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# A new species of *Tenuarus* (Cicadellidae: Deltocephalinae), first record of the genus from Central America

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*Tenuarus* De Long, 1944, is a previously monotypic genus, rarely reported in the literature. Initially, DeLong (1944) divided a group of leafhoppers collected in Mexico into the genera *Scaphytopius* Ball 1931, *Cloanthanus* Ball 1931 (now a synonym of *Scaphytopius*), and a new genus, *Hebenarus* DeLong 1944 (also a synonym of *Scaphytopius*). Within *Hebenarus*, DeLong proposed the monotypic subgenus *Tenuarus*, because of differences from the rest of the species in characteristics such as: thin crown margin turned slightly upward, sides of crown distinctly convexly rounded, few costal veins, and male genitalia with the aedeagus consisting of a single portion which curves dorsally from the base, long and thin styles, and pygofer with a pair of long spines on the ventral margin.

Subsequently, in 1949, Oman placed the genus *Hebenarus* in synonymy with *Scaphytopius*, but excluded the subgenus *Tenuarus*, which he elevated to genus rank, due to the differences mentioned above (Oman, 1949).

Currently, only two specimens of *Tenuarus spinosus* (DeLong, 1944) are known: holotype collected in Chiapas, Mexico (OSUC 169290), and female collected in the Huachuca Mountains, Arizona, United States (OSUC 356842). Both specimens are deposited in the C. A. Triplehorn Insect Collection (OSUC) at The Ohio State University. Thus the distribution of this genus has been thought to be restricted to North America. However, we here report the genus *Tenuarus* from the Carribbean of Costa Rica, the first record from Central America, and describe the second species of the genus.

The main entomological collections of Costa Rica were studied: the Museum of Zoology at the University of Costa Rica (MZUCR), the National Museum of Costa Rica (MNCR), and the Insect Museum at the University of Costa Rica (MIUCR).

For the preparation of the leafhopper male genitalia, the abdomen was placed separately in 10% potassium hydroxide for 24 hours at room temperature. The next day the genitalia were washed for one minute in water. Subsequently, they were placed in plastic genitalia vials with glycerin (Oman, 1949). The original description and illustrations of *T. spinosus* by DeLong (1944) were used to compare Costa Rican specimens with the only previously described species in the genus. All photographs of the structures were taken using a Euromex HD-Lite digital camera, with an Olympus SZX16 stereomicroscope.

Specimens are deposited in MNCR.

## Genus *Tenuarus* DeLong, 1944

**Type species.** *Hebenarus* (*Tenuarus*) *spinosus* DeLong, 1944, by original designation (DeLong, 1944).

**Diagnosis**. Length, male 4.08–5 mm. Appearance orange yellow. Face rather uniform pale brown except conspicuous angled white stripe just beneath margin which is bordered beneath by dark brown line. Thin edged vertex margin turned slightly upward and sides of vertex distinctly convexly rounded; vertex with pale median longitudinal spot at apex, broad white longitudinal stripe on either side of middle and pale longitudinal spot along anterior portion of each eye; pale margin bordered above and below by conspicuous brown line. Pronotum with seven longitudinal stripes. Scutellum orange yellow with paler median longitudinal stripe terminating in apical angle which is also paler. White longitudinal stripe on inner margin of each basal angle. Forewings pale brown with dark brown veins, and with round, white, brown

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bordered spots in anteapical and apical cells just before and just posterior to the cross veins; costal margin with few costal veinlets.

**Male genitalia**: Plates long, rather broad at base, convexly rounded on basal two-thirds then tapered to pointed apices, with few (less than 5) macrosetae preapically. Style long and narrow with pointed apex which is slightly curved inwardly. Aedeagus consisting of a single portion which curves dorsally at base, more slender at apex than base. In ventral view, aedeagus enlarged at apex forming two rounded lobes. Pygofer with distinct apical or preapical spine.

