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Review of *Acanthocephala* (Hemiptera: Heteroptera: Coreidae) of America north of Mexico with a key to species

J. E. McPHERSON[1], RICHARD J. PACKAUSKAS[2], ROBERT W. SITES[3], STEVEN J. TAYLOR[4], C. SCOTT BUNDY[5], JEFFREY D. BRADSHAW[6] & PAULA LEVIN MITCHELL[7]

[1]*Department of Zoology, Southern Illinois University, Carbondale, Illinois 62901, USA. E-mail: mcpherson@zoology.siu.edu*
[2]*Department of Biological Sciences, Fort Hays State University, Hays, Kansas 67601, USA. E-mail: rpackaus@fhsu.edu*
[3]*Enns Entomology Museum, Division of Plant Sciences, University of Missouri, Columbia, Missouri 65211, USA. E-mail: sitesr@missouri.edu*
[4]*Illinois Natural History Survey, University of Illinois at Urbana-Champaign, Illinois 61820, USA. E-mail: sjtaylor@uiuc.edu*
[5]*Department of Entomology, Plant Pathology, & Weed Science, New Mexico State University, Las Cruces, New Mexico 88003, USA. E-mail: cbundy@nmsu.edu*
[6]*Department of Entomology, University of Nebraska-Lincoln, Panhandle Research & Extension Center, Scottsbluff, Nebraska 69361, USA. E-mail: jbradshaw2@unl.edu*
[7]*Department of Biology, Winthrop University, Rock Hill, South Carolina 29733, USA. E-mail: mitchellp@winthrop.edu*

Abstract

A review of *Acanthocephala* of America north of Mexico is presented with an updated key to species. *A. confraterna* is considered a junior synonym of *A. terminalis*, thus reducing the number of known species in this region from five to four. New state and country records are presented.

Key words: Coreidae, Coreinae, Acanthocephalini, *Acanthocephala*, North America, review, synonymy, key, distribution

Introduction

The genus *Acanthocephala* Laporte currently is represented in America north of Mexico by five species: *Acanthocephala* (*Acanthocephala*) *declivis* (Say), *A.* (*Metapodiessa*) *confraterna* (Uhler), *A.* (*M.*) *femorata* (Fabricius), *A.* (*M.*) *terminalis* (Dallas), and *A.* (*M.*) *thomasi* (Uhler) (Froeschner 1988). *A. terminalis* has the widest distribution, including much of the Midwest. *A. confraterna* has been reported from the Carolinas south to Florida and west to Texas and *A. thomasi* from Texas to California. *A. declivis* and *A. femorata* are primarily southern but have been reported as far north as Missouri (*A. declivis*) and Oklahoma, Kansas, and Missouri (*A. femorata*) (Froeschner 1988).

Species of *Acanthocephala* are among the largest of the coreids in America north of Mexico, reaching lengths up to 34 mm (Torre-Bueno 1941). Little has been published on their life histories (*A. terminalis* being the exception), although they apparently are phytophagous. Most plant records are associations rather than feeding records (see discussions of these coreids below).

Published keys to species of *Acanthocephala* have limited geographic coverage (e.g., Blatchley 1926 [eastern North America], Froeschner 1942 [Missouri], Drew & Schaefer 1962 [Oklahoma], Hoffman 1975 [Virginia], and Baranowski & Slater 1986 [Florida]. The only key that covers America north of Mexico is that of Torre-Bueno (1941). He listed the five species, although he used the name *A. granulosa* (Dallas) for *A. thomasi* Uhler, having overlooked Barber's (1926) clarification of the status for these names. Barber (1926) resurrected *A. thomasi* Uhler from synonymy under *A. granulosa* (Dallas), which he stated was a mistake by Distant (1881) and mistakenly followed by Uhler (1886). Barber (1926) also synonymized *A. granulosa* (Dallas) under *A. femorata* (Fabricius).

We here reduce the number of species from five to four (*A. confraterna* is considered a junior synonym of *A. terminalis*) (see synonymic note under section on *A. terminalis*), provide an updated key to these four species, and

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include additional diagnostic characters. We add to the ranges of these species based on museum material and for Illinois specimens of *A. declivis* and *A. femorata*, we provide label information because the state represents the known northern limits of their ranges. We also provide updated life history information where available.

