A New Coleopteroid Genus of Lethaeini (Hemiptera: Heteroptera: Lygaeoidea: Rhyparochromidae)

Author(s): Luis Cervantes Peredo
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A NEW COLEOPTEROID GENUS OF LETHAEINI (HEMIPTERA: HETEROPTERA: LYGAEOIDEA: RHYPAROCHROMIDAE)

LUIS CERVANTES PEREDO

Instituto de Ecologia, A.C. Carretera Antigua a Coatepec # 351, 91070, Xalapa, Veracruz, Mexico (e-mail: luis.cervantes@inecol.edu.mx)

Abstract.—Descriptions and illustrations of a new coleopteroid genus of Lethaeini are presented. The **new genus *Tuitocoris*** with one species, ***Tuitocoris brzoskai* new species**, is similar to the American genus *Xestocoris* and to the Australian *Austroxestus*. Like some other coleopteroid Lethaeini, it has several modifications in the hemelytra and hind wings. Dorsal views of male, head, foreleg, mesothoracic scent gland, paramere, pygophore, spermatheca, and fifth instar nymph are illustrated. This species was found in an area of pine forest on the coast of the state of Jalisco, Mexico, which is known for the great number of endemic species of Heteroptera and some other groups of insects and plants, so it should be considered for conservation purposes.

Key Words: *Tuitocoris*, Mexico, new species, endemic

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Members of Lethaeini are mainly distributed in the tropics and subtropics, although a few species extend into either the Palearctic or Nearctic; they range from small to medium size (2-10 mm), with a shining to subshining dorsal surface. They are separated from the other 13 Rhyparochromidae tribes recognized by Henry (1997), by the following synapomorphies: linear placement of trichobothria on abdominal sternum V, loss of y-chromosome, extreme modification of the sperm reservoir, and development of iridescent areas on the head (Slater and O'Donnell 1978, O'Donnell 1991). Nymphs lack a Y-suture, but have lateral evaporative areas. In most genera, there is a conspicuous trichobothrium present near each antero-lateral pronotal angle (Ashlock 1964).

Here, the **new genus *Tuitocoris*** is described based on one species ***Tuitocoris brzoskai* new species**. This new genus is similar to the Australian genus *Austroxestus* Woodward (Woodward 1962, 1979, 1981) and similar to the American genus *Xestocoris* Van Duzee (O'Donnell 2007, Cervantes and Brailovsky 2008). Illustration of the adult habitus, head, foreleg, scent gland, male and female genitalia, and fifth instar habitus nymph are included.

The *El Tuito* area has been recognized by several authors (Garcia Aldrete 1996, Brailovsky and Barrera 2001, Espinosa et al. 2006) as an important zone for the presence of endemic insect and plant species. This new genus constitutes another

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endemic for this area. *El Tuito* is a very peculiar zone in which temperate and tropical environments mix, generating a great and unique diversity that should be conserved.

Materials and Methods

Specimens were collected on the coastal area in the state of Jalisco, Mexico. The area is called *El Tuito* and is situated at 20° 21'16" N and 105° 18'59" W, at an elevation of 731 m. The prime type of vegetation is pine and oak forest with some tropical elements due to its proximity to the coast.

Specimens are deposited in the following institutions: Coleccion del Instituto de Ecologia, A. C. in Xalapa, Veracruz, Mexico (IEXA); Coleccion Nacional de Insectos del Instituto de Biologia, UNAM, Mexico City (CNIN); National Museum of Natural History, Smithsonian Institution, Washington, D. C., USA (USNM); University of Connecticut, Storrs, USA (UCMS); and The Natural History Museum, London, England (BMNH). Specimens were compared with specimens from all the other Lethaeini genera deposited in CNIN and they run in O'Donnell (1986) key to the genus *Xestocoris* Van Duzee, although differs by several characters, see discussion below. Individuals were examined using a Leica MZ8 dissecting microscope, measurements were made with an ocular micrometer, and drawings were elaborated with the aid of camara lucida; all measurements are given in mm ± s.e.

