

# Stuttgarter Beiträge zur Naturkunde

## Serie A (Biologie)

Herausgeber:

Staatliches Museum für Naturkunde, Rosenstein 1, D-70191 Stuttgart

Stuttgarter Beitr. Naturk.	Ser. A	Nr. 580	6 S.	Stuttgart, 1. 12. 1998
----------------------------	--------	---------	------	------------------------

### Remarks on the Genus *Brasilocaenis* (Ephemeroptera: Caenidae), with the Description of a New Species: *Brasilocaenis mendesi*

By Peter Malzacher, Ludwigsburg

With 3 figures

#### Summary

A new species of the genus *Brasilocaenis* Puthz 1975 from the Pantanal, Brasil is described. The position of *B. mendesi* **spec. nov.** within the genus is discussed. As a result of this, the genus is divided into two species-groups.

#### Zusammenfassung

Aus dem brasilianischen Pantanal wird eine neue Art der Gattung *Brasilocaenis* Puthz 1975 beschrieben. Die Stellung von *B. mendesi* **spec. nov.** innerhalb der Gattung wird diskutiert und diese daraufhin in zwei Gruppen unterteilt.

#### 1. Introduction

Four species of the genus *Brasilocaenis* have been described hitherto from the male genitalia: *B. irmleri* Puthz 1975, *B. puthzi* Malzacher 1986, *B. renata* Malzacher 1986 and *B. septentrionalis* Malzacher 1990. Apart from the very differentiated apomorph male genitalia the species are very similar to those of the genus *Caenis*. Therefore the identity of a further species *B. intermedia* Malzacher 1986 described only from the larvae is doubtful. All species were found in the Amazon rain forests. The first two are very common and widely distributed and also to be found in Venezuela (Orinoco) and in the Mato Grosso/Pantanal region (NOLTE 1997).

I wish to thank Dr. ULRIKE NOLTE for leaving me the material for study.

## 2. Description

*Brasilocaenis mendesi* spec. nov.

## Material

Holotypus ♂ (micro-slide): Brasil: Pantanal, Nova Berlin, 23./24. VI. 94, leg. HAASE (BMNH)<sup>1)</sup>.

Further material (Paratypes): 13 ♂♂ from Nova Berlin, Pantanal, Brasil.

Derivatio nominis: The new species is dedicated to the remembrance of CHICO MENDES.

## Male

Body length: 2.6–3.3 mm; wing length: 2.3–2.5 mm; length of fore leg: 2.1–2.4 mm. Ratio of fore femur : fore tibia = 0.64–0.76; ratio of fore tibia : fore tarsus = 1.06–1.13; ratio of fore leg : hind leg = 1.53–1.64; ratio of first segment of the fore tar-

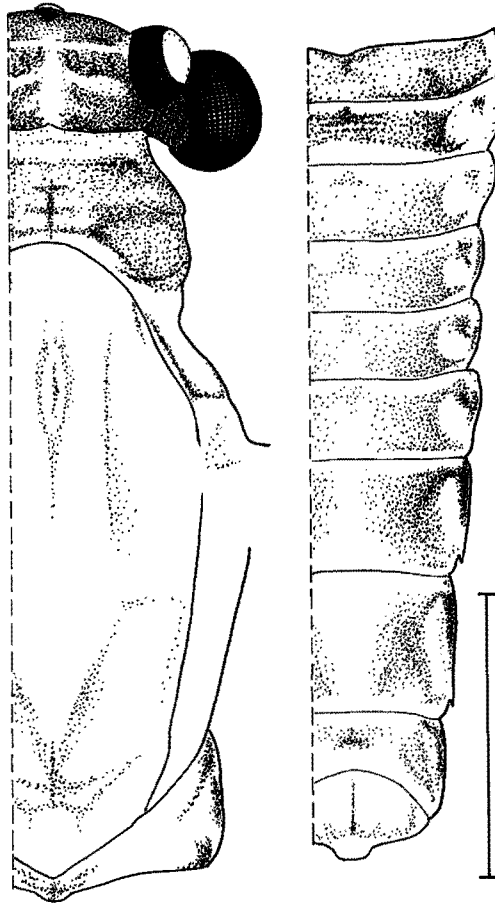


Fig. 1. *Brasilocaenis mendesi* spec. nov.; pattern of the epidermal pigmentation; right half of the body. – Scale bar: 0.5 mm.