Key to species of *Acanthocephala* Laporte in America north of Mexico

(Figs. 1–4)

1. Metatibiae broadly dilated for almost entire length, ending abruptly near apex (Figs. 5–8) 2
1'. Metatibiae broadly dilated in basal 1/2, gradually narrowing beyond middle toward apex (Figs. 9–12) 3
2. Humeral angle of pronotum broadly rounded (Fig. 1), strongly extended laterally, elevated in posterior view (Fig. 13); metatibial expansions as in Figs. 5–6 . . . . . *A. declivis*
2'. Humeral angles of pronotum more narrowly rounded, moderately extended laterally (Fig. 4), horizontal to slightly declivent in posterior view (Fig. 14); metatibial expansions as in Figs. 7–8 . . . . . *A. thomasi*
3. Metafemora of both sexes slightly expanded toward apex (occasionally parallel-sided or narrowed apically in males); both sexes lacking darkened areas beneath metacoxae on abdominal sternum 3 (second visible); antennal segment 4 red to yellow; metatibial expansions as in Figs. 9–10 . . . . . *A. terminalis*
3'. Metafemora of males strongly incrassate, widest at middle, those of females slightly expanded; both sexes often with darkened areas beneath metacoxae on abdominal sternum 3; antennal segment 4 varying from concolorous with proximal segments to yellowish; metatibial expansion as in Figs. 11–12 . . . . . *A. femorata*

Biological information[1 2 3]

Acanthocephala (*Acanthocephala*) *declivis* (Say)

(Figs. 1, 5, 6, 13)

Rhinchus declivis Say, 1832, Ins. La., p. 10.
Acanthocephala (*Acanthocephala*) *declivis*: Stål, 1870, K. Svens. Vet.-Akad. Handl. 9(1): 150.

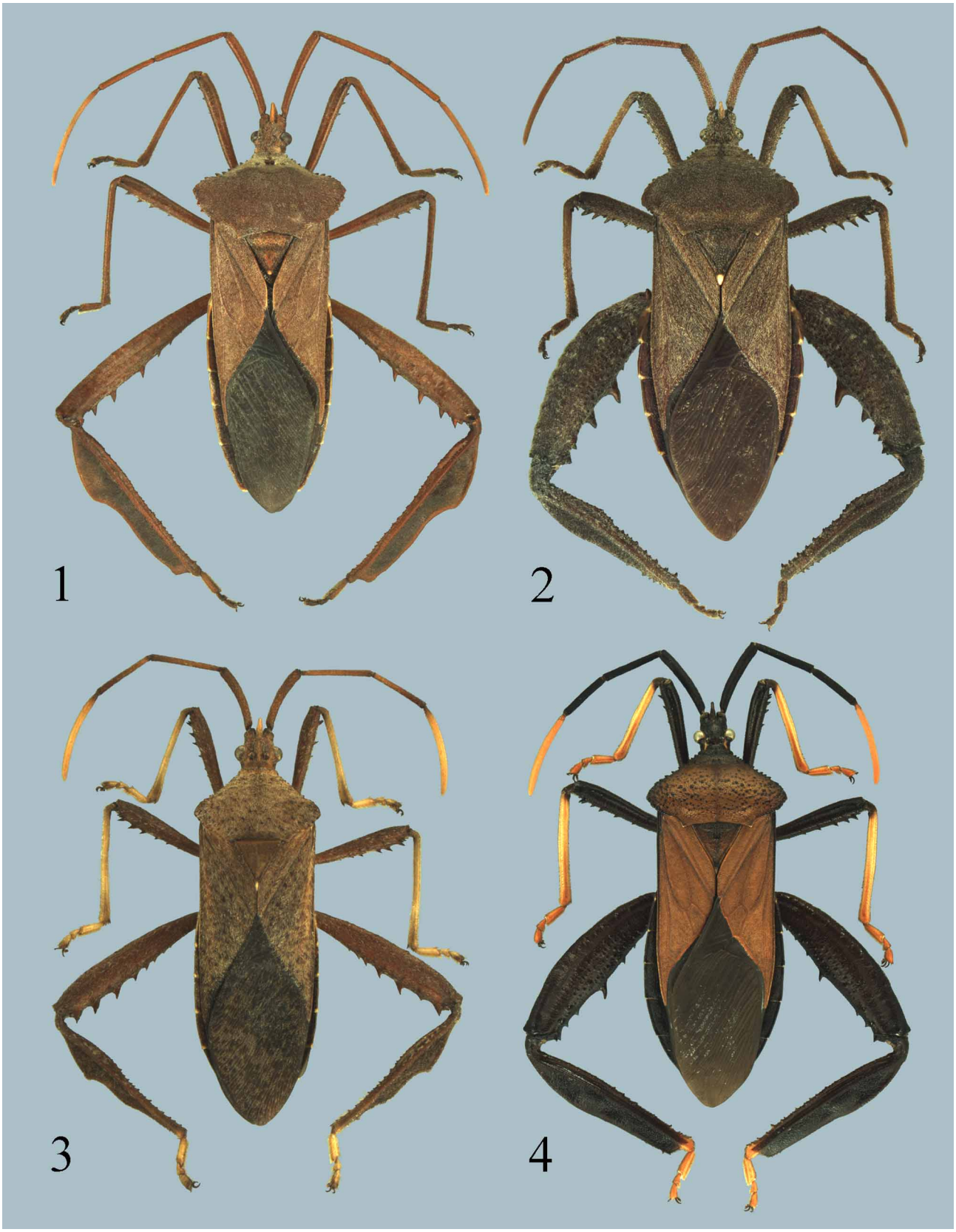
Diagnosis. Length: 28–34 mm. This species can be recognized by the humeral angles of the pronotum, which are broadly rounded and strongly extended laterally. The metatibial expansions are broadly dilated for most of their length, ending abruptly near the apex.

