

***Tukanobasis* gen. nov. with the description of *T. corbeti* sp. nov.
from the Amazonian region of Brazil
(Odonata: Coenagrionidae)**

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ABSTRACT

A new coenagrionid genus, *Tukanobasis*, is described for *T. corbeti* sp. nov. found in a flooded forest in the Amazonian region of Brazil (holotype : Brazil, Amazonas State, Taraquá [3°27'15"S, 62°51'05"W, 35 m], viii 1964, in ABMM). The new genus is characterized by the presence of an apical brown spot on Hw of mature males, a ventral thoracic tubercle, long paraprocts, two large pleural yellow stripes, and a short CuA. Its affinities are uncertain.

INTRODUCTION

In the last four years the taxonomic knowledge of Neotropical Coenagrionidae has experienced an enormous increase. Nine new genera have been described, viz. *Angelagrion* Lencioni, 2008; *Bromeliagrion* De Marmels in De Marmels & Garrison, 2005; *Denticulobasis* Machado, 2009; *Dolonagrion* Garrison & von Ellenrieder, 2008; *Oreiallagma* von Ellenrieder & Garrison, 2008; *Phoenicagrion* von Ellenrieder, 2008; *Schistolobos* von Ellenrieder & Garrison, 2008; *Tepuibasis* De Marmels, 2007; *Tuberculobasis* Machado, 2009. Several genera have been more precisely defined (Garrison & von Ellenrieder 2008; von Ellenrieder & Garrison 2008a, b; von Ellenrieder & Lozano 2008; Garrison 2009) and a correspondingly large number of new species has been described. Keys to genera have been provided for Brazil (Lencioni 2006) and South America (von Ellenrieder & Garrison 2009) as well as to species (Heckman 2008), making it less difficult to allocate species to genera. I describe here the monotypic genus *Tukanobasis* for *T. corbeti* sp. nov., a species found in a flooded forest of the Amazonian region in Brazil.

MATERIAL AND METHODS

Measurements are given in mm and drawings were made with the aid of a camera lucida. Acronyms for collections are as follows:

- ABMM — Angelo B.M. Machado collection, Belo Horizonte, Minas Gerais, Brazil
RWG — Rosser W. Garrison collection, Sacramento, CA, USA
UFMG — Universidade Federal de Minas Gerais, Brazil

Tukanobasis gen. nov.

Type species

Tukanobasis corbeti sp. nov. by present designation.

Etymology

Noun in apposition; named after the Tukano indians who helped me during my collecting trip to the Uaupés River in 1964.

Generic characterization

Large Coenagrionidae (total length 39.3-39.4 mm) with dominantly dark brown or metallic green colour on prothorax and mesepisternum, with two large pleural yellow stripes (Fig. 1a). Frons rounded, dorsal surface of head dark brown or black (Fig. 1a) with no postocular spots. Hind lobe of prothorax trilobate (Fig. 1b), the median lobe smoothly rounded. Wings (Fig. 1g) petiolated to level of CuP. CuA short with 6-8 cells between it and wing margin, three postquadrangular cells in both wings, RP_2 arising near $Px5$ in Fw and $Px4$ in Hw, vein descending from quadrangle forming an unbroken line to wing margin, pterostigma rhomboidal with costal side equal to or slightly shorter than radial side (Fig. 1g); Hw of males with an apical brown spot occupying a small number of cells (Figs 1g, h). Spines on distal half of metafemur not longer than width of femur (Fig. 1c), metatibial spurs shorter than intervening spaces (Fig. 1d), and supplementary tooth of tarsal claws absent (Figs 1e, f). Genital ligula (Figs 1l, m) with no terminal fold, a poorly developed internal fold, one pair of lateral lobes with chitinised apex and one pair of large anterolateral lobes with dorsal margin serrulate. Male cercus (Figs 1j, k) subequal to S10, in dorsal view subrectangular, in lateral view ax-like. Paraprocts (Figs 1j, k) straight, horizontal, about twice as long as cerci.

