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A REVIEW OF THE COSTA RICAN SPECIES OF
LEPTOGLOSSUS GUÉRIN, WITH DESCRIPTIONS OF TWO NEW
SPECIES (HEMIPTERA: HETEROPTERA: COREIDAE:
COREINAE: ANISOSCELINI)

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Two new species of *Leptoglossus*, *L. cartagoensis* and *L. talamancanus*, collected in Costa Rica are described and illustrated; *L. brevirostris* Barber, *L. humeralis* Allen, *L. lineosus* (Stål), *L. nigropearlei* Yonke, *L. subauratus* Distant, and *L. tetranotatus* Brailovsky and Barrera are recorded for the first time from Costa Rica; new records for *L. cinctus* (Herrich-Schaeffer), *L. concolor* (Walker), *L. phyllopus* (Linnaeus), and *L. zonatus* (Dallas) are given; and a revised key to known species of *Leptoglossus* from Costa Rica is presented.

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The genus *Leptoglossus* Guérin is a large complex group that ranges from southern Canada, through the United States, Mexico, Antilles, Central America, and South America including Chile and Argentina. *Leptoglossus gonagra* (Fabricius) is the only species of *Leptoglossus* that occurs outside of the Western Hemisphere, and has been recorded from Africa, Southeast Asia, the Pacific Islands, and Australia (Allen 1969).

Allen (1969) revised the genus and provided a key to the 37 species and one subspecies known at that time. Baranowski and Slater (1986) synonymized *L. australis* (Fabricius) with *L. gonagra* (Fabricius). Close to that period, Alayo and Grillo (1977), Brailovsky (1976, 1990), Yonke (1981), and Brailovsky and Barrera (1994) added nine additional new species, thus, increasing to 45 the total number of species.

Osuna (1984) revised the genera of Anisoscnelini and separated the genus *Leptoglossus* into five genera: *Fabrictilis* Osuna, *Leptoglossus* Guérin (sensu strictu), *Stalifera* Osuna, *Theognis* Stål, and *Veneza* Osuna, but in that monograph he did not treat species or discuss relationships within each genus. Because Osuna's (1984) new genera have more characters in common than they have differences, and there are no good and consistent external characters that validate their creation, the authors do not follow his classification proposal.

Previous to this paper only four species of the genus *Leptoglossus* were known from Costa Rica. This contribution adds six noteworthy records, two new species, and a key to the Costa Rican species.

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KEY TO THE SPECIES OF *LEPTOGLOSSUS* FROM COSTA RICA

1. Thoracic pleura dark with at least two strongly contrasting yellow maculae or yellow maculated fascia; thoracic and abdominal venter without numerous small black spots .2
 Thoracic pleura orange to dark red brown without strong yellow markings; thoracic and abdominal venter with numerous small black spots 6
- 2.(1) Clavus and corium dark brown with strongly contrasting pale yellow veins 3
 Clavus and corium dark brown with veins concolorous or at most bright red, but never pale yellow. 5
- 3.(2) Pronotum without yellow or orange transverse fascia; humeral angles conspicuously acute, raised and expanded laterally; pronotal disc with median longitudinal carina strongly dentate *L. talamancanus*, new species
 Pronotum with narrow or wide yellow or orange transverse fascia, running across humeral angles; humeral angles acute but not raised and expanded; pronotal disc with median longitudinal carina obsolete 4
- 4.(3) Pronotum with wide yellow or orange transverse fascia, occupying most of the anterior third of the disc; antennal segments II to IV pale ochraceous; posterolateral margins of the pronotum serrate. *L. subauratus* Distant
 Pronotum with yellow or orange transverse fascia very narrow; antennal segments II to IV bicolored; posterolateral margins of the pronotum entire. *L. lineosus* (Stål)
- 5.(2) Pronotal disc with four, small, yellow to orange spots, two on the anterior lobe, and two on the posterior margin; thoracic pleura with six strongly contrasting orange spots *L. tetranotatus* Brailovsky and Barrera
 Pronotal disc without small yellow to orange spots; thoracic pleura with a single yellow maculae occupying almost the entire acetabulae of each leg *L. cinctus* (Herrich-Schaeffer)
- 6.(1) Humeral areas of the pronotum broadly expanded as long and tapering projections; humeral angles subacuminate (Fig. 2). *L. humeralis* Allen
 Humeral areas of the pronotum not broadly expanded; humeral angles rounded or subacuminate but never expanded. 7
- 7.(6) Pronotal disc, scutellum, clavus and corium with numerous black discoidal spots; pronotum orange with humeral angles pale yellow; pronotum with anterolateral margins dentate *L. nigropearlei* Yonke
 Pronotal disc, scutellum, clavus and corium without black discoidal spots; pronotum never orange with humeral angles pale yellow; pronotum with anterolateral margins entire . . 8
- 8.(7) Transverse yellow fascia on corium always present and straight 9
 Transverse yellow fascia on corium irregular, not straight, or fascia absent 10
- 9.(8) Antennal segments II and III orange with apical third black; hind tibiae with inner dilation considerably shorter than outer (Fig. 11); connexival segments black and with or without inner margins dark red. *L. cartagoensis*, new species
 Antennal segments II and III entirely yellow to orange; hind tibiae with inner dilation only slightly shorter than outer (Fig. 15); connexival segments black or brown with posterior margin yellow *L. phyllopus* (Linnaeus)
- 10.(8) Rostrum short, not extending past abdominal sternite II; rostral segment IV shorter than antennal segment I *L. brevirostris* Barber
 Rostrum longer, usually extending well onto abdomen; rostral segment IV longer than antennal segment I. 11
- 11.(10) Pronotum dark with two large and strongly rounded yellow spots, dotted with black, and occupying most of the anterior disc; male genital capsule with prominently dorsal prongs (Fig. 34). *L. zonatus* (Dallas)
 Pronotum dark without strongly contrasting yellow spots; male genital capsule without dorsal prongs (Fig. 39) *L. concolor* (Walker)

***Leptoglossus brevirostris* Barber**
(Figs. 18, 40)

Leptoglossus brevirostris Barber, 1918:35–36.

DISTRIBUTION. — Known only from the United States and Mexico.

MATERIAL EXAMINED. — COSTA RICA, 1 female, Prov. Puntarenas, Peninsula Osa, Bosque Esquinas, 200 m, March, 1994 (J. Quesada). Deposited in INBIO.

This small-sized species possesses orange thoracic pleura, with numerous small black spots, corium with yellow transverse fascia in a “zigzag” pattern, pronotum with anterolateral margin entire, and posterolateral dentate, pronotal disc concolorous without strong yellow spots, hind tibiae phylliform with at least two deep emarginations, with outer dilation occupying less than 70% of the length of hind tibiae (Fig. 18), rostrum reaching the metasternum or the anterior margin of abdominal sternite II, with rostral segment IV shorter than antennal segment I, and the male genital capsule with a deep median notch, lateral angles obliquely straight, and long dorsal prongs (Fig. 40).

***Leptoglossus cartagoensis*, new species**
(Figs. 1, 11, 22–23, 33, 41)

TYPES. — Holotype male (deposited in INBIO, courtesy of CAS) from COSTA RICA, Puntarenas, 2.5 km., SW Las Alturas, 08°55'N, 81°51'W, February 17, 1991 (N. D. Penny).

PARATYPES. — COSTA RICA, 2 males, 3 females, Prov. Cartago, Grano de Oro (Chirripo), Turrialba, 1120 m, October, 1992 (J. C. Saborio, P. Campos); COSTA RICA, 1 male, 10 km, S San Jose, Escazu, November, 1992 (J. M. Maes); COSTA RICA, 3 males, 8 females, Prov. Guanacaste, Estación Cacao, SW side of Volcan Cacao, 1000–1400 m, March, June, September, November, December, 1990 (R. Blanco, C. Chavez); COSTA RICA, 1 female, Prov. Puntarenas, San Luis, 1040 m, July, 1992 (Z. Fuentes); COSTA RICA, 4 females, Prov. Puntarenas, Estación Las Mellizas, Parque Nacional La Amistad (Finca Cafrosa), 1300 m, October, 1989 (M. Ramirez, G. Mora). Deposited in BMNH, INBIO, MELN, UNAM.