<sup>1)</sup> *BMNH* = Natural History Museum London [formerly British Museum (Natural History)].

sus : 2nd : 3rd : 4th : 5th = 1 : 4.2–5.0 : 1.6–2.0 : 1.4–1.8 : 1.2–1.6. Ratio of body length : length of cercus : length of terminal filament = 1 : 2.0 : 2.5. Length of mesonotum about 1.5 times breadth of head.

Coloration of chitinous layers: Very light; thorax light yellowish, other parts white.

Epidermal pigmentation shows an intensive blackish-brown pattern contrasting against the pale ground (fig. 1). There are also pigmentations on the pleura, the coxae and its surrounding, the distal parts of the femora, the median parts of the middle and hind tibiae and, a little lighter, the fore tibiae and tarsi.

Base of the antennal bristle hardly dilated. Prosternal triangle narrow with concave sides and rounded tip. Only segment 7 and 8 of the abdomen with very short lateral filaments (fig. 1).

Genitalia and 9th sternite as in figs. 2a and b. Penis lobes laterally and dorsally protruding; penis broader than the styliiger, penis fold sclerotized. Hind margin of the styliiger with a deep rounded incision. Lateral-sclerites elongated and more or less parallel. Basolateral-sclerites diagonal. Forceps like in fig. 2c, with a long sclerotized tip, in its middle third fused together with the styliiger; without sensillae or trichoma.

Female and larval stages.

Unknown.

### 3. Discussion

In all *Brasilocaenis* species the forceps are strongly attached to the styliiger plate. In *B. mendesi* spec. nov. tongue shaped caudolateral processes of the hind margin of the styliiger look almost like duplications of the forceps tips (fig. 2a) that reinforce the impression of a combined function of both structures. The median parts of the forceps are really fused together with the styliiger margin, although basally a thin gap and something like an articulation with the styliiger is visible (*arrow* in fig. 2c). Such a fusion exists also in *B. septentrionalis* (fig. 3c). This species has still other features in common with *B. mendesi* such as the laterally protruding penis lobes in combination with a structured median part of the penis and the diagonal basolateral sclerites. In the Caenidae this sclerites represent the border of the styliiger with the 9th sternite (MALZACHER 1997). In most of them, especially in the numerous species of *Caenis*, they run diagonal, in the other *Brasilocaenis* species they are parallel and close to the lateral sclerites (fig. 3a and b). This character can therefore be assumed synapomorphic for these species, as well as the fusion of styliiger plate and forceps for the other two.

So the *Brasilocaenis* species known today can be divided into two groups:

- the *irmleri*-group with *B. irmleri*, *B. puthzi* and *B. renata* and
- the *septentrionalis*-group with *B. septentrionalis* and *B. mendesi* spec. nov.

In view of the great similarity of the larvae of *Brasilocaenis*, even with most of the *Caenis* larvae, it is not to be expected that the unknown larvae of the *septentrionalis*-group differ substantially from that of the *irmleri*-group. As beside this the species of both groups differ only slightly (apart from the male genitalia) it seems not justified to consider them as different genera. In this connection there is still the out-