Distribution. AL, AR, AZ, FL, GA, **IL**, **KY**, LA, MO, NC, NM, SC, TX, **VA** (**El Salvador**, Greater Antilles, Guatemala, Mexico [**Durango, Nuevo Leon, Puebla, San Luis Potosi, Tamaulipas**])

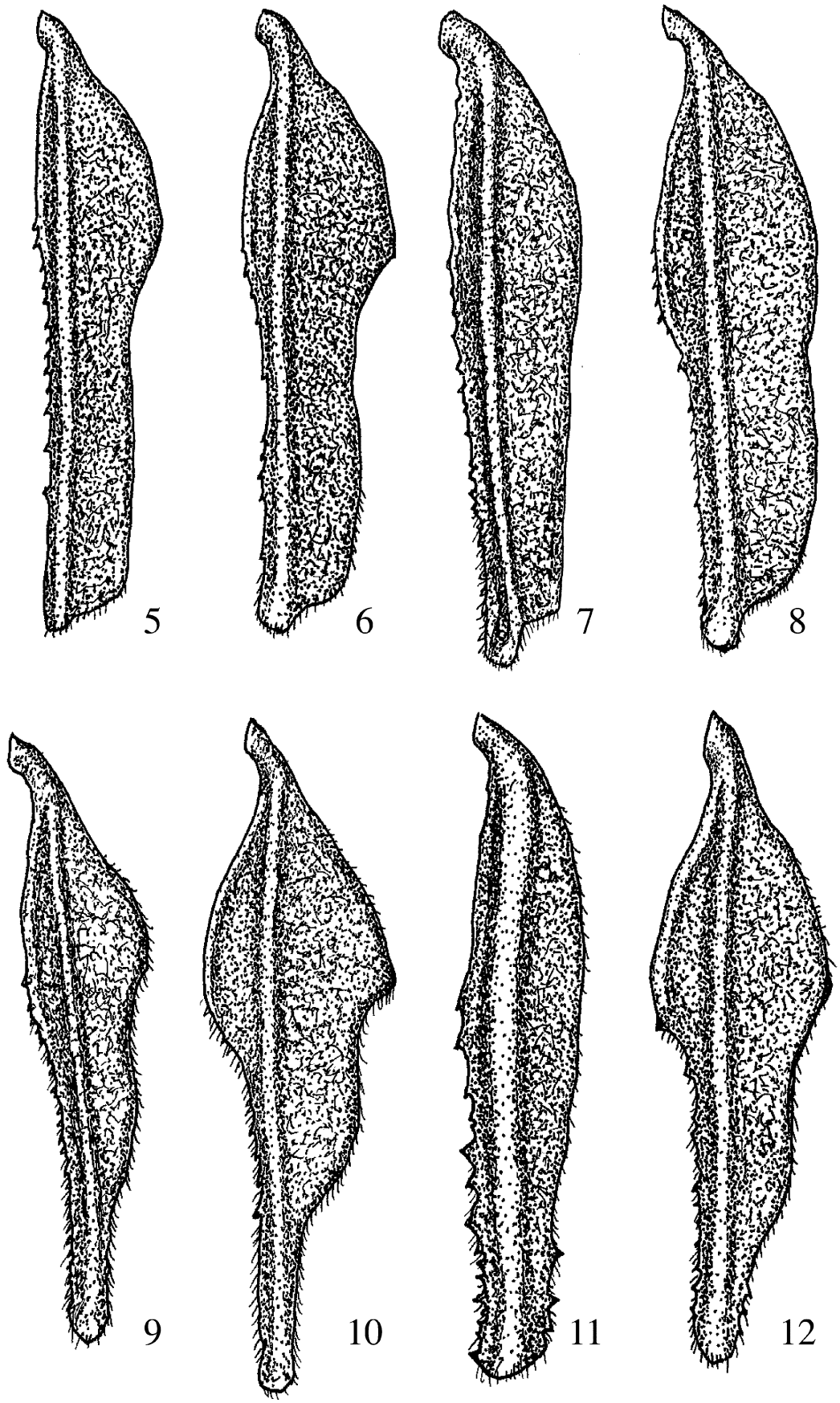
Discussion. Little is known about the biology of this species. It has been collected from December through August in Florida (Blatchley 1926, Baranowski & Slater 1986). Froeschner (1942) reported two specimens from Missouri, one collected in St. Louis on 26 August 1938, the other in Columbia on 17 November 1941, the latter having been "freshly smashed on a sidewalk." Hoffman (1992) reported it from Virginia.

