

A review of the Mexican species of *Acanthocephala* LAPORTE, with description of one new species (Heteroptera, Coreidae, Coreinae, Acanthocephalini)¹

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Abstract: The genus *Acanthocephala* LAPORTE is redescribed, and one new species, *A. heissi* nov.sp., collected in México is described and illustrated; *A. thomasi* (UHLER) is recorded for the first time in México; *A. alata* (BURMEISTER) is resurrected from synonymy under *A. declivis* (SAY); *A. declivis calderensis* DISTANT, *A. declivis guatemalena* DISTANT, *A. declivis panamensis* DISTANT, *A. declivis thoracicus* (DALLAS), and *A. subalata* DISTANT are synonymized under *A. alata*; *A. bispina* (WESTWOOD), *A. granulosa* (DALLAS), *A. luctuosa* (STÅL), *A. nasulus* (SAY), and *A. obscura* (WESTWOOD) are reconfirmed as synonyms of *A. femorata* (FABRICIUS); *A. declivis* is only distributed in the United States; new records of *A. alata*, and *A. femorata* are reported; dorsal habitus illustrations and drawings of pronotum, hind legs, and paramere are provided. A revised key to the four known species of *Acanthocephala* from México is presented.

Key words: *Acanthocephala*, Coreidae, Heteroptera, Insecta, key to species, México, new records, new species, synonyms.

Introduction

The genus *Acanthocephala* LAPORTE is a large complex group of 24 species that occurs through the United States, México, Greater Antilles, Central America, and South America (except Chile). The names of the species previously recorded from México were: *A. alata* (BURMEISTER 1835), *A. declivis guatemalena* (DISTANT 1881), *A. femorata* (FABRICIUS 1775), *A. granulosa* (DALLAS 1852), and *A. luctuosa* (STÅL 1855). Over the years several conclusions were reached (see discussion for each species). *Acanthocephala alata* was considered a synonym of *A. declivis* (SAY 1832), and *A. granulosa* and *A. luctuosa* were synonyms of *A. femorata*. Other close species and varieties like *A. declivis guatemalena* (DISTANT 1881), *A. declivis panamensis* (DISTANT 1881), *A. declivis thoracicus* (DALLAS 1852), and *A. subalata* (DISTANT 1881), were synonymized under *A. declivis* and *A.*

alatus (HERRICH-SCHAEFFER 1842), *A. bispina* (WESTWOOD 1842) and *A. obscura* (WESTWOOD 1842) were synonymized under *A. femorata*.

For this contribution the male and female genitalia were analyzed, the allometric variability of the body including antennal and rostral segments was examined, as well as a careful analysis of the development of the hind legs, the punctures and tubercles of the pronotal disc and propleura, the shape of the humeral angles, and the presence or absence of a black discoidal spot near the middle third of the pronotal disc.

As a result of this analysis, *A. alata* (BURMEISTER) is resurrected from synonymy under *A. declivis*; *A. declivis* is only distributed in the United States; *A. declivis calderensis*, *A. declivis guatemalena*, *A. declivis thoracicus*, and *A. subalata* are synonymized under *A. alata* (BURMEISTER); *A. alata* (HER-

¹This paper is written in honor of Ernst Heiss to recognize his career-long accomplishments in systematic entomology particularly on the family Aradidae and for the many years of friendship.

RICH-SCHAEFFER), *A. bispina*, *A. granulosa*, *A. luctuosa*, *A. nasulus*, and *A. obscura* remain as synonyms of *A. femorata*. *Acanthocephala thomasi* (UHLER 1872) is recorded for the first time in México, and one new species (*A. heissi* nov.sp.) is described. Thus four species of Mexican *Acanthocephala* are recognized: *A. alata* BURMEISTER, *A. femorata* (FABRICIUS), *A. heissi* nov.sp., and *A. thomasi* UHLER.

Material and Methods

For this contribution the type specimens of *A. alata* (ZMHB), *A. bispina* (OUMNH), *A. declivis calderensis* (BMNH), *A. declivis guatemalena* (BMNH), *A. declivis thoracicus* (BMNH), *A. granulosa* (BMNH), *A. luctuosa* (NRE), *A. obscura* (OUMNH), and *A. subalata* (BMNH) were examined and compared. An exceptionally good and large series of Mexican specimens of the genus mostly deposited in the National Insect Collection of the Instituto de Biología, UNAM, has afforded an opportunity for detailed study of this group, and to disentangle several of the perplexing questions regarding the identity of the species.

Characters typical of the genus are not repeated in the individual species descriptions. All measurements are given in millimeters.

Institutional abbreviation codes used in the material examined sections are: BMNH (The Natural History Museum, London, England); CAS (California Academy of Sciences, Golden Gate Park, San Francisco, California, USA); CMNH (Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, USA); CNCI (Canadian National Collection of Insects, Ottawa, Ontario, Canada); CUIC (Cornell University, Insect Collection, Ithaca, New York, USA); FSCA (Florida State Collection of Arthropods, Gainesville, Florida, USA); INBIO (Instituto Nacional de Biodiversidad, Heredia, Costa Rica); LACM (Los Angeles County Museum, California, USA); NRE (Naturhistoriska Riksmuseet, Stockholm, Sweden); OUMNH (Oxford University Museum of Natural History, England); TAMU (Texas A & M University, Insect Collection, College Station, Texas, USA); UCDA (University

of California, Davis, California, USA); UGAG (University of Georgia, Athens, Georgia, USA); UNAM (Colección Nacional de Insectos, Instituto de Biología, Universidad Nacional Autónoma de México); USNM (United States National Museum of Natural History, Smithsonian Institution, Washington D.C. USA); ZMHB (Zoologisches Museum, Humboldt Universität, Berlin, Germany).

Genus *Acanthocephala* LAPORTE

Acanthocephala LAPORTE 1833. Mag. Zool. 1: 29

Redescription: Body large, broad, stout.

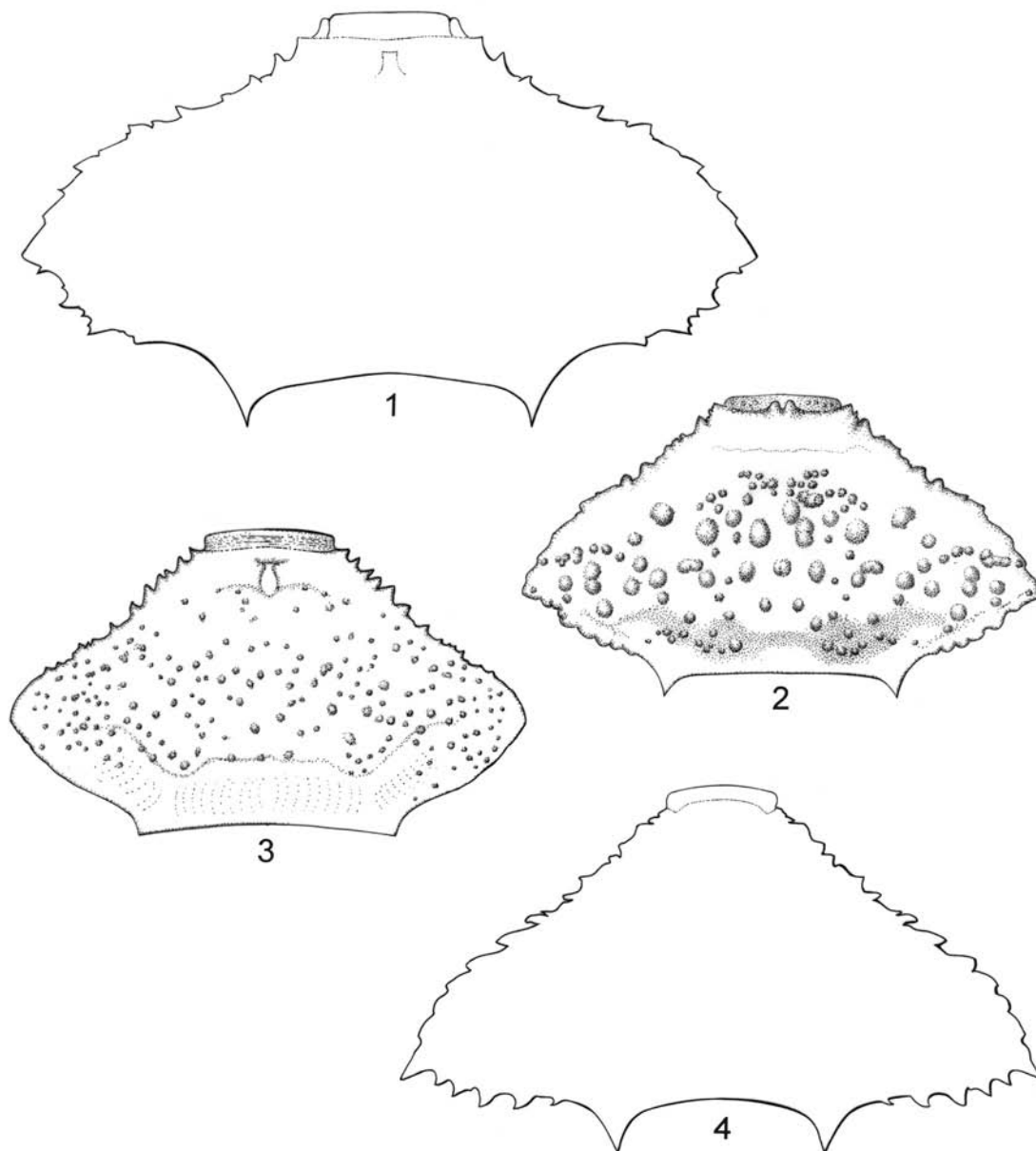
Head. Longer than wide or wider than long, or as long as wide across eyes, quadrate, non declivant, dorsally flat, parallel sided in front of the eyes; tylus sharply pointed, projecting beyond juga as a compressed plate, flattened, with apex extending upward as a single acute triangular projection; juga apically globose, not visible from above, deflexed below antenniferous tubercle; antenniferous tubercle prominent, oblique at apex, situated close together, closely appressed to tylus; antennae shorter than total body length; antennal segment I stouter than segments II to IV, slightly curved outward, longer than maximal length of head; segments II and III cylindrical, moderately slender; segment IV narrowly fusiform, elongate; antennal segment IV the longest, III the shortest, and I longer than II; ocelli barely raised, close to eyes; preocellar pit small; eyes hemispherical, elongate, protuberant; postocular tubercle weakly exposed in dorsal view, nearly smooth with contour of eyes; buccula broadly rounded, short, elevated, unarmed, extending to level of mid-eye; rostrum reaching posterior third of mesosternum or anterior border of metasternum; rostral segment I the longest, III the shortest, and II longer than IV. **Thorax.** **Pronotum.** Wider than long, wider than hemelytra, trapezoidal, steeply declivant, with distinct collar; frontal angles blunt; anterolateral margins obliquely sinuate, regularly nodulose to spinous; humeral angles expanded; triangular process short to medium size, broad, apically obtuse to subacute, reaching basal third of scutellar disc; posterolateral margins obliquely sinuate; posterior margin straight, and smooth; calli almost flat, impunctate, separated along mid-

