

**PLAUDITUS TEXANUS (EPHEMEROPTERA:
BAETIDAE), A NEW SMALL MINNOW MAYFLY
FROM TEXAS¹**

N. A. Wiersema²

ABSTRACT: *Plauditus texanus*, n.sp., is described from larvae and male and female adults collected from the Hill Country Region of central Texas. The long terminal segments of the forceps and coloration of the male adult distinguishes this species from all others in North America. The sexually dimorphic male and female larvae of this species resemble those of *P. dubius* and *P. virilis*.

The small minnow mayfly genus *Plauditus* was recently established by Lugo-Ortiz and McCafferty (1998) for a small group of poorly known Nearctic species. Below is a description of an undescribed species of *Plauditus* recently discovered in Texas.

***Plauditus texanus* NEW SPECIES**

(Figs. 1-9)

Larva. Body length: 4.5-6.0 mm, cerci 2.5-3.4 mm. Head: Head capsule with median rows of short, nearly transverse dashes on each side of medial trunk of epicranial suture. Labrum as in Figure 1. Maxillae with 2-3 crest setae; palpi two segmented and extending slightly beyond galealacinal crest, segment 1 subequal to segment 2. Left mandibular incisors as in Figure 3. Right mandibular incisors as in Figure 2. Segment 3 of labial palpi (Fig. 4) slightly broadened apically, with slight distolateral point and weakly concave distal margin; segment 2 with 3 dorsal setae. Thorax: Nota of male larva pale with extensive dark markings; nota of female larva mostly pale, with few brown markings. Legs poorly marked, femora with submedial band of faint brown pigment; tibia and tarsi darkened basally. Femora (Fig. 5) with dorsal row of 24-30 relatively short to long, sharp bristle-like setae; short, robust, sharp and spatulate setae adjacent to ventral margin. Tibiae with sparse ventral setae; tarsi with many long, stout setae ventrally. Tarsal claws (Fig. 6) relatively short and with 10-12 denticles, basal two small. Abdomen: Tergal patterning of mature male larva variable, but usually with terga 1-2 and 5-7 mostly dark blue-brown with pale areas; terga of female larva uniform light yellow-green to olive-green with pale submedial and sublateral spots. Tergum 2 with or without dark red subdermal marking medially. All terga with paired, submedial brown spots. Posterior marginal spines of middle and posterior terga small and triangular with rounded apices. Sterna 5-9 with paired submedial brown spots adjacent to anterior and posterior margins. Gills elongate and nearly symmetrical [length to width ratio 2.0-2.3]. Median caudal filament 2-3 segmented and subequal to mid-dorsal length of tergum 10. Cerci with band of darkened segments distal of midlength.

Male adult. Body length: 4.5-5.4 mm, forewings 4.5-5.0 mm. Head: Light brown in color; ocelli encircled in black basally. Antennae pale. Turbinate eyes round, on high stalks, slightly separated medially and slightly divergent; upper portions bright yellow, with green tinge (in life); lower stalks slightly darkened with light brown. Thorax: Nota and sterna medi-

¹ Received December 20, 1998. Accepted June 2, 1999.

² 4857 Briarabend, Houston, TX 77035.

um brown, light brown to yellow brown adjacent to sutures and membranous areas. Anterior process of mesoscutum moderately developed (Fig. 7). Forewings with relatively long marginal intercalaries. Legs white to pale yellow. Abdomen: Segment 1 light brown anteriorly; segments 2-6 semi-translucent with yellow-olive overshadowing; segments 7-10 opaque. Terga 2-6 unmarked; terga 7-10 light brown to medium brown; sterna paler. Genitalia (Fig. 8) with very long terminal forcep segments; forceps segment 3 subdistally expanded and strongly constricted between segment 2 and 3; basal forceps segment nearly cylindrical, poorly developed anteromedially and with strongly sclerotized, subquadrate process between them. Cerci white.

Female adult. Body lengths: 4.0-5.2 mm, forewings 4.0-4.6 mm. Entire body light olive-yellow in color. Legs and caudal filaments pale.

