

## A new species of *Guajiroolus* (Ephemeroptera: Baetidae) from Argentina and description of a new genus from Bolivia

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### Abstract

*Guajiroolus queremba* sp. n. (Ephemeroptera: Baetidae) from Argentina, is described and illustrated from nymphs and a female subimago. A key to separate the nymphs of the species of the genus is included.

A new genus and species of Baetidae, *Chane baure*, is described based on nymphs and adults collected in Bolivia. The nymphs present very unusual mouthparts.

**Keywords:** Baetidae, *Guajiroolus*, *Chane*, Bolivia, Argentina.

### Introduction

The genus *Guajiroolus* was established in 1985 by R.W. Flowers. It included *G. ektrapeloglossa* based on nymphs and adults from Colombia and Panama, and in the same paper Flowers indicated that Roback's (1966) "Genus 3nr. *Pseudocloeon* Klapalek" belonged to *Guajiroolus*. Later, Lugo-Ortiz and McCafferty (1995) described *G. nanus* from Costa Rica. This genus was characterized for: 1) second segment of labial palpi greatly enlarged mesally, 2) dorsal surface of glossae with large spine-like setae, 3) labrum with a row of spines on ventral surface at anterior margin, 4) tarsal claws with subapical tooth larger than others, 5) strong internal projection on the second segment of the genital forceps, and a small projection between them.

I describe here a new species of *Guajiroolus* based on nymphs and a female subimago from Salta and Tucuman provinces (NW Argentina). A key to separate the nymphs of the three species of the genus is included.

A new genus related to *Guajiroolus* is established from Rio Blanco, SE Bolivia, based on nymphs and imagoes of both sexes.

### *Guajiroolus queremba* sp. n.

**Female subimago.** Length: body: 4.0-4.2 mm; fore wings (Fig. 1A): 4.6-4.8 mm. Head yellowish white, antennae yellowish white, eyes black. Thorax yellowish brown. Pronotum yellowish grey with posterior margin brownish. Mesothorax yellowish brown with two grey spots on the anterior angles, mesoscutellum yellowish. Metascutellum yellowish. Pleuras yellowish brown. Sterna yellowish. Legs pale yellowish. Fore wings translucent, with paired marginal intercalaries; hind wing absent. Abdomen yellowish grey with posterior margin brownish. Cerci yellowish.

**Mature nymph.** Length: body 4.8-5.0 mm; cerci 2.1-2.2 mm; terminal filament 1.6-1.7 mm. Head orange brown, compound eyes brown. Antennae yellowish. Mouthparts: Labrum (Fig. 1B) with numerous long, fine setae dorsally, a row of 16-17 spines on ventral surface at anterior margin, and upper surface depressed along midline. Mandibles (Figs. 1C, D) outer margin bent in apical third, tuft of setae between prostheca and mola. Maxillae (Fig. 1E) with four large spine-like teeth, apex of galea-lacinia with two spine like setae and a row of long setae; galea-lacinia subequal to stipe; palp 3 segmented,

first and second segments subequal, third 0.5 longer than the others. Hypopharynx (Fig. 1F) lingua has three anterior round processes or lobes. Labium (Fig. 1G) with glossae and paraglossae longer than wide; ventral surface of paraglossae

with long and fine setae and glossae with short and fine setae; dorsal surface of glossae with large spine-like setae; second segment of palpi greatly projected anteriorly. Thorax yellowish brown. Pro, meso and metathorax with a median yellow band.

