

***HETERAGRION PETIENSE* SPEC. NOV., FROM THE STATE OF MINAS GERAIS, BRAZIL (ZYGOPTERA: MEGAPODAGRIONIDAE)**

A.B.M. MACHADO

Departamento de Zoologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Caixa Postal 2486, BR-31.270 Belo Horizonte, Minas Gerais, Brazil.

*Received March 29, 1988 / Accepted April 5, 1988*

*H. petiense* sp. n. (♂ holotype, ♀ allotype: Brazil, Minas Gerais, Caeté; 6-XII-1987) is described and illustrated. The new sp. is unique in the genus by the presence of a large turquoise-white mesoepisternal spot.

INTRODUCTION

In 1986 we initiated a survey of the dragonfly fauna of the nature reserve of Peti (MACHADO et al., 1988), in the state of Minas Gerais, Brazil, as part of a thorough coordinated study of the ecosystems of the area, aimed at developing a system of monitoring its fauna and flora. Among several interesting dragonflies that resulted from this survey we found a new species of *Heteragrion* which is described here. With this new finding the genus attains 32 species, described by SELYS (1862, 1886), CALVERT (1901-1903), RIS (1918), WILLIAMSON (1919), SJÖSTEDT (1918), DONNELLY (1965) and more recently by DE MARMELS (1987). The most distinctive feature of *H. petiense* sp. n. is a large turquoise-white mesoepisternal spot not found in other members of the genus. It is curious that such a conspicuous and beautiful species remained undetected in the vicinity of Belo Horizonte, where Odonata have been intensely collected for many years.

The name *petiense* is allusive to Peti, the nature reserve belonging to the Companhia Energética de Minas Gerais — CEMIG, where the species was discovered.

## DESCRIPTION

*HETERAGRION PETIENSE* SP. N.

Figures 1-3

**Material:** Brazil, Minas Gerais, Caeté: holotype ♂, allotype ♀, 1 ♂ paratype; 6-XII-1987; C.M.S. Miranda, G.C. Oliveira, R.O.P. Queiroz-Filho & L.H.F. Souza e Silva leg. — Santa Barbara: Reserve of Peti (19°54' Lat. S. — 43°23' Long. W.); 2 ♂, 19-X-86; 2 ♂ 8-XI-86; 1 ♂, 25-VIII-87; 2 ♂, 25-X-87; 1 ♂, 21-XI-87; A., E., P.A. Machado & A. Braz leg. — Total: 10 males and 1 female. Holotype, allotype and 1 paratype deposited in the author's collection; 1 paratype donated to the collection of SIO International Odonata Research Institute, IORI, at Gainesville, USA. Eight paratypes deposited in the entomological collection of the Department of Zoology, Federal University of Minas Gerais, Belo Horizonte.

**Male: Head.** — Labium yellowish white; labrum yellow with a central band, brown; postclypeus and anterior part of frons brown; anteclypeus, base of mandible and genae yellowish white, with a transverse dark brown band crossing the genae between the eye and the postclypeus. Upper part of the head black except for an elongated yellowish spot between the lateral ocelli and the antennae. Antennal flagellum brown, scape and pedicel black. Rear of the head yellowish.

**Prothorax.** — Prothoracic lobes black, the middle lobe with a brownish lateral area and the hind lobe with an ill-defined yellowish brown lateral spot. Propleuron brownish.

**Pterothorax (Fig. 1).** — Largely black with pale areas as follows: a large spot occupying the entire width of the inferior two-thirds of the mesoepisternum. In the living insect this spot is uniformly white with some slight tinges of turquoise blue. After death the colour becomes less uniform with irregular white streaks mingled with bluish and somewhat translucent areas; a turquoise white metepisternal band adjacent to the interpleural suture not reaching the upper limit of the sclerite, continues below the metastigma as a yellowish band which ends at the middle coxa. Metepimeron yellowish with a poorly-defined brownish band in the middle. Lower fourth of mesoepimeron and mesoinfraepisternum dark brown. A dark line limits the pectus laterally. Legs brown, femoral carina black, tooth of tarsal claws well developed. Wings hyalin, pterostigma dark brown.