***Tuitocoris* Cervantes, new genus**
(Figs. 1–7)

Diagnosis.—Head with two basal iridescent spots dorsally composed of pegs; with two trichobothria located in front of eyes; forefemur with three long spines located mesally and three small spines closer to the distal end, arranged all on a straight line (Fig. 3). Eyes without trichobothria. Lateral pronotal margins only slightly carinate on anterior half, with trichobothria on anterior third; pronotal collar only visible ventrally and delimited by a line of punctures; posterior margin of pronotum slightly concave; pronotum and scutellum with scattered small punctures and setae directed backward (Fig. 1). Scent gland peritreme long, narrow and slightly curved at the apex (Fig. 7). Clavus and corium with large punctures with setae directed backward. Hemelytra reduced without membrane, leaving at least three abdominal segments exposed (Fig. 1). Spermatheca mushroom-shaped, with bulb sitting directly on duct (Fig. 4). Paramere with blade very wide, tapering to a blunt point, shank broad (Fig. 5).

Etymology.—The name refers to the type locality.

Distribution.—Known only from the coast of Jalisco.

Discussion.—***Tuitocoris* new genus**, is very similar to the genus *Xestocoris* although *Tuitocoris* is much larger. The forefemur in *Tuitocoris* (Fig. 3) has three long spines located mesally and three small spines closer to the distal end, arranged in a straight line, while in *Xestocoris* the forefemur has only two to four small spines. *Tuitocoris* lacks the characteristic eye trichobothria of *Xestocoris*. The scent gland opening of *Tuitocoris* (Fig. 7) is long and straight and slightly curved apically, whereas in *Xestocoris* it is usually rounded (Fig. 8). Male and female genitalia in both genera are very similar, as well as the presence of two iridescent patches, located dorsoposteriorly on head (Fig. 2).

Although both genera have tibial spines and are coleopteroid, *Tuitocoris* differs from the Australian genus *Austroxestus*