Published information on plant associations is limited. Palmer (1987) conducted a survey of the phytophagous insect fauna associated with *Baccharis neglecta* Britton (Rooseveltweed, false willow) and *B. halimifolia* Linnaeus (eastern baccharis, groundseltree) in Texas, Louisiana, and northern Mexico. He reported *A. declivis* as a rare ectophagous species on *B. neglecta* without indicating a specific location but, apparently, this was observed in Texas. Also, Blatchley (1926) reported beating specimens from foliage of *Persea borbonia* (Linnaeus) (red bay) along margins of wet hammocks. Eberhard (1998) stated that males of *A. declivis guatemalena* Distant battled other males at feeding and mating sites, primarily on trunks and branches of *Cordia elaeagroidei* (probably a misspelling of *Cordia elaeagnoides* A. DeCandolle) (Boraginaceae) in Jalisco, Mexico, this behavior being similar to that observed for *A. femorata* (Mitchell 1980).

1. All body lengths taken from Torre-Bueno (1941).
2. Geographic distributions from Froeschner (1988) unless noted otherwise (all new records appear in bold).
3. A substantial amount of host plant and life cycle information is provided by Paula Levin Mitchell from her unpublished field notes and from observations given to her by T. P. Friedlander (see Acknowledgments). Unless noted otherwise, all data were recorded in Austin, TX, at the Brackenridge Field Laboratory of the University of Texas. Observations from Friedlander are identified as PLM/TPF. Data gathered elsewhere are noted specifically in the text.



FIGURES 1–4. Habitus photographs of male *Acanthocephala* spp. 1. *A. declivus*. 2. *A. femorata*. 3. *A. terminalis*. 4. *A. thomasi*.



FIGURES 5–12. Hind tibiae of *Acanthocephala*, male and female respectively. 5–6, *A. declivis*. 7–8, *A. thomasi*. 9–10, *A. terminalis*. 11–12, *A. femorata*.

FIGURES 13–14. Humeral angles of *Acanthocephala*, posterior view. 13. *A. declivis*. 14. *A. thomasi*.

PLM (unpublished data) provides the following information: This species was found with *A. terminalis* on *Celtis laevigata* Willdenow (sugarberry) (1978) in "mixed sex aggregations with adults observed feeding on sap through the bark" on 29 March (PLM/TPF). It also was found on *Baccharis neglecta* (1976) (4 adults, February–March, November) from the same locality, but no nymphs or feeding was observed.

CSB here reports adults of this species from *Prosopis* (mesquite) (TX), *Gossypium hirsutum* L (cotton) (GA), and *Glycine max* (Linnaeus), (soybean) (GA). RWS notes a specimen in the Enns Entomology Museum collected at UV Light (TX, Lake Mathis).

Arnaud (1978) reported that *A. declivis* is parasitized by the tachinid fly *Trichopoda pennipes* (Fabricius).

Recently (2009), three specimens (2 adults, 1 5th instar) were collected on the Southern Illinois University-Carbondale (SIU) campus and one (an adult) on the University of Illinois at Urbana-Champaign campus. The label information is given below with additional information in parentheses:

Illinois: Jackson Co., SIU campus, 23 Sept. 2009, K. S. Delahunt, Coll. (1 adult ♀); 5 Nov. 2009, V. Begosian, Coll. (1 adult ♂); Thompson Woods, 26 September 2009, Erin Doody, Coll. (1 5th instar) (specimens deposited in SIU Entomology Collection) (SIUEC). Champaign Co., nr. Illinois Natural History Survey (INHS) Annex, (University of Illinois at Urbana-Champaign campus), collected on wooden chair, J. G. Laird (Coll.) (1 adult ♂) (specimen deposited in INHS Collection).