DESCRIPTION. — **MALE:** Body large and robust. **Head.** Tylus unarmed, rounded apically, barely surpassing juga and slightly raised in lateral view; rostrum reaching anterior third of abdominal sternite IV. **Pronotum.** Collar wide; each pronotal margin entire; humeral angles broadly expanded, subacuminate, flattened, and obliquely ascending; calli barely elevated, almost impunctate, without two medial tubercles; surface densely punctate; disc posteriorly with median longitudinal carina obsolete (Fig. 1). **Legs.** Hind tibiae: Outer dilations wide, phylliform, occupying 72% of the length of hind tibiae, width about 1.5 times width of inner dilations; inner dilations lanceolate, shorter than outer dilations, furnished with numerous small spine-like teeth along margins, occupying 52% of the length of hind tibiae; inner margins of undilated portions with numerous small spine-like teeth (Fig. 11). **Scutellum.** Triangular, wider than long, flat, without median longitudinal carina; apex rounded to subtruncate. **Genitalia.** Genital capsule: Posteroventral edge with median notch deep and rounded, with lateral angles sinuate; no dorsal prongs (Fig. 33). Parameres: Figs. 22–23.

Dorsal coloration. Head black with three narrow stripes dirty orange, one on the middle line, the other two close to eyes; antennal segment I black with internal face dirty orange; antennal segments II and III dirty orange with apical third black; segment IV yellow with basal joint black, Pronotal disc bright red brown with each pronotal margin black; calli almost black with the area between them bright red brown; anterolateral margin with anterior third dirty orange, and posterior third black. Scutellum bright red brown with each margin and the apex black. Hemelytra with clavus and corium bright red to bright red brown, with costal margin, commissure claval, anal suture, and basal endocorium black; corium with a light yellow, straight, transverse fascia; hemelytral membrane uniformly dark. Abdominal segments I to VI dirty orange and VII black; connexival segments black (some specimens with inner face bright red).

Ventral coloration. Head black with two narrow, dirty orange, stripes close to eyes; bucculae bright orange; rostral segments I and II orange with inner and lateral face mostly black; rostral segments III and IV dirty brownish yellow, with inner face and apex of the segment IV black; thorax, abdominal sterna, and genital capsule

dirty orange-red, with numerous small black spots; anterior lobe of metathoracic peritreme dirty orange with black central spot, posterior lobe dirty orange; coxae and trochanters shiny black, with brownish yellow marks; femora orange, with posterior half mostly black; fore and middle tibiae orange or brownish yellow with or without a narrow black stripe near the apical third; hind tibiae with outer and inner dilation black in dorsal view and orange-red in ventral view, each with small irregular yellow spot, with the rib and margins bright red, and the undilated portion orange-yellow; tarsi orange or brownish yellow with or without diffuse narrow black stripe running laterally; abdominal spiracles black or dark brown.

DESCRIPTION. — FEMALE: Similar to male. Connexival segments VIII and IX, and dorsal segments VIII and IX black; genital plates bright orange red with inner margins of gonocoxae I, paratergite VIII and paratergite IX black.

MEASUREMENTS. — Male first, then female: Head length 2.73 mm, 3.11 mm; width across eyes 2.20 mm, 2.43 mm; interocular space 1.21 mm, 1.31 mm; interocellar space 0.53 mm, 0.61 mm; preocular distance 1.59 mm, 1.74 mm; length antennal segments: I, 2.50 mm, 2.58 mm; II, 4.18 mm, 4.48 mm; III, 2.96 mm, 3.26 mm; IV, 4.48 mm, 4.86 mm. Pronotal length 3.26 mm, 3.72 mm; width across frontal angles 1.74 mm, 1.97 mm; width across humeral angles 6.23 mm, 7.52 mm. Hind tibiae: Total length 8.32 mm, 9.50 mm; length outer dilation 6.15 mm, 7.22 mm; length inner dilation 4.33 mm, 4.94 mm; width outer dilation 1.74 mm, 2.35 mm; width inner dilation 0.76 mm, 0.82 mm. Scutellar length 1.97 mm, 2.35 mm; width 2.05 mm, 2.66. Total body length 17.42 mm, 21.00 mm.

REMARKS. — This species is most similar to *L. balteatus* (Linnaeus) and *L. phyllopus* (Linnaeus) with the thoracic pleura orange to dark red, and usually with numerous small black spots, corium with a yellow transverse fascia, always present and straight, and the hind tibiae with an inner dilation shorter than the outer one.

Leptoglossus cartagoensis is a larger and more robust species than *L. balteatus* and *L. phyllopus*, with antennal segments II and III orange with apical third black, hind tibiae with inner dilation considerably shorter than outer, connexival segments black with or without inner margins dark

red, median notch of male genital capsule U-shaped and deep (Fig. 33), humeral angles broadly expanded, subacuminate and flattened, and pronotum bright red brown, with each margin mostly black. The closely related species are medium sized and elongate, with antennal segments II and III entirely yellow or orange, hind tibiae with inner dilation slightly shorter than outer (Figs. 11, 15), connexival segments black or brown, with posterior margin yellow, medial notch of male genital capsule V-shaped and not deep (Fig. 38), humeral angles subacute and not broadly expanded, and pronotum red brown with or without anterolateral margin and posterior margin yellow, and with the disc anteriorly concolorous or with two yellow spots.

ETYMOLOGY. — The species is named for the Province of Cartago in Costa Rica.

Leptoglossus cinctus (Herrich-Schaeffer)
(Figs. 17, 37)

Anisoscelis cincta Herrich-Schaeffer, 1836:91.

DISTRIBUTION. — This is a widely distributed species occurring in Mexico, Central America, Greater Antilles, and South America. It has been recorded from Pacayas, Costa Rica (Allen 1969).

MATERIAL EXAMINED. — COSTA RICA, 1 male, Prov. Guanacaste, Estación Maritza, W side of Volcan Orosi, 600 m, July, 1989; COSTA RICA, 2 females, Prov. Puntarenas, Sabanas Curacucha (Potrero Grande), July, 1989 (A. Solis); COSTA RICA, 3 males, 4 females, Prov. Guanacaste, Finca Jenny, 30 km, N Liberia, Guanacaste National Park, September, October, 1988. Deposited in INBIO.

This is one of the most showy and distinctive species of *Leptoglossus*. It is readily recognizable by the completely yellow pronotal disc, contrasting with the remainder of pronotum and hemelytra, by the shining orange thoracic pleura, with a single yellow spot occupying almost the entire acetabulae of each pleuron, the hind tibiae with one or two shallow emarginations, with outer dilation occupying 65% of the length of hind tibiae (Fig. 17), with clavus and corium dark orange with veins concolorous, and for the anterolateral and posterolateral margins of the pronotum serrate.

Leptoglossus concolor (Walker)

(Figs. 13, 39)

Anisoscelis concolor Walker, 1871:128.

DISTRIBUTION. — Widely distributed through Mexico, Central America, and Greater Antilles. It is recorded from Hamburg Farm and Piedras Negras, Costa Rica (Allen 1969).

MATERIAL EXAMINED. — COSTA RICA, 1 male, Prov. Guanacaste, Rio Gongora, 6 km, NE Quebrada Grande de Liberia, 700 m, February, 1992; COSTA RICA, 2 males, Prov. Puntarenas, Peninsula Osa, Rancho Quemado, 200 m, April and July, 1992 (A. Marin, D. Brenes); COSTA RICA, 1 male, Prov. Guanacaste, Aqua Buena, Guanacaste National Park, 220 m, June 1992. Deposited in INBIO.