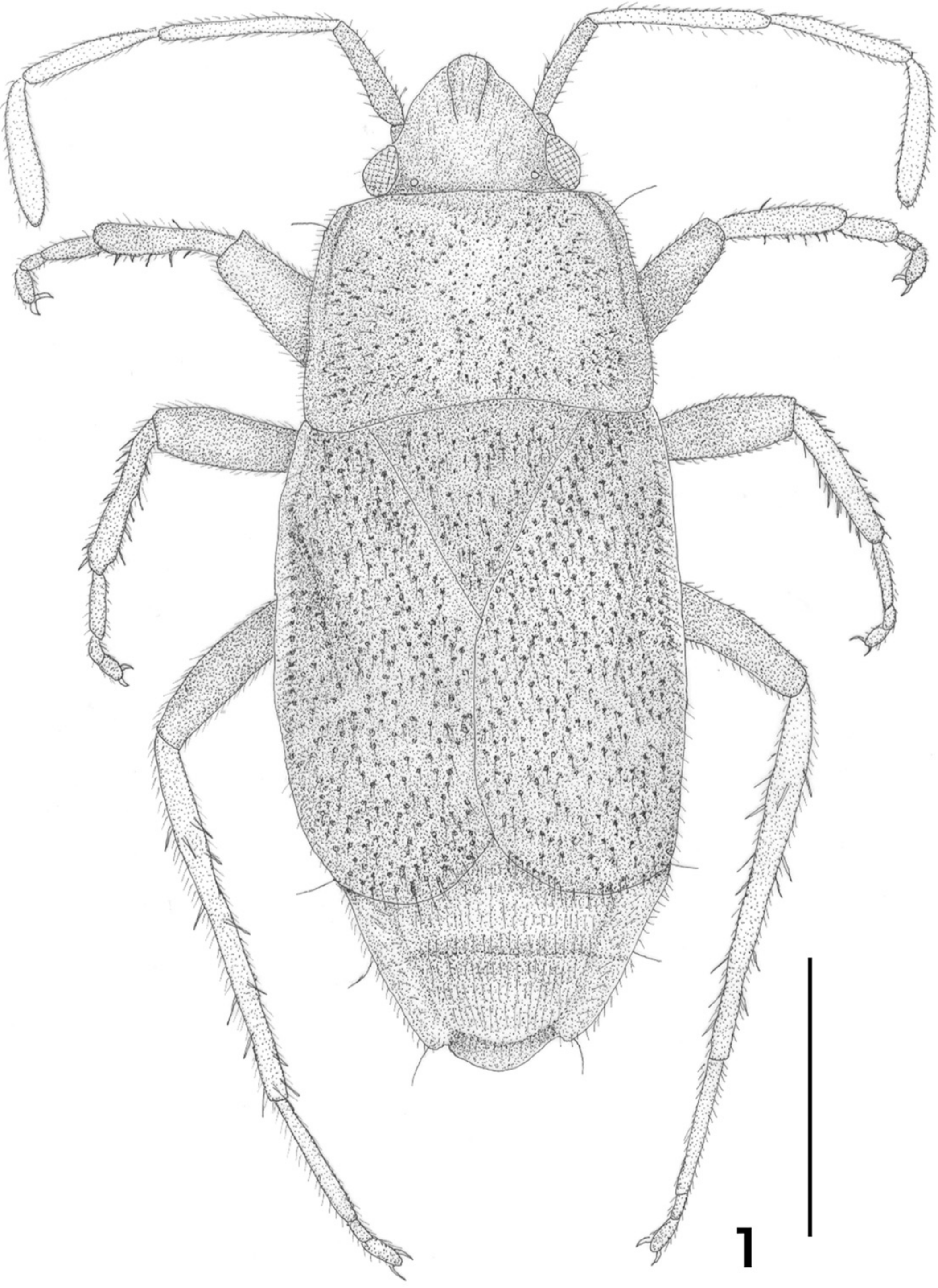
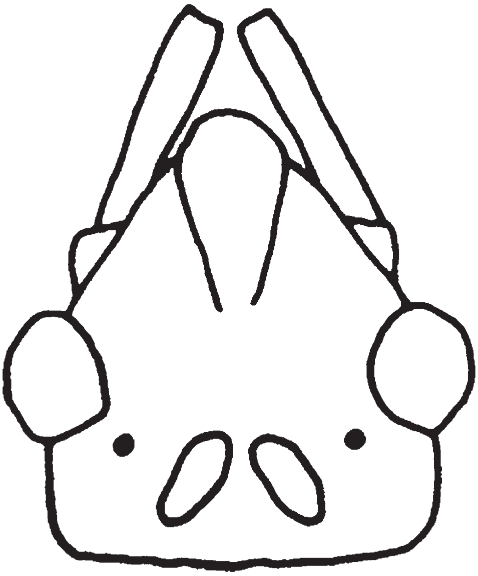