line by narrowly longitudinal depression. Prosternum with deep concavity; mesosternum flat and barely sulcate; metasternum flat, and not sulcate; mesosternum anteriorly tuberculate between procoxae; metapleural supracoxal spine short; anterior lobe of metathoracic peritreme reniform; posterior lobe elongate, not exposed. **Legs. Male.** Fore and middle femora slender, armed ventrally with two rows of stout spines; outer row stronger and wider than inner row; dorsal surface of fore femur smooth; hind femur incrassate, compressed, armed ventrally with one row of stout, large spines, lateral surface densely tuberculate, and provided with stout and large to short spines, and dorsal surface with two rows of short and stout spines; fore and middle tibiae cylindrical, and sulcate; hind tibiae expanded at outer and inner margin. **Female.** Fore and middle femora slender, armed ventrally with one or two rows of stout spines; dorsal surface of fore femur smooth; hind femur incrassate, flattened, armed ventrally with one row of stout, large spines, lateral surface densely tuberculate, and dorsal surface with two rows of short, stout spines; fore and middle tibiae cylindrical, sulcate, unarmed; hind tibiae expanded, outer expansion foliaceous, widest at the base, and inner expansion much more than in males, and expanded at the base, the remainder gradually narrowed. **Scutellum.** Longer than wide, or as long as wide, triangular, with apex flat, and apically truncate to subacute. **Hemelytra.** Macropterous, extending beyond the apex of abdomen; apical corial margin slightly sinuate; apical angle extending beyond middle third of the hemelytral membrane; costal edge emarginate. **Abdomen.** Connexival segments weakly elevated; upper margin sulcate, unarmed or with minute teeth; segments III to VI in males obtusely tuberculate postero-apically, in females not obtusely tuberculate; segment II and anterolateral edge of segment III forming a slight ventral ridge; spiracles closer to anterior than posterior margin. **Male genitalia.** Posterolateral angles of genital capsule straight to rounded, and between them a tiny or broad medial projection. **Paramere.** Basal shank wide; internal ventral arm perpendicular to shank, and toothed apically (Figs 11-16). **Female genitalia.** Abdominal sternite VII with wide

and rectangular plica, and short fissure; gonocoxae I enlarged antero-posteriorly, in caudal view closed, in lateral view with outer border entire, and sinuate; paratergite VI-II large, square, with visible spiracle; paratergite IX longer than VIII, quadrangular, with inner lobes slightly overlapping. **Spermatheca.** Distal bulb oval to round; sclerotized duct leading to distal flange largely uncoiled (0-3 coils, depending on species); distal flange rectangular, with or without spines; duct membranous narrowing, proximal to distal flange; proximal flange membranous; sclerotized chamber large, oval, occurring midway between proximal flange and opening of genital chamber (Fig. 17). **Integument.** Head, anterior lobe of pronotal disc, connexivum, prosternum, mesosternum, metasternum, anterior third of propleura, anterior and middle third of mesopleura and metapleura, and abdominal sterna impunctate; posterior lobe of pronotal disc punctate, and usually tuberculate; acetabulae, and posterior third of propleura, mesopleura, and metapleura finely punctate; middle and posterior third of propleura densely and coarsely tuberculate or with scattered tiny tubercles; scutellar disc transversely striate or smooth; antennal segments I to IV densely covered with short, suberect setae; dorsal surface of head, pronotal disc, scutellar disc, prosternum, mesosternum, and metasternum, clavus, corium, legs, and abdominal segments with sparse decumbent to suberect setae.

Discussion: According to PACKAUSKAS (1994) *Acanthocephala* LAPORTE can be recognized by the following characters: distance between antenniferous tubercles usually less than half the width of one tubercle; hind femora incrassate, and dorsally spined or tuberculate; hind tibiae with expanded portion sinuate or toothed; juga not extending beyond antenniferous tubercles.

Figs 1-4: Pronotum of *Acanthocephala* spp.
(1) *A. alata* (BURMEISTER);
(2) *A. femorata* (FABRICIUS);
(3) *A. thomasi* (UHLER); **(4)**
A. heissi nov.sp.



**Key to known Mexican
*Acanthocephala***

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| <p>1 Pronotal humeral lobes wing-like, produced laterally, and conspicuously broader than basal width of hemelytra (Figs 1, 4) 2</p> <p>1' Pronotal humeral obtuse, weakly expanded, and only slightly broader than basal width of hemelytra (Figs 2-3) 3</p> <p>2 Pronotal humeral lobes rounded, and greatly expanded beyond the margins of the abdomen and the hemelytra (Fig. 1); dorsal surface of middle femur in both sexes, with one row of short, stout spines <i>A. alata</i> (BURMEISTER)</p> | <p>2' Pronotal humeral lobes triangular, acuminate, extending postero-laterally (Fig. 4); dorsal surface of middle femur in both sexes smooth, without spines
 <i>A. heissi</i> nov.sp.</p> <p>3 Pronotal disc and propleura densely and coarsely tuberculate; intercallar space with four tubercles, at each side of midline, two above and two below the calli (Fig. 2); tarsi black or pale reddish brown or dark orange, and never contrasting with the rest of the body; dorsal abdominal segments without wide yellow stripe running from segment III to VII
 <i>A. femorata</i> (FABRICIUS)</p> |
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3' Pronotal disc and propleura with small, scattered tubercles; intercallar space at middle third with two tiny tubercles at each side of middle line (Fig. 3); tarsi shiny orange, and contrasting with the general color of the body; dorsal abdominal segments with wide yellow stripe running from segment III to anterior margin of VII *A. thomasi* (UHLER)

***Acanthocephala alata* (BURMEISTER)
(Figs 1, 5-6, 15-17, 19)**

Diactor alatus BURMEISTER 1835: 334.

Metapodius thoracicus DALLAS 1852: 428-429.

Acanthocephala declivis guatemalena DISTANT 1881: 119.

Acanthocephala declivis panamensis DISTANT 1881: 119.

Acanthocephala subalata DISTANT 1881: 119-120.

Acanthocephala declivis calderensis DISTANT 1892: 359. **nov.syn.**

Type specimens examined. Type ♂, *Diactor alatus* BURMEISTER. Described from México (Oaxaca). Deposited ZMHB. Holotype ♂, *Metapodius thoracicus* DALLAS. Described from Honduras. Deposited BMNH. Lectotype ♂, *Acanthocephala declivis guatemalena* DISTANT. Described from Guatemala (Teleman, La Tinta, Cerro Zunil, San Isidro, and Las Mercedes). Deposited BMNH. Lectotype ♂, *Acanthocephala declivis panamensis* DISTANT. Described from Panama. Deposited BMNH. Holotype ♂, *Acanthocephala subalata* DISTANT. Described from Guatemala (Balheu). Deposited BMNH.

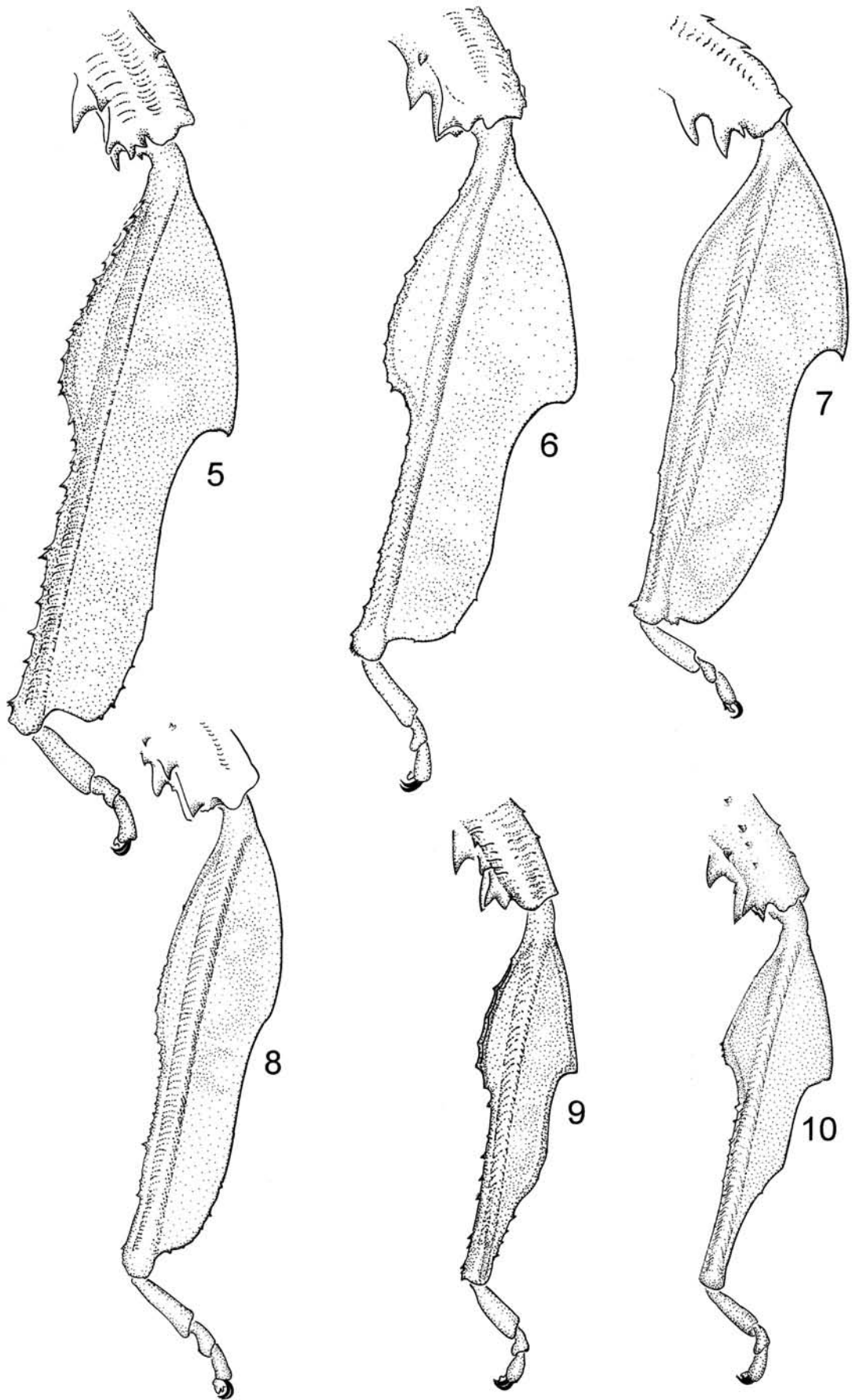
Distribution. All records for *Acanthocephala declivis* SAY in México and Central America, should be applied to *A. alata* (BURMEISTER). México: Guerrero (Venta de Zopilote), Tamaulipas (Tampico), Veracruz (Jalapa, Atoyac), Yucatán (Temax). Guatemala (Mirandilla). Costa Rica (San Jose). Panama (Bugaba, Chiriqui, David, Tolé, Caldera). (BLÖTE 1938; DISTANT 1881-1892).

