

TWO NEW SPECIES AND DISTRIBUTION RECORDS  
OF THE GENUS *ACROLEUCUS* IN MEXICO  
(HEMIPTERA: HETEROPTERA: LYGAEIDAE: LYGAEINAE)

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ABSTRACT

The genus *Acroleucus* Stål from México is revised. Two new species *A. calvatus* and *A. tensus* are described and illustrated. New distribution records are presented, as well as comments on the host plants for some of the species. A revised key to Mexican species is included.

Key Words: Heteroptera, Lygaeidae, Lygaeinae, *Acroleucus*, new species, Mexico

RESUMEN

Se revisa el género *Acroleucus* Stål para México. Dos nuevas especies, *A. calvatus* y *A. tensus*, son descritas e ilustradas. Nuevos datos de distribución son presentados así como comentarios sobre las plantas hospederas para algunas de sus especies. Se incluye una clave para reconocer las especies mexicanas.

Translation provided by the authors.

The genus *Acroleucus* Stål, 1874, belonging to the subfamily Lygaeinae (Heteroptera: Lygaeidae), contains 40 species (Brailovsky 1977, 1980, 1984; Brailovsky & Barrera 1984; Slater 1992). It is a Neotropical genus ranging from Mexico to Argentina, and is characterized by having the callus of the anterior pronotal lobe interrupted by longitudinal depressions flanking a distinct median carina. In México 5 species have been recorded. In this paper we add 2 new species, include a synoptic treatment for previously known taxa, and provide new distribution and host plants records for some species.

*Habitat*.—Very little is known about the habitat requirements of the species of *Acroleucus*. Some species are collected on the foliage of *Solanum nigrum* L., and *Solanum nudum* H. B. M. (Solanaceae), on *Ipomoea* sp. (Convolvulaceae), and Camellias (Theaceae), while others are associated with *Tillandsia dasyliriifolia* Baker, *Tillandsia violacea* (Baker), *Tillandsia oaxacana* L. B. Sm., and *Hechtia podantha* Mez (Bromeliaceae).

All measurements are given in mm. Repositories for specimens and abbreviations given in the text are as follows: Colección Entomológica del Instituto de Biología, Universidad Nacional Autónoma de México, México, D.F. (UNAM), Colección Entomológica del Instituto de Ecología A.C., Jalapa, Veracruz (IEXA), and Texas A&M University, Collage Station, TX (TAMU).

*Acroleucus brevicollis* (Stål)

*Lygaeus brevicollis* Stål 1862: 311

This species is distinguished from other members of *Acroleucus* by a combination of the following characters: coxae yellow with basal third brownish hazel, trochanters and bucculae yellow, head dorsally and antennal segment IV black to reddish brown, hemelytral membrane dark brown with apical margin widely hyaline, and pronotum dark brown with anterior, lateral, and posterior margin widely yellowish orange.

*Distribution*.—Recorded from México, San Salvador, Costa Rica, and Panamá. México: Chiapas: La Trinitaria, Comitán, Ocozocoautla and Ixhuatán. Estado de México: Real de Arriba (Temascaltepec), and Malinalco. Morelos: Cuernavaca. Nuevo León: Chipinque. Veracruz: Orizaba (Brailovsky 1977, 1980).

*New Records*.—México: 1 male, 1 female: Hidalgo, Hwy 105, 2.4 mi N Tlanchinol, Aug 1982, C. W. O'Brien and G. Wibmer. 1 female: Oaxaca, Valle Nacional, Rancho Grande, 900 m, 13 Mar 1989, A. Cadena and L. Cervantes. 1 male: Oaxaca, km 58 Tuxtepec-Oaxaca, 28 May 1987, L. Cervantes. 1 female: Puebla, Xicotepec de Juárez, 13 Jul 1980, H. Brailovsky. 1 female: San Luis Potosí, Tamazunchale, 10 Apr 1980, H. Brailovsky. 1 female: Tamaulipas, Gomez Farias, Joya de Manantiales, 13 Mar 2002, I. Pacheco, A.