This species may be recognized by the combination of thoracic pleura orange, with numerous small black spots, corium with yellow transverse fascia in a "zig-zag" pattern, pronotum with the anterolateral margin entire, and the posterolaterally dentate, pronotal disc concolorous without strong yellow areas, calli with a rough surface with numerous thick hairs, hind tibiae phylliform with at least two deep emarginations, with outer dilation occupying less than 70% of the length of hind tibiae (Fig. 13), rostrum reaching abdominal sternite IV, antennal segment I bicolorous, rostral segment I longer than antennal segment I, and the male genital capsule with straight median notch, without dorsal prongs (Fig. 39). *Leptoglossus stigma* (Herbst), the most closely related species, has the pronotal calli smooth, and the median notch of the male genital capsule is rounded, with dorsal prongs.

Leptoglossus humeralis Allen

(Figs. 2, 10, 24–25, 35)

Leptoglossus humeralis Allen, 1969:126–127.

DISTRIBUTION. — This species previously was known only from British Guiana (Kartabo) and French Guiana (Cayenne) (Allen 1969).

MATERIAL EXAMINED. — COSTA RICA, 1 male, Prov. Guanacaste, 14 km, S Cañas, July 29, 1990 (F. D. Parker); COSTA RICA, 1 female, Prov. Guanacaste, Estación Pitilla, 9 km, S Santa Cecilia, 700 m, February 27–March 2, 1989 (R. Miranda); COSTA RICA, 1 male, Prov. Limon,

Manzanillo (R. N. F. S. Gandoca and Manzanillo), 0–100 m, November 20–30, 1992 (F. A. Quesada); COSTA RICA, 1 male, 1 female, Prov. Limon, Cuatro Esquinas, Parque Nacional Tortuguero, August 26–September 6, 1989 (J. Solano) and July, 1990 (U. Chavarria); COSTA RICA, 3 males, Prov. Limon, Amubri, A. C. Amistad, 700 m, July 5–28, 1993, December 4–21, 1993 and February 1–19, 1994 (G. Gallardo). Deposited in INBIO, UNAM, USU.

This species, originally described from two females, may be easily recognized by the unique humeral expansions, which are produced as broad, long, and tapering lateral projections, obliquely ascending, and with the humeral angles subacuminate (Fig. 2). Other characters inserted to recognize this species are the shape of the hind tibiae with the outer dilation phylliform with one shallow and two deep emarginations occupying 84% of the length of hind tibiae, with inner dilation lanceolate and considerably shorter than outer dilation (Fig. 10); the rostrum reaching the posterior margin of the fourth abdominal sternite; and the pronotal disc, as well as the corium, without pale areas. Male genital capsule: Posteroventral edge with median notch deep and rounded; no dorsal prongs (Fig. 35). Parameres: Figs. 24–25.

Leptoglossus lineosus (Stål)

(Figs. 3, 19, 30)

Theognis lineosus Stål, 1862:295.

DISTRIBUTION. — Only known from Mexico.

MATERIAL EXAMINED. — COSTA RICA, 1 female, Prov. Cartago, July, 1981 (R. Hernandez). Deposited in INBIO.

Closely related to *L. subauratus* Distant with thoracic pleura dark, with two well-defined longitudinal yellow stripes, and clavus and corium dark brown with strongly contrasting pale yellow or ochraceous veins. *Leptoglossus lineosus* is easily identified by the following characters: the pronotum has a very narrow, orange-yellow, transverse band, antennal segments II to IV are bicolored with strongly contrasting pale and dark areas, and the posterolateral margins of the pronotum are entire, whereas in *L. subauratus* antennal segments II to IV are pale ochraceous, the pronotal disc has the orange-yellow transverse band wider and occupying most of the

anterior third, and the posterolateral margins of the pronotum are serrate (Figs. 3, 6).

Leptoglossus nigropearlei Yonke
(Figs. 8, 21, 36)

Leptoglossus nigropearlei Yonke, 1981:213–217.

DISTRIBUTION. — This species was known only from Panama (Yonke 1981).

MATERIAL EXAMINED. — COSTA RICA, 2 males, 2 females, Prov. Guanacaste, Estación Cacao, SW side of Volcan Cacao, 1000–1400 m, September, 1989 (R. Blanco, C. Chavez). Deposited in INBIO, UNAM.

This peculiar species is recognized by the numerous, small, black, discoidal spots scattered on the pronotal disc (Fig. 8), scutellum, clavus and corium; by the orange pronotum with the humeral angles pale yellow; the thoracic pleura orange with numerous black spots; the anterolateral and posterolateral margins of the pronotum dentate; and the male genital capsule with a deep median notch, without dorsal prongs (Fig. 36).

Leptoglossus phyllopus (Linnaeus)
(Figs. 4, 15, 38)

Cimex phyllopus Linnaeus, 1767:731.

DISTRIBUTION. — A wide-ranging species occurring throughout the United States, Mexico, Central America and South America. It is recorded from San Jose and Zarzero, Costa Rica (Allen 1969).

MATERIAL EXAMINED. — COSTA RICA, 1 male, 1 female, Prov. Guanacaste, Finca Jenny, 30 km, N Liberia, Guanacaste National Park, September, October, 1988. Deposited in INBIO.

This species is distinguishable by the humeral angles subacuminate, not broadly expanded; pronotum concolorous with posterior margin never yellow, disc rarely with yellow areas, corium with yellow transverse fascia always straight; thoracic pleura orange to dark red brown, with numerous small black spots; hind tibiae with inner dilation slightly shorter than outer (Fig. 15); and the male genital capsule with a shallow V-shaped median notch (Fig. 38).

It is very similar to *L. balteatus*, in both color and structure, but in this species the posterior margin of the pronotum is always yellow, the

pronotal disc always has contrasting yellow areas, and the distribution is restricted to the Greater Antilles.

Leptoglossus subauratus Distant
(Figs. 6, 14, 43)

Leptoglossus subauratus Distant, 1881:126.

DISTRIBUTION. — Described from El Salvador, and later recorded from Guatemala and Nicaragua (Allen 1969).

MATERIAL EXAMINED. — COSTA RICA, 1 male, Prov. Guanacaste, Estación Santa Rosa, 300 m, May, 1989; COSTA RICA, 1 female, Prov. Cartago, July, 1981 (R. Hernandez). Deposited in INBIO.

This is a medium-sized species, readily recognizable by the following characters: antennal segments I to IV yellow; pronotal disc with wide, yellow, transverse fascia between humeral angles (Fig. 6); thoracic pleura dark with at least two strongly contrasting longitudinal yellow fascia; clavus and corium dark brown with strongly contrasting pale yellow veins; hind tibiae with outer dilation lanceolate, occupying 60% of the length of hind tibiae, and inner dilation lanceolate and about equal in length to outer dilation (Fig. 14); and the male genital capsule has a shallow median concavity, with lateral angles straight, without dorsal prongs.

Leptoglossus talamancanus, new species
(Figs. 7, 20, 28, 29, 32, 42)

TYPES. — Holotype male (INBIO), COSTA RICA, Prov. Alajuela, Caño Negro, 20 m, March 10–29, 1993 (K. Martinez).

PARATYPES. — COSTA RICA, 1 male, 3 females, same data as holotype; COSTA RICA, 1 female, Prov. Limon, Amubri-Talamanca, 70 m, July 1–22, 1992 (G. Galindo); COSTA RICA, 1 male, Prov. Cartago, Turrialba (Catie), June 26–29, 1986 (W. Hanson, G. Bohart). Deposited in INBIO, UNAM, USU.