Additional specimens examined. **New records.** México: 1 ♀, Chiapas, Reserva El Ocote, 9.3.1993, E. Barrera and G. Ortega-Leon (UNAM); 2 ♀♀, Chiapas, Ocosingo, Reserva Montes Azules, 30.5.1999, L. Cervantes (UNAM); 2 ♀♀, Chiapas, Bonampak, 23-25.5.1984, M. Garcia (UNAM). México: 9♂♂, 3 ♀♀, Oaxaca, km 11 road Puerto Escondido-Oaxaca, 10.6.2004, E. Barrera and R. Mariño (UNAM). México: 1♂, 1 ♀, San Luis Potosí, Ciudad Valles, 10.5.1950 (without collector) (UNAM); 1 ♀, San Luis Potosí, Tamazunchale, 12.4.1952 (without collector) (UNAM). México: 1 ♀, Tamaulipas, Gomez

Farias, 9.10.2002, L. Cervantes and L. Delgado (UNAM); 1 ♀, Tamaulipas, Matamoros, 15.9.1960 (without collector) (UNAM); 1 ♀, Tamaulipas, Adolfo Lopez Mateos, El Chamalito, 14.9.2003, Q. Santiago and L. Cervantes (UNAM); 1 ♀, Tamaulipas, Ocampo, Sierra Tamalave, 500m, 20.3.2003, L. Cervantes and N. Peñaloza (UNAM). México: 22♂♂, 40 ♀♀, Veracruz, Estación de Biología Tropical Los Tuxtlas, 25.1.1969, 14.6.1969, 21.5.1971, 18.5.1974, 10.3.1977, 18.1.1980, 26.7.1980, 19.2.1984, 23-30.4.1985, 2-21.5.1985, 22.11.1985, 1.5.1986, 13-14.8.1988, 11.10.1988, 10.2.1989, 23.3.1989, 25.5.1989, 7-15.7.1989, 8.9.1989, and 30.6.1999, H. Brailovsky, E. Barrera, L. Cervantes, C. R. Beutelspacher, H. Perez, V. Meléndez, J.L. Colin, H. Rojas, C. Mayorga, M. Garcia, E. Gonzalez, and E. Ramírez (UNAM); 1 ♀, Veracruz, Teocelo, 17.7.1976, R.B. Root (CUIC); 2 ♀♀, Veracruz, Dos Amates, 3.8.1972, E.C. Welling (LACM); 1 ♀, Veracruz, 15 mi, S Catemaco, 26.7.1970, E.M. Brock (UCDA). Guatemala: 5♂♂, 3 ♀♀, San Pedro Yepocapa, 14.3.1947, 3.12.1947, 9.1948, 10.1948, and 11.1948, T.A. Burch (CUIC, LACM). Costa Rica: 1♂, Provincia Guanacaste, Ref. Nac. Fauna Silvestre, Rafael Lucas Rodríguez, Palo Verde 10m, 3.1991, D. Acevedo (INBIO); 1 ♀, Provincia Guanacaste, Lomas Barbudal, 8 km N Bagaces, 22.6.1985, Nagano and Wolfe (CUIC).

Redescription: **Structure.** Pronotum. Anterolateral margins regularly nodulose; humeral lobes broad, rounded, wing-like, produced laterally, and conspicuously broader than basal width of hemelytra; humeral angles ending in stout short spine; posterolateral margins dentate, with inner third smooth; pronotal disc almost smooth, or with few scattered tubercles; intercallar space smooth or with two or four tiny tubercles (Fig. 1). Legs. Male. Dorsal surface of middle femur with one row of short, stout spines; outer expansion of hind tibiae foliaceous, with rounded tooth before the middle, unarmed, except the posterior third which have one row of short, stout spines; apex without tooth; inner expansion not expanded at the base, remainder narrow and of the same width to the apex of the tibiae, and armed with one row of strong, irregular spines; apex with strong apical tooth. Female. Dorsal surface of middle femur with one row of short, stout spines; outer expansion of hind tibiae foliaceous, with strong tooth before the middle, from which it is of nearly the same width to the apex, unarmed,

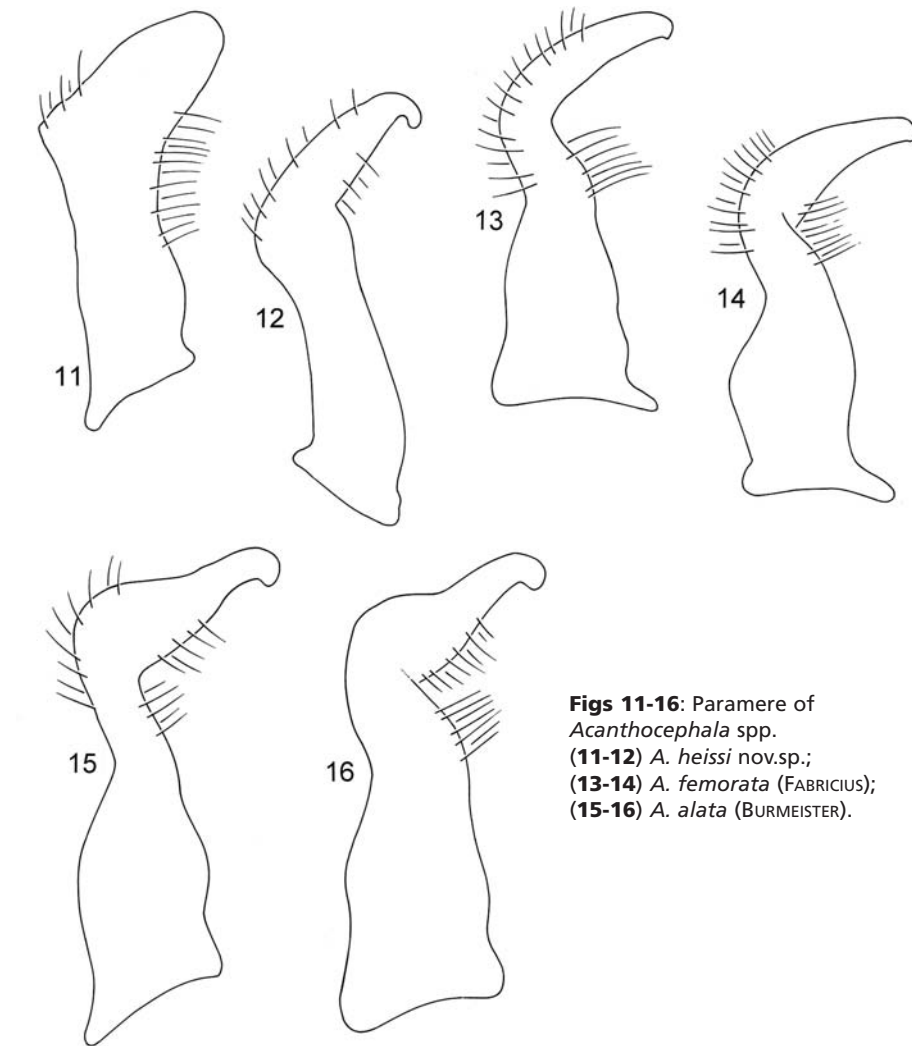
Figs 5-10: Hind tibia of *Acanthocephala* spp. (5-6) *A. alata* (BURMEISTER); (7) *A. heissi* nov.sp.; (8) *A. thomasi* (UHLER); (9-10) *A. femorata* (FABRICIUS).



except for a few subapical spines; inner expansion armed at the entire section, with one row of minute, irregularly distributed spines (Figs 5-6). Scutellum. Longer than wide. Male genitalia. Posterolateral angles of genital capsule straight, and between them a small medial flat projection. Paramere. Figs 15-16. Integument. Middle and posterior third of propleura with minute tubercles, posterior third finely punctate; pronotal disc with white serous wax. **Dorsal coloration.** Black to dark reddish brown, with inner third of antenniferous tubercle, apex of scutellum, and posterior angle of connexival segments III to VII dark orange; antennal segments I to III black and IV pale orange; pronotal disc with black discoidal spot at midline; hemelytral membrane brown with basal angle darker; dorsal abdominal segments black with scars IV-V, V-VI, and posterior third of segment VI near midline dark yellow. **Ventral coloration.** Black to dark reddish black with inner margin of tylus, anterior and posterior lobe of metathoracic peritreme, evaporative area, lateral margin of mesosternum, and inner third of posterior border of mesopleura chestnut orange; buccula black with external margin dark yellow; rostral segment I black with outer margin orange, and segments II to IV orange; legs black to dark reddish black, with trochanters, and distal third of tibiae dark orange; tarsi pale shiny orange; rim of abdominal spiracle black. **Female.** Structure and color similar to male. Dorsal abdominal segments VIII and IX, connexival segments VIII and IX, and genital plates black.

Variation. 1. Trochanters chestnut orange with black marks, or reddish brown to reddish black, or yellow to orange. 2. Basal third of fore and middle femora yellow to orange. 3. Fore and middle tibiae dark to pale orange. 4. Lateral margin of mesosternum black. 5. Dorsal abdominal segment VI entirely black. 6. Rostral segments II to IV black to reddish brown. 7. Pronotal disc pale orange with black discoidal spot at midline.

Measurements. First male, then female. Head length: 3.49, 3.49; width across eyes: 3.42, 3.34; interocular space: 1.92, 1.90; length antennal segments: I, 7.90, 6.83; II, 6.38, 5.24; III, 5.39, 4.33; IV, 9.19, 8.13.



Figs 11-16: Paramere of *Acanthocephala* spp. (11-12) *A. heissi* nov.sp.; (13-14) *A. femorata* (FABRICIUS); (15-16) *A. alata* (BURMEISTER).

Pronotal length: 7.75, 7.52; width across humeral angles: 15.20, 12.92. Scutellar length: 4.86, 4.18; width: 4.33, 4.02. Total body length: 36.40, 33.32.

Discussion: *Acanthocephala alata* (BURMEISTER 1835) is resurrected from its synonymy under *A. declivis* (SAY 1832). *A. declivis* was originally described from the United States (Georgia and Louisiana). The name “*declivis*” was later used for specimens from México, Guatemala, Honduras, Costa Rica, and Panama, and three varieties were recognized: *A. declivis guatemalena* DISTANT 1881, *A. declivis panamensis* DISTANT 1881, and *A. declivis calderensis* DISTANT 1892. The establishment of these three varieties was based on their conspicuous size variation, their shape and acuteness of the humeral angles, on the expansion of the hind tibiae, and their color of antennal segments I to III. BURMEISTER (1835) described

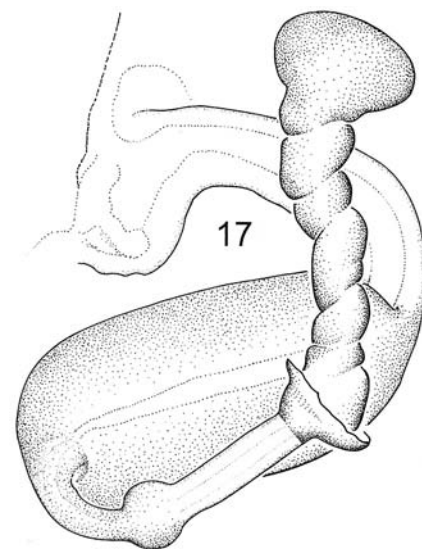
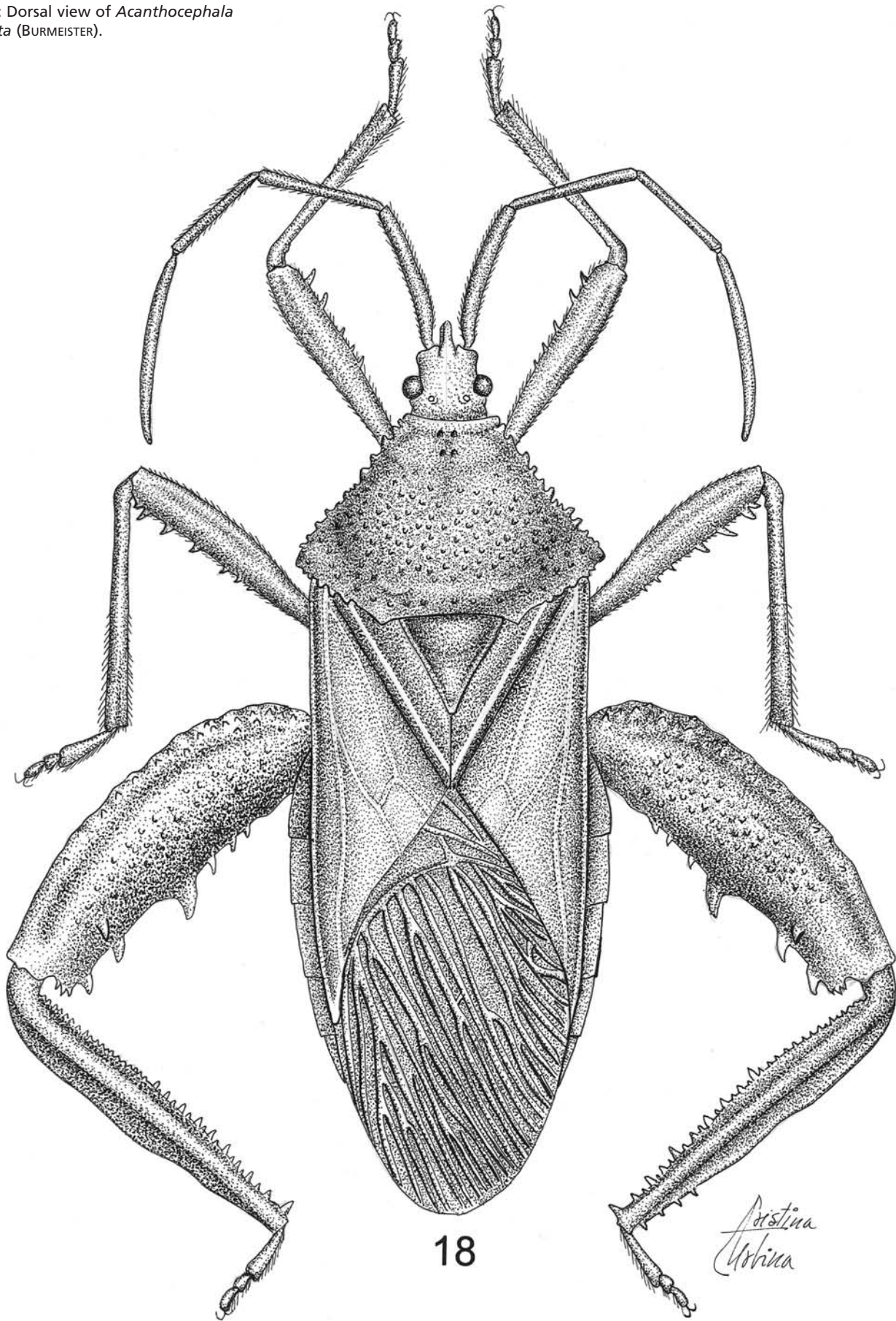