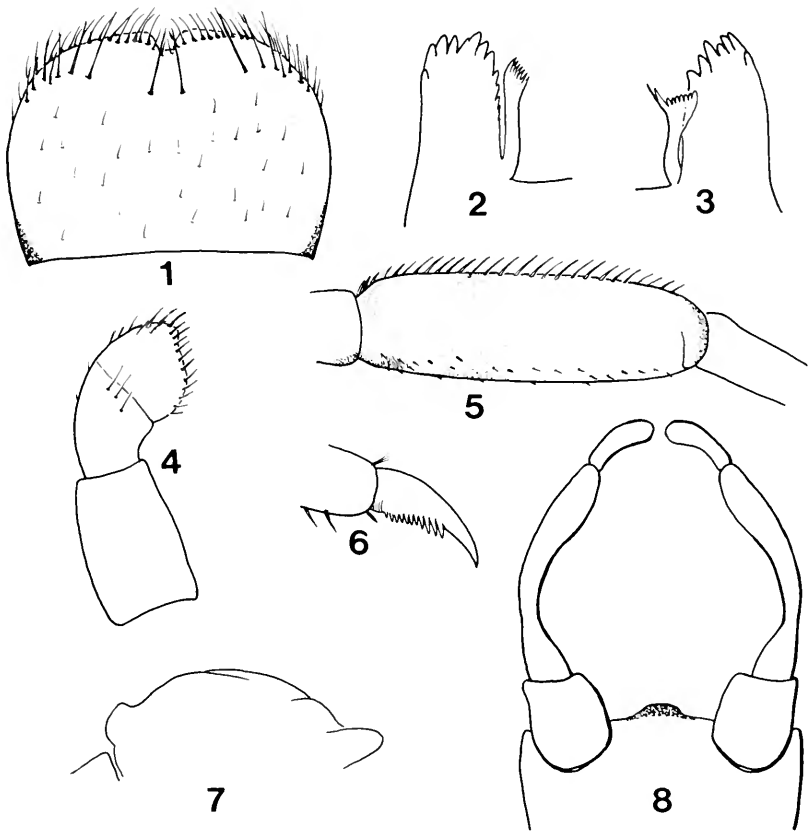
Type material. HOLOTYPE: male larva, Texas: Hays Co., Blanco River at Post Road, 29°56'08N, 097°53'40W, May 05, 1997, N. A. Wiersema (deposited in the Purdue University Entomological Research Collection). PARATYPES: 1 male and 1 female larva same data and deposition as holotype. Seven larvae same data and deposition as holotype, but collected on April 19, 1997.

Additional material examined. Larvae, adults, and subimago males and females (some reared), collected from same locality as holotype on April 16, 19, 20, and 24, 1997 and May 05, 1997 (NAW). Two adult males, Blanco Co., Blanco River at FM 165, June 08, 1993, N. A. Wiersema (NAW). Larva, Austin Co., San Bernard River at I-10, near Sealy, May 19, 1997 N. A. Wiersema (NAW).

Diagnosis. The long terminal forcep segments of the adult male will separate this species from all other described Nearctic species with the exception of *P. veteris*. However, *P. texanus* is easily distinguished by its unmarked abdominal terga and sterna, paler thoracic nota, and pale posterior abdominal terga. The female adult can be distinguished from other females by the combination of pale green-yellow coloration, lack of red or black tergal and or sternal markings and absence of black, branching tracheation markings. The abdominal coloration of the male and female larvae of *P. texanus* are most similar to those of *P. dubius* (Walsh) and *P. virilis* (McDunnough). However, the combination of lacking distinctive black, branching, subdermal, tracheation lines on some abdominal sterna, middle gill length to width ratios, and weak banding of the legs will serve to distinguish *P. texanus* larvae. The coloration feature unfortunately tends to fade over time in poorly marked specimens.

There are numerous additional undescribed species and unassociated larvae of *Plauditus* found throughout North America east of the Rocky Mountains. In addition, there are only a few modern descriptions adequate enough to enable species identifications and more importantly the specific limits for most species remain unclear within this group. For these reasons I suggest larvae and adults of *Plauditus* be identified with extreme caution until a complete phylogenetic revision is made available.

Remarks. *Plauditus texanus* was collected from medium to small sized limestone cobble and macrophytes in shallow riffles of a cool, clear, alkaline



Figs. 1-8. *Plauditus texanus*, n. sp., 1-6 Larva. 1. Labrum (dorsal view). 2. Right mandibular incisors. 3. Left mandibular incisors. 4. labial palpi (dorsal). 5. Partial leg. 6. Tarsal claw. 7-8 Adult male. 7. Partial thorax. 8. Genitalia (ventral).

river typical of those found in the Hill Country Region of central Texas. I recently described two new species of *Procloeon* collected from the same location as the type material of *P. texanus* (Wiersema 1999). *Plauditus texanus* has not been encountered west of the eastern fringe areas of the Edwards Plateau, nor has it been collected in far eastern Texas. It is therefore my opinion that this species is probably restricted to the central plains area of Texas as well as possibly Oklahoma and Kansas. It is likely that this species is the *P. veteris* cognate mentioned by Traver (1935) from Austin, Texas.

ACKNOWLEDGMENTS

I would like to thank S. K. Burian (New Haven, Connecticut) for providing a review of an early version of this publication. I would finally like to express my appreciation to H. P. Boyd (Vincentown, New Jersey), R. D. Waltz (Indianapolis, Indiana), and W. P. McCafferty (West Lafayette, Indiana) for their helpful comments and editorial advice.

LITERATURE CITED

- Lugo-Ortiz, C.R., and W.P. McCafferty.** 1998. A new North American genus of Baetidae (Ephemeroptera) and key to *Baetis* complex genera. Entomol. News 109: 345-353.
- Traver, J.R.** 1935. Part II. Systematic, pp. 239-739 In: J.G. Needham, J.R. Traver and Y.C. Hsu [eds.], The biology of mayflies with a systematic account of North American species. Comstock Publ. Co., Ithaca, New York.
- Wiersema, N.A.** 1999. Two new species of *Procloeon* (Ephemeroptera: Baetidae) from Texas. Entomol. News 110: 27-35.