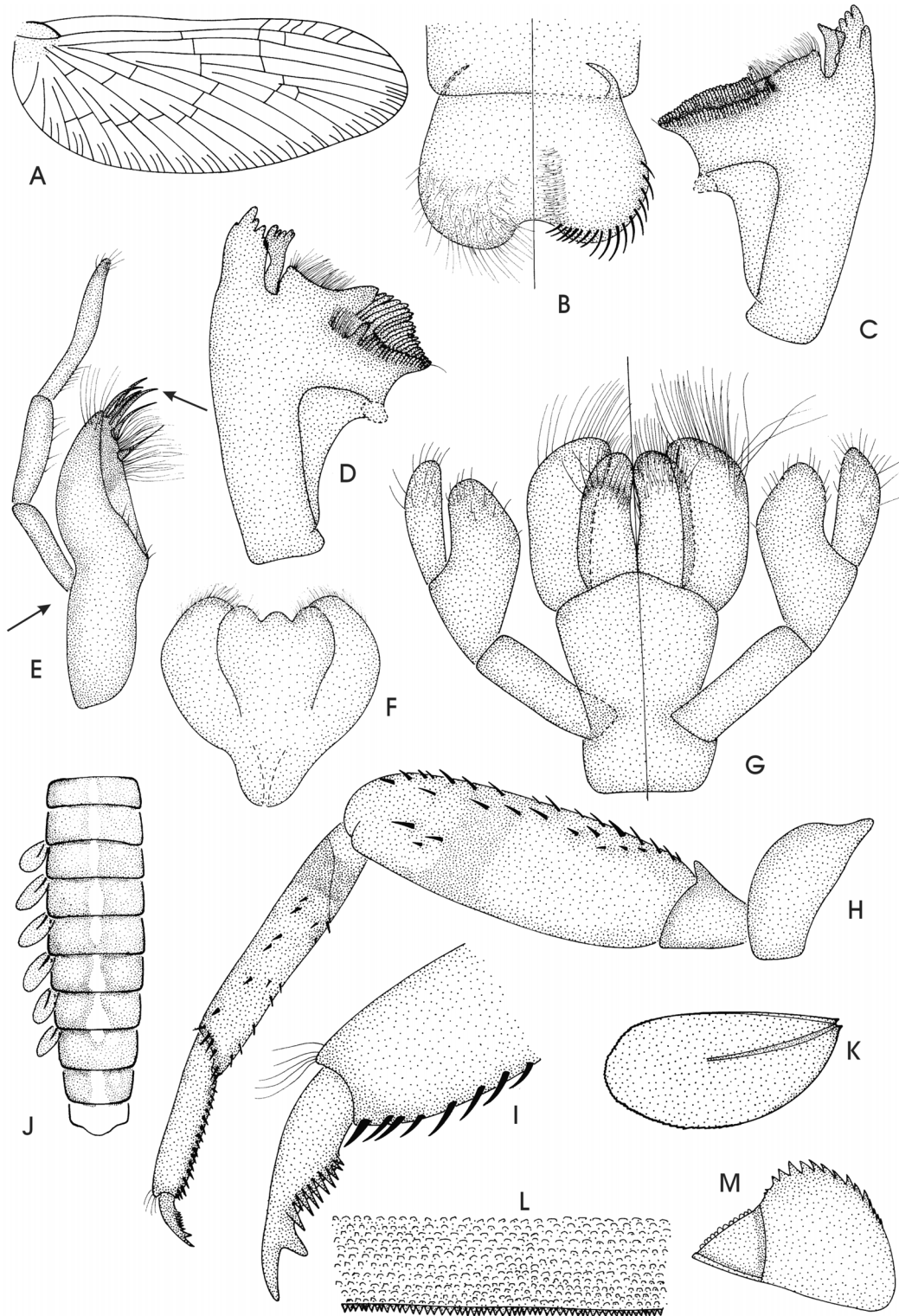


Fig. 1 (A-M) – *Guajirolus queremba* sp. n. A: fore wing, female subimago, marginal setae omitted. (B-M,) nymph. Mouthparts: B, labrum, right v.v., left d.v.; C, right mandible, d.v.; D, left mandible, d.v.; E, maxilla, v.v.; F, hypopharynx, v.v.; G, labium, right v.v., left d.v. Leg: H, fore leg, v.v.; I, tarsal claw detail, v.v. J, abdomen, d.v. K, gill IV d.v. L, posterior margin of tergum IV d.v. M, paraprocts d.v.

Pleura brownish yellow, dark lines preceding and above leg bases. Sterna yellowish. Legs yellowish, femora with a light brown band on apical third, fore femur (Fig. 1H) with two rows of short spines on dorsal edge, middle and hind femora with a single row of short spines; tibiae with a light brown band on basal third; tarsi yellowish brown. Claws (Fig. 1I) with 9-10 denticles, subapical and apical larger than the others. Hind wing pads absent. Abdomen (Fig. 1J) yellowish brown, terga with median yellow bands which sometimes do not reach posterior margin. Tergum 10 yellowish. Tergal hind margin with broad denticles (Fig. 1L). Sterna yellowish. Gills (Fig. 1K) whitish, on segments 2-7 only. Paraprocts with organized spination (Fig. 1M). Caudal filaments yellowish with distinct brownish medial and apical bands.