Fig. 1. Dorsal view of *Tuitocoris brzoskai* new species (Holotype, male).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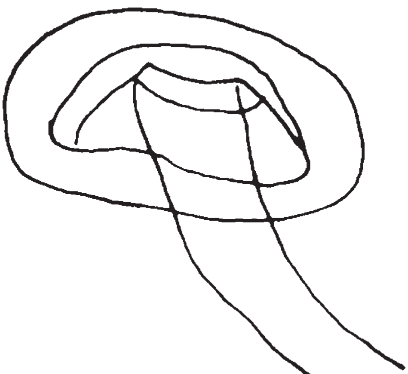
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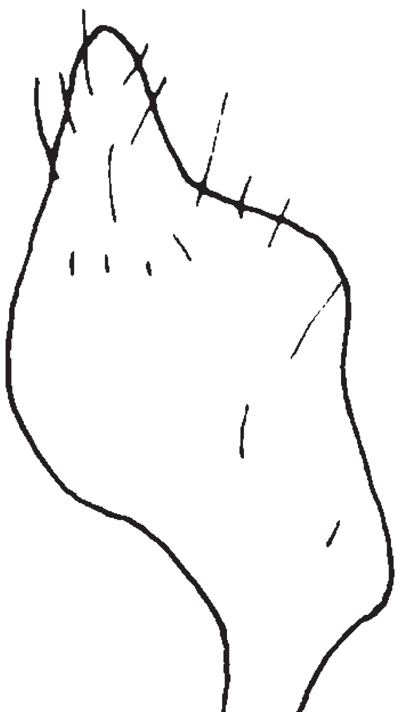
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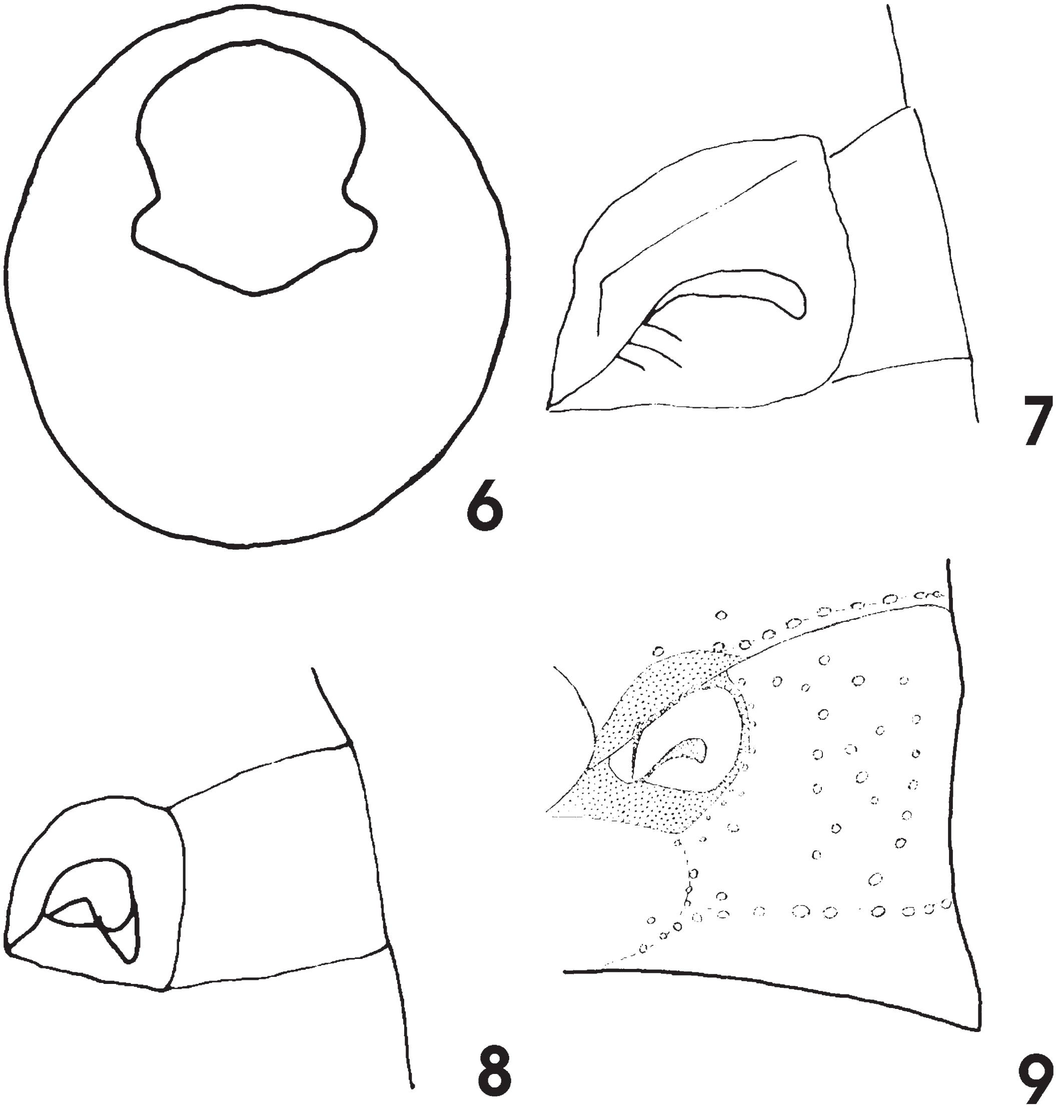