Taxonomic notes. Brailovsky (2006) resurrected *A. alata* (Burmeister) from synonymy under *A. declivis*, as well as described a similar new species, *A. heissi* Brailovsky, and stated that *A. declivis* occurs only in the U. S. and that Mexican and Central American records of *A. declivis* should be applied to *A. alata*. This includes several subspecies of *A. declivis* including *A. d. guatemalena*. RJP feels that, at this time, *A. declivis*, *A. alata*, and *A. heissi* should be considered sibling species. The removal of *A. alata* from synonymy requires further study.

Acanthocephala (*Metapodiessa*) *femorata* (Fabricius)

(Figs. 2, 11, 12)

Cimex femoratus Fabricius, 1775, Syst. Ent., p. 708.
Acanthocephala (*Metapodius*) *femorata*: Stål, 1870, K. Svens. Vet.-Akad. Handl. 9 (1): 150.

Diagnosis. Length: 25–28 mm. This species can be recognized by the metatibial expansions, which are broadly dilated in the basal half and gradually narrowed toward the apex. The metafemora of males are strongly incrassate, those of females are slightly expanded, and abdominal sternum 3 of both sexes often has a darkened area beneath each metacoxa.

Distribution. AL, FL, GA, **IL**, KS, LA, MO, MS, NC, OK, SC, **TN,** TX (**El Salvador**, Guatemala, Mexico)

Discussion. This primarily southern species also has been reported from Oklahoma, Kansas, and Missouri. Although Lugger (1900, pp. 87–88) stated that it occurred in Minnesota, and Blatchley (1926) and Torre-Bueno (1941) repeated the same information, Froeschner (1942) felt that Lugger probably was incorrect, particularly because the species he illustrated was *A. terminalis*, a species that, in fact, does occur in the northern states. As a consequence, Froeschner (1988) did not include Minnesota in his distribution of this species nor did he mention anything about the Minnesota record.

Acanthocephala femorata has been collected in Florida in every month of the year with most specimens collected during March and April (Blatchley 1926, Baranowski & Slater 1986). Froeschner (1942) reported that nymphs and adults were numerous in Missouri from 8 August to 8 October. He noted that extreme southeastern Missouri seemed to be the northern limit of the range of this species. Slater and Baranowski (1978) referred to it as "a common species in the southern United States."

Published feeding records for this species are limited. As Froeschner (1942) noted in his Missouri study, this species was observed on many kinds of plants, but none was seen feeding. The only host plants we found during our literature review were *Helianthus annuus* Linnaeus (common sunflower) (Adams & Gaines 1950, Mitchell 1980) and *Cirsium texanum* Buckley (Texas thistle) (Mitchell 1980). Specifically, Adams and Gaines (1950) reported that *A. femorata* is a stem feeder on sunflower.

PLM (unpublished data) provides the following host plant information and additional observations. The year or years are in parentheses:

Ambrosia trifida Linnaeus (great ragweed) (1975–1978). Adult aggregations were observed and both nymphs and adults noted feeding. Feeding occurred on the main stems, stem galls, and leaf petioles. The plants were attractive to the bugs from the seedling stage in late April through seed production in November.

Baccharis neglecta (1976–1978). *A. femorata* was more common on this plant than *A. declivis* (see above) but no nymphs were found. Eighteen adults were found from late February through early April (1976, 1977) and an adult female in August 1978. Copulation was observed on 27 February 1976.

Chenopodium album Linnaeus (lambsquarters, pigweed) (1976). Five adults were observed feeding and/or copulating on the main stem on 9 September.

Cirsium horridulum Michaux (yellow thistle) (1981). An adult female was observed on this plant on 15 March in southern Louisiana.

Cirsium texanum (1976, 1978). Two adult males were observed feeding on petioles of this plant in April 1978. Also, an adult female with three attached tachinid eggs was collected from this same host plant on 19 June 1976.

Helianthus annuus (1976–1978). Adult aggregations, copulation, and feeding were observed. Feeding occurred on the stems and stem galls. All instars were noted. The plants were attractive to adults from early May (vegetative stage) through early September (senescent stage), nymphs from mid-May through early September.

Ratibida columnifera (Nuttall) (prairie coneflower) (1978). An adult aggregation, copulation, and feeding on the stalk of the vegetative stage were observed during April.

Sorghum halepense (Linnaeus) (johnsongrass) (1978). Five specimens (including 1 5th instar) were observed on this plant during June and July but not observed feeding. The grass grew in and around a patch of sunflower, which is a host plant, so the presence of the adults on this grass probably represented a resting site.