**Material.** Holotype: mature (male) nymph: Argentina: Tucumán, Alberdi, Rio Marapa, 16/ XII/ 1998, C. Molineri col. Paratypes: 3 (female) and 3 (male) nymphs, 1 (female) subimago; Salta, 10 km N Oran, R. Blanco (en finca), 23/ XII/ 1997, C. Molineri col. The holotype and the paratypes are deposited at Instituto de Entomología, Facultad de Ciencias Naturales, Universidad Nacional de Tucumán.

**Etymology.** Queremba: guarani word that means chief of war. Language of the "chiriguano", a tribu that inhabited where this species was collected.

**Discussion.** *G. queremba* n. sp., is distinguished from the other species of *Guajirolo* by the following combination of characters: 1) femora with a brown band on apical third (Fig. 1H); 2) paraprocts with organized spination (Fig. 1M); 3) lingua with three anterior round processes or lobes (Fig. 1F); 4) posterior margins of terga with broad denticles (Fig. 1L).

#### Key to the nymphs of *Guajirolo*

- 1a-Paraprocts with unorganized spination [Flowers (1985): Fig. 13], lingua with a small and pointed process [Flowers (1985): Fig. 8] . . . . .  
 . . . . . *G. ektrapeloglossa*  
 1b-Paraprocts with organized spination (Fig. 1M), lingua with three anterior round processes (Fig. 1F) . . . . . 2  
 2a-Mandibles with minute spicules on lateral margins [Lugo-Ortiz and McCafferty (1995): Figs. 2-3], femora with two broad brown bands [Lugo-

Ortiz and McCafferty (1995): Fig. 7], size of body of 3-4 mm . . . . . *G. nanus*

2b-Mandibles without spicules on lateral margins (Fig. 1C, D), femora with only one broad brown band (Fig. 1H), size of body of 4.8-5.0 mm. . . . . *G. queremba*

#### *Chane* new genus

**Imago.** Length of male (Fig. 2A): body, 3.8-4.0 mm; fore wings, 4.0-4.2 mm. Length of female: body, 4.1-4.3 mm; fore wings (Fig. 2B), 4.3-4.4 mm. Turbinate eyes of male oval; height of stalk  $\frac{1}{2}$  eye diameter. Leg I of male with tibia twice length of femur, tarsi  $\frac{2}{3}$  length of tibia; tarsi with 4 segments decreasing in length distally. Legs II and III with tibiae twice as long as femora; tarsi  $\frac{1}{4}$  as long as tibiae. Fore wing with paired marginal intercalaries; hind wing lacking. Metanotum with metascutellar hump as in Fig. 2, A. Male genitalia (Fig. 2C) with internal projection of the second segment of the forceps.

**Mature nymph** (Fig. 2D). Length of body 3.8-4.5 mm. Cerci  $\frac{1}{2}$  length of body; terminal filament  $\frac{1}{2}$  length of cerci. Mouthparts: Labrum (Fig. 3A) with a wide U shaped indentation on anterior margin, numerous long fine setae dorsally and a row of long spines on ventral surface at anterior margin. Mandibles (Fig. 3B, C) outer margin bent in apical third, and a row of short, fine and simple setae between prosthecae and molae. Hypopharynx (Fig. 3D) with medial process of lingua. Maxillae (Fig. 3E, F) with four large spine-like teeth; 2 spine-like setae and a row of long setae on galea-lacinia, galea with a tuft of long and fine setae on ventral side and a row of 6-7 long and strong setae on dorsal side (Fig. 3F); galea-lacinia at least two time length of stipe; palp 2 segmented, segment I  $\frac{2}{5}$  length of segment II. Segment II with two rows of extremely long, fine and simple spine-like setae on dorsal side. Labium (Fig. 3G) with segments II and III of palpi extremely elongated anteriorly and dorsal surface with two rows of very long, fine and simple spine like setae, dorsal surface of glossae with short and fine setae, dorsal surface of paraglossae with long and fine setae.