Figs. 2–9. 2–7, *Tuitocoris brzoskai* new species. 2. Head, showing position of the iridescent spots. 3. Foreleg. 4. Spermatheca, showing dilated area. 5. Paramere. 6. Male genital capsule. 7. Scent gland peritreme. 8. Scent gland peritreme of *Xestocoris clavatus* Cervantes & Brailovsky. 9. Scent gland peritreme of *Austroxestus carnarvoni* Woodward (Fig. 9 taken from Woodward 1962).

(Woodward 1979, 1981) by the absence of hemelytral membrane, the lack of a dilated area between bulb and proximal flange of the female spermatheca; and the long scent-gland peritreme (Fig. 7) rather than a short peritreme as in *Austroxestus* (Fig. 9).

***Tuitocoris brzoskai* Cervantes, new species**
(Figs. 1–7)

Diagnosis.—This species can be differentiated from other new world species in the Lethaeini which have two iridescent spots located dorsally on base of head (Fig. 2) by the presence in the forefemur of three long spines located medially and three small spines closer to the distal end, arranged all on a straight line. Head and pronotum shining with small punctures located in the area between eyes and tylus, on the anterior margin and on the posterior third of pronotum.

Coloration.—Head, pronotum, visible dorsal segments of abdomen, and venter shining reddish brown; hemelytra ochraceous; antennae, rostrum, and legs amber. Head and pronotum shining. Scutellum and hemelytra slightly dull, with large and regularly distributed punctures, those of hemelytra larger. Small silvery hairs raising from each puncture.

Head.—Head declivitous; tylus broader than first antennal segment; ocelli located very near base of head and close to the eyes by a distance smaller than width of first antennal segment; eyes with three to four small setae and a long setae just in front of eyes; rostrum reaching metacoxae.

Thorax.—Pronotum with anterior and lateral margins straight; posterior margin slightly concave; transverse impression obsolete; hemelytra coleopteroid, clavus not very apparent; lateral corial margin broad and explanate on anterior third; hemelytral membrane almost absent, weakly apparent in some individuals; all femora and tibiae hairy; forefemur with three long spines located medially and three small spines closer to distal end, all arranged in a straight line; tibia spined (Fig. 3); middle and hind femora unarmed. Pro-, meso-, and metapleura shining, except evaporative area which is dull; evaporative area extending to mesepimeron, and dorsally not reaching margin; evaporative area occupying almost half of metapleuron (Fig. 7).

Abdomen.—Sternal suture IV–V not reaching III–IV suture; all sternites covered by long silvery hairs; abdominal segments VI to VIII, clothed by silvery hairs.

Female spermatheca without a dilated area between bulb and proximal flange (Fig. 4).

Genital capsule of males with a round opening that stretches slightly toward the apex (Fig. 6). Parameres with wide blade, narrowing to a blunt point; shank broad (Fig. 5).

