

ASIOPLAX NUMINUH, A NEW SPECIES OF EPHEMEROPTERA (LEPTOHYPHIDAE) FROM TEXAS AND MEXICO¹

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ABSTRACT: *Asioplax numinuh*, new species, is described from larvae and male and female adults from south central Texas and Mexico. The new species is evidently most closely related to *A. edmundsi*. Habitat and ecological information associated with the new species are discussed.

During the fall of 1996 one of us (NAW) was shown some very unusual larvae from the South Llano River in central Texas. Based on a detailed examination of these specimens in light of the recent descriptions of two similar species from Costa Rica and Ecuador (Lugo-Ortiz and McCafferty 1995; Wang et al. 1998), it became evident that these three species would be more appropriately placed into a new genus. As a result, Wiersema and McCafferty (2000) established the genus *Asioplax* to accommodate a small number of North, Central and South American species, including the above, that were previously considered within the genera *Leptohyphes* Eaton or *Tricorythodes* Ulmer.

Two of us (NAW and WPM) continued to find additional specimens of the unusual larval form mentioned above in Texas and Mexico; however, a formal species description was postponed because of what was considered a strong possibility that these larvae represented that stage of *Asioplax texana* (Traver), a southwestern species that had been known only in the adult stage. We are now able to describe the new species herein because one of us (DEB) reared the larvae in the spring of 2000, and this showed that indeed a new species, not *A. texana*, was involved.

***Asioplax numinuh*, NEW SPECIES**

(Figs. 1-4)

Larva. Body robust and dorsoventrally flattened. Body length: 2.6-3.2 mm (male), 3.2-3.8 mm (female, largest size with egg expanded abdomen); caudal filaments length: 1.2-2.4 mm. Head: Coloration pale brown with black markings and head capsule fringed with numerous fine setae. Antennae yellow with length subequal to head capsule width. Mouthparts as shown in Figures 41-45 (Wiersema and McCafferty 2000). Thorax: Coloration pale brown to yellow with black-grey markings. Legs pale yellow with black markings on femora and tibiae. Tarsal claws strongly curved, with five to six small denticles and two to three preapical, fine setae. Abdomen: Tergal patterning as in Figure 1. Posterolat-

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eral projections of segments 7-9 very well developed; projections of segment 9 (Fig. 2) extending well beyond posterior margin of ninth sternum. Posterior margin of ninth sternum weakly to moderately concave in female larvae (Fig. 2). Gill 2 broadly rounded, nearly subtriangulate and pale yellow with black markings; inner ventral lamellae present and reduced. Caudal filaments light brown with whorls of short setae.

Male adult. Body length: 2.8-3.0 mm. Forewings: 3.8-4.0 mm. Body red-brown with sparse black markings. Head: Dorsally shaded with red-brown. Eyes small, widely separated; diameter approximately equal to basal width of lateral ocelli. Ocelli encircled with black basally. Thorax: Notae deep red-brown with pale areas adjacent to sutures. Forelegs approximately one and one-half times length of body. Hindlegs with pattern as in Figure 3; femora approximately equal in length to that of tibiae and tarsi combined. Abdomen: Tergal patterning similar to that of larvae (Fig. 1). Sublateral muscle insertion marks of sterna without pigment. Genitalia as in Figure 4, with subgenital plate narrowly and deeply emarginate. Caudal filaments grey-white in color with basal segments deeply shaded grey.

Female adult. Body length: 3.6-3.8 (with eggs). Forewings: 4.2-4.6 mm. Coloration similar to males except abdominal ground color paler.

Etymology. The specific epithet is a noun in apposition and is the name that the Native Americans (commonly known as Comanches), who lived throughout much of the new species range, called themselves.

Material examined. HOLOTYPE: male larva, TEXAS, Kerr Co., Guadalupe River off Hwy 27, near Center Point, March 14, 2000, D.E. Baumgardner, deposited in Purdue Entomological Research Collection (PERC). PARATYPES: five male and two female larvae, same data and deposition as holotype, except one male larva deposited at Texas A&M University; one adult male and two adult females, same data and deposition as holotype. Additional material: TEXAS: locale unknown/unclear (male adult, genitalia and hindleg on slide, medium euparal, solvent absolute ethanol, NAW); Kimble Co., South Llano River at low water crossing off Hwy 377, 30°28'44N, 099°46'41W, April 14, 1998, N.A. Wiersema (4 larvae deposited in personal collection of NAW); Kimble Co., Junction South Llano River, October 13, 1996, R. Waugaman (4 larvae, 3 deposited in PERC, 1 deposited with NAW); Kimble Co., South Llano River, Junction May 12, 1994, R.W. Sites (larva, PERC); Kendall Co., Guadalupe River 1 mi S. of Sisterdale at Ranch Road 1376, May 7, 1977, W.P. McCafferty and A.V. Provonsha (larva, PERC). MEXICO: Tamaulipas, Rio Guyayalejo, December 22, 1939, L. Berner (larval paratypes misidentified as *Tricorythodes edmundsi* Allen, multiple slides with various larval parts, deposited at Florida A&M University); Queretaro, 1 km NW Adjuntax, Rio Concá, July 13, 2000, W.D. Shepard (four larvae, PERC).