Leg I (Fig. 3H) longer and wider than leg II and III. Femora with short spines on dorsal edge, and a few little spines on ventral edge. Tarsal claws (Fig. 3I) with a row of small denticles, subapical and apical larger than the others. Abdomen (Fig. 3J) with gills on segments 2-7. Gills (Fig. 3K) with serrate margins. Tergal hind margins with small denticles along midline (Fig.

3L). Paraprocts as in Fig. 3M. Cerci with a fringe of long fine setae on inner margin. Terminal filament with long fine setae laterally.

**Etymology.** Chané: word that belongs to the arawak linguistic family. Name of a culture that

inhabited in the east of Bolivia, where this genus was found.

**Distribution.** Eastern Bolivia

**Type-species:** *Chane baure*, new species.

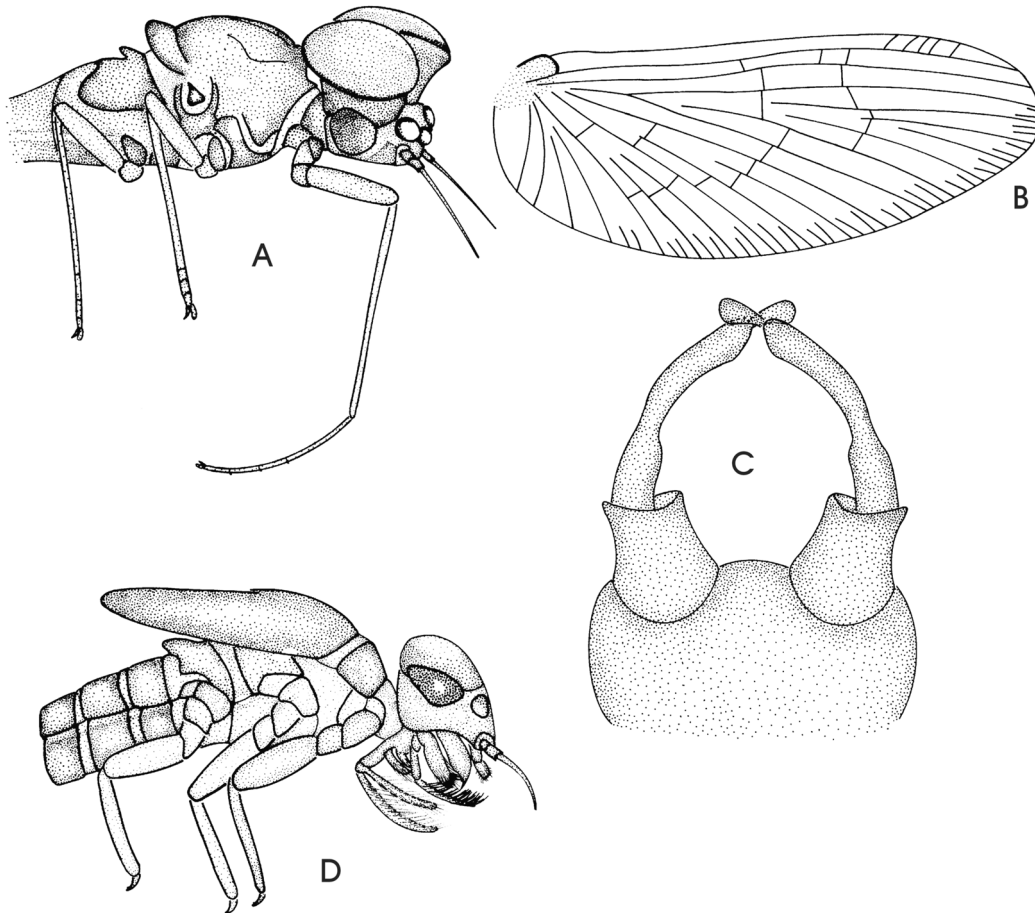


Fig. 2 (A-D) - *Chane baure* sp. n. A-C, male imago. A, male imago, lateral view; B, fore wing; C, male genitalia, v.v. D, male nymph, lateral view.