DESCRIPTION. — MALE: Body medium sized. **Head.** Tylus unarmed, rounded apically, extending anteriorly to the juga and slightly raised in lateral view; rostrum reaching anterior third of abdominal sternite III. **Pronotum.** Collar wide; anterolateral and posterolateral margins dentate;

anterior and posterior margins entire; humeral angles extremely acute, raised, and conspicuously extended laterally; calli slightly elevated; area between calli with two large tubercles; surface densely punctate; pronotal disc with low median longitudinal carina, strongly dentate (Fig. 7). **Legs.** Hind tibiae: Outer dilation short, lanceolate, entire, occupying 36–41% of the length of hind tibiae, width of outer dilation wider to width of inner dilation; inner dilation lanceolate, slightly shorter than outer, with few strong teeth distally, occupying 34% of the length of hind tibiae; undilated portion of hind tibiae with double row of small spine-like teeth along inner margins (Fig. 20). **Scutellum.** Triangular, longer than wide, barely elevated, with low median longitudinal carina, slightly dentate; apex truncated. **Genitalia.** Genital capsule: Posteroventral edge with shallow median notch, with lateral angles rounded; no dorsal prongs (Fig. 32). Parameres: Figs. 28–29.

Dorsal coloration. Head yellow with four narrow stripes light red brown, two on the postocular region, and two above; antennal segments I to III dirty yellow, and IV creamy yellow; pronotum, scutellum, clavus, and corium light red brown, with following areas yellow: each pronotal margin, the two tubercles on calli, the median longitudinal carina of pronotal and scutellar disc, apex of scutellum, clavus and corial veins, costal and apical margin, and claval commissure; corium with pale yellow, straight, transverse fascia; hemelytral membrane uniformly dark; calli region shiny black; connexival segments III to VI black to pale brown, with anterior third yellow, and segment VII yellow with black spot close to posterior third; upper margin of connexival segments III to VII yellow; dorsal abdominal segments black.

Ventral coloration. Head, including the bucculae, yellow, with three longitudinal narrow stripes pale red brown; rostral segments yellow with apex of IV black; thoracic pleura brownish yellow with red brown spots irregularly distributed, and at least two usually more strongly yellowish longitudinal fasciae; prosterna and mesosterna pale brown, with middle furrow of mesosterna yellow; metasterna shiny black; abdominal sterna III to VI shiny black with posterior margin and longitudinal lateral fasciae shiny yellow; abdominal sternite VII bright yellow with pale brown irregular spots; pleural margin

of abdominal sterna III to VII yellow with pale brown spots on posterior third of sterna V and VI; genital capsule brownish yellow with pale brown irregular spots; fore and middle coxae chestnut brown with diffuse yellow spots; fore and middle trochanters yellow with one chestnut brown spot; fore and middle femora, tibiae, and tarsi yellow with small, pale brown, irregular spots; hind coxae shiny red brown; hind trochanter chestnut orange with diffuse yellow spots; hind femora with internal face mostly black to red brown, and external face dirty yellow and on each face the spines are shiny black; hind tibiae yellow with inner and outer dilations shiny black, and with small irregular spots yellow on each dilation; hind tarsi yellow; anterior lobe of metathoracic peritreme black, with the margins yellow, posterior lobe yellow.

DESCRIPTION. — **FEMALE:** Similar to male. Connexival segments VIII and IX yellow; abdominal segments VIII and IX black with posterior margin yellow; genital plates yellow with inner third of paratergite IX and gonocoxae I pale brown; abdominal sterna III to VII yellow, and densely covered with shiny black spots; fore and middle femora yellow with two or three narrow stripes pale red brown; hind femora yellow, with the spines shiny black and some irregular spots and short stripes shiny red brown.

VARIATION IN SPECIES. — 1. Antennal segments II and III yellow with inner face light brown. 2. Antennal segment IV creamy yellow with apical third pale brown. 3. Hind femora mostly shiny black with few external narrow stripes yellow.

MEASUREMENTS. — First male, then female: Head length 1.88 mm, 2.12 mm; width across eyes 1.68 mm, 1.93 mm; interocular space 0.88 mm, 1.04 mm; interocellar space 0.34 mm, 0.48 mm; preocular distance 1.10 mm, 1.26 mm; length antennal segments: I, 2.08 mm, 2.12 mm; II, 2.96 mm, 3.20 mm; III, 2.24 mm, 2.28 mm; IV, 3.52 mm, 3.44 mm. Pronotal length 2.12 mm, 2.60 mm; width across frontal angles 1.40 mm, 1.72 mm; width across humeral angles 4.16 mm, 5.64 mm. Hind tibiae: Total length 5.76 mm, 6.32 mm; length of outer dilation 2.10 mm, 2.60 mm; length of inner dilation 1.98 mm, 2.23 mm; width of outer dilation 0.62 mm, 0.88 mm; width of inner dilation 0.43 mm, 0.68 mm. Scutellar length 1.32 mm, 1.60 mm; width 1.28

mm, 1.40 mm. Total body length 11.00 mm, 13.82 mm.

REMARKS. — Like *L. subauratus*, this species has the thoracic pleura dark, with at least two strongly contrasting, longitudinal yellow fascia, the clavus and corium dark brown or pale red brown with pale yellow veins, hind tibiae with outer and inner dilations lanceolate, and antennal segments I to III yellow to dirty yellow. The two species can be separated on the basis of the following combination of characters. In *L. subauratus* the pronotal disc has a wide yellow transverse fascia running across humeral angles, antennal segment IV orange to orange-yellow, humeral angles acute, but not raised and not greatly expanded (Fig. 14), median longitudinal carina obsolete and rostrum reaching the posterior margin of abdominal sternite V. In *L. talamancanus*, the antennal segment IV is creamy yellow, the rostrum reaching anterior third of abdominal sternite III, the pronotal disc without yellow transverse fascia, with the median longitudinal carina strongly dentate, and the humeral angles extremely acute, raised, and conspicuously extended laterally (Fig. 20).

Leptoglossus lineosus has antennal segment I mostly black, and segment IV red-brown with apex pale yellow, the pronotal disc has a narrow yellow transverse fascia across humeral angles, and rostral segments I to IV are mostly black. In *L. talamancanus* the rostral segments are yellow with apex of segment IV black.

ETYMOLOGY. — The species is named for the City of Talamanca in Costa Rica.

***Leptoglossus tetranotatus* Brailovsky and Barrera**
(Figs. 5, 16, 26–27, 31, 44)

Leptoglossus tetranotata Brailovsky and Barrera, 1994:60–62.

DISTRIBUTION. — The only known record came from the original description in which the holotype and only known specimen was collected in French Guiana (Brailovsky and Barrera 1994).

MATERIAL EXAMINED. — COSTA RICA, 1 male, Prov. Limon, Estación Cuatro Esquinas, Tortuguero National Park, March 27, 1992 and April 29, 1992 (D. Garcia); COSTA RICA, 3 males, Prov. Puntarenas, Peninsula Osa, Bosque

Esquinas, 200 m, April and May, 1994 (J. Quesada); COSTA RICA, 1 male, 1 female, Prov. Puntarenas, Rancho Quemado, April, 1991 (F. Quesada); COSTA RICA, 2 males, 2 females, Prov. Puntarenas, Estación Sirena, Corcovado National Park, March 21, 1992, and April 21, 1992 (Z. Fuentes); COSTA RICA, 1 female, Prov. Limon, Rio Sardinias, R. N. F. S. Barra de Colorado, 10 m. August 14–22, 1993 (F. Araya); COSTA RICA, 1 female, Prov. Limon, Manzanillo, R. N. F. S., Gandoca and Manzanillo, October 22 and November 11, 1992 (K. Taylor); COSTA RICA, 1 female, Prov. Limon, Cerro Tortuguero, Tortuguero National Park, 100 m, November, 1989 (J. Solano). Deposited in CAS, INBIO, UNAM.

This species may be distinguished by the following characters: pronotal disc with four, yellow to orange, small spots, two on the anterior lobe and the other pair on the posterior margin (Fig. 5); thoracic pleura with six strongly contrasting orange spots (three on propleura, two on mesopleura, and one on metapleura); antennal segments I to IV orange-yellow; hind tibiae with outer dilation phylliform, with two or three emarginations, occupying 52% of the length of hind tibiae, and inner dilation lanceolate, occupying 48% of the length of hind tibiae (Fig. 16); and the male genital capsule with a deep median notch, lateral angles almost straight, and dorsal prongs barely exposed (Fig. 31). Parameres: Figs. 26–27.