Fig. 17: Spermatheca of *Acanthocephala alata* (BURMEISTER).

Fig. 18: Dorsal view of *Acanthocephala femorata* (BURMEISTER).



Diactor alatus from México (Oaxaca), and STÅL (1870) transferred it to *Acanthocephala*; DALLAS (1852) described *Metapodius thoracicus* from Honduras, and STÅL (1870) synonymized it with *A. alata*. DISTANT (1881) synonymized *A. alata* with *A. declivis*, and in the same paper described *A. subalata* from Guatemala pointing out that this species was close to *A. declivis*, differing by the much less produced humeral angles. LETHERRY & SEVERIN (1894) synonymized *A. declivis guatemalena*, and *A. declivis panamensis* with *A. declivis*, and later GIBSON & HOLDRIDGE (1918) synonymized *A. subalata* with *A. declivis*. In subsequent papers dealing with this genus, *A. alata* was always considered as a synonym of *A. declivis* (BLÖTE 1938; TORRE-BUENO 1941).

Having examined a large number of specimens, including the type of *A. alata*, from localities widely distributed across the United States, México, and Central America, I conclude that this species is not a synonym of *A. declivis* and it is here resurrected. All records of *A. declivis* in Mexico and Central America, should be applied to *A. alata*. In addition, *A. declivis calderensis* DISTANT (1892) is here considered as a synonym of *A. alata*.

Acanthocephala alata and *A. declivis* are closely related, having the humeral angles broad, rounded, wing-like, produced laterally, and conspicuously broader than the basal width of the hemelytra; the pronotal disc is smooth or with few scattered tubercles; and the intercallar space is smooth or with two to four tubercles; the hind tibiae are similarly developed. *Acanthocephala alata* is recognized by having the anterior lobe of the metathoracic peritreme yellow to orange, the antennal segments I to III black, the pronotal disc has usually a black discoidal spot at midline (sometimes obscured), and the fore and middle femora are black to dark reddish black. In *A. declivis* the anterior lobe of the metathoracic peritreme is black or dark brown, the antennal segments I to III are pale orange to reddish orange, the pronotal disc lacks a black discoidal spot, and the fore and middle femora are pale reddish orange.

Acanthocephala femorata (FABRICIUS) (Figs 2, 9-10, 13-14, 18)

Cimex femoratus FABRICIUS 1775: 708.

Lygaeus femoratus FABRICIUS 1794: 351.

Rhinuchus nasulus SAY 1832: 10.

Metapodius obscurus WESTWOOD 1842: 15.

Diactor alatus HERRICH-SCHAEFFER 1842: 53.

Metapodius bispinus WESTWOOD 1842: 15.

Metapodius granulatus DALLAS 1852: 430.

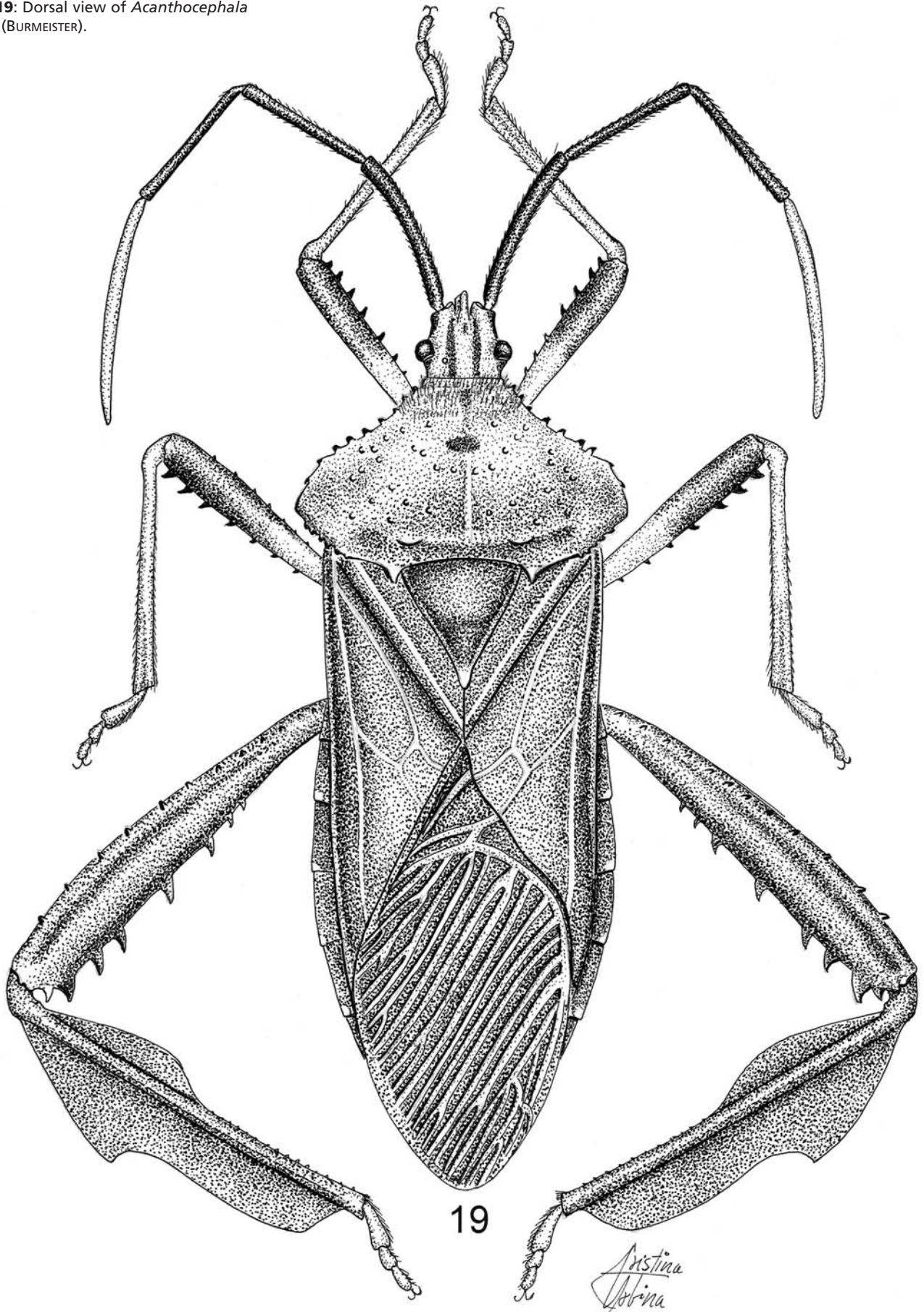
Metapodius luctuosus STÅL 1855: 184.

Type specimens examined. Type ♂, *Metapodius bispinus* WESTWOOD. Patria ignota. Deposited OUMNH. Holotype ♂, *Metapodius granulatus* DALLAS. Described from Honduras. Deposited BMNH. Holotype ♂, *Metapodius luctuosus* STÅL. Described from México. Deposited NRE.

Distribution. Across United States (Arizona, California, Colorado, Florida, Kansas, Mississippi, Missouri, New México, North Carolina, Oklahoma, South Carolina, Texas), México (Colima (Volcan de Colima), Durango (Ventanas), Guerrero (Amula, Chilpancingo, Omilteme, Rincón, Tierra Colorada, Venta de Pelegrino), Morelos (Cuernavaca), Nayarit (Tepic), Sinaloa (Presidio de Mazatlán), Tabasco (Teapa), Veracruz (Omealca, Jalapa, Orizaba, Misantla), Yucatán (Valladolid, Temax)), Belize (Rio Hondo), Guatemala (Candeza, Capetillo, Chiacam, San Geronimo, San Juan, Panzos, Lanquin and Senahu), Honduras, Nicaragua (Chontales), Costa Rica, Venezuela (Caracas), Ecuador (Bucay), and Brasil (BLÖTE 1938; CAMPOS 1919, 1925; DALLAS 1852; DISTANT 1881-1892; FABRICIUS 1775; FROESCHNER 1981, 1988; STÅL 1855, 1870; TORRE-BUENO 1941).