Sanchez, and L. Cervantes. 1 male, 1 female: Veracruz, Fortín de Las Flores (Estación de Microondas), 10 Aug 1980, E. Barrera. 2 males, 1 female: Veracruz, Jalapa, 22 May 1982, E. Aranda. All the specimens deposited in UNAM.

*Host Plants*.—Collected on *Solanum nigrum* L. (Solanaceae), *Ipomoea* sp., (Convolvulaceae), and Camellias (Theaceae).

*Acroleucus bromelicola* Brailovsky

*Acroleucus bromelicola* Brailovsky 1977: 124-126 (Figs. 1, 3)

This species is recognized by having the coxae, trochanters, basal third of femora, head dorsally, and bucculae yellow, antennal segment IV dark brown, and hemelytral membrane dark brown with hyaline apex digitiform, extending toward the center of the membrane. Genital capsule. Circular in cross section; inner space with lateral arms subtruncated; space between arms with deep "V" concavity (Fig. 1). Paramere. Shaft robust; posterior projection broad, hemispheric; anterior projection elongate, slender; spur apically acute, weakly directed upward (Fig. 3).

*Distribution*.—Only known from México. México: Puebla: Xicotepec de Juárez and Tehuacan; and San Luís Potosí: Tamazunchale (Brailovsky 1977, 1980). The records given by Brailovsky (1977, 1980) from Sonora (Alamos and Nogales) are erroneous and belong to the new species *A. tensus*.

*New Records*.—México: 1 male, 1 female: Oaxaca, Ayautla, 700 m, 17 Mar 1989, A. Cadena and Cervantes. 2 females: km 55 Oaxaca-Tehuantepec, 1950 m, 5 Sep 1979, E. Barrera. 3 males, 3 females: Puebla, Cuetzalan, Santiago Yacuncualpan (Cuautanapaluyan), 940 m, 19 May 1995, E. Barrera and G. Ortega-León. 2 females: km 6.5 Breca-Huazor, nr Tilazo, 26 Apr 1998, E. Barrera and C. Mayorga. 1 female: Veracruz, Municipio Buena Vista, Iztaczoquitlan, 1000 m, 28 Jul 2000, E. Barrera and A. Ibarra. 2 females: Tamaulipas, Gómez Farias, Camino del Ejido El Azteca, 18 Sept 2003, Q. Santiago and Luis Cervantes. 1 female: Tamaulipas, Gómez Farias, El Cielo, 14 April 2003, I. Pacheco and Luis Cervantes. 1 female: Veracruz, km 13 Coatepec-Huatusco, 600 m, 12 Mar 1989, A. Cadena and L. Cervantes. The specimens are deposited in IEXA and UNAM.

*Host Plant*.—Collected on *Tillandsia dasyliirifolia* Baker (Bromeliaceae).

*Acroleucus calvatus* Brailovsky and Cervantes  
**NEW SPECIES** (Fig. 6)

*Types*.—Holotype female: México: Chiapas, 31 mi SE Comitán, 18-19 Jun 1965, H. R. Burke, J. R. Meyer, and J. C. Schaffner (TAMU). Paratypes: 2 females: same data as holotype (TAMU, UNAM).

*Description*.—Female (holotype). Dorsal coloration: Head yellowish hazel except for 2 short reddish brown irregular transverse marks restricted to the intercellular space; antennal segments I to IV reddish brown; pronotum yellowish orange with 2 large, irregular pale to dark brown spots at posterior lobe and transverse line; scutellum reddish brown to dark brown, middle third of apical half yellowish orange; clavus dark brown, claval commissure yellow; corium dark brown, costal margin and apical angle yellow; hemelytral membrane ocher, and apical margin widely hyaline. Ventral coloration: Head including the bucculae pale yellowish orange; juga and rostral segments I, III and IV dark orange hazel; rostral segment II yellowish hazel; propleura shiny orange with pale brown spot near middle third; prosternum yellowish white; mesopleura pale to dark brown, with anterior margin, posterior margin and acetabulum dark to pale yellowish white; mesosternum dark yellowish white, and transverse line pale to dark brown; metapleura pale to dark brown, tinged with orange hazel marks, and anterior margin, posterior margin, and acetabulum pale to dark yellowish white; metasternum reddish orange; ostiolar peritreme yellowish white; coxae, and trochanters yellow; femora pale brown, tinged with orange hazel, and basally yellow; tibiae and tarsi reddish brown; abdominal sterna and genital plates pale brown, except middle third of sterna, posterior margin of sterna VI and VII, and pleural margins yellow.

