

GUAJIROLUS NANUS (EPHEMEROPTERA: BAETIDAE), A NEW SPECIES FROM COSTA RICA¹

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ABSTRACT: *Guajirolos nanus* (Ephemeroptera: Baetidae) is newly described from Costa Rica and the range of the genus is slightly extended northward. The species is compared to the only other nominal species in the genus, *G. ektrapeloglossa*. It is distinguished by possessing lateral spicules on the mandibles; a large, round medial process on the lingua; basal and subapical lateral brown bands on the femora; a basal broad brown band on the tibiae; and paraprocts with numerous, uniformly arranged marginal spines. A key to separate the larvae of *G. ektrapeloglossa* and *G. nanus* is provided.

Roback (1966) described and illustrated the larva of a distinct small minnow mayfly (Ephemeroptera: Baetidae) from Peru and provisionally designated it "Genus 3 nr. *Pseudocloeon* Klapálek." Later, Flowers (1985) erected the genus *Guajirolos* to include *G. ektrapeloglossa* Flowers, a species described from Colombia and Panama, and indicated that Roback's "Genus 3 nr. *Pseudocloeon* Klapálek" clearly belonged to *Guajirolos*. Flowers (1985), however, did not assign a formal name to Roback's material because Roback's only two specimens available did not allow an adequate morphological assessment.).

In our inventory of the Ephemeroptera fauna of Central America, we discovered that a new species of *Guajirolos* had been collected from Costa Rica by the second author in 1969. We provide a description and diagnosis of this species below. The material upon which this study is based is housed in the Purdue Entomological Research Collection (PERC), West Lafayette, Indiana, and the United States National Museum (USNM), Washington, D. C.

***Guajirolos nanus* Lugo-Ortiz and McCafferty, NEW SPECIES**

Larva. Body length: 3.0-4.0 mm; caudal filaments: 1.5-1.75 mm. Head: Coloration yellow-brown, with no distinct pattern. Antennae pale, almost half body length. Labrum (Fig. 1) with deep anteromedial emargination, numerous long, fine simple setae dorsally, and row of 15-18 submarginal simple setae ventrally (becoming longer laterally). Right mandible (Fig. 2) 2 + 3 denticles, distal set with distal denticle reduced and situated somewhat laterad, basal denticle very long, basal set with three similarly small denticles; prosthema stout, deeply recessed into mandible; tuft of simple setae between prosthema and molars; short, simple setae distally on molar; numerous minute spicules on surface, most conspicuous on lateral margin. Left mandible (Fig. 3) similar to right mandible, except with thumblike process at base of molar. Maxillae (Fig. 4) elongate; distal denticles elongate; basal setae 1 + 4-5; palps 3-segmented, all segments subequal, extending beyond galealacinia, with scattered fine, simple setae. Labium (Fig. 5) with paraglossae slightly

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longer than glossae, both slightly longer than wide; paraglossae with three apical rows of fine, simple setae; glossae with numerous fine, simple setae and three horizontal series of relatively long, simple setae; series 1 with row of 12-14 simple setae; series 2 with two to three simple setae; series 3 with single subapical simple seta; palps 3-segmented, subequal in length; segment 1 cylindrical and bare; segment 2 laterally expanded anteromedially, with many fine, long, simple setae distally; segment 3 digitate, with many fine, long, simple setae on surface, and apical patch of fine, hooked, simple setae on inner margin. Hypopharynx (Fig. 6) with lingua 3-pointed, with fine, simple setae distally; superlinguae with row of very small, stout, simple setae laterally. Thorax: Nota yellow-brown, with light median stripe. Sterna yellow-brown. Hindwingpads absent. Legs (Fig. 7) slender; forefemora broadened medially, with two rows of 12-14 small, simple setae dorsally, and two poorly defined brownish bands; middle and hindfemora parallel sided, coloration similar to forefemora, with 14-17 very small, simple setae dorsally; fore- and midtibiae with sparse, almost imperceptible simple setae ventrally; hindtibiae with 14-16 very small, simple setae ventrally; tarsi with 14-16 very small, simple setae ventrally; tarsal claws with 11-14 denticles, distal two larger than others. Abdomen: Color yellow-brown, with poorly defined light medial longitudinal stripe on terga 1-9, and tergum 10 pale. Tergal surfaces with numerous angulate scale bases; posterior margin with numerous short, sharp spines. Sternal surfaces with fine spines on posterior margin. Segments 6-7 with posterolateral spines at gill bases. Paraprocts (Fig. 8) with 20-22 marginal spines. Cerci with distinct brownish medial and subapical bands; terminal filament near .75x length of cerci.