Verbascum thapsus Linnaeus (common mullein) (1976). Two fifth instars were observed feeding on 19 June in West Lake Hills, Travis Co., TX.

Dung (1977). Two adult females were observed probing mammalian fecal deposits with their beaks during mid-September.

Plant associations include: *Abelmoschus* (as *Hibiscus*) *esculentus* (Linnaeus) (okra), *Erigeron quercifolius* Lamarck (oakleaf fleabane) (Baranowski and Slater 1986), *Xanthium* (cocklebur), and *Parthenium* sp. (Schaefer and Mitchell 1983). Blatchley (1926) reported that it was collected frequently "in early spring on the flowers of thistle and also swept from those of huckleberry and other low vegetation." Dozier (1920) stated that the species was abundant in Florida and often collected "at hammock edge," and that its favorite host was bull thistle [presumably *Cirsium vulgare* (Savi)]. He also noted "pairs taken copulating. April 4." Van Duzee (1909, p. 159) reported it "was not uncommon at most places where we collected. It was most abundant about 4 p.m. flying about weedy places in the bright sunlight; later in the evening they could be picked off the weeds and grasses where they were resting." Froeschner (1942) noted "adults are very active, flying readily for long distances." Mitchell (1980) found that males defend territories on the stalks of *Helianthus annuus* where females gather to feed. They fight one another with their huge hind femora, each bug attempting to wrap and squeeze the other bug with his hind legs. Similar behavior has been observed in *A. declivis guatemalena* (Eberhard 1998).

CSB here reports adults from *Gossypium hirsutum* (GA), RWS from *Pinus* (pine) (FL) and *Prunus persica* (Linnaeus) (peach) (NC).

Arnaud (1978) reported that *A. femorata* is parasitized by the tachinid flies *Trichopoda pennipes* and *T. lanipes* (Fabricius).

An adult *Arilus cristatus* (Linnaeus) (wheel bug) was observed feeding on a large male *A. femorata* on 20 July 1978 (PLM, unpublished data).

Recently (2009), two adults were collected near the SIUC campus. Examination of the SIUEC and INHS Collection revealed two additional adults collected in 1957 and 1924, respectively. The label information is given below with additional information in parentheses:

Illinois: Jackson Co., nr. SIU campus, ex native grasses, 25 Aug. 2009, B. R. Wodika, Coll. (1 adult ♂); ex *Sorghastrum nutans* (Linnaeus), 10 Nov. 2009, B. R. Wodika, Coll. (1 adult ♂) (SIUEC). (Pulaski Co.), Mounds, 30 April 1957 (no collector listed) (1 adult ♀) (SIUEC). Massac Co., Metropolis, 3 Sept. 1924, T. H. Frison (Coll.) (1 adult ♂) (INHS Collection).

Acanthocephala (*Metapodiessa*) *terminalis* (Dallas)

(Figs. 3, 9, 10)

Metapodius terminalis Dallas, 1852, List. Hem. Brit. Mus. 2: 431.
Acanthocephala (*Metapodius*) *terminalis*: Stål, 1870, K. Svens. Vet.-Akad. Handl. 9(1): 151.
Metapodius confraternus: Uhler, 1871, Proc. Soc. Boston Nat. Hist. Soc. 14: 99. New synonymy.

Synonymic note. RJP (unpublished data) measured body parts (12 measurements per specimen) of numerous specimens (> 1,000) of presumed *A. confraterna* from Florida, together with specimens of presumed *A. terminalis* or *A. confraterna* from neighboring states and specimens from throughout both presumed distributions and found no separation or clustering of specimens using PCA (Principal Components Analysis). Rather, the variation shown in plots of the principal components appears to exhibit a latitudinal cline. Further plotting of body measurements of each specimen against its latitude showed a correlation of increasing body size with decreasing latitude. He also examined the pygophores and parameres at the edges of the range and could find no differences. On these bases, RJP here places *A. confraterna* as a junior synonym of *A. terminalis*.

Diagnosis. Length: 18–25 mm. This species can be recognized by the metatibial expansions, which are broadly dilated in the basal half and gradually narrowed toward the apex. The metafemora of both sexes are only slightly expanded distally and abdominal sternum 3 lacks the darkened area beneath each metacoxa.

