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## A new species of *Caenis* (Ephemeroptera: Caenidae) from Colombia

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MOLINERI, Carlos

CONICET, Facultad de Ciencias Naturales, Universidad Nacional de Tucumán, M. Lillo 205, San Miguel de Tucumán (4000), Tucumán, Argentina;  
e-mail: cmolineri@csnat.unt.edu.ar

### Una nueva especie de *Caenis* (Ephemeroptera: Caenidae) de Colombia

■ **RESUMEN.** La nueva especie *Caenis tarapoto* es descrita a partir de imagos machos colectados en la región Amazónica de Colombia. Esta nueva especie se caracteriza por una coloración general castaña oscura, triángulo prosternal aguzado anteriormente, patas anteriores 0.7-0.9 veces la longitud del cuerpo, forceps aguzados en el ápice, esclerito central de la placa estilígera elongado, penes con margen posterior suavemente convexo y con lóbulos peneanos completamente fusionados y proyectados lateralmente.

**PALABRAS CLAVE.** Pannota. *Caenis*. Taxonomía. Forceps aguzados.

■ **ABSTRACT.** The new species *Caenis tarapoto* is described from male imagos collected in the Amazonas region from Colombia. This new species is characterized by a dark brown general coloration, presternal triangle anteriorly pointed, forelegs 0.7-0.9 times length of body, forceps apically pointed, central sclerite of styliger plate elongated, penes with gently convex posterior margin and with lobes of penes completely fused and projected laterally.

**KEY WORDS.** Pannota. *Caenis*. Taxonomy. Pointed-forceps.

### INTRODUCTION

*Caenis* Stephen (Ephemeroptera: Caenidae) is a relatively common and cosmopolitan genus with about 150 species worldwide. Domínguez *et al.* (2006) recognized 18 species in South America and later Molineri and Malzacher (2007) described an additional species. Thus, taking the present description into account, there are 20 species of *Caenis* in South America. Malzacher (2001) recognized two lineages in the Neotropical region: one with strong and apically pointed forceps (five South

American species) and one with weak and apically blunt forceps (14 Neotropical and one African species). Nymphs of *Caenis* prefer muddy substrate in backwaters of streams or the bottom of lakes near the shores. They are also commonly found on the submersed roots of floating vegetation (e.g., *Eichornia*). The extremely large adult emergences constitute a nuisance in some enriched water ecosystems.

The aim of the present work is to describe a new species of the "pointed-forceps" lineage, *Caenis tarapoto* sp. nov., known from adult males collected in the Amazonian region of Colombia.

## MATERIAL AND METHODS

Male genital structures were mounted in Canada Balsam and drawn with a camera-lucida under magnification. Scanning electron microscope (SEM) photographs were obtained with a JEOL 35CF SEM at 25 kV. The studied structures were dehydrated in a graded ethanol series, dried by critical point-method (using CO<sub>2</sub> in a Bomar apparatus), mounted with double-sided tape on SEM stubs, and sputter coated with gold.

Terminology follows Malzacher (1991). Depositories are abbreviated as follows: IML, Instituto Miguel Lillo (Tucumán, Argentina); MEUV, Museo de Entomología de la Universidad del Valle (Cali, Colombia); FAMU, Florida A&M University (Tallahassee, USA).

## RESULTS

### *Caenis tarapoto* sp. nov. (Figs. 1-9)

**Diagnosis.** *Caenis tarapoto* can be distinguished from the other species of South American *Caenis* by the following combination of characters. In the imago: 1) general coloration dark brown; 2) presternal triangle anteriorly pointed but with truncated appearance because of a surrounding marginal sclerotization (Fig. 7); 3) median filament on abdominal tergum II absent; 4) forelegs 0.7-0.9 times length of body; 5) forceps apically pointed (Figs. 3-4, 9); 6) central sclerite of styliger plate elongated (Fig. 2, 8); and 7) penes with gently convex posterior margin, lobes completely fused and projected laterally (Figs. 2, 5-6, 8).

**Description.** Male imago. Length: body, 2.1-2.5 mm; forewings, 1.8-2.0 mm. General coloration dark brown.

Head. Yellowish brown shaded with gray on a transversal band along hind margin; ventrally paler except for blackish prementum. Antennae (Fig. 1): light brown scape and pedicel, flagellum hyaline.