Diagnosis

The apical brown spot in Hw of mature males (Figs 1g, h) occupying a small number of cells (5) is unique to *Tukanobasis*. A similar apical spot also occurs in Hw of *Apanisagrion* Kennedy, 1920 but it is formed by a patch of dense venation with a great number of small cells (45 in one specimen) with a hyaline centre (Fig. 1i), constituting actually a 'pseudospot'. In *Anisagrion* Selys, 1876 the distal part of male Hw is emarginated by brown, the colour restricted to the marginal cells and is therefore much different from the localized brown apical spot of *Tukanobasis*. Another diagnostic character of *Tukanobasis* is the presence of a ventral thoracic tubercle (Fig. 1a) so far known among New World Coenagrionidae only in *Amphiagrion abbreviatum* (Selys, 1876), *Coenagrion resolutum* (Hagen in Selys, 1876), *Protallagma titicacae* (Calvert, 1909), and *Zoniagrion* Kennedy, 1917 as illustrated by Westfall & May (2006). *Tukanobasis* shares only with *Mesoleptobasis* Sjöstedt, 1918 the combination of a rounded frons, vein descending from quadrangle forming a straight line to wing margin, short CuA with a small number of cells between it and the wing margin (6-8), tarsal claw lacking supplementary tooth, and long paraprocts. Long paraprocts occur also in *Metaleptobasis* Calvert, 1907, *Denticulobasis*, and in the *costalimai* group of *Tuberculobasis*. Genital ligula lateral lobes with sclerotized

apices and small denticles are shared with *Dolonagrion* and *Phoenicagrion*. The metallic green colour on prothorax and entire mesepisternum in mature specimens is also found in *Aceratobasis* Kennedy, 1920, *Diceratobasis* Kennedy, 1920, *Nehalennia* Selys, 1850, and in some species of *Argia* Rambur, 1842. However, *Tukanobasis* fits none of these genera and its affinities remain uncertain. By its unique combination of characters it seems clear that *Tukanobasis* belongs to a new genus of Coenagrionidae.

Tukanobasis corbeti sp. nov.

Figs 1a-h, j-m

Etymology

Noun in genitive case; named in honour of the late Philip S. Corbet out of recognition for his outstanding contribution to Odonatology.

Specimens examined

Total 5 ♂ — Holotype ♂, Brazil, Amazonas State, Taraquá (3°27'15"S, 62°51'05"W, 35 m), viii 1964, leg. ABMM, F.S. Pereira (ABMM, registered with UFMG). Paratypes: 3 ♂, same data as holotype (ABMM); 1 ♂, same but (RWG).

Male holotype

Head: Labium, labrum, base of mandibles, genae, and anteclypeus yellowish; postclypeus brown, bordered with yellow. Antefrons, base of antennae, and top of head black (Fig. 1a) becoming dark metallic green at postocular and occipital regions. No postocular spots. Rear of head reddish brown.

Thorax: Prothorax dark metallic green with an oblong transverse yellow spot at anterior lobe and a rounded spot at propleuron which is partly covered with whitish pruinosity. Pterothorax with mesepisternum dark metallic green covered with many yellowish setae on dorsal surface; mesepimeron and metepisternum black with a very broad yellow stripe tapering above (Fig. 1a); mesinfrepisternum dark brown with some whitish pruinosity; metinfrepisternum brown covered with whitish pruinosity; metepimeron brown, its lateral part with a large yellow stripe (Fig. 1a), its ventral part covered with whitish pruinosity that extends anteriorly. Legs with coxae dark brown with whitish pruinosity, bordered posteriorly with yellow (Fig. 1a); extensor surface of femora dark brown, flexor surfaces yellow, tibiae and tarsi brown, claws with no supplementary tooth. — Wings (Fig. 1g) hyaline except for an apical rounded dark brown spot occupying five cells in Hw (Fig. 1h). Px in Fw 10 (83.3%), 11 (16.7%), in Hw 8 (85.8%), 9 (14.2%). RP₂ arising near Px5 in Fw (100%) and Px4 in Hw (100%); IR₁ in Fw arising near Px8 (85.8%) and Px9 (14.2%), in Hw near Px8 (71.4%) and Px7 (28.6%). Number of cells between CuA and the wing margin in Fw 6 (14.2%), 7 (51.2%), 8 (28.6%) in Hw 6 (14.2%), 7 (85.8%); postquadrangular cells in Fw and Hw 3 (100%); arculus distal to Ax2 for a length equal to its upper part in Hw, slightly distal from it in Fw; petiolation in Fw and Hw at CuP. Pterostigma surmounting $\frac{3}{8}$ of a cell in Fw and Hw (Fig. 1g).