*Structure*.—Rostrum reaching posterior margin of abdominal sternite III; rostral segment I reaching anterior margin of prosternum.

*Variation*.—(1) Fore femur entirely pale brown, tinged with orange hazel. (2) Mesosternum brown, anterior and posterior margins yellow, and transverse line black. (3) Metasternum brown, with posterior margin yellow. (4) Posterior margin of abdominal sterna III to V yellow.

*Male*.—Unknown.

*Measurements* ( $n = 1$ ).—Female. Head length 1.05; width across eyes 1.60; interocular space 0.95. Length of antennal segments: I, 0.45; II, 1.25; III, 1.15; IV, 1.40. Pronotum: Total length 1.25; maximum width across anterior lobe 1.50; maximum width across posterior lobe 2.50. Scutellar length 1.00; width 1.27. Total body length 8.18.

*Discussion*.—This new species is related to *A. orinocoensis* Brailovsky, in having the coxae and trochanters yellow, hemelytral membrane ocher, with apical margin widely hyaline, head dorsally yellow with reddish brown to pale brown marks, restricted to the intercellular space and transverse line, and antennal segment IV black to reddish brown. In *A. orinocoensis* the pronotum, clavus, corium, prothorax, and metathorax are entirely yellow and the antenniferous tubercle dark brown to black. In *A. calvatus* the pronotum, clavus, corium, prothorax, and mesothorax are not entirely

yellow, and the antenniferous tubercles are yellowish orange.

*Etymology*.—From the Latin, *calvata*, meaning smooth.

*Acroleucus nexus* Brailovsky and Barrera

*Acroleucus nexus* Brailovsky and Barrera 1984: 96-97

Easy to recognize by having the coxae yellow with basal third orange hazel, trochanters yellow, bucculae black, hemelytral membrane dark brown with apical border narrowly hyaline and difficult to see, pronotum, scutellum, and clavus entirely dark brown, and head dorsally shiny orange with tylus, juga, and distinct median longitudinal stripe black.

*Distribution*.—Only known from México. México: Morelos, Cuernavaca (Brailovsky and Barrera 1984).

*New Records*.—1 male, 1 female: Oaxaca, Ixtepeji, Peña Prieta, Mar 2006, A. Franco (UNAM).

*Host Plant*.—Collected on *Tillandsia violacea* (Baker) and *Tillandsia oaxacana* L. B. Sm. (Bromeliaceae).

*Acroleucus signaticollis* Stål

*Acroleucus signaticollis* Stål 1874: 114

Clearly distinguished by the coxae, trochanters, and bucculae yellow, hemelytral membrane