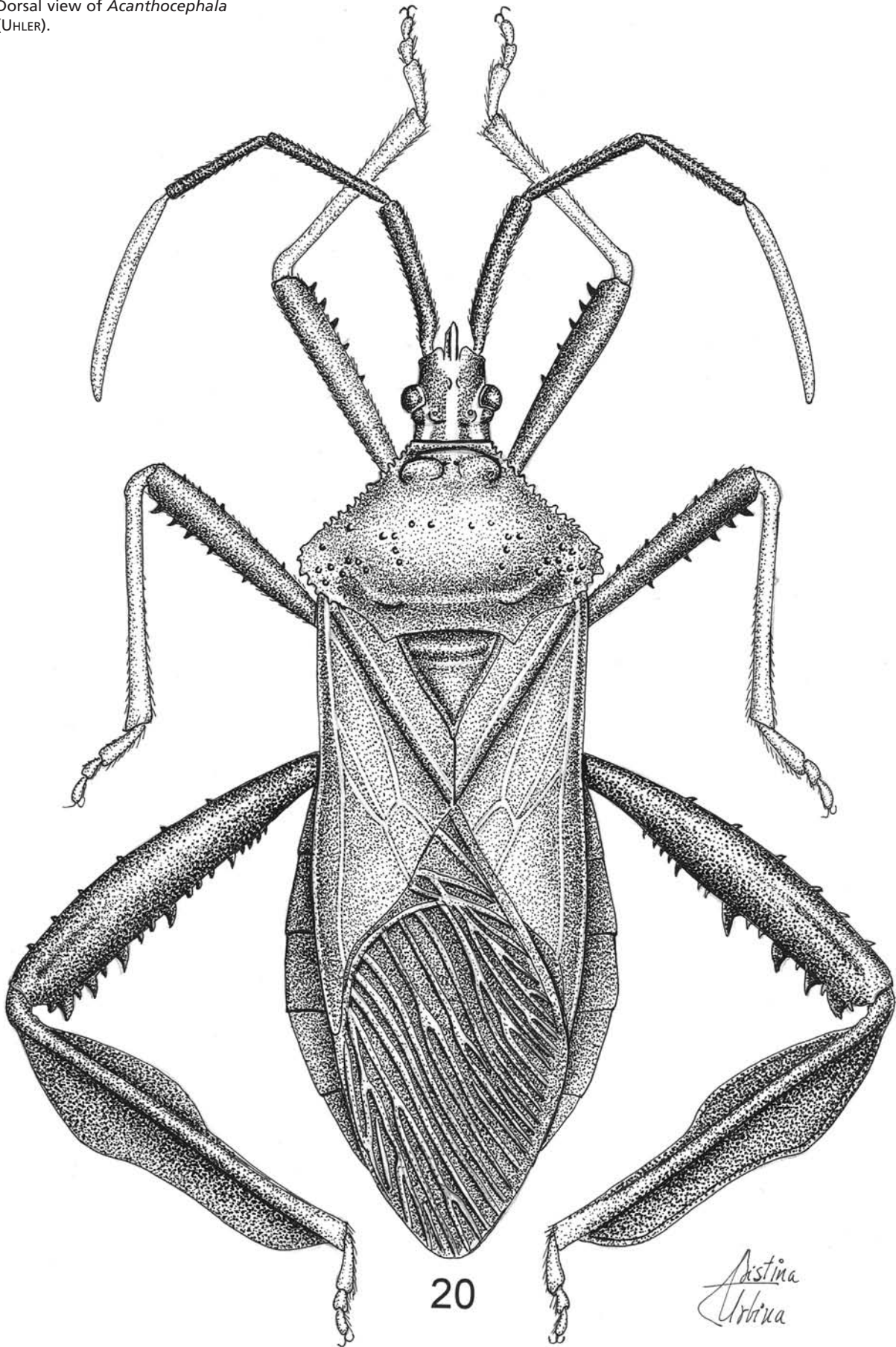
Additional specimens examined. **New records.** México: 1♂, Aguascalientes, Aguascalientes, 20.9.1981, M.O. Torres (UNAM). México: 1♀, Campeche, Conquista Campesina, 27.6.1984, R. Murillo (UNAM); 1♂, 2♀♀, Campeche, Escarcega, El Tormento, 25.3.1984, 18.6.1989, M. Garcia, L. Cervantes and A. Cadena (UNAM). México: 1♀, Chiapas, Lagunas de Montebello, 30.7.1974, O'Brien and Marshall (UNAM); 1♂, 1♀, Chiapas, San Antonio Independencia, 21.3.1987, F. Arias (UNAM); 1♂, 1♀, Chiapas, Ocosingo, Reserva Montes Azules, 9-11.7.1987, 4.6.1999, R. Barba and M. Lopez (UNAM); 1♀, Chiapas, Monte Bello, 1.6.1969, J.E.H. Martín (CNCI); 3♂♂, 5♀♀, Chiapas, Yaxoquintela, 560 m, 20.8.1978, 18.9.1978, 23.10.1978, J.E. Rawlins (CMNH); 1♂, Chiapas, Parque de Laguna Bélgica, 3.10.1986, R. Turnbow (UGAG); 1♀, Chiapas, Rio Santo Domingo, 800 m, 7.4.1979,

Fig. 19: Dorsal view of *Acanthocephala alata* (BURMEISTER).



- E. Barrera (UNAM). México: 1♂, 2♀♀, Chihuahua, El Jaguey, 23.IX.1984, A. Ibarra and M. Garcia (UNAM); 1♀, Chihuahua, El Herradero, 22.9.1984, M. Vertiz (UNAM). México: 1♂, 1♀, Coahuila, Saltillo, 1.1969, E. Madero (UNAM); 1♂, 1♀, Coahuila, Rio Canon, 3 mi N Cuatro Ciénegas, 1000 m, 13.6.1966, C.J. McCoy (CMNH). México: 1♀, Colima, Colima, 8.1970 (UNAM); 1♂, 1♀, Colima, Veladero de Camotlan, 30.6.1993 (UNAM). México: 1♂, Durango, Peñón Blanco (Belem), 10.7.1985, E. Barrera (UNAM); 1♂, Durango, Ciudad de Durango, 18.10.1982, M. Garcia (UNAM); 1♀, Durango, Los Chirimoyos, 20.10.1982, A. Ibarra (UNAM); 1♂, Durango, Nombre de Dios, 22.8.1975, G. Elis (UCDA). México: 6♂♂, 8♀♀, Estado de México, Malinalco, 15.6.1977, 9-13.12.1978, 10.4.1979, 26.6.1980, H. Brailovsky, P. Guzman and E. Barrera (UNAM); 1♂, Estado de México, Lagunas de Zempola, 11.6.2001, H. Brailovsky and E. Barrera (UNAM); 5♂♂, 8♀♀, Estado de México, Puerto Los Gallos, 13.6.1985, 23.6.1989, A. Celaya and L. Romero (UNAM); 1♂, 1♀, Estado de México, El Zapote-Acamochitlan, 21.11.1984, H. Velasco (UNAM); 1♂, 1♀, Estado de México, Zacualpilla, 8 km NE de Zacualpan, 5.10.2000, H. Brailovsky and E. Barrera (UNAM); 1♂, Estado de México, San Diego Alcalá, 1700 m, 7.11.2000, H. Brailovsky and E. Barrera (UNAM); 2♂♂, 4♀♀, Estado de México, Valle de Bravo, 1200 m, 26.11.1968, 12.8.1969, 21.7.1970, 13.12.1978, H. Brailovsky and E. Barrera (UNAM). México: 1♀, Guanajuato, Celaya, 7.1963 (without collector) (UNAM); 2♀♀, Guanajuato, Roque, 20.6.1964, H. Velasco (LACM). México: 5♂♂, 13♀♀, Guerrero, 10 km road Cacahuamilpa-Taxco (Acuitlanpan), 12.6.2001, H. Brailovsky and E. Barrera (UNAM); 1♂, Guerrero, Tecpan de Galeana, 13.8.1971, H. Brailovsky (UNAM); 1♀, Guerrero, 6 km W de Mezcaltepec, Estación de Microondas, 14.6.2001, E. Barrera and H. Brailovsky (UNAM); 1♀, Guerrero, km 33 road Iguala-Teloloapan, 28.9.1994, E. Barrera (UNAM); 1♂, 2♀♀, Guerrero, Teucizapan, 21.10.1989, E. Barrera, J. Bueno and H. Brailovsky (UNAM); 4♂♂, 3♀♀, Guerrero, Cerro El Huizteco, 2.1989, L. Cervantes (UNAM); 1♂, 2♀♀, Guerrero, Acatempan, 1675 m, 4.2.1989, E. Barrera, L. Cervantes and A. Cadena (UNAM); 5♂♂, 6♀♀, Guerrero, Acahuizotla, 4-5.6.1982, 27.5.1986, V. Hernández, A. Ibarra, and E. Barrera (UNAM); 1♂, Guerrero, Omilteme, 5.5.1987, H. Brailovsky (UNAM); 1♂, Guerrero, Valerio Trujano, 8.7.1968, L. Vazquez (UNAM);. México: 1♂, Hidalgo, Molango, 13.5.1980, J. Garcia (UNAM); 4♂♂, Hidalgo, Otongo, 17.11.1979, 19.4.1980, 31.7.1987, L. Rivera, C.W. and L. O'Brien, and G. Wilmer (UNAM); 10♂♂, 9♀♀, Hidalgo, Huichapan, 2100 m, 5.6.1999, H. Brailovsky and E. Barrera (UNAM); 2♂♂, 2♀♀, Hidalgo, Xicotitla, Municipio Huejutla de Reyes, 28.8.1999, E. Barrera (UNAM); 14♂♂, 23♀♀, Hidalgo, Tasquillo, 4.6.1977, 6.5.1977, 14.7.1977, 6.8.1977, 3.11.1984, 16.4.1987, 16.9.1989, H. and K. Brailovsky (UNAM); 1♂, Hidalgo, Santa Maria Temascalapa, 30.3.1986, C. Mayorga (UNAM); 1♀, Hidalgo, Tepeji del Rio, 2100 m, 28.7.1996, C. Sánchez and J. Vargas (UNAM); 1♂, Hidalgo, Tlacolula, 5.6.1999, K. Brailovsky (UNAM); 1♀, Hidalgo, km 38 road Huejutla de Reyes-Tlalchinol, 1140 m, 11.3.1999, E. Barrera and H. Brailovsky (UNAM). México: 1♀, Jalisco, Presa Las Trojes, 30.7.1995, 450 m, G. Nogueira (UNAM); 1♂, Jalisco, Zapopan, La Primavera, 1650 m, 28.7.1995, G. Nogueira (UNAM); 1♀, Jalisco, Autlan, El Grillo, 13.8.1970, S. Zaragoza (UNAM); 2♀♀, Jalisco, Casimiro Castillo, 390 m, 17.6.1994, G. Nogueira (UNAM); 1♂, Jalisco, Plan de Carranza, 31.10.1986, E. Barrera (UNAM); 1♂, 2♀♀, Jalisco, San Juan de Los Lagos, Rancheria Las Cuevas, 6.7.1996, J. Gonzalez (UNAM); 3♂♂, 6♀♀, Jalisco, Chapala, 1500 m, 18.9.1995, G. Nogueira (UNAM); 1♀, Jalisco, Ciudad Guzmán, 1460 m, 17.8.1996, C. Sánchez and J. Vargas (UNAM); 1♂, Jalisco, Mazamitla, 26-27.12.1992, K. and H. Brailovsky (UNAM); 1♀, Jalisco, Guadalajara, 17-20.7.1970, B. and R. Harding (LACM); 1♀, Jalisco, 28 mi E Guadalajara, 15.8.1962, F.M. Hull (CNCI). México: 2♂♂, km 27, NE road Coalcoman-Las Nieves, 2050 m, 6.5.1983, H. Brailovsky (UNAM); 3♂♂, 5♀♀, Michoacán, El Limón, 24.6.1986, E. Mariño and E. Barrera (UNAM); 1♂, Michoacán, Tzitzio, Queretanillo, 7.10.1997, G. Martinez (UNAM); 1♂, 1♀, Michoacán, Tzitzio, El Limoncillo, 24.9.1997, G. Martinez (UNAM); 2♂♂, 2♀♀, Michoacán, Ciudad Hidalgo, 1.6.1949, A.C. Smith (UCDA); 1♀, Michoacán, Ocampo, 7.3.2001, H. Brailovsky and E. Barrera (UNAM); 1♂, Michoacán, 20 km W Zitacuaro, 24.7.1982, C.R. Beutelspacher (UNAM); 1♀, Michoacán, Aguililla, 1.8.1985, R. Barba (UNAM); 1♂, Michoacán, km 49 road Maravatio-Morelia, H. Brailovsky and C. Mayorga (UNAM). México: 1♂, Morelos, Xochicalco, 16.8.2003, W. Lopez-Forment (UNAM); 3♂♂, 3♀♀, Morelos, Tepoztlan, 17.6.1956, 3.4.1981, L. Vazquez and H. Brailovsky (UNAM); 2♂♂, Morelos, Cuautla, 16.6.1974, H. Brailovsky (UNAM); 1♂, Morelos, Oaxtepec, 10.11.1992, R. Lamothe (UNAM); 1♂, Morelos, Ocotepec, 16.10.2002, H. Brailovsky and E. Barrera (UNAM); 5♂♂, 4♀♀, Morelos, Tepalzingo, 10.6.1989, H. Brailovsky and E. Barrera (UNAM); 6♂♂, 5♀♀, Morelos, Jonacatepec, 13.10.2002, 25.10.2003, W. Sohn and F.