***Leptoglossus zonatus* (Dallas)**
(Figs. 9, 12, 34)

Anisoscelis zonata Dallas, 1852:452.

DISTRIBUTION. — This is a widely distributed species occurring in the United States, Mexico, Central America and South America. From Costa Rica, it is recorded from Puntarenas, Turrialba and San Jose (Allen 1969).

MATERIAL EXAMINED. — COSTA RICA, 1 female, Prov. Guanacaste, Rio San Josecito, Guanacaste National Park, 960 m, April 3–4, 1987 (Holsenthal, Hamilton, Heyn); COSTA RICA, 3 males, 2 females, Prov. Guanacaste, Finca Jenny, 30 km, N Liberia, December, 1988; COSTA RICA, 1 female, Prov. Guanacaste, Estación Cacao, SW side of Volcan Cacao, 1000–1400 m, March, 1988; COSTA RICA, 1

male, Prov. Guanacaste, vicinity Estación Murciélagos, 8 km, SW Cuajiniquil, 100 m, February, 1989; COSTA RICA, 1 female, Prov. Guanacaste, La Pacífica, February 20, 1983 (G. C. Eickwort). Deposited in INBIO, UMSP, USU.

Recognized by the relatively large size, pronotal disc with two distinct pale yellow rounded spots (Fig. 9), corium with a yellow transverse fascia in a zig-zag pattern, hind tibiae with outer dilation phylliform (Fig. 12), antennal segment II bicolorous, and male genital capsule with median notch deeply rounded, with dorsal prongs prominently acute and projecting medially (Fig. 34).

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RESUMEN

Se analizó el género *Leptoglossus* para Costa Rica, describiéndose e ilustrándose dos nuevas especies *L. cartagoensis* y *L. talamancanus*; *L. brevirostris* Barber, *L. humeralis* Allen, *L. lineosus* (Stål), *L. nigropearlei* Yonke, *L. subauratus* Distant y *L. tetranotatus* Brailovsky y Barrera son citados por primera vez; nuevos registros para *L. cinctus* (Herrich-Schaeffer), *L. concolor* (Walker), *L. phyllopus* (Linnaeus) y *L. zonatus* (Dallas) son incluidos; se ofrece una clave para separar las especies de Costa Rica conocidas.

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PLATE 1

Figs. 1–9. Pronotum of *Leptoglossus* spp. *L. cartagoensis*, new species (1); *L. humeralis* Allen (2); *L. lineosus* (Stål) (3); *L. phyllopus* (Linnaeus) (4); *L. tetranotatus* Brailovsky and Barrera (5); *L. subauratus* Distant (6); *L. talamancanus*, new species (7); *L. nigropearlei* Yonke (8); *L. zonatus* (Dallas) (9).

PLATE 2

Figs. 10–21. Hind tibiae of *Leptoglossus* spp. *L. humeralis* Allen (10); *L. cartagoensis*, new species (11); *L. zonatus* (Dallas) (12); *L. concolor* (Walker) (13); *L. subauratus* Distant (14); *L. phyllopus* (Linnaeus) (15); *L. tetranotatus* Brailovsky and Barrera (16); *L. cinctus* (Herrich-Schaeffer) (17); *L. brevirostris* Barber (18); *L. lineosus* (Stal) (19); *L. talamancanus*, new species (20); *L. nigropearlei* Yonke (21).

PLATE 3

Figs. 22–29. Parameres of *Leptoglossus* spp. *L. cartagoensis*, new species (22–23); *L. humeralis* Allen (24–25); *L. tetranotatus* Brailovsky and Barrera (26–27); *L. talamancanus*, new species (28–29). Figs. 30–40. Caudal view of the male genital capsule of *Leptoglossus* spp. *L. lineosus* (Stål) (30); *L. tetranotatus* Brailovsky and Barrera (31); *L. talamancanus*, new species (32); *L. cartagoensis*, new species (33); *L. zonatus* (Dallas) (34); *L. humeralis* Allen (35); *L. nigropearlei* Yonke (36); *L. cinctus* (Herrich-Schaeffer) (37); *L. phyllopus* (Linnaeus) (38); *L. concolor* (Walker) (39); *L. brevirostris* Barber (40).

PLATE 4

Fig. 41. *Leptoglossus cartagoensis*, new species.

PLATE 5

Fig. 42. *Leptoglossus talamancanus*, new species.

PLATE 6

Fig. 43. *Leptoglossus subauratus* Distant.

PLATE 7

Fig. 44. *Leptoglossus tetranotatus* Brailovsky and Barrera.