***Chane baure* sp. n.**

**Male imago.** Length 3.6-3.8 mm. Head orange brown, antennae yellowish brown. Eyes: dorsal portion of turbinate eyes brownish, margin dark brown, ventral portion black, stalk of turbinate eyes dark brown, bases of ocelli black. Thorax orange-brown. Mesoscutellum dark brown, metascutellum black, pleurae orange-brown, dark lines anterior and above leg bases. Pro, meso and metasterna orange-brown. Legs pale yellow. Wings hyaline, costal and subcostal spaces of fore wing translucent. Abdomen brownish. Genitalia yellowish brown. Cerci pale yellow.

**Female imago.** Length, 4.1-4.2 mm. Head yellowish brown, eyes black. Thorax yellowish

brown. Abdomen yellowish brown with lateral tracheal trunks dark brown.

**Mature nymph.** Length: body 3.8-3.9 mm; cerci 1.8-1.9 mm; terminal filament 1.0-1.1 mm. Head yellowish. Eyes: compound eyes dark brown, ocelli black. Antennae yellowish white. Thorax yellowish brown; anterior margin of pronotum and mesonotum brownish. Wing pads yellowish brown. Metanotum brownish with a median yellow band. Legs yellowish, tarsal claws yellowish brown. Abdomen pale brown. Anterior margin of terga dark brownish. Tergal hind margins with small denticles along midline (Fig. 3, L). Sterna yellowish white. Gills whitish. Paraprocts as in Fig. 3, M. Caudal filaments yellowish brown.