Female measurements (n = 8). Body length 4.28 ± 0.1; head length 0.52 ± 0.05; width through eyes 0.84 ± 0.02; interocular distance 0.51 ± 0.01; preocular distance 0.31 ± 0.02; antennal segment lengths: I 0.43 ± 0.02, II 0.76 ± 0.04, III 0.62 ± 0.03, IV 0.6 ± 0.02; rostral segment lengths: I 0.55 ± 0.04, II 0.59 ± 0.03, III 0.52 ± 0.02, IV 0.35 ± 0; pronotum: length 0.82 ± 0.01, width across anterior margin 0.86 ± 0.04, width across humeral angles 1.4 ± 0.06; scutellum: length 0.87 ± 0.05, width 0.88 ± 0.02; foreleg: femur length 0.92 ± 0.02, tibia length 0.9 ± 0.02, tarsomere lengths: I 0.3 ± 0.02, II 0.1 ± 0, III 0.1 ± 0; length claval commissure 0.55 ± 0.02, length corium 2.02 ± 0.11, length membrane 1.62 ± 0.06.

Male measurements (n = 7). Body length 3.6 ± 0.4; head length 0.42 ± 0.06; width through eyes 0.77 ± 0.03; interocular distance 0.45 ± 0.06; preocular distance 0.27 ± 0.02; antennal segment lengths: I 0.36 ± 0.03, II 0.64 ± 0.02, III 0.55 ± 0.03, IV 0.6 ± 0.02; rostral segment lengths: I 0.51 ± 0.02, II 0.51 ± 0.02, III 0.5 ± 0.02, IV 0.34 ± 0.04; pronotum: length 0.76 ± 0.03, width across anterior margin 0.81 ± 0.02, width across humeral angles 1.27 ± 0.06; scutellum: length 0.8 ± 0.04, width 0.8 ± 0.04; foreleg: femur length 0.9 ± 0.02, tibia length 0.86 ± 0.04, tarsomere lengths: I 0.31 ± 0.02, II 0.1 ± 0, III 0.1 ± 0; length claval commissure 0.45 ± 0.02, length corium 1.72 ± 0.07, length membrane 1.38 ± 0.08.

Type material.—*Holotype* ♂: MEXICO, Jalisco, El Tuito, Km 5 El Tuito-Puerto Vallarta 29-VI-2006, L. Cervantes, in litter