**Venation.** — Postnodals in fore wing 16 (9.1%), 17 (54.5%), 18 (36.4%); in hind wing 13 (9.1%), 14 (27.7%), 15 (27.7%), 16 (36.4%). Postquadrangular cells in fore wing 1+1/2 (9.1%), 2 (81.8%), 2+2/3 (9.1%); in hind wing 1+1/3 (9.1%), 1+1/2 (9.1%), 2 (81.8%). Number of cells below the pterostigma in fore wing 1+2 1/2 (18.0%), 2 (27.7%), 2+2 1/2 (45.2%), 3 (9.1%); in hind wing 1+2 1/2 (36.3%), 2 (18.0%), 2+1/2 (18.0%), 2+2 1/2 (27.7%). Distance between the arculus and the anal crossing in fore wing 0.4-0.5 mm, in hind wing 0.2-0.4 mm. Distance between the anal crossing and the point of departure of the anal vein from the wing margin in fore wing 0.4-0.6 mm, in hind wing 0.4-0.8 mm.

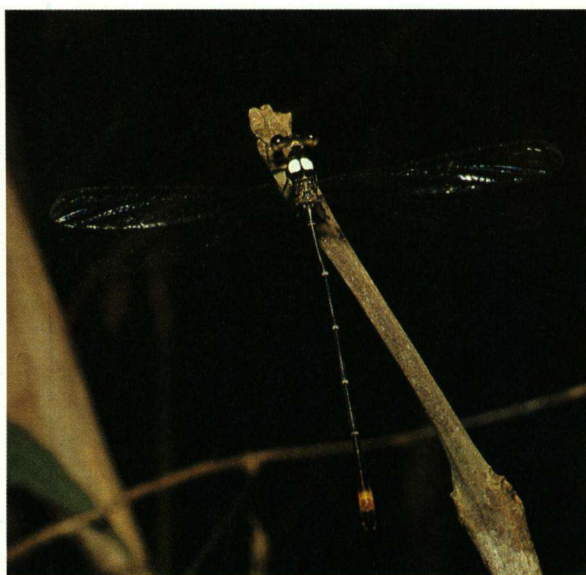


Fig. 1. *Heteragrion petiense* sp. n., paratype male from Peti, photographed alive. Dorsal view.

**Abdomen.** — Segment 1 pale yellow with a dorsal squarish basal brown spot; segment 2 laterally pale yellow, dorsally black with a middorsal yellow line. Segment 3-7 black with basal pale yellow rings, ventrolateral yellow subapical areas and middorsal yellow line more evident in segment 3. Segment 8 black with the distal third orange. Segments 9-10 orange, with a dorsal black area. Superior appendages dark brown with an orange hue at the ventro-basal dilation.

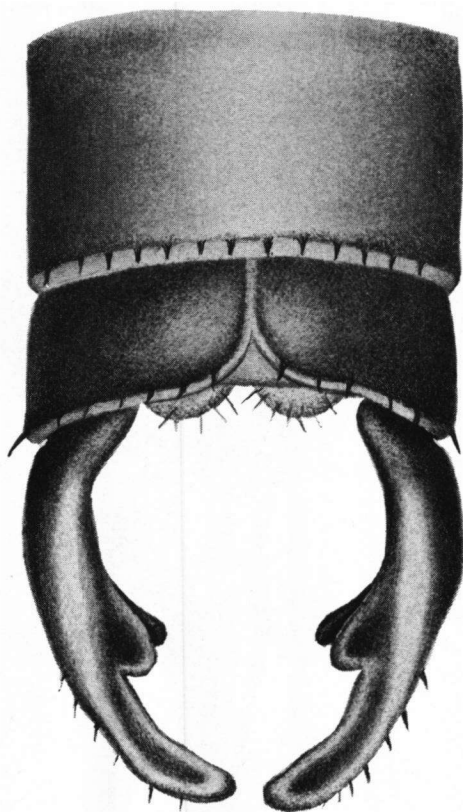


Fig. 2. *Heteragrion petiense* sp. n., holotype male. Anal appendages, dorsal view.

**Structural characters.** — Posterior lobe of prothorax with hind margin regular, convex. Superior appendage in dorsal view (Fig. 2) forcipate, inner contour at two-thirds length with two round-tipped triangular processes; one directed medially, the other medio-ventrally, the latter more easily observed in oblique internal view. In lateral view (Fig. 3) swollen ventrally at base. Inferior appendage absent.