Abdomen: S1-2 dorsally black, laterally yellow; S3-7 dorsally brown, laterally yellow (Fig. 1a); S8-10 black with a ventro-lateral yellow stripe, area between transverse

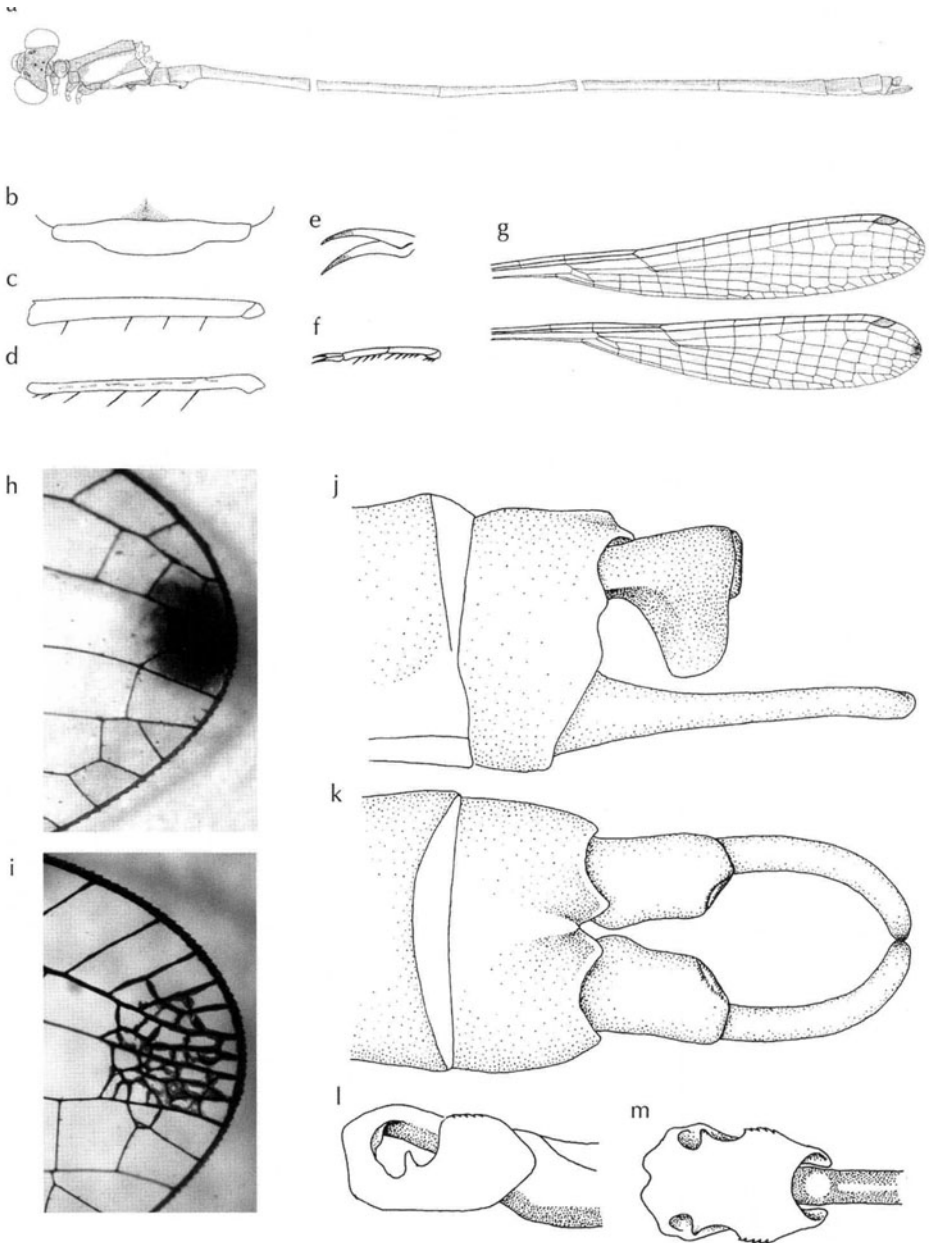


Figure 1: *Tukanobasis corbeti* sp. nov. — (a) colour pattern; (b) hind prothoracic lobe; (c) metafemur; (d) metatibia; (e) tarsal claw; (f) metatarsus; (g) wings; (h) apical portion of Hw; (i) for comparison: same of *Apanisagrion lais*, Mexico (ABMM); (j) tip of abdomen (S9, 10), lateral view; (k) same, dorsal view; (l) genital ligula of paratype, lateral view; (m) same, ectal view.

carinae of S8-9 and at a dorso distal area of S10 orange yellow. Paraprocts black; cerci black with posterior borders and anteroventral part of ventral processes brownish. **Structural characters:** Hind border of S10 in dorsal view (Fig. 1k) with two small paramedian subtriangular projections delimitating a V-shaped cavity whose apex continues anteriorly into a small middorsal elevated crest (Figs 1j, k). Cercus (Figs 1j, k) subequal to S10, subrectangular in dorsal view, ax-like in lateral view. Paraprocts in lateral view (Fig. 1j) horizontal and straight, in dorsal view (Fig. 1k) convergent, about twice as long as cerci. Hind prothoracic lobe with lateral and median lobe well developed the latter smoothly rounded (Fig. 1b). Venter of thorax with a rounded brown and pilose tubercle (Fig. 1a). Genital ligula as described for the genus (as in Figs 1l, m).

Dimensions: Hw: 18.40; abdomen: 35.40, total length: 39.37.

Variation in paratypes