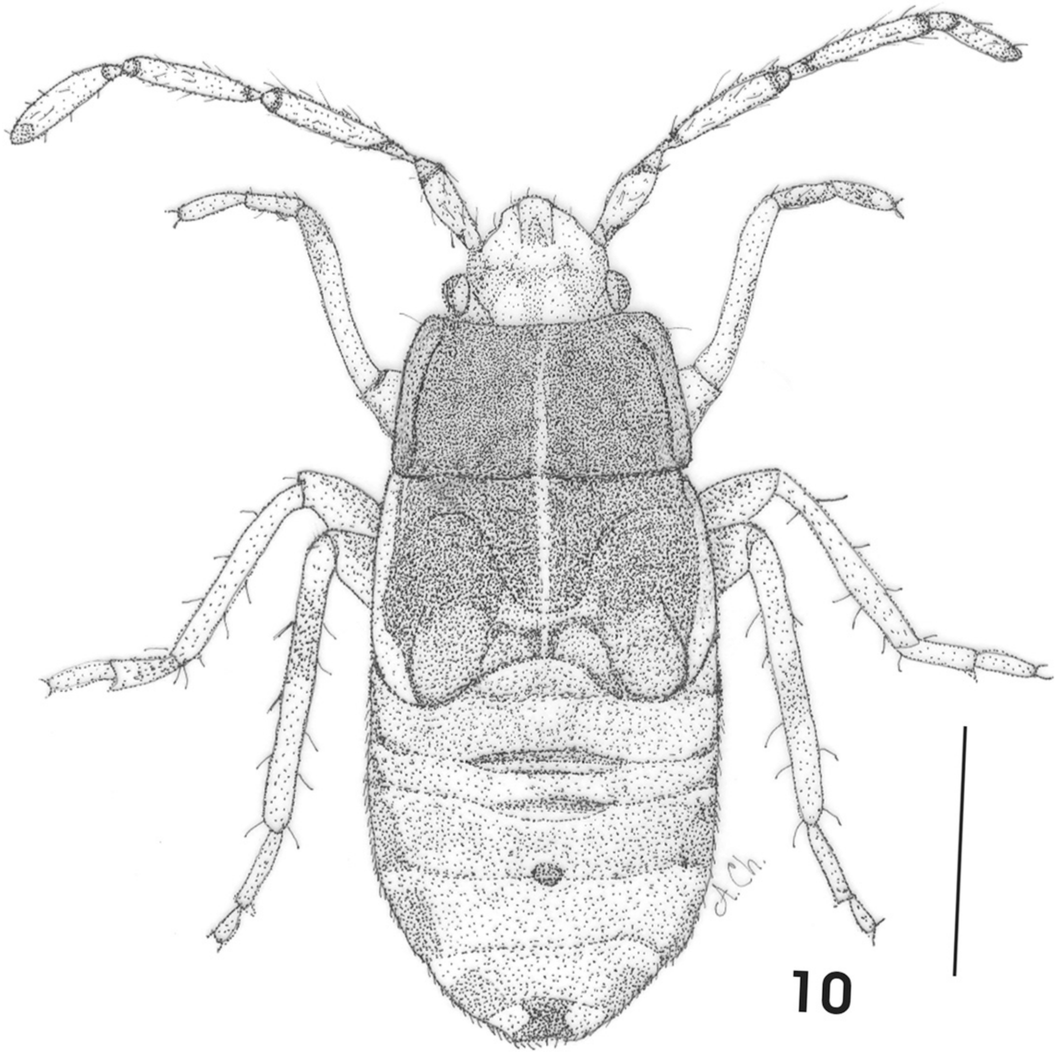

Fig. 10. Dorsal view of fifth-instar nymph of *Tuitocoris brzoskai* new species.

of pine and oak, 20° 21'16" N and 105° 18'59" W, at a level of 731 m (IEXA). *Paratypes*: 3 ♂, 4 ♀ (1 ♀ and 1 ♂ are dissected), same data as Holotype (IEXA (2♀, 1♂), CNIN (1♀, 1♂), NMNH (1♀, 1♂)) 3 ♂, 4 ♀, 2 fifth instar nymphs, same data as Holotype, but 15-VI-2009, L. Cervantes, D. Brzoska (IEXA (2♀, 1♂, 2 fifth instar nymphs), UCMS (1♀, 1♂), BMNH (1♀, 1♂)); 1 ♀ Jalisco, Km 165 Barra de Navidad-Puerto Vallarta, 2-VIII-1984, M. Garcia (CNIN).

Etymology.—This species is named after David Brzoska, in recognition of his contributions to the knowledge of the Cicindelidae.

Distribution.—MEXICO: Jalisco

Fifth-Instar Nymph
(Fig. 10)

Diagnosis.—The nymphs of this species can be recognized from other known lethaeine nymphs by the presence in the fore femora of three to four small spines on internal margin, and by the presence of four setae on internal margin of first antennal segment. They also have very characteristic dark plates on sternites VI to VIII.

Head, pro-, meso-, and metanotum, scent gland plates of segments III–IV, IV–V, V–VI, pleurae, and medial plates of sternites VI to VIII dark brown; head sometimes yellow with dark brown areas near eyes and on middle line; antenna yellow-ochraceous with base and apex of all segments pale brown; rostrum dark brown with medial areas pale yellow; femora dark brown with apex pale yellow; tibiae and tarsi pale brown; abdominal segments reddish brown with margin of segments III to VI pale brown; posterior margin of segment VI with a brown line extending from the middle line and fading away toward the sides.

Head.—Not separated from the pronotum by a neck; first antennal segment with three setae located closer to its base and one near apex on internal side; rostrum reaching metacoxae; ocelli not apparent.

Thorax.—Thoracic wing pads reaching base of abdominal segment III; fore femora with just three or four small spines internally near apex; tibiae with long spines evenly distributed, those of fore tibiae only on internal side; tibia and tarsi also covered with small brownish hairs.