### *Tenuarus costaricensis*, sp. nov.

(Figs. 1A–K)

**Description. Male**. Length 4.08–4.34 mm. General appearance brownish yellow. Crown 1.11 x longer than basal width between eyes, brownish yellow with short pale longitudinal band at apex, two pale longitudinal bands in center, each

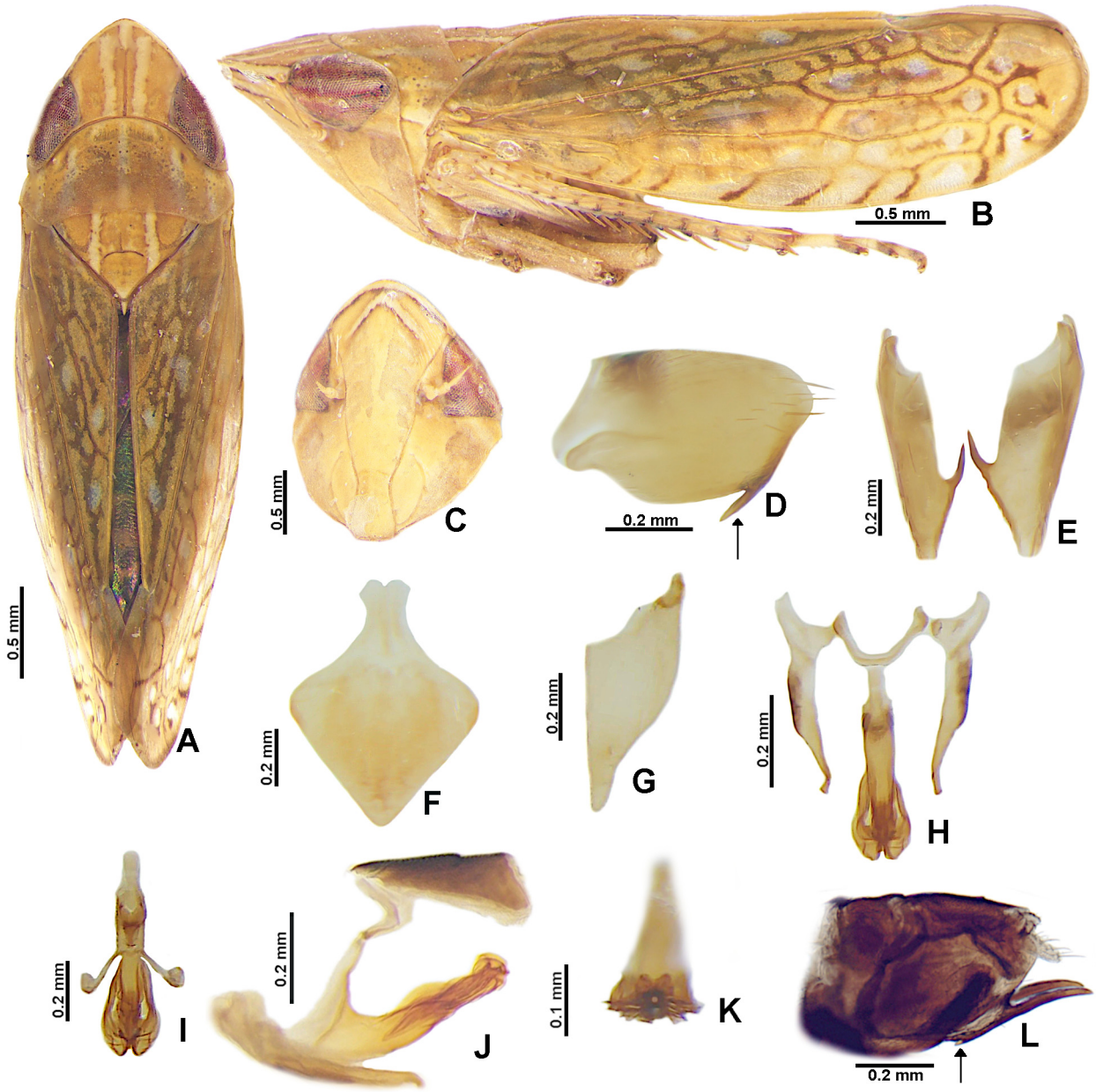


**FIGURE 1.A–K.** *Tenuarus costaricensis* **sp. nov.** male. A. Dorsal habitus. B. Lateral habitus. C. Ventral view of face. D. Lateral view of pygofer (arrow shows anteroventral spine). E. Ventral view of pygofer. F. Ventral view of valve. G. Ventral view of subgenital plate. H. Ventral view of connective, styles and aedeagus. I. Dorsal view of aedeagus. J. Lateral view of aedeagus. K. Apical view of the shaft apex. **L.** Lateral view of pygofer of *T. spinosus* holotype (arrow shows anteroventral spine), image provided by James Zanisher.

on either side of apical band, separated by brown line extending to two-thirds of crown length; margin with pale band bordered above and below by brown line (Fig. 1.A). Pronotum brownish yellow with seven longitudinal pale stripes. (Fig. 1.A). Scutellum brownish yellow with two pale longitudinal stripes (Fig. 1.A). Face brownish yellow on gena, lorum, anteclypeus and basal third of frontoclypeus pale yellowish; with pale transverse band in shape of inverted V at apex of frontoclypeus, bordered beneath by dark brown line (Fig. 1.C). Forewings brownish yellow with numerous (about 14–16) dispersed round white spots, brown bordered in anteapical and apical cells just before and just posterior to cross veins, with 8–10 veinlets (Fig. 1.B); veins dark brown. Legs brownish yellow.

**Male genitalia.** Pygofer in lateral view rounded at apex, with macrosetae towards apex (Fig. 1.D), with spine extended anteromesad from inner margin of ventral portion (Figs. 1.D,E). Valve in ventral view rhomboid, slightly longer than wide, base narrow with small depression in the middle, forming two small lobes (Fig. 1.F). Subgenital plates in ventral view elongated, triangular, with basal portion much broader than apex, basal two-thirds convex and rounded, narrowing towards apical third, which is digitiform (Fig. 1.G); with row of 4 macrosetae along outer margin. Connective in ventral view U-shaped (Fig. 1.H). Style in ventral view long, thin, and straight, curving and narrowing in last apical third (Fig. 1.H). Without paraphyses. Aedeagus in lateral view with shaft and dorsal apodeme creating a curved U-shaped space (Fig. 1.J); preatrium in ventral view short, straight, and thin (Fig. 1.H); shaft in lateral view much longer than dorsal apodeme, with projections arising from apex and extending to basal portion, creating multiple striae and undulations (Fig. 1.I,J), slight dorsal undulation in basal portion and another at apex (Fig. 1.J); atrium slightly wider than shaft. Gonopore apical (Fig. 1.K).

**Diagnosis.** This species is very similar in appearance to *T. spinosus*, but is easily distinguished by the following features: Absence of prominent posterodorsal spine on pygofer (Fig. 1.D), (*T. spinosus* has prominent posterodorsal spine on pygofer that strongly exceeds apex (Fig. 1.L)); presence of well-developed and evident anteroventral spine that emerges from inner margin and curves toward base of pygofer (Fig. 1.D), (in *T. spinosus,* this anteroventral spine is much less developed (Fig. 1.L)); shorter body length than *T. spinosus*. (approximately 1 mm less).

In addition, there are other apparent differences such as: apex of valve with slight depression that creates two small lobes; valve margins continuously rounded; styles in ventral view do not reach three-quarters of length of shaft; styles curve and narrow at half their length, and atrium much more robust and wider. However, it is important to consider that these apparent differences could be attributed to inaccuracies in DeLong's drawings or differences in orientation of structures.

**Distribution.** Costa Rica.

**Biology.** Unknown.

**Etymology**. Named after the country where it was collected.

**Material examined. Holotype.** ♂. Costa Rica, Prov. Limón, Est. Hitoy Cerere. 100 m. 21 MAR-7 ABR 1998, col: E. Rojas, Tp. Luz., INBIO CRI002 415517 (MNCR). **Paratype.** 1 ♂. same data that holotype except INBIO CRI002 415518 (MNCR).

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