The four paratypes represent one juvenile, one slightly teneral, and two teneral males. In the two teneral males, top of head, thorax and abdomen are light brown, the lateral pleural stripes pale and the apical spot on Hw is absent. In the subteneral male, top of head is dark brown, thorax brown, and the area corresponding to the brown apical spot in Hw is very slightly suffused with yellow. In the juvenile male the thoracic colour is dark brown with no pruinosity or metallic green areas. Female unknown. **Dimensions:** HW: 17.5-20.2 (mean: 18.7); abdomen: 35.2-35.6 (mean 34.4), total length: 39.3-39.4 (mean 39.35).

Ecological notes

Males of *T. corbeti* were found perching or flying among branches of trees in the lower canopy of a flooded forest or igapó, and were collected from a boat. Out of the five specimens three were teneral, indicating that the species actually breeds in the igapó. A review of the fascinating natural history of the Amazonian igapós is provided by Goulding (1989). They are formed during the rainy period by flooding of the rivers and are therefore seasonal. Their odonate fauna is poorly known and further collecting in this unique habitat will probably reveal other species of *Tukanobasis*.

DISCUSSION

The type series contains specimens of different ages which allow describing an ontogenetic sequence of colour change. The dominant thoracic colour changes from light brown in the very teneral specimen to brown, dark brown, and black with metallic green reflections appearing on the prothorax and on mesepisternum in the fully mature holotype. The apical spot of Hw is not visible in the two teneral paratypes, appears as an area slightly suffused with yellow in the subteneral paratype, and as a brown area in the fully mature specimen. The striking change in body colour during maturation is a phenomenon that occurs also in species of *Anisagrion*, *Apanisagrion*, and *Hesperagrion* Calvert, 1902 as pointed out by De Marmels (2002) and maybe a character of *Tukanobasis*.

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