**Measurements (mm).** — Abdomen 32.1-38.0 (mean, 35.2); — fore wing length 25.5-28.0 (mean, 26.6); width 4.6-4.8; — hind wing length 25.2-27.0 (mean 26.1); width 4.9-5.1. — Pterostigma in fore wing: costal side 1.2-1.3; radial side 1.7-1.8. — Pterostigma in hind wing: costal side 1.4-1.5, radial side 1.8-1.9. — Appendages 1.3. M.

**Female: Head.** — Labium, labrum anteclypeus, postclypeus, base of mandibles, and genae as in the male. Anterior part of frons yellowish brown. Upper part of the head dull yellow shading into orange yellow in the ocellar region, with black markings as follows: an oblong spot situated

between the eyes and the antennae bases, medially to the antennae and in front of the median ocellus; a transverse stripe enveloping the median ocellus and another occupying the occipital crest; a round lateral spot adjacent to the eye. Antennal flagellum brown, scape and medial part of the pedicel black. Rear of the head yellow.

**Prothorax.** — Greyish brown shading to yellow below and at the hind lobe. A middorsal black spot at the fore lobe and a rounded black spot occupying the central third of the hind lobe.

**Pterothorax.** — With a narrow (0.35 mm at the midlength) middorsal black stripe continuous below with the acrotergal area. On either side of this stripe there is a yellow stripe of about equal width, continuous above with the antealar sinus. Remaining parts of mesoepisternum greyish yellow. Lateral thoracic area greyish yellow with a poorly defined sinuous yellow stripe at the interpleural suture and two black stripes as follows: one occupying the upper two-thirds of the mesoepimeron not reaching the upper limit of the sclerite, the other at the middle third of the metaepisternum. Pectus and legs as in the male. Wings hyaline, pterostigma yellowish brown.

**Venation.** — Postnodals in fore wing 18, in hind wing 14-16; postquadrangular cells in fore wing 2-1+1/2, in hind wing 2; number of cells below the pterostigma in fore wing 2-2+1/2, in hind wing 2+1/2; distance between the arculus and the anal crossing in fore wing and in hind wing 0.4 mm. Distance between the anal crossing and the point of departure of the anal vein from the wing margin in fore wing 0.6 mm, in hind wing 0.7 mm.

**Abdomen.** — Segments 1-6 as in the male except that the ventro-lateral yellow areas of 3-6 extends anteriorly to the yellow rings. Segment 7 brown with basal yellow ring. Segments 8-10 brown, becoming darker on the dorsum of 8 and on the proximal third of the dorsum of 9. Appendages brown, with the apex black. Ovipositor yellowish brown.

**Structural characters.** — Posterior lobe of prothorax with hind margin regular, convex. Appendages conical. Genital valves with ventral edge broad containing

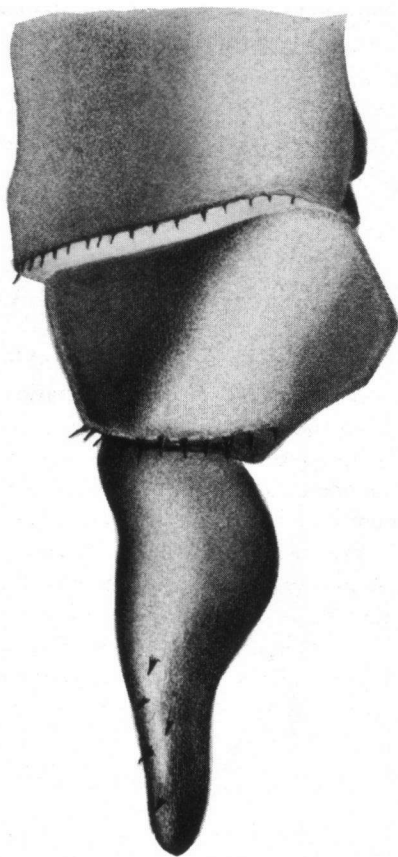


Fig. 3. *Heteragrion petiense* sp. n., holotype male. Anal appendages, lateral view.

teeth about equal in size, disposed in 2-3 rows.