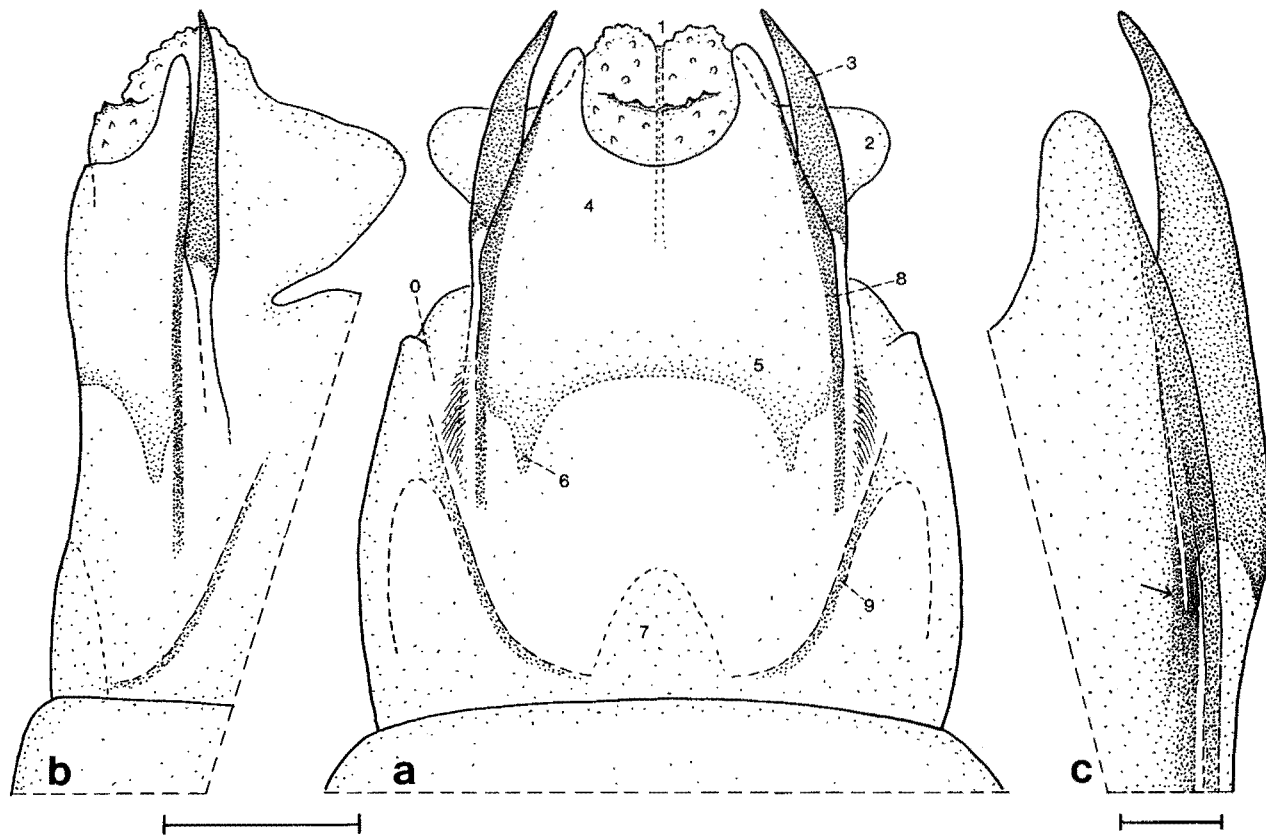


Fig. 2. *Brasilocaenis mendesi* spec. nov.; male. – a. Genitalia, ventral view; – b. genitalia, lateral view; – c. forceps and lateral part of the styliger plate. – Scale bars: a and b 0.1 mm; c 20  $\mu$ m. – *Explications*: 1 = median part of the penis; 2 = penis lobes; 3 = forceps; 4 = styliger plate; 5 = styliger sclerite; 6 = apophyses; 7 = central sclerites; 8 = lateral sclerites; 9 = basolateral sclerites; 0 = paratergites.