Remarks. Examination of the paratype material designated by Allen (1967) for *A. edmundsi* (Allen), from Rio Guyayalejo in Tamaulipas, Mexico, showed that they are referable to *A. numinuh*. Additionally, those larvae initially presumed to be the undescribed larvae of *A. texana* by Wiersema and McCafferty (2000) are also referable to *A. numinuh*.

The larvae and adults of *A. numinuh* are easily distinguished from those of *A. edmundsi* by less extensive tergal coloration (see Figure 1 herein and Figure 1 Wiersema and McCafferty) and tarsi without basal blue-black pigmentation. *Asioplax numinuh* larvae are additionally separable from those of *A.*

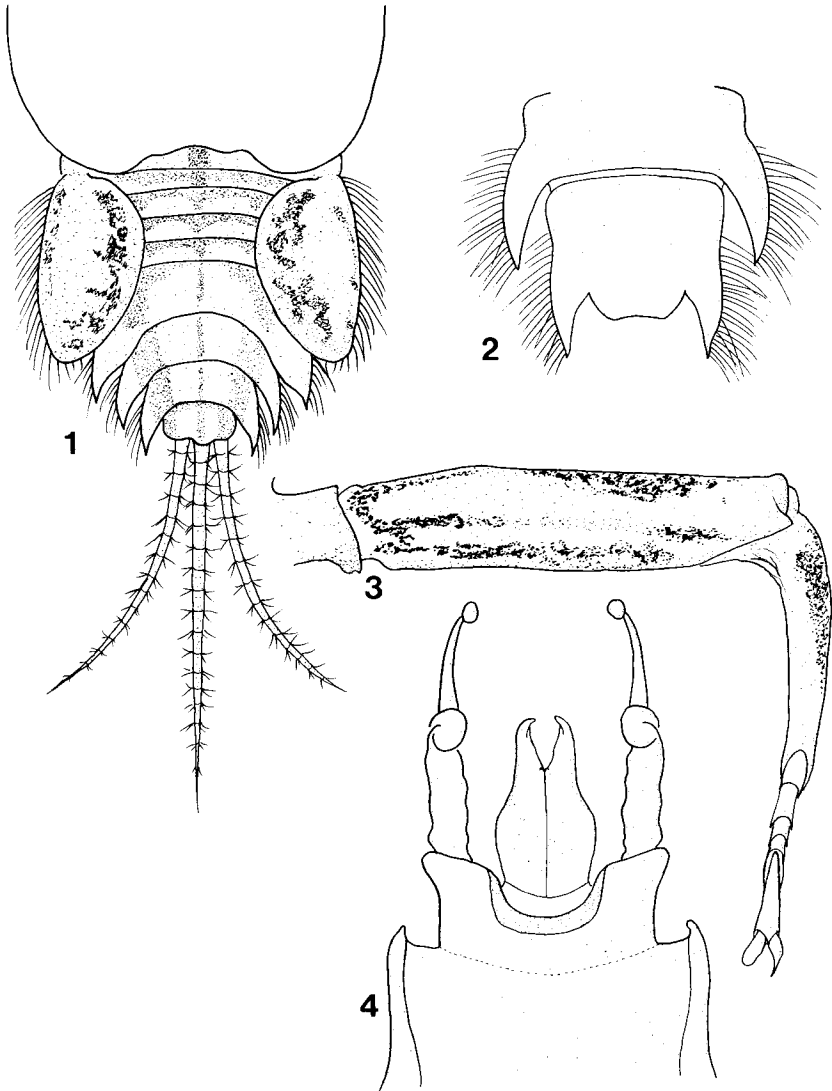


Fig. 1-4. *Asioplax numinuh*. 1. Female larval abdomen, dorsal. 2. Female larval 8th and 9th sterna. 3. Male adult hindleg. 4. Male adult genitalia, ventral.

edmundsi by having claws without subapical denticles, lateral projection of segment 9 extending well beyond the mid-posterior margin of the ninth sternum (Fig. 2), and a concave mid-posterior margin of the ninth sternum in female larvae (Fig. 2). *Asioplax edmundsi* larvae have claws with subapical denticles (these denticles are sometimes broken or worn off), lateral projection of segment 9 extending approximately equal to or slightly longer than the mid-posterior margin of the ninth sternum, and a truncate ninth sternum in female larvae.

Larvae of *A. numinuh* were collected from the surface of large, relatively flat-topped cobble with heavy periphyton and silt cover within river sections characterized by rapid, nonturbulent bank to bank flow. Gut contents of two examined larvae were composed primarily of fine mineral debris, along with sparse filamentous algae, diatoms, and detritus.

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