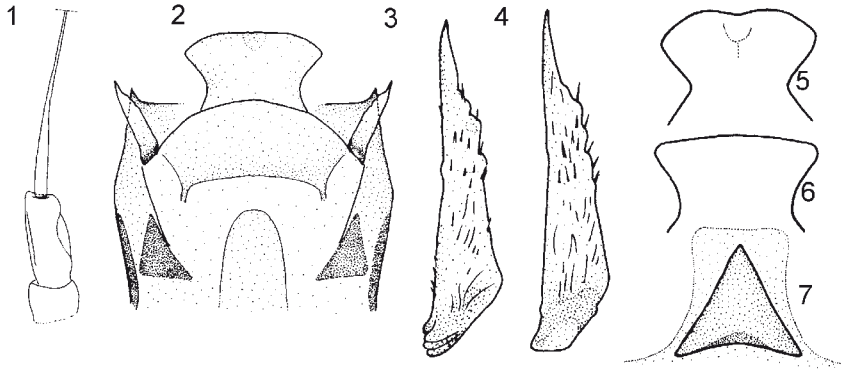
Thorax. Pronotum with brownish sclerites, shaded entirely with black (except for a pair of submedian marks), brownish propleura and sternum with whitish membranes, presternal triangle closed and broadly sclerotized anteriorly (Fig. 7). Mesonotum is brownish with margins and carinae shaded with black; mesoscutellum dark brown and medially whitish; yellowish brown mesopleuron and sternum, yellowish membranes; dark brown markings present on carinae around mesocoxal cavity and on median zone of mesosternum. Brownish metathorax, ventrally paler with a mediolongitudinal grayish line. Hyaline wing membrane, slightly shaded brown on C and Sc areas; brownish shaded longitudinal veins turning lighter posteriorly. Yellowish legs except for foretibiae and foretarsi, which are whitish with small yellowish marks at joinings; femora of all legs with a subapical grayish band. Length of forelegs subequal to wing length.

Abdomen. Terga almost completely tinged with grayish brown, except lighter paramedian marks on terga III-VII and large, lighter, lateral suboval marks on terga III-VIII (larger on VI-VIII); terga covered with very small unpigmented whitish dots. Pleural membranes with blackish elongated marks (larger on VII). Abdominal sterna paler, darkening laterally.

Genitalia (Figs. 2-6, 8-9): sternum IX with blackish laterobasal triangular marks, styliger sclerite elongated, brownish (Fig. 2); translucent brownish forceps and styliger; translucent whitish penes; forceps apically pointed (Figs. 3-4, 9); penes variable in form (Figs. 2, 5-6, 8) with well developed lateral lobes. Caudal filaments translucent whitish, except for yellowish basal segment.

**Etymology.** The name, noun in apposition, alludes to the name of the lake where the specimens were collected.

**Type material.** Holotype male imago from COLOMBIA: Dpto. Amazonas, Puerto Nariño, Lago Tarapoto, 93 m, S 03° 47' 47"-W 70° 25' 17", 4-II-1999, M.C. Zúñiga, E. Domínguez & C. Molineri cols (MEUV).



**Figs. 1-7.** *Caenis tarapoto*, male imago. 1, antenna (abbreviated by a cross line); 2, genitalia, ventral view; 3-4, details of forceps, ventral view; 5-6, details of penes, ventral view; 7, presternal triangle.

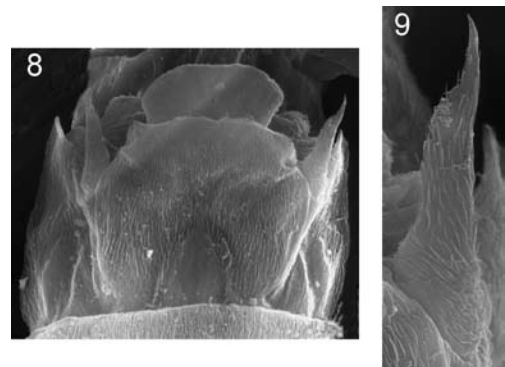
Paratypes: 27 male imagos, same data as holotype (5 paratypes MEUV, 3 paratypes FAMU, 19 paratypes IML).

**Distribution and habitat.** Colombia (Amazonas). The specimens were collected at 17 h while swarming at 3 m above water level in the high water season of the Amazonas floodplain. Individual males performed the usual flight-pattern with up and down movements.

**Discussion.** *Caenis tarapoto* clearly belongs to the lineage with pointed forceps tips (Malzacher, 2001). This lineage is presently composed by five species: *C. cuniana* Froehlich, *C. fittkaui* Malzacher, *C. candelata* Malzacher, *C. pseudamica* Malzacher, and *C. burmeisteri* Malzacher. From these species, *C. burmeisteri* shows close affinities with the new species described here, both sharing very similar male genitalia; though easily distinguished because *C. tarapoto* presents: 1) a smaller size (body 2.1-2.5 mm) whereas *C. burmeisteri* is 2.8-3.5 mm; 2) a darker coloration (dark brown) instead of yellowish brown; and 3) presternal triangle anteriorly pointed (same in *C. burmeisteri*) but with truncated appearance because of a surrounding marginal sclerotization (Fig. 7).

#### ACKNOWLEDGEMENTS

I am indebted to María del Carmen Zúñiga, Eduardo Domínguez and Santiago



**Figs. 8-9.** *Caenis tarapoto*, male imago, SEM. 8, genitalia, ventral view; 9, detail of forceps, ventral view.

Duque for field arrangements and help during this study. Jan Peters contributed with useful comments. The author belongs to the National Council of Scientific Research of Argentina, whose support is greatly acknowledged. Financial support from PICT 0351 and 0528, and PIP 1484.

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