Adult. Unknown.

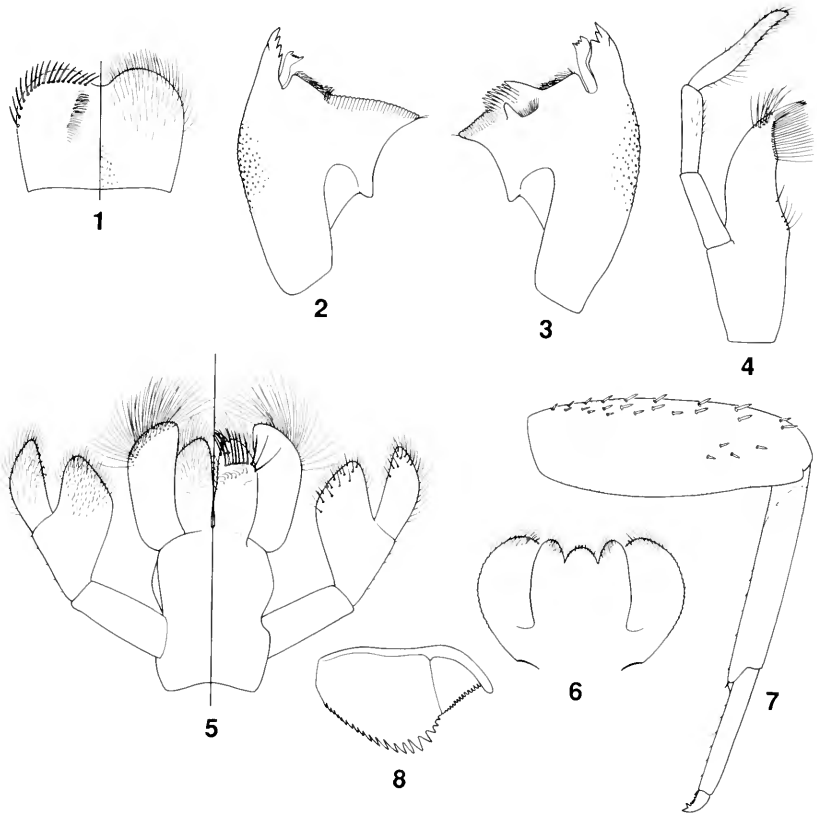
Material. Holotype: Male larva, COSTA RICA, Puntarenas Prov., Peninsula de Osa, Río Rincón at end of Playa Blanco Rd, III-3-1969, W. P. McCafferty, deposited in PERC. Paratypes: Two female and two male larvae, same data and deposition as holotype, except one male larva in the USNM.

Etymology. The specific epithet is a Latin word meaning small. It is thus an allusion to the small size of the species.

Diagnosis. *Guajirolus nanus* is similar to *G. ektrapeloglossa*. The two species differ in several regards, however. First, the mandibles of *G. nanus* (Figs. 2-3) possess minute spicules on the lateral margins, whereas in *G. ektrapeloglossa* those spicules appear to be absent [Flowers (1985): Figs. 6-7]. Secondly, the lingua of *G. nanus* (Fig. 6) has a relatively large, round medial process, whereas in *G. ektrapeloglossa* that process is small and pointed [Flowers (1985): Fig. 8]. Thirdly, the femora of *G. nanus* have broad brown bands basally and subapically, and the tibiae have a broad brown band basally (Fig. 7); *G. ektrapeloglossa* only has a broad brown subapical band on the femora [Flowers (1985): Fig. 13]. Finally, the paraprocts of *G. nanus* (Fig. 8) have numerous small marginal spines arranged in a more orderly manner than in *G. ektrapeloglossa* [Flowers (1985): Fig. 17].

Key to the Larvae of *Guajirolus*

1. Femora with broad brown subapical band [Flowers (1985): Fig. 13]; paraprocts with unorganized spination [Flowers (1985): Fig. 17] *ektrapeloglossa*
- Femora with broad brown basal and subapical bands (Fig. 7); paraprocts with organized spination (Fig. 8) *nanus*



Figures 1-8. *Guajirolus nanus* larva: 1. Labrum (left-ventral; right-dorsal). 2. Right mandible. 3. Left mandible. 4. Right maxilla. 5. Labium (left-ventral; right-dorsal). 6. Hypopharynx. 7. Left foreleg. 8. Paraproct.

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