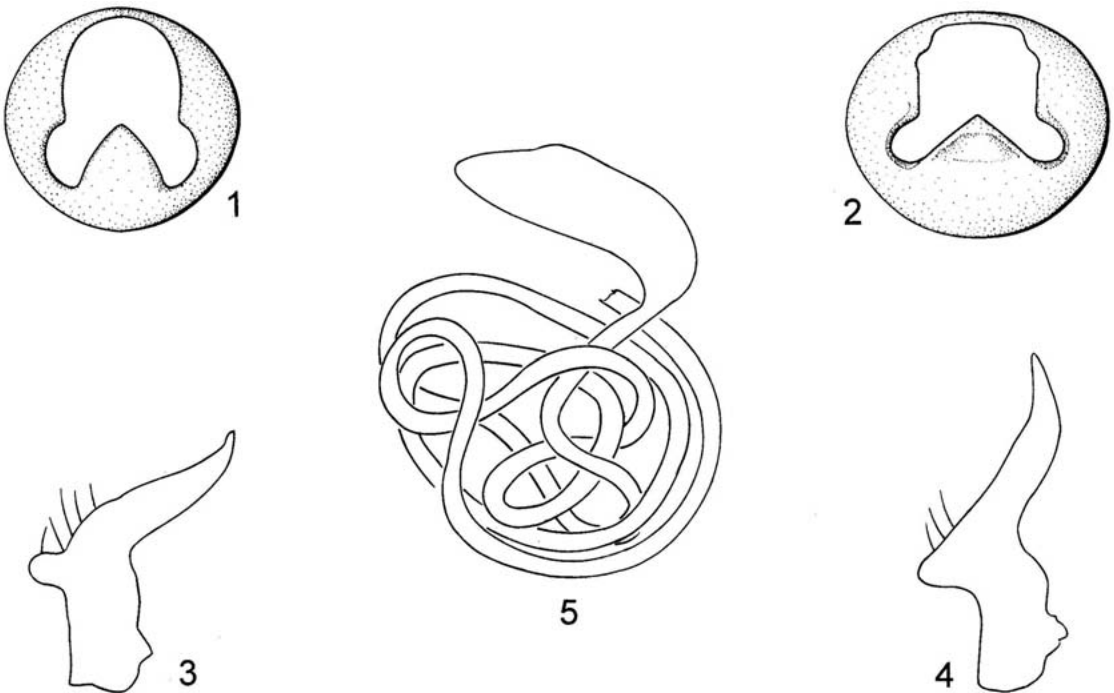
brown to ochre with contrasting dark brown veins, and apical margin widely hyaline; head dorsally yellowish orange with distinct black median longitudinal stripe, antennal segment IV black to reddish brown, and pronotum, corium, femora, and tibiae predominantly yellow to pale brown.

*Distribution*.—Recorded from México, Honduras, Costa Rica, Panama, Colombia, British Guiana. México: San Luis Potosí: road Tamazunchale-Ciudad Valles (Brailovsky 1980).

*Acroleucus tensus* Brailovsky and Cervantes

**NEW SPECIES** (Figs. 2, 4-5, 7-8)

*Types*.—Holotype male: México: Oaxaca, km. 56, road Oaxaca-San Migue Sola de Vega, 1 Jul 1990, E. Barrera and A. Cadena (UNAM). Paratypes: 9 males, 7 females: same data as holotype (UNAM). 1 female: Oaxaca, Municipio Tlaco-lula, San Juan Guelavia, 16°58'00"N, 96°32'57"W, 1600 m, 31 Dec 2004, H. Brailovsky and E. Barrera (UNAM). 16 males, 11 females: Oaxaca, 17 km SE de Huajuápan de León, 29 Jun 1996, E. Barrera and H. Brailovsky (UNAM). 2 males, 2 females: Oaxaca, Pochutla-Pluma Hidalgo, 3 Jun 1987, E. Barrera, F. Arias, and L. Cervantes. (UNAM). 1 female: Oaxaca, 2 km SW, El Camarón, 12 Jul 2000, E. Barrera, A. Ibarra, and C. Mayorga (UNAM). 2 males, 2 females: Guerrero, Atoyac-Nueva Delhi, Rio Santiago, 21 Apr 1988,



Figs. 1-5. *Acroleucus* spp. 1-2. Male genital capsule in dorsal view. 1. *A. bromelicola* Brailovsky. 2. *A. tensus* Brailovsky and Cervantes. Figs. 3-4. Paramere. 3. *A. bromelicola* Brailovsky. 4. *A. tensus* Brailovsky and Cervantes. 5. Spermatheca of *A. tensus* Brailovsky and Cervantes.