PLATE 1

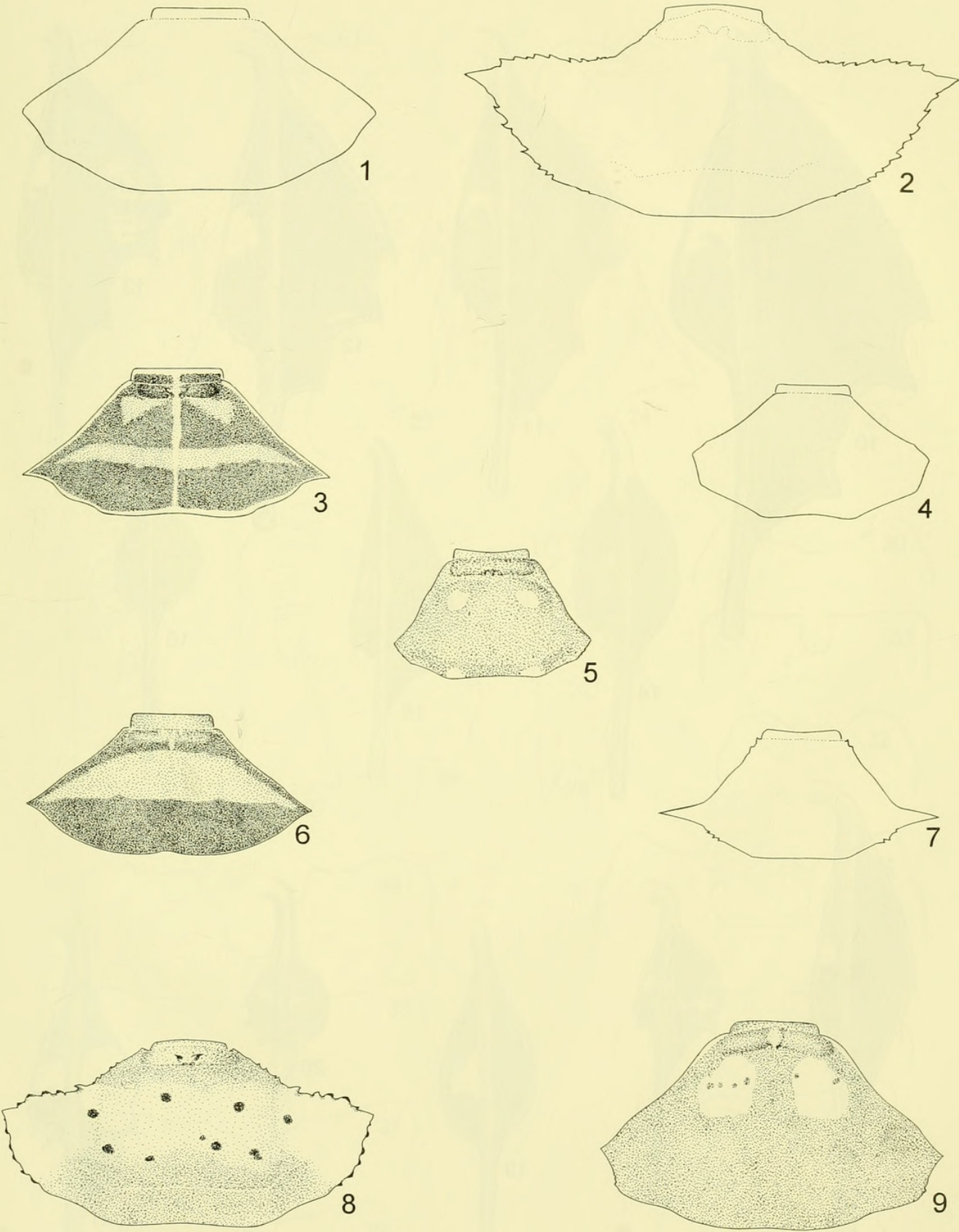


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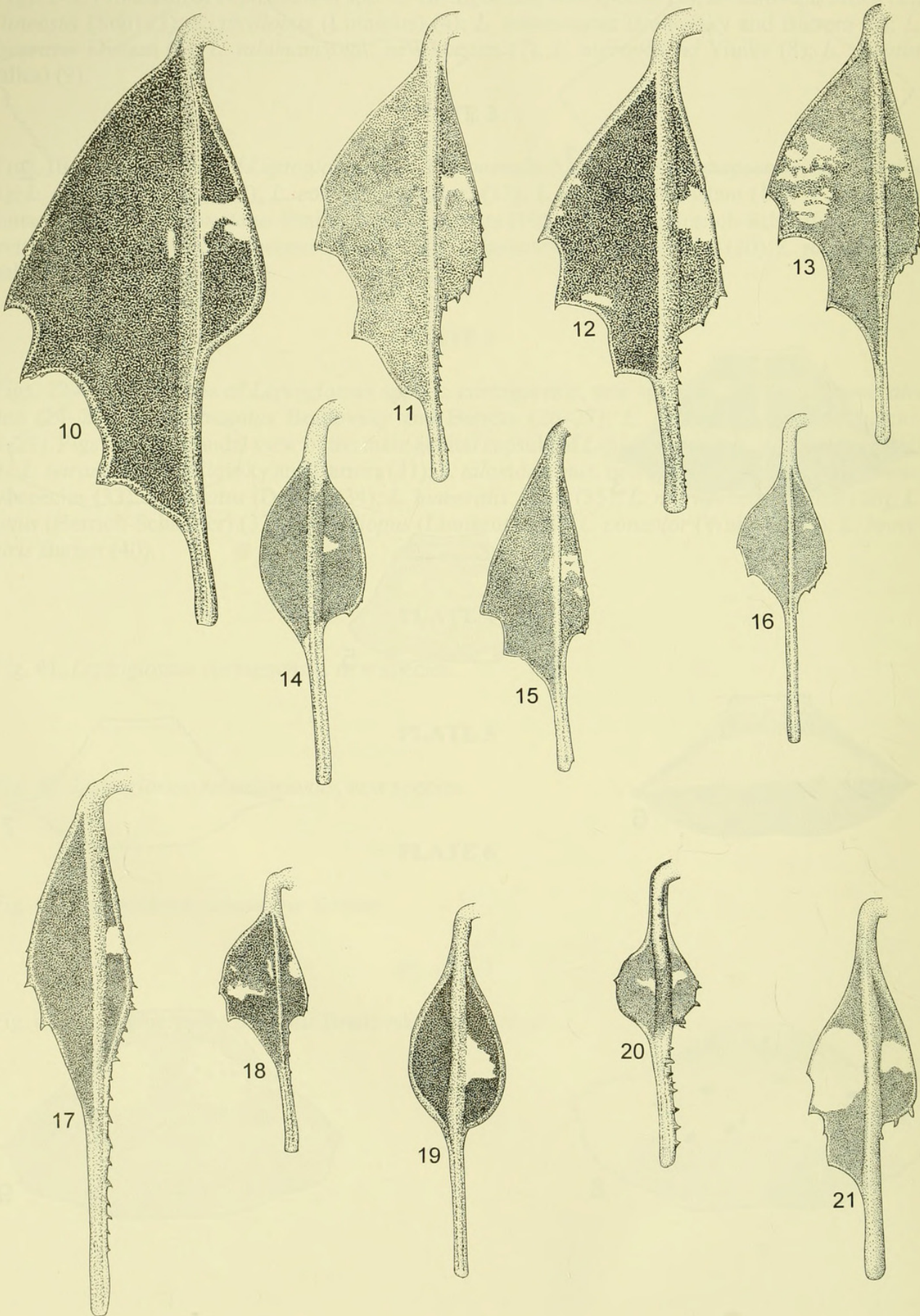