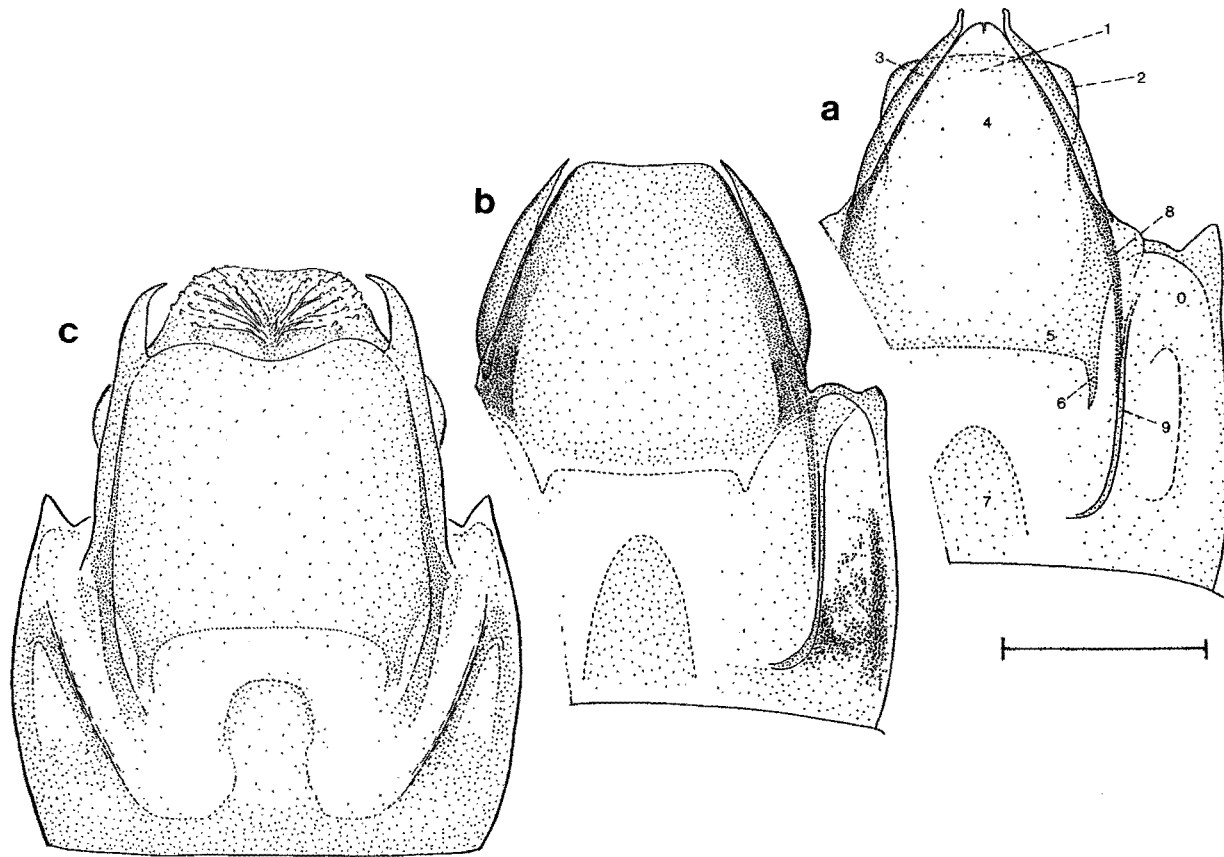


Fig. 3. Male genitalia, ventral view. – a. *Brasilocaenis puthzi*; – b. *Brasilocaenis renata*; – c. *Brasilocaenis septentrionalis*. – Numbers as in fig. 2. – Scale bar: 0.1 mm.

standing question if the *Brasilocaenis* species altogether can be considered as a genus of its own (compare MALZACHER 1990). In consideration of the great similarity of all Caenini this problem will be settled only by a revision of the whole subfamily on the generic level.

#### 4. Literature

- MALZACHER, P. (1986): Caenidae aus dem Amazonasgebiet (Insecta, Ephemeroptera). – *Spixiana* 9 (1): 83–103; München.
- (1990): Neue Arten der Eintagsfliegen-Familie Caenidae (Insecta, Ephemeroptera) aus Südamerika. – *Stud. neotrop. Fauna* 25 (1): 31–39; Lisse.
  - (1997): Relationships in the Caenidae (Insecta: Ephemeroptera). – *In: LANDOLT, P. & M. SARTORI (eds.): Ephemeroptera & Plecoptera. – Biology-Ecology-Systematics 1997: 550–553; Fribourg.*
- NOLTE, U., M. J. DE OLIVEIRA & E. STUR (1997): Seasonal, discharge-driven patterns of mayfly assemblages in an intermittent Neotropical stream. – *Freshwater Biol.* 37: 333–343; Oxford.
- PUTHZ, V. (1975): Eine neue Caenidengattung aus dem Amazonasgebiet (Insecta: Ephemeroptera: Caenidae). – *Amazoniana* 5 (3): 411–415; Kiel.

Author's address:

Dr. PETER MALZACHER, Friedrich-Ebert-Str. 63, D-71638 Ludwigsburg.