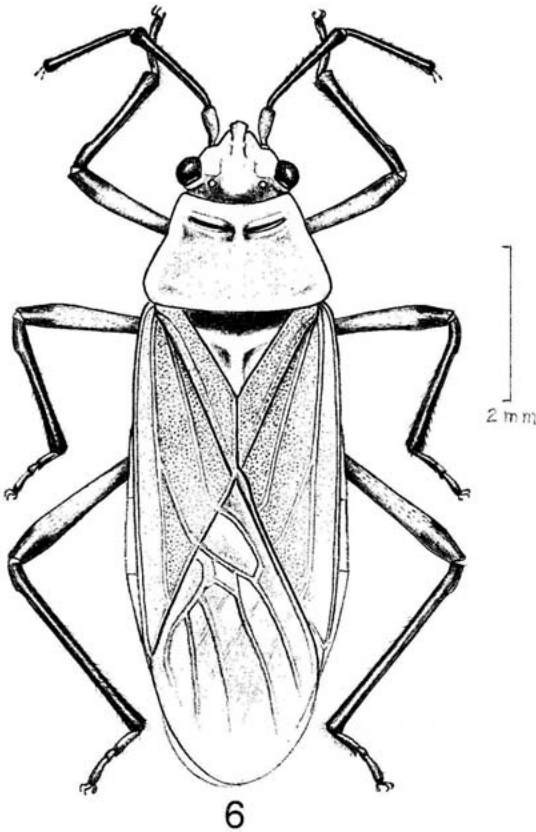


Fig. 6. Dorsal view of *Acroleucus calvatus* Brailovsky and Cervantes.

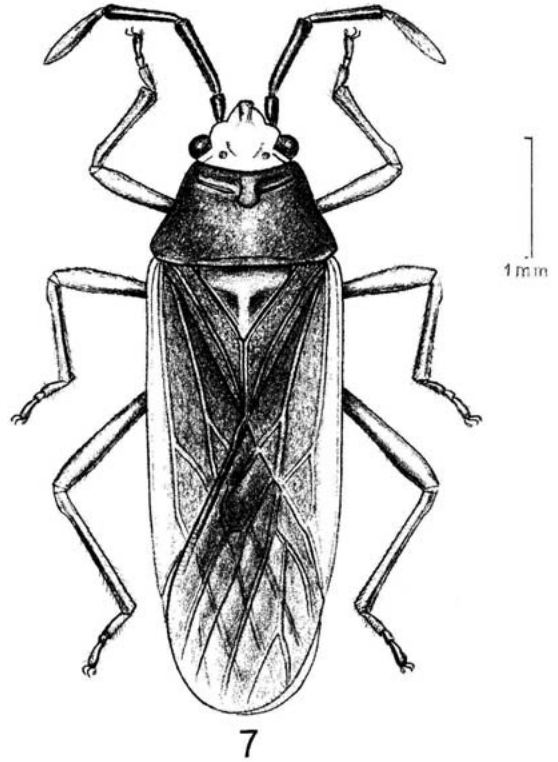


Fig. 7. Dorsal view of *Acroleucus tensus* Brailovsky and Cervantes.

A. Cadena, M. Garcia, and L. Cervantes (UNAM). 3 males, 1 female: Guerrero, Zihuaquio, 15 Apr 1988, L. Cervantes, M. Garcia, and A. Cadena (UNAM). 1 male: Michoacán, km 93 Uruapan-Playa Azul, Finca El Manguito, 1300 m, 26 May 1988, L. Cervantes and A. Cadena (UNAM). 1 male: km 90 Patzcuaro-La Huacana, 1400 m, 1 Jun 1988, L. Cervantes and A. Cadena (UNAM). 11 males, 12 females: Hidalgo, 5 km NE Pachuca, 24 Feb 1990, E. Barrera and H. Brailovsky. Collected in *Hechtia podantha* Mez (Bromeliaceae) (UNAM). 1 male, 2 females: Hidalgo, San Miguel Regla, Hueyapan, and Peña del Aire, 24 Feb 1990, 7-8 Jun 1990, H. Brailovsky and E. Barrera (UNAM). 1 male, 1 female: Hidalgo, Zimapan, 26 Mar 1997, H. Brailovsky (UNAM). 1 male: Queretaro, Jalpan de Amoles, 1180 m, 21°11'69"N, 99°37'84"W, 5 Nov 1997, E. Barrera and G. Ortega-León (UNAM). 3 males, 4 females: Guanajuato, Yuriria, 13 Mar 1997, E. Barrera and H. Brailovsky (UNAM). 2 females: Puebla, Coscatlan, 1050 m, 5 Jul 1979, 8 Sep 1979, E. Barrera and G. Ortega-León (UNAM). 1 female: Puebla, 6 km NW Teontepec, 1900 m, 14 Jul 1999, H. Brailovsky and E. Barrera (UNAM). 2 females: Puebla, 2.5 km SW de Zapotitlan, 1490 m, 13 Jul