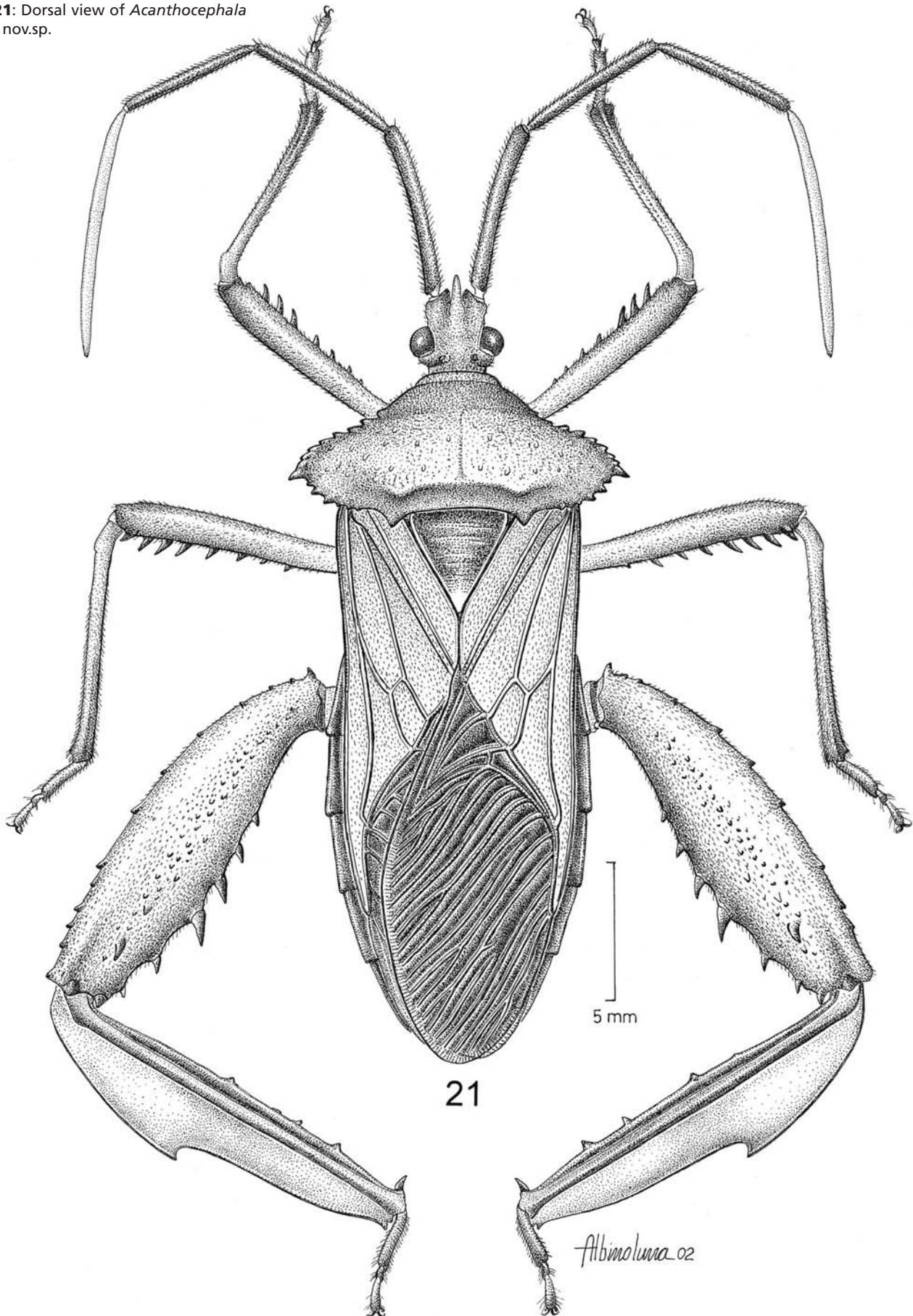
Fig. 20: Dorsal view of *Acanthocephala thomasi* (UHLER).



Brailovsky (UNAM); 2 ♀♀, Morelos, Villa de Ayala, El Polvorín, 17.9.1971, 5.8.1973, H. Perez (UNAM); 3♂♂, 4 ♀♀, Morelos, Chacaltzingo, 11.12.1986, 21.9.2002, H. and F. Brailovsky and W. Sohn (UNAM). México: 1♂, Nayarit, Rio Santiago, Las Adjuntas, 11-13.2.1991, E. Barrera and R. Barba (UNAM); 1♂, 2 ♀♀, Nayarit, Rio Santiago, Colorado de la Mora, 14.7.1991, R. Barba and E. Barrera (UNAM); 1♂, 2 ♀♀, Nayarit, Volcan Ceboruco, 4-11 km W Jala, 8.10.1992, R. Turnbow (UGAG), 1♂, 3 ♀♀, Nayarit, Mesa del Nayar, El Frayle, 700 m, 23.10.1989, P. Tenorio (UNAM); 1♂, Nayarit, Falda E del Volcan Sanganguey, 130 m, 30.11.1989, A. Cadena (UNAM); 1♂, 1 ♀, Nayarit, Jesús Maria, 22.10.1989, A. Cadena (UNAM); 1♂, Nayarit, San Francisco, 17.10.1989, A. Cadena (UNAM); 3♂♂, Nayarit, Rio Huaynamota, Los Sabinos, 8-11.7.1991, R. Barba and E. Barrera (UNAM). México: 1 ♀, Nuevo Leon, Ladera E Cerro de la Silla, Monterrey, Guadalupe, 700 m, 13.4.1976, A. Garcia Aldrete (UNAM); 1♂, Nuevo Leon, 4 km W El Cercado, 2100', 6.6.1951, H.E. Evans (CUIC); 2♂♂, Nuevo Leon, Altamira, Route 85, 45 mi SE Monterrey, 20.4.1965, H.V. Weems Jr. (FSCA); 1♂, Nuevo Leon, Zaragoza, El Salto, 10.11.1985, R. Barba (UNAM); 1♂, 1 ♀, Nuevo Leon, La Congregación Calles, 22.6.1977, E. Barrera (UNAM); 1 ♀, Nuevo Leon, Santiago Los Atascos, 13.11.1985, J. Tufinio (UNAM); 1♂, 1 ♀, Nuevo Leon, km 17 road Linares-San Roberto, 26.9.1983, 17.11.1985, A. Ibarra and F. Arias (UNAM). México: 9♂♂, 6 ♀♀, Oaxaca, Nativitas, km 148, road 135, Tehuacan-Oaxaca, 28.9.2004, E. Barrera and H. Brailovsky (UNAM); 7♂♂, 9 ♀♀, Oaxaca, Tepelmeme, Villa de Morelos, road 135, 28.9.2004, H. Brailovsky and E. Barrera (UNAM); 4♂♂, 6 ♀♀, Macuilxochitl, 10.5.1985 and 30.9.2004, H. Brailovsky and E. Barrera (UNAM); 2 ♀♀, Oaxaca, Guelatao, 1707m, 31.9.2004, L. Cervantes and J. Calónico (UNAM); 1♂, 2 ♀♀, Oaxaca, 5 km W of San Martin Loxicha, Municipio Zimatlan, 12.7.2004, L. Cervantes, A. Delgado, C. Mayorga, and S. Gamez (UNAM); 1♂, Oaxaca, Huayapam, 30.9.2004, H. Brailovsky and E. Barrera (UNAM); 3♂♂, 1 ♀, Oaxaca, Montealban, 29.5.1987, 19.9.1989, and 14.7.2002, E. Barrera, C. Mayorga, and F. Arias (UNAM); 1♂, 1 ♀, Oaxaca, km 5. road Mitla-Oaxaca, 4.11.1988 and 19.9.1989, E. Barrera (UNAM); 1♂, 1 ♀, Oaxaca, Portillo del Rayo, 18.10.1985 and 30.5.1987, E. Barrera and L. Cervantes (UNAM); 1 ♀, Oaxaca, km 23 Sola de Vega-Puerto Escondido, 1.7.1990, E. Barrera and H. Brailovsky (UNAM); 4♂♂, 2 ♀♀, Oaxaca, km 206 Oaxaca-Tuxtepec, 6.7.1989, E. Barrera and A. Cadena (UNAM); 1♂, Oaxaca, 7 km SE El Camarón, 1.7.1996, E.

Barrera and H. Brailovsky (UNAM); 3 ♀♀, Oaxaca, km 6 road Oaxaca-Guelatao, 29.6.1996 (UNAM); 1 ♀, Oaxaca, km 15 road El Camarón-San Carlos, 800m, 15.7.2000, E. Barrera, C. Mayorga and A. Ibarra (UNAM); 1 ♀, Oaxaca, km 114 road Huajuapam de Leon-Putla, 4.9.1990, E. Barrera and A. Cadena (UNAM); 1 ♀, Oaxaca, San Pedrito Chicozapote, near Cuicatlan, 670m, 21.8.1998, A. Soria (UNAM); 1♂, Oaxaca, Teotitlan del Valle, 17.10.1978, E. Barrera (UNAM). México: 1♂, Puebla, 3 km W San Bartolo Teontepec, 14.3.1992, E. Barrera and H. Brailovsky (UNAM); 1 ♀, Puebla, 3 km SW Tecaltzingo, 27.5.1992, E. Barrera and C. Mayorga (UNAM); 1 ♀, Puebla, 15 km W Izucar de Matamoros, hwy. 140, 27.6.1981, E.M. Fisher (CAS); 3♂♂, 3 ♀♀, Puebla, Patla, 19.8.1994, 23.9.1994, J. Chemsak, H. Brailovsky and E. Barrera (UNAM); 1♂, Puebla, Cuetzalan, 940 m, 27-30.4.1994, G. Ortega Leon and E. Barrera (UNAM); 2 ♀♀, Puebla, Villa Juárez, 9.5.1979, 29.4.1984, H. Brailovsky (UNAM); 1♂, Puebla, Villa Avila Camacho, 21.9.1979, H. Brailovsky (UNAM); 1♂, Puebla, Huauchinango, 8.7.1982, A. Ibarra (UNAM); 1 ♀, Puebla, Atlixco, 28.9.1996, C. Sánchez (UNAM); 1 ♀, Puebla, Tecamachalco, 27.5.1992, E. Barrera and C. Mayorga (UNAM); 2♂♂, 2 ♀♀, Puebla, 4 km W Tepexco, 29.9.1994, E. Barrera (UNAM); 1♂, Puebla, road Atlixco-La Trinidad, 29.5.1994, H. Brailovsky and E. Barrera (UNAM); 1 ♀, Puebla, Necaxa, Tenango, 1.7.1994, G. Ortega Leon and E. Barrera (UNAM); 1 ♀, Puebla, km 3 road Pahuatlan-Honey, 7.8.1995, H. Brailovsky (UNAM). México: 2 ♀♀, Queretaro, Ciudad de Queretaro, 14-26.9.2003, H. and K. Brailovsky and E. Barrera (UNAM); 1♂, 2 ♀♀, Queretaro, Rancho Aztlan, 10 km E Ciudad de Queretaro, 18.8.1996, 1.6.2003, W. Lopez-Forment (UNAM); 4♂♂, 2 ♀♀, Queretaro, km 8 road Nebllinas-Agua Zarco, 25.4.1998, 22.7.1998, E. Barrera and C. Mayorga (UNAM); 1♂, Queretaro, km 87 road Visarron-Jalpan, 1415 m, 6.11.1997, E. Barrera and G. Ortega Leon; 1 ♀, Queretaro, Cadereyta, 14.11.1991, H. Brailovsky and E. Barrera (UNAM); 1♂, Queretaro, 3 mi SE Bernal, 6650', 27.7.1982, C.W. and L. O'Brien and G. Wibmer (CAS). México: 1♂, Quintana Roo, near Cancún, 7.8.1990, H. V. Weems Jr. (FSCA); 2 ♀♀, Quintana Roo, Chunyaxche, 23.2.1984, 5.7.1985, A. Ibarra and F. Neyer (UNAM); 1♂, 1 ♀, Quintana Roo, Chetumal, 29.10.1981, E. Barrera (UNAM). México: 1 ♀, San Luis Potosí, Xilitla, 21.5.1978, E. Barrera (UNAM); 1♂, 1 ♀, San Luis Potosí, 4 mi NE Xilitla, 2500', 26.5.1974, C.W. and L. O'Brien and Marshall (CAS); 1 ♀, San Luis Potosí, Ciudad Valles, Micos, 7.11.1980, J. Garcia Figueroa (UNAM). México: 5♂♂, 4 ♀♀, Sinaloa, 7 km NE La Capil-