Distribution. AL, CO, CN, **DE**, FL, GA, **IA**, IL, IN, **KS**, **KY,** LA, MA, MD, **MI**, MN, MO, **MS**, NC, **NE**, NJ, NY, OK, PA, SC, TN, TX, **VA**, WI

Discussion. This species has, by far, the broadest geographic range of the four species of *Acanthocephala* in America north of Mexico and is the only species that occurs in the northern states. It ranges from New England south to Florida and west through Wisconsin, Minnesota, Illinois, Oklahoma, and Louisiana to Colorado and Texas (Blatchley 1926, Torre-Bueno 1941, Froeschner 1988). Therefore, it is not surprising that more biological information has been published for this species than for the other three.

Specimens have been collected from late April into mid-August in Virginia (Hoffman 1975), every month of the year but mostly from March through June in Florida (Blatchley 1926, Baranowski & Slater 1986; as *A. confraterna*), April to October in Missouri (Froeschner 1942) (expanded to November, RWS), April into October in southern Indiana (Blatchley 1926), and June into September in Wisconsin (Yonke and Medler 1969a). We here add mid-March into late November for Illinois (JEM, SJT) and April into August for Nebraska (JDB). Actual flight periods, based on flight trap data, have been reported as June into August for North Carolina (McPherson & Weber 1981) and May into September for Illinois (McPherson & Weber 1990). It occurs frequently in open woods or woodland borders (Froeschner 1942); on trees, shrubs, and weeds (Blatchley 1926, Slater & Baranowski 1978, Baranowski & Slater 1986); along fence rows and woodland paths, edges of roadsides and thickets (Blatchley 1926); on branches and twigs of bushes along borders of oak-woods (Uhler 1876, p. 298); and in dense tangles of herbage in damp locations (Hussey 1922). In Florida, it has been found on the foliage of shrubs growing along margins of dense hammocks (Blatchley 1926; as *A. confraterna*).

Acanthocephala terminalis feeds on several hosts including tender shoots of *Carya* (hickory) (Froeschner 1942) and foliage and stems of *Rhus typhina* Linnaeus (staghorn sumac), *Vitis riparia* Michaux (riverbank grape) (Yonke & Medler 1969a), and *Physocarpus opulifolius* (Linnaeus) (common ninebark) **(**Yonke & Medler 1969a, Wheeler and Hoebeke 1985). Other hosts from which nymphs and adults have been collected but feeding was not observed include *Fraxinus* sp. (Hussey 1922, Yonke & Medler 1969a), *Rubus* sp., *Tilia americana* Linnaeus (basswood), *Desmodium acuminatum* (Muhlenberg) (pointedleaf tickfoil), and *Ulmus rubra* Muhlenberg (slippery elm) (Yonke & Medler 1969a). It also was found with *A. declivis* on *Celtis laevigata* in "mixed sex aggregations with adults observed feeding on sap through the bark" on 29 March 1978 in Austin, Texas (PLM/TPF). There also are reports of *A. terminalis* feeding on bird droppings (Adler & Wheeler 1984, Belthoff & Ritchison 1991).

Plant associations where neither feeding nor presence of nymphs was reported include *Solidago* (goldenrod), *Eupatorium purpureum* Linnaeus (joe-pye-weed) (Blatchley 1926, Torre-Bueno 1941), and *Baccharis neglecta* (Palmer 1987). As *A. confraterna*, Baranowski and Slater (1986) reported it from *Magnolia* sp., *Cirsium* sp., and *Clerodendrum* sp. CSB here reports adults from *Trifolium incarnatum* Linnaeus (crimson clover) (GA), SJT from *Cucurbita* (squash) and *Daucus carota* Linnaeus (wild carrot, Queen Anne's lace) (IL), and RWS from *Arctium* (burdock) (MO), *Quercus* (oak) (MO), and *Rumex crispus* Linnaeus (curly dock) (MO). RWS also notes specimens taken at "blacklight" (MO, WI) and "light trap" (MO).

The life cycle of *A. terminalis* has been described by Yonke and Medler (1969a) for Wisconsin and, in less detail, by Froeschner (1942) for Missouri. Yonke and Medler (1969a) found adults from 13 June to 24 September. No eggs or first instars were found in the field, although second and third instars were collected from 30 June to 11 August, fourth instars from 8 July to 11 August, and fifth instars from 23 July to 24 September. They felt that this species is univoltine and their data indicate it overwinters as adults. Froeschner (1942) stated that nymphs had been collected from 12 June to 8 October and adults from 14 April to 12 October. He felt the early spring records for adults indicate this species might overwinter as adults, thus supporting the subsequent findings of Yonke and Medler (1969a). Yonke and Medler (1969a) stated that "adults were easily disturbed and were very rapid flyers" and Froeschner (1942) that "it is an alert and active flier." Blatchley (1926) noted that when approached, the adult "usually rises quickly and flies for some distance to a new resting place." As *A. confraterna*, he stated that when the bug is disturbed, "it flies like a bird, often for several hundred feet. If marked down it can then be approached cautiously and taken by a quick sweep of the net."