1999, E. Barrera and H. Brailovsky (UNAM). 2 males: Puebla, 2 km N Calipan, 18 Mar 1993, E. Barrera (UNAM). 2 males: Puebla, San Juan Raya, 19 Jan 1992, H. Brailovsky, E. Barrera, C. Mayorga, and G. Ortega-León (UNAM). 1 female: Puebla, Atexcoco, 12 Mar 1994, E. Barrera and C. Mayorga (UNAM). 1 male, 1 female: Puebla, Axusco-Petlanco, 5 Nov 1988, E. Barrera, R. Barba, and L. Cervantes (UNAM). 1 female: Chiapas, Reserva El Ocote, 29 Apr-3 May 1993, E. Barrera (UNAM). 1 female: km 6 Motozintla-Siltepec, 8 Jul 1988, A. Cadena (UNAM). 3 males, 5 females: Tamaulipas, Jaumave, el Salto, 1111 m, 23°21'23"N, 99°30'54"W, 12 May 2007, H. Brailovsky, E. Barrera and L. Cervantes (IEXA, UNAM). 1 male: Tamaulipas, Ciudad Victoria, Balcón de Moctezúma, 1000 m, 23°35'08"N, 99°11'10"W, 13 May 2007, H. Brailovsky, E. Barrera and L. Cervantes (UNAM).

*Description*.—Male (holotype). Dorsal coloration: Head pale yellowish orange, except black apex of tylus, and juga; antennal segments I to IV dark brown; pronotum dark brown with narrow brownish ocher anterolateral margins; scutellum and clavus brown; corium brown with costal margin yellow; hemelytral membrane pale brown, api-

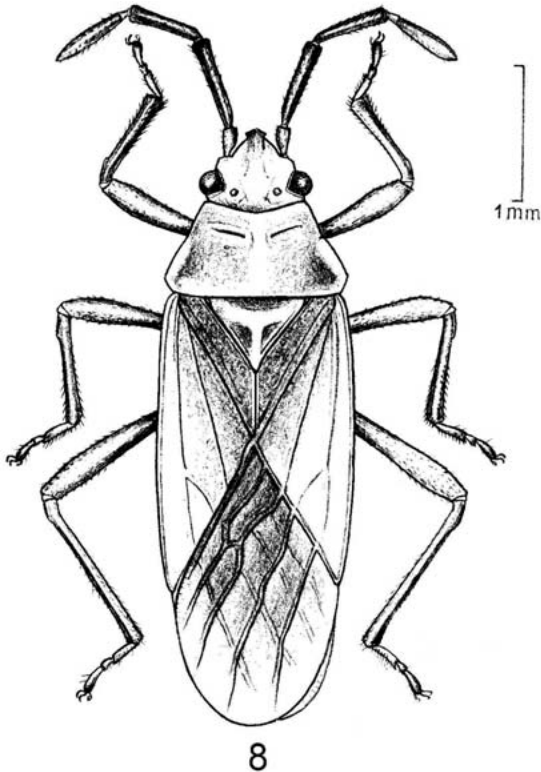


Fig. 8. Dorsal view of *Acroleucus tensus* Brailovsky and Cervantes.

cal border narrowly hyaline (difficult to see). Ventral coloration: Head yellow except brown to black bucculae; rostral segments I to IV brownish hazel; thorax brown; mesosternum transversely yellowish hazel; ostiolar peritreme dark yellow tinged with pale brown marks; coxae yellow with basal third orange hazel; trochanters yellow; femora brown, basal third yellow; tibiae pale brown; tarsi brown, except each basal segment with anterior third dark yellow; abdominal sternite pale brown, pleural margins yellow; pygophore pale brown.