Fig. 21: Dorsal view of *Acanthocephala heissi* nov.sp.



la del Taxte, 4100', 27.6.1977, J.E. Rawlins (CMNH); 1 ♀, Sinaloa, Mazatlán, 6.7.1954, R. Townsend (LACM). México: 1 ♂, Sonora, Rayon, 5.11.1986, E. Mariño (UNAM); 1 ♀, Sonora, Santa Ana River, 4.8.1985, G. Ekis (UCDA). México: 1 ♀, Tabasco, Cardenas, Campo Experimental CSAT, 19.9.1977, A. Gonzalez (UNAM). México: 1 ♂, Tamaulipas, Gomez Farias, 4.10.1985, L. Cervantes (UNAM); 1 ♂, 1 ♀, Tamaulipas, La Presa, 8.10.1985, F. Arias and L. Cervantes (UNAM); 1 ♂, 1 ♀, Tamaulipas, Ejido Libertad, 7.10.1985, F. Arias and L. Cervantes (UNAM); 1 ♀, Tamaulipas, Matamoros, 5.9.2001, C. Cota (UNAM). México: 1 ♀, Veracruz, San Andres Tuxtla, Catemaco, 6.10.1976, H. Brailovsky (UNAM); 1 ♀, Veracruz, Atoyac, 6.5.2000, E. Barrera and A. Ibarra (UNAM); 4 ♂♂, 10 ♀♀, Veracruz, Dos Amates, 15.4.1972, 15.5.1972, 3.8.1972, E.C. Welling (LACM); 1 ♂, Veracruz, Poza Rica, 14.7.1970, E.M. Brock (UCDA); 1 ♀, Veracruz, Minatitlan, Palmillas, 20.7.1987, L. Cervantes (UNAM); 18 ♂♂, 7 ♀♀, Veracruz, Estación de Biología Tropical Los Tuxtlas, 18.10.1980, 20.2.1985, 6-22.3.1985, 4-25.7.1985, 14.5.1986, 2-14.7.1988, 9.6.1989, 13.7.1989, 15.8.2002, H. Brailovsky, L. Cervantes, C. Mayorga, P. Sinaca, V. Meléndez, A. Cadena, A. Ibarra, J.L. Colin and H. Rojas (UNAM); 1 ♂, Veracruz, Puente Nacional, 14.7.1974, H. Brailovsky (UNAM); 1 ♀, Veracruz, Ocotlal, Taxisapa, 8.12.1985, R. Barba (UNAM). México: 15 ♂♂, 18 ♀♀, Zacatecas, road Apulco-Tenayuca, 24.11.1995, H. Brailovsky and E. Barrera (UNAM); 1 ♀, Zacatecas, Santa Rosa, 27.VII.1971 (UNAM).

Redescription: Structure. Pronotum. Anterolateral margins regularly nodulose; humeral angles rounded, weakly expanded, only slightly broader than basal width of hemelytra; posterolateral margins regularly dentate; pronotal disc densely and quite coarsely tuberculate, and each tubercle abruptly raised or at least exposed; intercallar space at anterior third with four tubercles located at each side of midline, two above and two below the calli (Fig. 2). Legs. Male. Dorsal surface of middle femur smooth; outer expansion of hind tibiae lanceolate, with stout subdistal tooth; apex without strong apical teeth; inner expansion barely expanded near the middle third, the remainder narrowed, the same width to the apex, and armed with one row of stout spines; apex with strong apical teeth. Female. Dorsal surface of middle femur smooth; outer expansion of hind tibiae foliaceous with strong tooth; inner expansion armed at

middle third with short stout spines in one row (Figs 9-10). Scutellum. Longer than wide. Male genitalia. Posterolateral angles of genital capsule rounded, and between them a straight medial projection. Paramere. Figs 13-14. Integument. Middle and posterior third of propleura densely tuberculate; pronotal disc without white serous wax. **Dorsal coloration.** Head pale reddish brown, with tylus, inner margin of antenniferous tubercle, and outer margin of ocelli chestnut orange; antennal segments I to IV pale orange yellow; pronotum, scutellum, clavus, corium, and connexivum black to dark reddish brown; apex of scutellum and posterior angle of connexival segments III to VII dark to pale yellow; hemelytral membrane brown with basal angle darker; dorsal abdominal segments black with scars IV-V and V-VI, and medial longitudinal stripe on segment VI yellow. **Ventral coloration.** Black to dark reddish brown; rostral segments I to IV, anterior and posterior lobe of metathoracic peritreme, and the evaporative area near to the metathoracic peritreme dark orange yellow; coxae and hind femur dark reddish brown; trochanter dark chestnut orange with black marks; fore and middle femora with anterior half chestnut orange and posterior half reddish brown; fore and middle tibiae orange yellow; hind tibiae dark reddish brown with distal third dark chestnut orange; tarsi orange yellow; rim of abdominal spiracle black. **Female.** Structure and color similar to male. Abdominal segments VIII and IX, connexival segments VIII and IX, and genital plates black to dark reddish brown.

Variation. 1. Head dorsally black with inner margin of antenniferous tubercle and outer margin of ocelli dark yellow. 2. Antennal segments I to IV reddish orange to shiny orange or pale yellow. 3. Antennal segments I to III black, and IV shiny orange. 4. Antennal segment I robust or relatively slender. 5. Rostral segment I black with outer margin orange. 6. Mesosternum laterally dark chestnut orange. 7. Coxae black to dark reddish brown with upper margin dark chestnut orange. 8. Denticles and tubercles of the anterolateral margins of pronotum and hind femur abruptly broadened and markedly raised. 9. Dorsal abdominal segment VII black with medial longitudinal stripe yellow.

Measurements. First male, then female. Head length: 2.81, 2.75; width across eyes: 2.81, 2.66; interocular space: 1.52, 1.38; length antennal segments: I, 5.01, 4.25; II, 4.10, 3.80; III, 3.49, 3.11; IV, 6.38, 6.08. Pronotal length: 6.23, 5.47; width across humeral angles: 10.10, 9.42. Scutellar length: 3.72, 3.57; width: 3.42, 3.42. Total body length: 26.40, 25.80.

Discussion: In the short description of *Acanthocephala femorata* (FABRICIUS 1775), India (in error) is mentioned as its type locality. SAY (1832) described *Rhynuchus nasulus* from the United States (Georgia, Florida and Louisiana), while WESTWOOD (1842) described *Metapodius obscurus* from “America Boreali”; both species were later placed by STÅL (1870) in the synonymy of *Acanthocephala* (*Metapodius*) *femorata*. DALLAS (1852) described *Metapodius granulatus* from Honduras, and STÅL (1855) described *Metapodius luctuosus* from México. HERRICH-SCHAEFFER (1842) described *Dialector alatus*; STÅL (1870) transferred it to *Acanthocephala* and synonymized it with *A. granulosa*. DISTANT (1881-1892) added new records to *A. granulosa* broadening its range to the United States, México, Belize, Guatemala, Nicaragua, and Costa Rica, and synonymized *A. luctuosa* with *A. granulosa*. *Metapodius bispinus* WESTWOOD 1842, recorded as “Patria Ignota” was synonymized by DISTANT (1901) with *A. femorata*. GIBSON & HOLDRIDGE (1918) and TORREBUENO (1941) kept *A. femorata* and *A. granulosa* as distinct species, but placed *A. luctuosa* under *A. femorata*. BARBER (1926) synonymized *A. granulosa* with *A. femorata* and agreed with DISTANT (1892) in considering *A. luctuosa* as a synonym of *A. granulosa*. BLÖTE (1938) ignored the previous nomenclatural acts, and used again the names *Acanthocephala* (*Metapodius*) *femorata*, *granulosa* and *luctuosa*. FROESCHNER (1981) following CAMPOS (1919, 1925) conserved the name *A. granulosa* and cited this species from Ecuador.

I have examined large series of this species from several localities in the United States, Mexico, and Central America, and have seen the types of *A. bispina*, *A. granulosa*, *A. luctuosa* and *A. obscura* and have concluded that they not differ in any impor-

tant characters. The most notable variation resides in the general size of the bug, the color of the body surface, and the particular color of antennal segments I to III, which run from black to pale or dark reddish brown, including some specimens with pale orange antennal segments. After careful comparison of these neotropical specimens with specimens of what we recognize as *A. femorata* from Florida and Texas, I conclude and agree with DISTANT (1892) and BARBER (1926) that *A. femorata*, *A. granulosa*, and *A. luctuosa* constitute the same taxon.

Acanthocephala femorata is recognized by having the humeral angles always rounded, weakly expanded, and only slightly broader than the basal width of the hemelytra. The pronotal disc is densely and coarsely tuberculate, the intercallar space has four tubercles, two above and two below the calli (Fig. 2), the propleura surface is tuberculate, and the hind tibiae expansion is of a peculiar shape (Figs 9-10).

***Acanthocephala heissi* nov.sp.**
(Figs 4, 7, 11-12, 21)

Holotype ♂: México, Veracruz, Estación de Biología Tropical Los Tuxtlas, 11.7.1972, H. Brailovsky (UNAM). Paratypes: México: 52♂♂, 83♀♀, Veracruz, Estación de Biología Tropical Los Tuxtlas, 15.1.1971, 15.7.1972, 18.5.1974, 18.1.1980, 19.2.1984, 13-14.5.1985, 21.6.1985, 3-13.7.1985, 31.8.1985, 4-14.9.1985, 25.10.1985, 20.11.1985, 10-27.12.1985, 8-18.V.1986, 17.VI.1986, 15.7.1988, 21.4.1989, 7-20.6.1989, 7-21.7.1989, and 8.11.1989, H. Brailovsky, E. Barrera, L. Cervantes, E. Mariño, V. Meléndez, C. Mayorga, E. Ramírez, P. Sinaca, J. L. Colin, and H. Rojas (UNAM); 1♂, Veracruz, Municipio Actopan, El Carrizal, 3.12.1999, H. Brailovsky, and E. Barrera (UNAM); 1♀, Veracruz, below Teocelo, 17.7.1976, R.B. Root (CUIC); 1♂, Veracruz, 18 mi. S of Catemaco, 26.7.1970, E.M. Brock (UCDA). Mexico: 1♂, Oaxaca, Palomares (Istmo), 1.10.1975, Diaz Frances (UNAM); 1♀, Oaxaca, Candelaria de Loxicha, 9.2.1982, A. Ibarra (UNAM); 1♂, Oaxaca, Tuxtepec, 24.9.1947 (UNAM). México: 1♂, 1♀, Chiapas, Bonampak, 4.5.1978 and 23-25.5.1984, H. Brailovsky and M. Garcia (UNAM); 1♀, Chiapas, Reserva El Ocote, 9.3.1993, E. Barrera (UNAM); 1♀, Chiapas, Reserva Ocosingo, Montes Azules, 30.5.1999, L. Cervantes (UNAM); 1♀, Chiapas, Palenque, 24.6.1973, E. Schlegel (LACM). México: 1♂, 3♀♀, Quintana Roo, Morelos, Rancho San Isidro, 12-15.8.1982, H.