PLATE 3

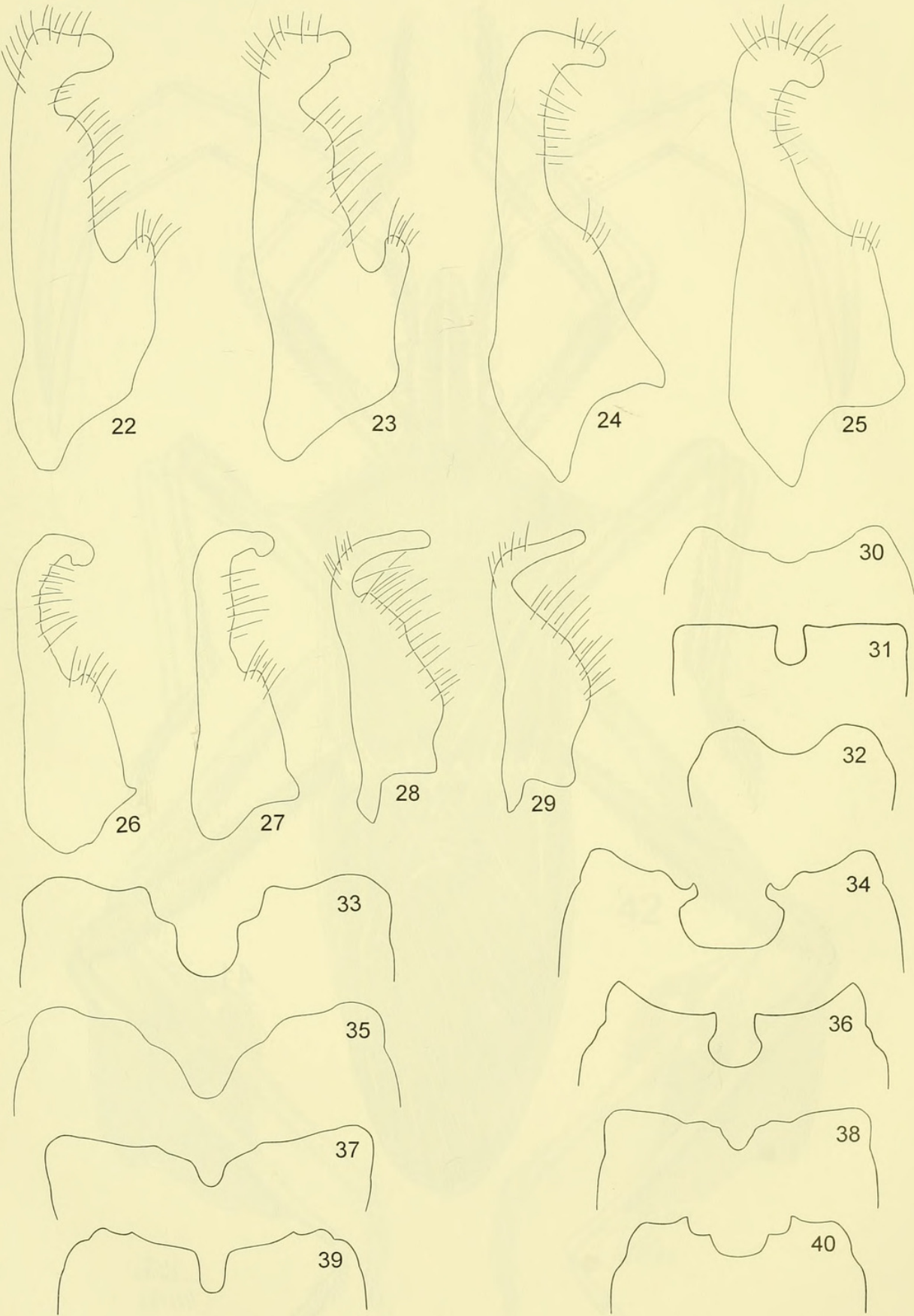


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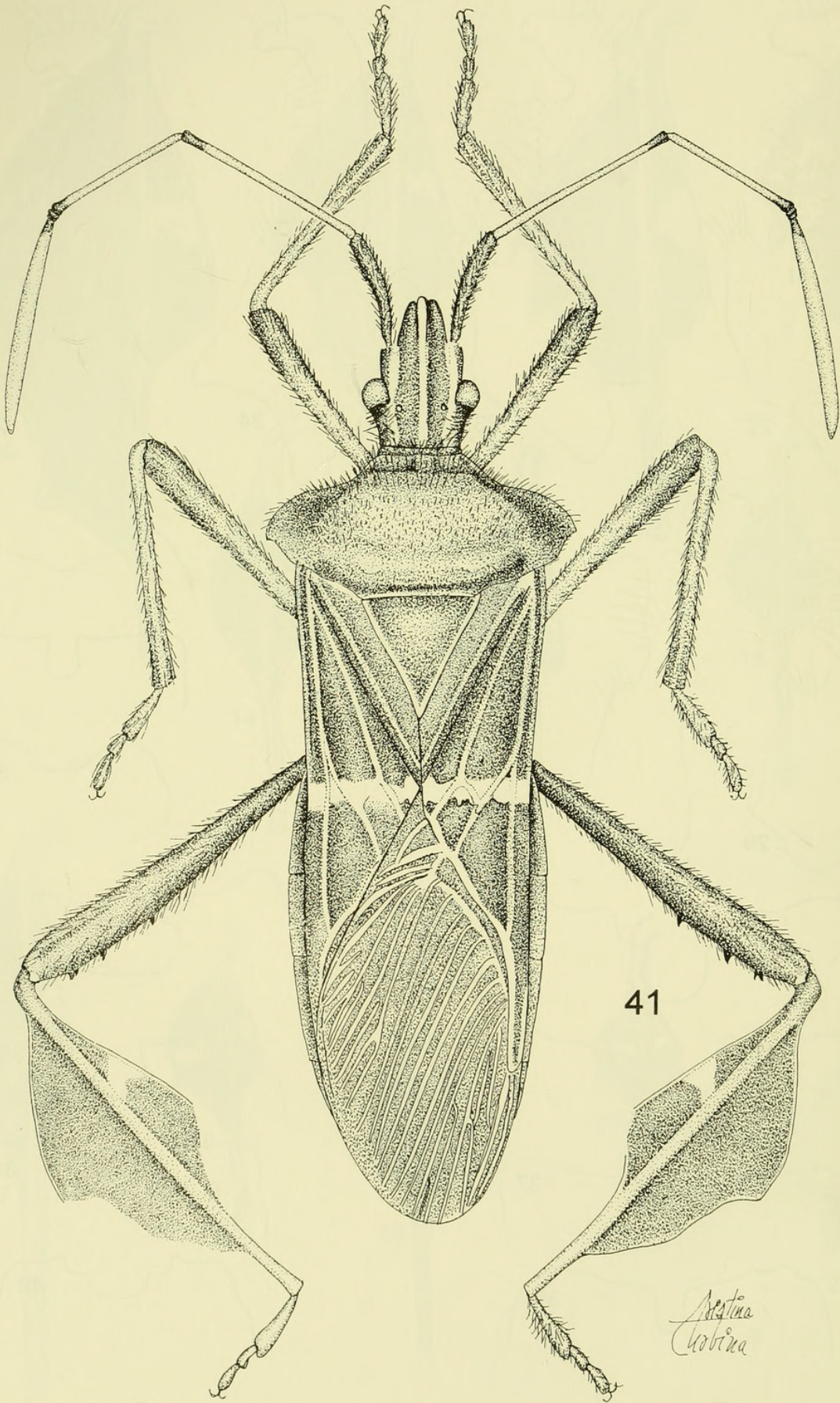


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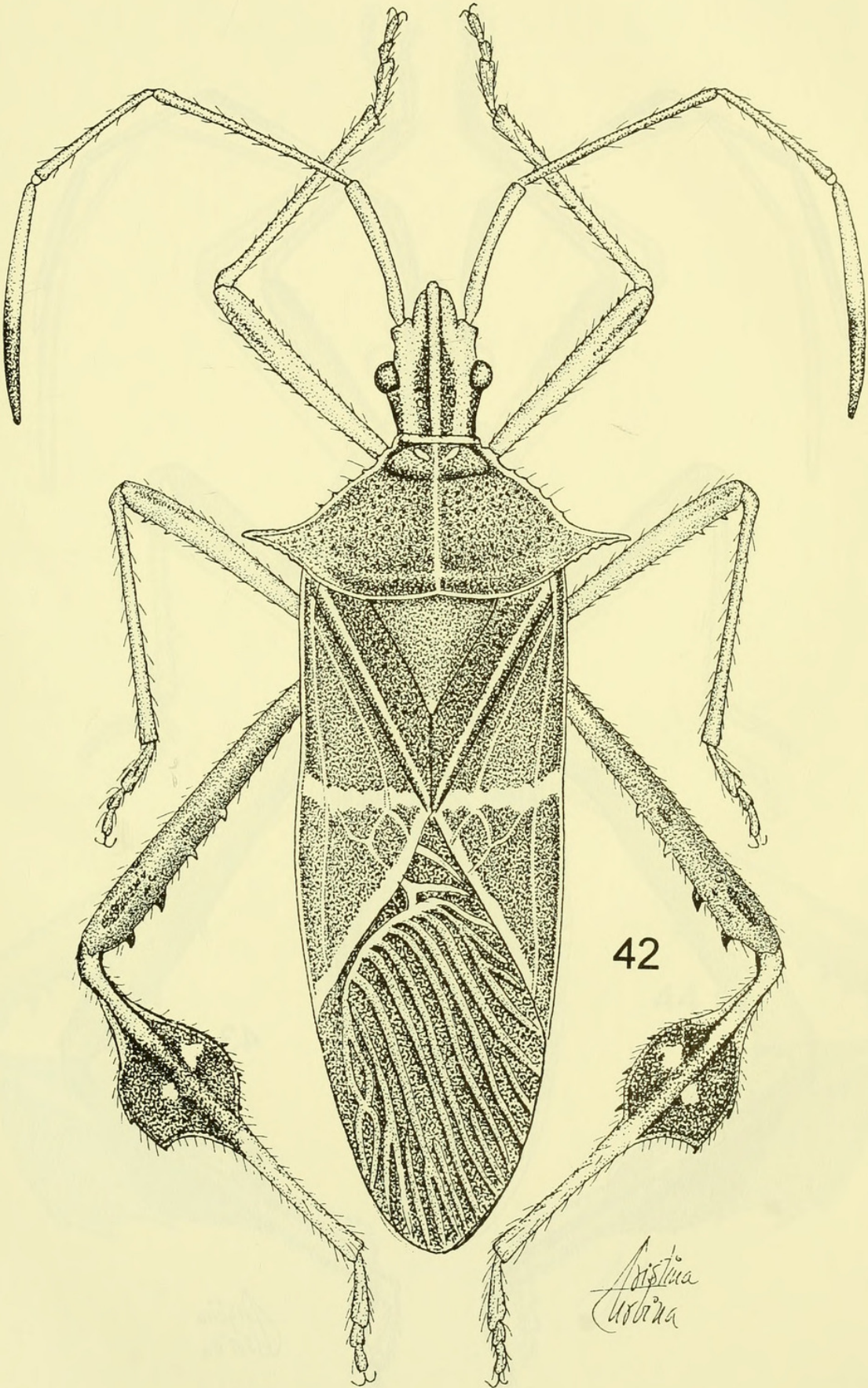
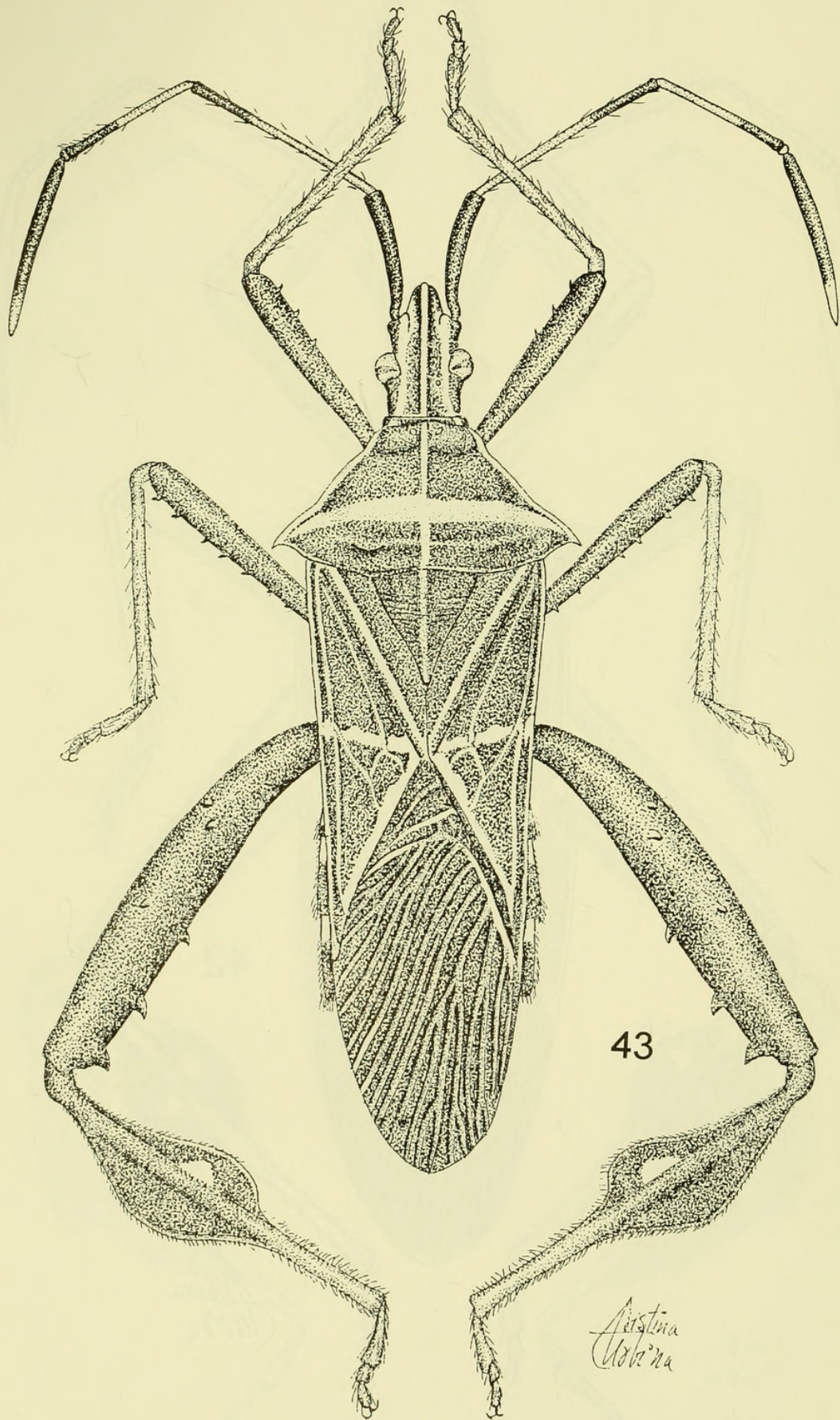