**Structure.**—Rostrum reaching anterior margin of abdominal sternite III; rostral segment I extending to anterior border of prosternum. Genital capsule: circular in cross section; inner space with lateral arms wide opened and robust; space between arms with "V" concavity slightly pronounced (Fig. 2). Paramere: shaft robust; posterior projection well developed, thick, subconical; anterior projection elongate, slender; spur apically acute, clearly directed upward (Fig. 4).

**Female.**—Color and habitus similar to male holotype. Spermatheca: bulb moderately broad; tube extremely elongate, slender and complexly coiled (Fig. 5).

**Variation.**—(1) Pale to dark brown color of pronotal disk, scutellum, clavus and corium even-

tually black. (2) Head dorsally pale yellow, except black apex of tylus and juga. (3) Humeral angles yellow. (4) Ostiolar peritreme yellowish white to pale brown, suffused or not with yellow marks. (5) Inner border of clavus, and claval commissure yellow to brown.

**Measurements** ( $n = 10$ ).—Male (female). Head length 0.63 (0.71); width across eyes 0.92 (1.01); interocular space 0.60 (0.65). Length of antennal segments: I, 0.22 (0.25); II, 0.62 (0.68); III, 0.54 (0.59); IV 0.78, (0.83). Pronotum: Total length 0.68 (0.72); maximum width across anterior lobe 0.83 (0.93); maximum width across posterior lobe 1.46 (1.64). Scutellar length 0.57 (0.62); width 0.77 (0.88). Total body length 4.62 (5.17).

**Discussion.**—This new species is related to *A. nexus* Brailovsky, in having the bucculae, and scutellum pale brown to black, the hemelytral membrane pale to dark brown with apical border narrowly hyaline and difficult to see, coxae yellow with basal third orange hazel, and trochanters yellow. In *A. nexus* the head dorsally is shiny orange, except tylus, juga, and distinct black median longitudinal stripe, femora entirely reddish orange, rostrum reaching posterior margin of abdominal sternite III, corium black with costal margin narrowly yellow, and mesosternum with transverse line shiny brown to black. In *A. tensus* the head dorsally is yellowish orange except black apex of tylus and juga, femora brown with the basal third yellow, rostrum reaching anterior margin of abdominal sternite III, corium brown with costal margin widely yellow, and mesosternon with transverse line yellowish hazel.

**Etymology.**—From the Latin *tensus*, referring to the narrow general shape of the species.

*Acroleucus tullus* (Stål)

*Lygaeus tullus* Stål 1862: 311

This species is separated by having the coxae yellow with basal third brownish hazel, trochanters and bucculae yellow, head dorsally and antennal segment IV black to dark brown, hemelytral membrane dark brown with apical margin widely hyaline, and pronotal disk dark brown with anterior and lateral margins widely yellowish orange, and posterior margin black or very narrowly yellowish orange usually restricted to the humeral angles.

**Distribution.**—Widely distributed through México, Guatemala, Costa Rica, Panama and Venezuela. México: Chiapas: Ocozocoautla e Ixhuatán. Guerrero: Chilpancingo. Veracruz, Cordoba, Jalapa, and Orizaba.

**New Records.**—México: 1 male: Jalisco, 12 mi S of Mazamitla, 5 Dec 1948. 2 males, 2 females: Oaxaca, km 41 Puerto Escondido-Sola de Vega, 855 m, 4 Jul 1990, E. Barrera and A. Cadena. 3 males: Oaxaca, Tlacolula, km 17 Tlacolula-El Carrizal, 2240 m, 17°03'52"N, 96°24'67"W, 4 Sep

2004, L. Cervantes y J. Calónico. 1 male: Oaxaca, km 111 Oaxaca-Puerto Escondido, 1443 m, 16°26'05"N, 97°01'58"W, 1 Dec 2006, E. Barrera. 1 male: Oaxaca, San Pedro Yolox, Sta. Cruz Teototutla, 1167 m, 17°44'25"N, 96°33'48"W, 1 Sep 2004, L. Cervantes and J. Calónico. 1 male, 3 females: Oaxaca, Portillo del Rayo, 18 Oct 1985, 30 May 1987, E. Barrera. 1 male: Oaxaca, San Mateo