Yonke and Medler (1969a) presented limited information on rearing of this species in the laboratory and (1969b) described the eggs and first–fifth instars. Hussey (1922), earlier, briefly described the first, second, third and fifth instars, but not the fourth.

Arnaud (1978) reported that *A. terminalis* is parasitized by the tachinid flies *Trichopoda plumipes* (Fabricius) and *Trichopoda* spp.

***Acanthocephala* (*Melapodiessa*) *thomasi* (Uhler)**

(Figs. 4, 7, 8, 14)

Metapodius thomasii (*sic*) Uhler, 1872, U. S. Geol. Geogr. Surv. Terr. 5: 399.
Acanthocephala granulosa: Distant, 1881, Biol. Centr.-Am., Rhyn., 1: 120.
Acanthocephala thomasi: Barber, 1926, J. N. Y. Ent. Soc. 34: 209.

Diagnosis. Length: 24–31 mm. This species can be recognized by the angles of the pronotum, which are only slightly extended laterally. The metatibial expansions are broadly dilated for most of their length, ending abruptly near the apex.

Distribution. AZ, CA, **NM**, TX **(Mexico [Chihuahua City])**

Discussion. Almost all biological information for this species comes from Jones (1993) as part of his study of the Pentatomoidea and Coreidae of Arizona and includes host plants, habitats, and field life history. The specific collecting sites are listed in Jones' paper so are not given here.

Jones (1993) found adults from May to September, with mating pairs observed in July and August. Eggs and early instars (i.e., 1sts –2nds) were found in August, and late instars (i.e., 3rds–5ths) from July into September. From these data, it is difficult to determine whether this coreid is uni- or bivoltine. However, appearance of mating adults in July, followed by eggs in August, and nymphs from July into September suggest the completion of a spring generation and beginning of a summer generation in July. CSB here reports that adults have been collected in New Mexico from April through October, thus close to that for Arizona noted above.

Jones (1993) listed several host plants but did not report feeding. However, field data strongly suggest the bugs were feeding at the time of capture. Host plants discussed were *Agave palmeri* Engelmann (Palmer's century plant), *Agave schottii* Engelmann (shin dagger), *Baccharis sarothroides* A. Gray (desertbroom), *Fraxinus pennsylvanica* Marsh ssp. *velutina* Torrey (red ash), *Prosopis velutina* Wooton (velvet mesquite), and *Yucca elata* Engelmann (soaptree yucca). Accompanying life history observations are as follows: (1) *Agave palmeri*: adults were found on flower buds and green seed pods, nymphs and adults on leaves, fruiting stalks, and green fruits; (2) *Agave schottii*: nymphs and adults were found on fruiting stalks; (3) *Baccharis sarothroides*: adults, including mating pairs, eggs, and third and fourth instars were found on this host plant. Adults generally were on the lower parts of the main stems. Eggs were deposited singly on different plants; (4) *Fraxinus pennsylvanica* ssp. *velutina*: third–fifth instars and adults were found on a single small tree; (5) *Prosopis velutina*: three adults and one third instar were found (no additional information provided); and (6) *Yucca elata*: third–fifth instars and mating adults were found on flowers and fruits. CSB notes several records from New Mexico on *Yucca baccata* Torrey (banana yucca) (nymphs and adults, feeding observed) and *Agave* (agave) (adults); and on *Yucca* (Spanish bayonet), *Prosopis*, and *Verbascum thapsus* (1 adult/plant). Jones (1993) also collected three adults at UV light.

Palmer (1987) conducted a survey of the phytophagous insect fauna associated with *Baccharis halimifolia* and *B. neglecta* in Louisiana, Texas, and northern Mexico. He reported *A. thomasi* as a rare ectophagous species on *B. neglecta* without a specific location but apparently this was observed in Texas (see Jones 1993). Waring and Smith (1987) reported occasional specimens of *Acanthocephala* sp. on *Agave palmeri* near Tucson, Arizona. As Jones (1993) reported only *A. thomasi* on this host plant in Arizona, it strongly suggests that Waring and Smith (1987) also collected this species. *A. thomasi* also may be the species involved in Gentry's (1972) paper in which he referred (p. 104) to damage of *Agave palmeri* as "large pustulate scars, probably made by the large, sap-sucking bugs of the family Coreidae observed on the plants" in nearby Sonora, Mexico.

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