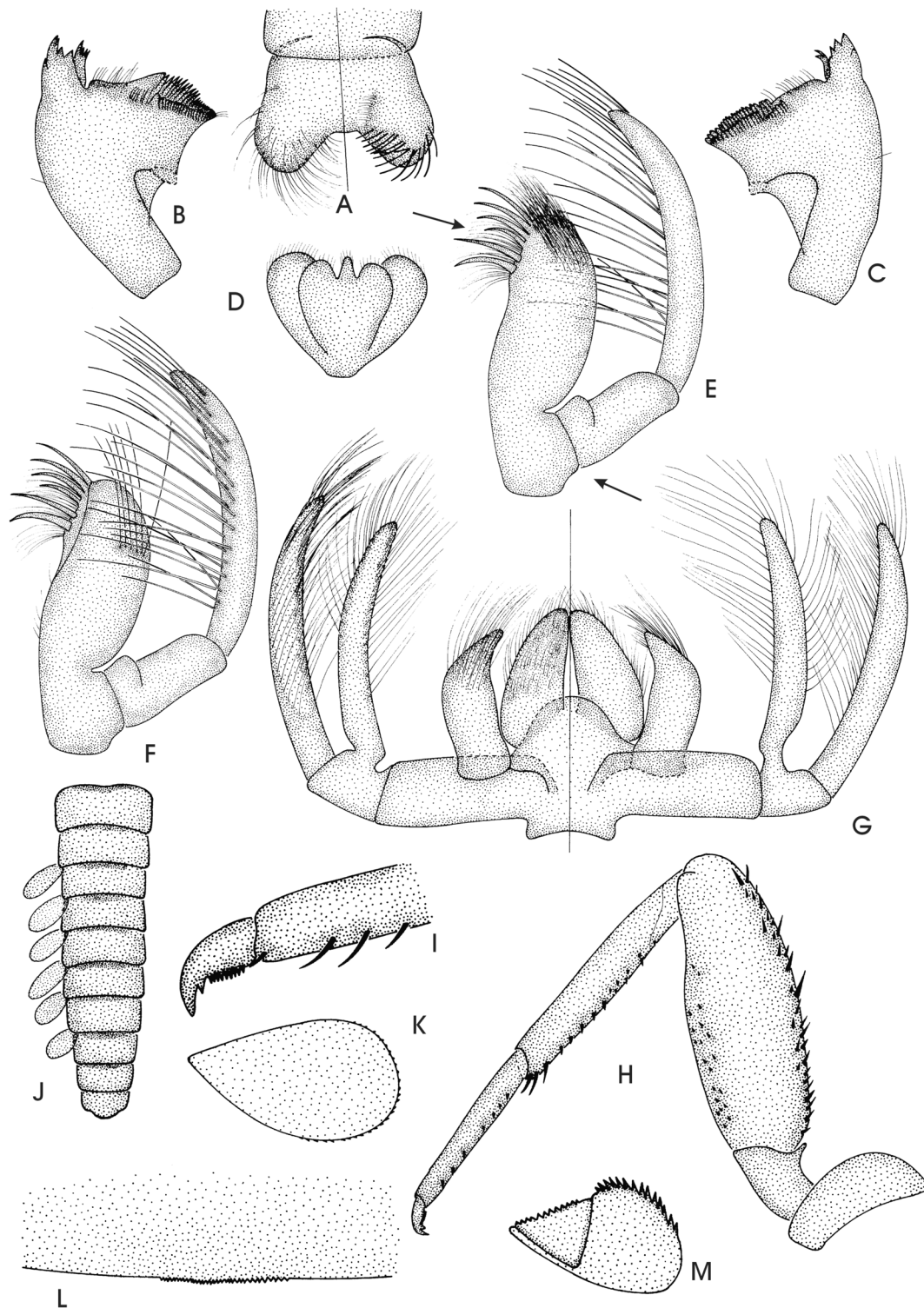


Fig. 3 (A-M) - *Chane baure* sp. n., nymph. Mouthparts: A, labrum, left d.v., right v.v.; B, left mandible, d.v.; C, right mandible, d.v.; D, hypopharynx, v.v.; E, maxilla, v.v.; F, maxilla, d.v.; G, labium, right v.v., left d.v. Legs: H, fore leg, v.v.; I, tarsal claw detail, v.v. J, abdomen, d.v. K, gill IV, d.v. L, posterior margin of tergum IV, d.v. M, paraproct, d.v.

**Material.** Holotype: mature (male) nymph: Bolivia, near of 11%, road between Sta. Cruz and Trinidad, R. Blanco, S 15° 21' 39'', W 63° 17' 28'', 250 m. 14/ 06/ 2000, E. Domínguez col. Paratypes: 5 males and 7 females nymphs, 60

males and 3 females imagoes; same locality and collector. The holotype and 36 paratypes: 30 males and 1 female imagoes, 2 males and 3 females nymphs are deposited at Instituto de Ecología, Unidad de Limnología, Universidad

Mayor de San Andrés, La Paz, Bolivia. 39 paratypes are deposited at Instituto de Entomología, Facultad de Ciencias Naturales, Universidad Nacional de Tucumán.

**Etymology.** Baure: word that belongs to the Arawak linguistic family. Baure was a tribe of the Chane's culture that inhabited on the banks of the Blanco's river where this species was found.

### Discussion

This new genus can be easily distinguished from other genera of Baetidae by the shape of labium (Fig. 3G) specially the labial palpi with segments II extremely enlarged anteriorly and dorsal surface with two rows of very long, fine and simple setae; and the form of maxilla (Fig. 3E-F) with galea-lacinia at least two time length of stipe and segment II of the palp with two rows of simple and extremely long and fine setae.

The adults of this genus are less distinctive. However the genitalia (Fig. 2C) with the internal projection of the second segment of the forceps, the color patterns, and the lack of hind wings allows its differentiation.

This new genus present some similarities with *Guajirolus*, specially the labrum (Fig. 3A) with a row of spines on ventral surface, the tarsal claws (Fig. 3I) with subapical and apical denticles larger than the others, and in the case of the adults the shape of the forceps. Nevertheless, I decided that a new genus should be established for this new species. *Guajirolus* is distributed from Costa Rica to NW of Argentina, maintaining the stability of the generic characters in the three known species while in the case of *Chane baure* it doesn't happen. This new species doesn't have large spine-like setae on dorsal surface of glossae; the subapical denticles in the claw is smaller, and the internal projection of the forceps is weaker.

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### References

Flowers R.W., 1985. *Guajirolus*, a new genus of Neotropical Baetidae (Ephemeroptera). Stud. Neotrop. Faun. Env. 20: 27-31.

Lugo-Ortiz C.R., McCafferty W.P., 1995. *Guajirolus nanus* (Ephemeroptera: Baetidae), a new species from Costa Rica. Ent. News 106(2): 68-70.

Roback S.S., 1966. The Catherwood Foundation Peruvian-Amazon expedition. Part VI. Ephemeroptera nymphs. Acad. Nat. Sci. Phila. 14: 129-199.