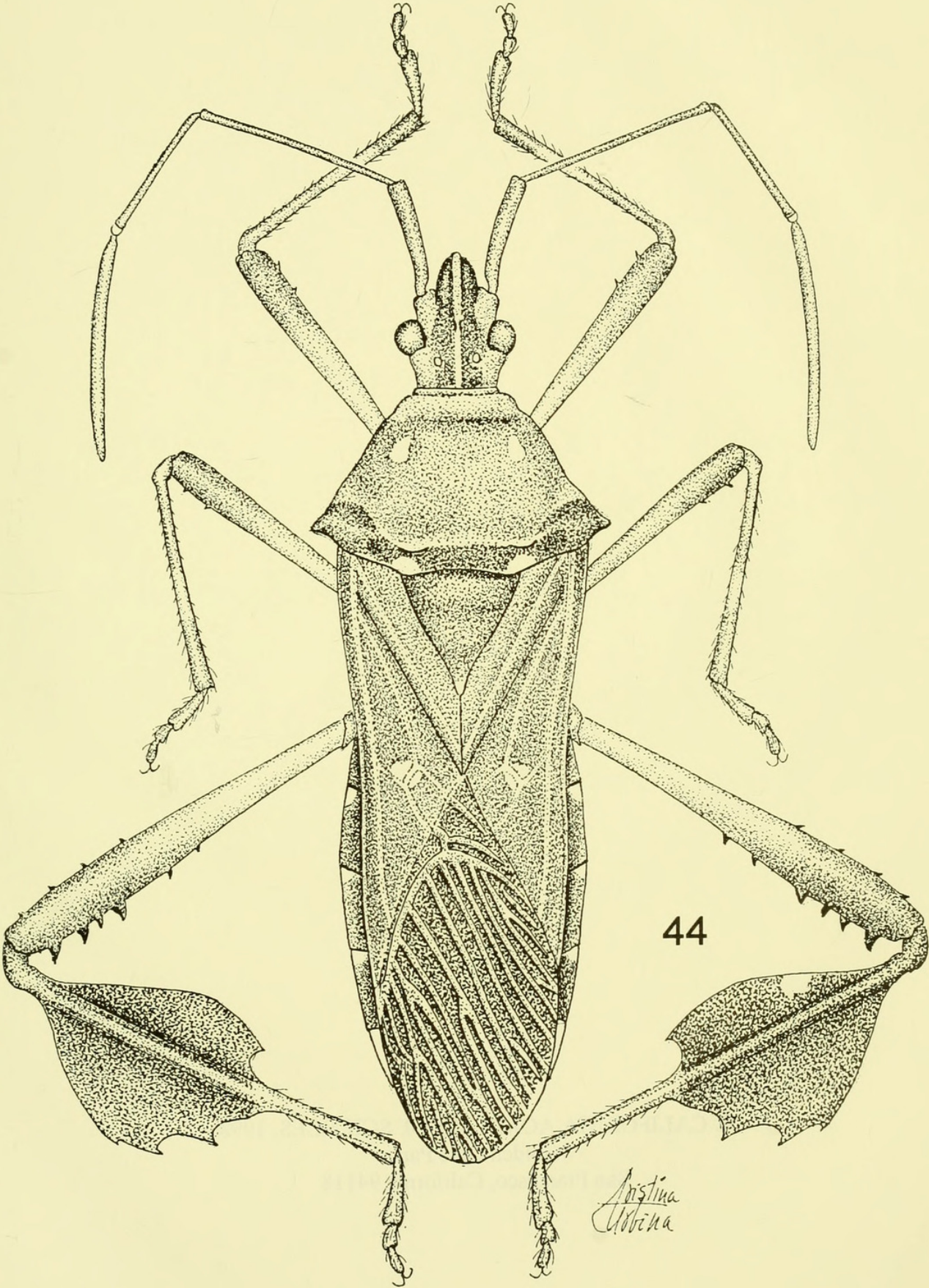
PLATE 6



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PLATE 7





Brailovsky, Harry and Barrera, Ernesto. 1998. "A review of the Costa Rican species of *Leptoglossus* Guerin, with descriptions of two new species (Hemiptera: Heteroptera: Coreidae: Coreinae: Anisoscelini)." *Proceedings of the California Academy of Sciences*, 4th series 50, 167–183.

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