Yetla, 21 Sep 1982, A. Ibarra. 1 male: Oaxaca, km 176 Puerto Ángel-Oaxaca, 18 Apr 1983, A. Ibarra. 1 female: Guerrero, Ixcateopan, km 4.5 road to Amealco, 1480 m, 13 Sept 2006, L. Cervantes and L. Lozada. All the specimens deposited in UNAM  
*Host Plants*.—Collected on the leaves of *Solanum nigrum* L. and *Solanum nudum* H. B. M. (Solanaceae).

#### REVISED KEY TO MEXICAN SPECIES OF *ACROLEUCUS*

1. Hyaline apex of hemelytral membrane with digitiform extension toward center of membrane  
 ..... *A. bromelicola* Brailovsky
- 1'. Hyaline apex of hemelytral membrane not extended toward center of membrane, restricted to apical margin  
 ..... 2
2. Bucculae black to pale brown; hyaline apex of hemelytral membrane narrow, difficult to see ..... 3
- 2'. Bucculae yellow; apical margin of hemelytral membrane widely hyaline ..... 4
3. Head dorsally shiny orange, except tylus, juga, and distinct black medial longitudinal stripe; basal third of femora black to dark brown; tarsi brown to black ..... *A. nexus* Brailovsky & Barrera
- 3'. Head dorsally yellowish orange, except black apex and juga; basal third of femora yellow; tarsi brown except each basal segment with anterior third yellow ..... *A. tensus* Brailovsky & Cervantes **NEW SPECIES**
4. Head dorsally yellowish orange, suffused with pale brown marks ..... 5
- 4'. Head dorsally black to dark brown ..... 6
5. Veins of hemelytral membrane black, contrasting with dark brown surrounding areas  
 ..... *A. signaticollis* Stål
- 5'. Veins of hemelytral membrane concolorous with surrounded areas  
 ..... *A. calvatus* Brailovsky & Cervantes **NEW SPECIES**
6. Posterior pronotal margin widely yellowish orange ..... *A. brevicollis* (Stål)
- 6'. Posterior pronotal margin black or very narrowly yellowish orange ..... *A. tullus* (Stål)

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#### LITERATURE CITED

- BRAILOVSKY, H. 1977. Contribución al estudio de los Hemiptera-Heteroptera de México. XIII. Revisión del género *Acroleucus* Stål (Lygaeidae-Lygaeinae) con descripción de una nueva especie. *Anales Inst. Biol. Univ. Nal. Autón. México, Ser. Zool.* 48: 123-128.
- BRAILOVSKY, H. 1980. Revisión del género *Acroleucus* Stål (Hemiptera-Heteroptera-Lygaeidae-Lygaeinae). *Folia Entomológica Mexicana* 44: 39-120.
- BRAILOVSKY, H. 1984. Nuevas adiciones al género *Acroleucus* Stål (Hemiptera-Heteroptera-Lygaeidae-Lygaeinae). *Anales Inst. Biol. Univ. Nal. Autón. México* (1982), *Ser. Zool.* 54: 35-52.
- BRAILOVSKY, H., AND E. BARRERA. 1984. Cinco especies nuevas, nuevos datos distribucionales y notas biológicas acerca de Lygaeinae americanos (Lygaeidae: Hemiptera: Heteroptera). *Anales Inst. Biol. Univ. Nal. Autón. México, Ser. Zool.* 55: 95-110.
- SLATER, ALEX. 1992. A genus level revision of Western Hemisphere Lygaeinae (Heteroptera: Lygaeidae) with keys to species. *The University of Kansas, Science Bulletin* 55: 1-56.
- STÅL, C. 1862. Hemiptera mexicana enumeravit speciesque novas descripsit. *Stettiner Entomol. Zeitung*, 23: 289-325.
- STÅL, C. 1874. *Enumeratio Hemipterorum*. Part 4. *Kongl. Svenska Vetensk-Akad. Handl.* 12 (1): 1-186.