Delfín and V. Meléndez (UNAM); 3 ♀♀, Quintana Roo, Tulum, 3.8.1981, and Nov.1981, E. Pech (UNAM).

Description. Male. Holotype. Structure. Pronotum. Anterolateral margins regularly sinuate; humeral lobes sharply triangular, acuminate, extending postero-laterally into wing-like projection; humeral angles ending in a sharp elongate, broad spine; posterolateral margins regularly dentate; pronotal disc densely and quite coarsely rugose-punctate; intercallar space at anterior third with two tubercles located at each side of midline (Fig. 4). Legs. Dorsal surface of middle femur smooth; outer expansion of hind tibiae foliaceous with strong tooth before the middle, from where the width of the foliation has the same dimension; unarmed, except for the strong apical tooth; inner expansion barely expanded at the base, the remainder narrow and of the same width to the apex of the tibiae, and armed with one row of strong spines. Scutellum. Longer than wide. Genitalia. Posterolateral angles of genital capsule straight, and between them a wide and broad medial flat projection. Paramere. Stout, with short curved tip (Figs 11-12). Integument. Middle third of propleura smooth, posterior third finely punctate; pronotal disc without white serous wax. **Dorsal coloration.** Shiny reddish brown; antennal segments I to III reddish brown, and IV shiny pale orange; apex of scutellum dark yellow; hemelytral membrane dark brown; abdominal segments black with scars IV-V, V-VI, dark yellow. **Ventral coloration.** Head, posterior margin of propleura and mesopleura, prosternum and mesosternum, fore and mesoacetabulae, and anterior margin of meta-acetabulae chestnut orange; buccula dark chestnut orange; rostral segments I to IV and anterior and middle third of propleura and mesopleura, metapleura, posterior margin of meta-acetabulae, metasternum, and abdominal sterna shiny reddish brown; legs shiny reddish brown with fore and middle tibiae dark orange; anterior and posterior lobe of metathoracic peritreme dark yellow; evaporative area dark reddish orange; rim of abdominal spiracle black. **Female.** Structure and color similar to male. Legs. Dorsal surface of middle femur smooth; outer expansion of hind tibiae foliaceous with strong

tooth before the middle, from where the width of the foliation has the same dimension; unarmed; apex without apical tooth; inner expansion unarmed (Fig. 7). Connexival segments VIII and IX, abdominal segments VIII and IX, and genital plates dark to pale shiny brown or reddish black.

Measurements. First male, then female. Head length: 2.90, 3.00; width across eyes 3.10, 2.90; interocular space: 1.50, 1.55; length antennal segments: I, 7.20, 6.10; II, 5.50, 4.70; III, 4.70, 4.10; IV, 10.10, 9.80. Pronotal length: 7.50; width across humeral angles: 10.10, 9.42. Scutellar length: 3.72, 3.57; width: 3.42, 3.42. Total body length: 26.40, 25.80.

Discussion: Recognized by the large size, the unicolorous shining reddish brown of the dorsum, and the anterior lobe of metathoracic peritreme dark yellow. Similar to *A. alata* (BURMEISTER), and *A. declivis* (SAY) with pronotal humeral lobes broad, wing-like, produced laterally, and conspicuously broader than basal width of hemelytra (Figs 1, 4). In *A. heissi* nov.sp., the pronotal humeral lobes are acuminate and triangular (Fig. 4), whereas on the other they are broad and rounded (Fig. 1).

Etymology. Named for Ernst Heiss, distinguished Austrian hemipterologist, in recognition of his seminal contribution to the systematics of Aradidae, and other groups.

Acanthocephala thomasi UHLER (Figs 3, 8, 20)

Metapodius thomasi (sic) UHLER 1872: 399-400.
Type species examined. Type ♂, *Metapodius thomasi* UHLER. Described from the United States (Arizona). Deposited USNM.

Distribution. This species was known previously only from the United States (Arizona, California, New México and Texas) (FROESCHNER 1988), and is here recorded for México.

Additional specimens examined. New records. México: 1♂, Chihuahua, 84 km N de Ciudad Camargo, 21.9.1984, M. Vertiz (UNAM); 1♀, Chihuahua, km 23 Jimenez-Ciudad Camargo, 12.7.1985, E. Mariño (UNAM); 1♂, Chihuahua, El Jaguey, 23.9.1984, A. Ibarra (UNAM); 1♀, Chihuahua, Ciudad de Creel, 11.5.1996, W. Lopez Forment (UNAM). México: 2♂♂,

Coahuila, 5 mi de Saltillo, 20.6.1983, C.W. and L. O'Brien (UNAM); 2 ♀♀, Coahuila, Torreon, Parque Nac. Raymundo, 20.5.1978, E. Vargas (UNAM); 2♂♂, Coahuila, Saltillo, Bajio Vaan, 2.9.2001, V. Ortiz (UNAM). México: 3♂♂, 3 ♀♀, Durango, Peñón Blanco, 10.7.1985, H. Brailovsky and E. Barrera (UNAM); 2 ♀♀, Durango, Mapimi, 21.7.1985 and 7.8.1985, H. Brailovsky and P. Aguilar (UNAM); 2♂♂, 2 ♀♀, Durango, Graseros, Lerdo, 10.6.1994, N. Hiller (UNAM); 1 ♀, Durango, km 114, road Durango-Hidalgo del Parral, 17.9.1984, M. Vertiz (UNAM). México: 1♂, 1 ♀, Nuevo Leon, Garcia, 19.9.1959, C. Bolivar (UNAM); 1♂, Nuevo Leon, Bustamante, 13.7.1942, C. Bolivar (UNAM); 1♂, Nuevo Leon, Cola de Caballo, 22.6.1976, H.V. Weems Jr. (FSCA); 1♂, Nuevo Leon, Rte. 58 and 61, 18.7.1988, C. L. Smith (UGAG). México: 1♂, 1 ♀, San Luis Potosí, 1 km E carr. 57 to Guadalucazar, 4.10.1999, H. Hernández (UNAM); 1♂, San Luis Potosí, Sierra de Juárez, 4 km W de Guadalucazar, 19.7.1988, C.L. Smith (UGAG). México: 1 ♀, Sonora, 16 mi S Navojoa, 22.10.1961 (whitout collector) (UNAM). México: 2♂♂, Tamaulipas, Jaumave-El Salto, 16.4.2003, I. Pacheco and L. Cervantes (UNAM).

Redescription: **Structure.** Pronotum. Anterolateral margins regularly spinose; humeral angles rounded, weakly expanded, only slightly broader than basal width of hemelytra; posterolateral margins obliquely sinuate, with only few small tubercles or granulations; pronotal disc transversely flat with small, rounded, and scattered tubercles; intercallar space at middle third with two minute tubercles located at each side of midline (Fig. 3). Legs. Male. Dorsal surface of middle femur smooth or with one row of short spines; outer expansion of hind tibiae lanceolate, with short subdistal tooth; apex without strong apical teeth; inner expansion barely expanded at the base, the remainder narrow and of the same width to the apex of the tibiae, and armed with two rows of strong spines; apex without strong apical tooth. Females. Dorsal surface of middle femur smooth or with one or two rows of short spines; outer expansion of hind tibiae foliaceous with short subdistal tooth, and after the middle the width foliation has the same dimension to the apex; apex without strong tooth; inner expansion armed with one row of strong spines (Fig. 8). Scutellum. As long as wide. Male genitalia. Posterolateral angles of genital capsule straight, and between

them a small medial projection. Integument. Middle third of propleura smooth, and posterior third finely punctate; pronotal disc without white serosus wax. **Dorsal coloration.** Head black with tylus, interocellar space, and outer margin of ocelli dark chestnut orange; antennal segments I to III black and IV pale orange; pronotum pale chestnut orange with collar, anterolateral and posterolateral margins including the spines and tubercles of pronotal disc black; scutellum pale chestnut orange with lateral margins black, and apex dark orange; clavus pale chestnut orange; corium pale chestnut orange with anterior half of costal margin black; hemelytral membrane brown with basal angle darker; connexivum black; dorsal abdominal segments black with wide medial longitudinal yellow stripe running from segments III to middle third of VII. **Ventral coloration.** Head and thorax dark reddish brown; abdominal sterna pale reddish brown; rostral segments I to III black, and IV black with orange reflections; coxae, trochanter, and femora dark reddish brown; fore and middle tibiae pale orange yellow; hind tibiae dark reddish brown with subdistal area pale orange yellow; tarsi pale orange yellow; anterior and posterior lobe of metathoracic peritreme and evaporative area pale orange yellow; rim of abdominal spiracle black. **Female.** Structure and color similar to male. Connexival segments VIII and IX, abdominal segments VIII and IX, and genital plates black, to reddish brown.

Measurements. First male, then female. Head length 3.28, 3.26; width across eyes: 3.11, 2.88; interocular space: 1.74, 1.52; length antennal segments: I, 6.08, 5.01; II, 4.63, 4.18; III, 4.25, 3.80; IV, 7.00, 6.68. Pronotal length: 6.38, 5.92; width across humeral angles: 10.10, 9.34. Scutellar length: 3.80, 3.26; width: 3.80, 3.26. Total body length: 31.47, 29.28.

Discussion: *Metapodius thomasi* (sic) was described by UHLER (1872) from the United States (Arizona). UHLER (1875) synonymized his species under *Metapodius granulatus* (DALLAS 1852) and DISTANT (1881) confirmed this action. BARBER (1926) examined long series of both sexes from Arizona and New México, and resurrected this species. GIBSON & HOLDRIDGE (1918) cited

this species from Texas, and TORRE-BUENO (1941) from California, under the name *A. granulosa*. FROESCHNER (1988) accepted the Barber's action and listed *A. thomasi* as a good species.

Acanthocephala thomasi is relatively more elongate than *A. femorata* (FABRICIUS) with pronotal disc and corium paler, and tarsi shiny ochraceous to shiny reddish orange. In *A. femorata* the pronotal disc, corium, and tarsi are darker, and not contrasting with the general color. In *A. thomasi* the pronotal disc and propleura are finely and sparsely tuberculate, and in *A. femorata* coarsely tuberculate.

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Zusammenfassung

Die Gattung *Acanthocephala* LAPORTE wird mit einer neuen Art, *A. heissi* nov.sp. aus México beschrieben und illustriert; *A. thomasi* (UHLER) wird erstmals aus México gemeldet; *A. alata* (BURMEISTER) wird aus der Synonymie mit *A. declivis* (SAY) erhoben; *A. declivis calderensis* DISTANT, *A. declivis guatemalena* DISTANT, *A. declivis panamensis* DISTANT, *A. declivis thoracicus* (DALLAS) und *A. subalata* DISTANT werden mit

A. alata synonymisiert; *A. bispina* (WESTWOOD), *A. granulosa* (DALLAS), *A. luctuosa* (STÅL), *A. nasutus* (SAY) und *A. obscura* (WESTWOOD) werden als Synonyme von *A. femorata* (FABRICIUS) bestätigt. Die Verbreitung von *A. declivis* ist auf die Vereinigten Staaten beschränkt; neue Nachweise von *A. alata* und *A. femorata* werden mitgeteilt; dorsale Zeichnungen des Habitus, von Pronotum, Hinterbeinen und Parameren werden präsentiert. Ein überarbeiteter Bestimmungsschlüssel der vier bekannten Arten in México wird vorgestellt.

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