Abdomen.—Scent gland plates of abdominal segments III–IV and IV–V narrow and elongated; the one on segments V–VI rounded and very small; ventral spiracles with one trichobothria located anteriorly and one posteriorly; abdominal venter covered by silvery hairs directed backward, more pilose on last three sternites.

Measurements (n = 2). Body length 3.25 ± 0.21; head length 0.64 ± 0.06; width through eyes 0.74 ± 0.06; interocular distance 0.5 ± 0.03; preocular distance 0.3 ± 0; antennal segment lengths: I 0.38 ± 0.09, II 0.63 ± 0.07, III 0.52 ± 0.05, IV 0.48 ± 0.05; rostral segment lengths: I 0.48 ± 0.05, II 0.52 ± 0.05, III 0.4 ± 0.03, IV 0.35 ± 0; pronotum: length 0.66 ± 0.02, width across anterior margin 0.82 ± 0.05, width across humeral angles 1.11 ± 0.13; foreleg: femur length 0.82 ± 0.04, tibia length 0.78 ± 0.11, tarsomere lengths: I 0.22 ± 0, II 0.26 ± 0.04.

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LITERATURE CITED

Ashlock, P. D. 1964. Two new tribes of Rhyparochrominae: a re-evaluation of the Lethaeini (Hemiptera-Heteroptera: Lygaeidae). Annals of the Entomological Society of America 57: 414–422.

Brailovsky, H. and E. Barrera. 2001. Six new species of *Mozena* from Mexico (Heteroptera: Coreidae: Coreinae: Nematopodini). Florida Entomologist 84: 99–111. doi:10.2307/3496668

Cervantes, P. L. and H. Brailovsky. 2008. First record of the genus *Xestocoris* (Hemiptera-Heteroptera: Lygaeoidea: Rhyparochromidae: Rhyparochrominae: Lethaeini) from Mexico, with description of three new species. Annals of the Entomological Society of America 101: 307–313. doi:10.1603/0013-8746(2008)101[307:FROGXH]2.0.CO;2

Espinosa, D., J. Llorente, and J. J. Morrone. 2006. Historical biogeographical patterns of species of *Bursera* (Burseraceae) and their taxonomic implications. Journal of Biogeography 33: 1945–1958. doi:10.1111/j.1365-2699.2006.01566.x

Garcia Aldrete, A. 1996. Two new *Aaroniella* species from Western Mexico (Psocoptera: Philotarsidae). Anales Instituto de Biologia, Universidad Nacional Autonoma de Mexico. Ser. Zool. 67: 303–308.

O'Donnell, J. 1991. A survey of male genitalia in lethaeine genera (Heteroptera: Lygaeidae: Rhyparochrominae). Journal of the New York Entomological Society 99: 441–470.

O'Donnell, J. 2007. A new species of *Xestocoris* Van Duzee, with comments on the genus (Hemiptera: Heteroptera: Rhyparochromidae: Rhyparochrominae). Zootaxa 1606: 51–57.

Slater, J. A. and J. O'Donnell. 1978. A new species of *Cistalia* from Brazil and comments on systematic characters in the Lethaeini (Hemiptera: Lygaeidae). Florida Entomologist 61: 49–55. doi:10.2307/3494636

Woodward, T. E. 1962. A new genus of Rhyparochrominae (Hemiptera: Lygaeidae) from Queensland. Journal of the Entomological Society of Queensland 1: 46–49.

Woodward, T. E. 1979. The genus *Austroxestus* Woodward (Hemiptera: Lygaeidae: Rhyparochrominae). Australian Journal of Zoology 27: 813–824. doi:10.1071/ZO9790813

Woodward, T. E. 1981. A new species of *Austroxestus* Woodward (Hemiptera: Lygaeidae: Rhyparochrominae) from Arnhem Land. Journal of the Australian Entomological Society 20: 173–176. doi:10.1111/j.1440-6055.1981.tb01025.x