Measurements (mm). — Abdomen 31.4; — fore wing length 26.0; width 4.6; — hind wing length 25.2; width 4.8. — Pterostigma in fore wing: costal side 1.2; radial side 1.8. — Pterostigma in hind wing: costal side 1.2; radial side: 1.4. — Appendage 0.8.

## DISCUSSION

The affinities of *H. petiense* are difficult to trace. Taking in consideration its largely black colours, the species keys out to *H. flavovittatum* and *H. ovatum* in WILLIAMSON (1919). It is, however, very different from these species in size, appendage structure and thoracic pattern. The presence of a very noticeable coloured area on the thorax and another at the tip of abdomen in an otherwise dull coloured body is common in several species of *Heteragrion* and other forest *Zygoptera*. *H. petiense*, however, is unique because the colours of these two areas are different and the thoracic spot is white, a colour seldom observed in Odonata.

## ECOLOGY AND CONSERVATION

*H. petiense* was always found in very small forest rivulets, most of the time perched on the marginal vegetation. In this situation it would hardly be noticed were it not for the presence of the white thoracic spot. The species was frequently associated with *Phasmoneura ciganae* Santos, *Argia lilacina* Selys, *Argia* sp. and, in one case, *Heteragrion dorsale* Selys. There is evidence that *Heteragrion* species are very sensitive to environmental deterioration (MACHADO, 1988) and their conservation is a matter of concern, especially in areas now being intensely deforested. Fortunately, however, *H. petiense* occurs in reasonably large populations, scattered in seven different sites in the Peti Nature Reserve and in at least one site in the neighbouring Municipality of Caeté. Thanks to the efforts of the Minas Gerais Electricity Company-CEMIG to preserve the ecosystems of Peti, conservation of the new species in the area seems guaranteed.

## ACKNOWLEDGEMENTS

This research was supported by Companhia Energética de Minas Gerais-CEMIG (Convenium UFMG-CEMIG) and CNPq (Proc. No. 401591/86 and 370342/87).

I thank Mr FERNANDO VAL MORE for the drawings that illustrate this article.

## REFERENCES

- CALVERT, P.P., 1901-1903. Odonata. *Biologia cent.-am.* (Neuroptera), pp. 17-420.  
DE MARMELS, J., 1987. On the type specimens of some neotropical Megapodagrionidae, with a description of *Heteragrion pemom* spec. nov. and *Oxystigma caeruleans* spec. nov. from

- Venezuela (Zygoptera). *Odonatologica* 16(3): 225-238.
- DONELLY, T.W., 1965. *Heteragrion eboratum*, a new species of damselfly from Guatemala (Odonata-Megapodagrionidae). *Proc. ent. Soc. Wash.* 67(2): 96-100.
- MACHADO, A.B.M., MACHADO P.A.R., BRAZ, A.C. & MACHADO, E.R., 1988. Fauna odonatologica da Reserva de Peti-CEMIG, Minas Gerais. *Resum. XV Congr. brasil Zool.*, Curitiba, p. 136.
- RIS, F., 1918. Libellen (Odonata) aus der Region der amerikanischen Kordilleren von Costarica bis Catamarca. *Arch. Naturgesch.* 82: 1-198.
- SELYS-LONGCHAMPS, M.E. de, 1862. Synopsis des Agrionines. Troisième Légion. Podagrion. *Bull. Acad. r. Belg.* (II) 14(6): 5-44.
- SELYS-LONGCHAMPS, M.E. de, 1886. Révision du Synopsis des Agrionines. Première partie comprenant les légions Pseudostigma-Podagrion-Platycnemis et Protonevra. *Mém. cour. Acad. Belg.* 38(4): 1-233.
- SJÖSTEDT, Y., 1918. Wissenschaftliche Ergebnisse der schwedischen entomologische Reise des Herrn Dr. A. Roman in Amazonas. 1914-1915. *Ark. Zool.* 11(15): 1-54.
- WILLIAMSON, E.B., 1919. Results of the University of Michigan-Williamson expedition to Colombia (1916-1917). IV. Notes on species of the genus *Heteragrion* Selys, with descriptions of new species (Odonata). *Occ. Pap. Mus. Zool. Univ. Mich.* 68: 1-66.