Figure 6) at the Baú Forest (Mata do Baú), a 400 hectare semideciduous forest remnant found in the municipality of Barroso, Minas Gerais. An assessment of odonates in the area ([Souza et al., 2013](#))



Figure 6. Habitat of *Heteragrion cyane* in Mata do Baú, Barroso, MG.

revealed a rich fauna, with 57 species, five in the genus *Heteragrion*. The rich odonate fauna and the good preservation of this remnant of Brazil's Atlantic Forest are being regarded as arguments for the creation of a nature reserve in the area.

Acknowledgements

We thank the biologist Myriam Morato Duarte for the drawings illustrating this paper, and the biologist Lucio Bedê for critically revising the manuscript. We are indebted to Minas Gerais Foundation for the Support of Science (FAPEMIG), for funding the assessment of the insect fauna at Barroso, which resulted in the collection of *H. cyane*. We also thank Prof. Brígida Souza, who coordinated the assessment project.

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