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Catalog of the Heteroptera, or True Bugs, of Canada and the Continental United States

Edited by
Thomas J. Henry, Richard C. Froeschner

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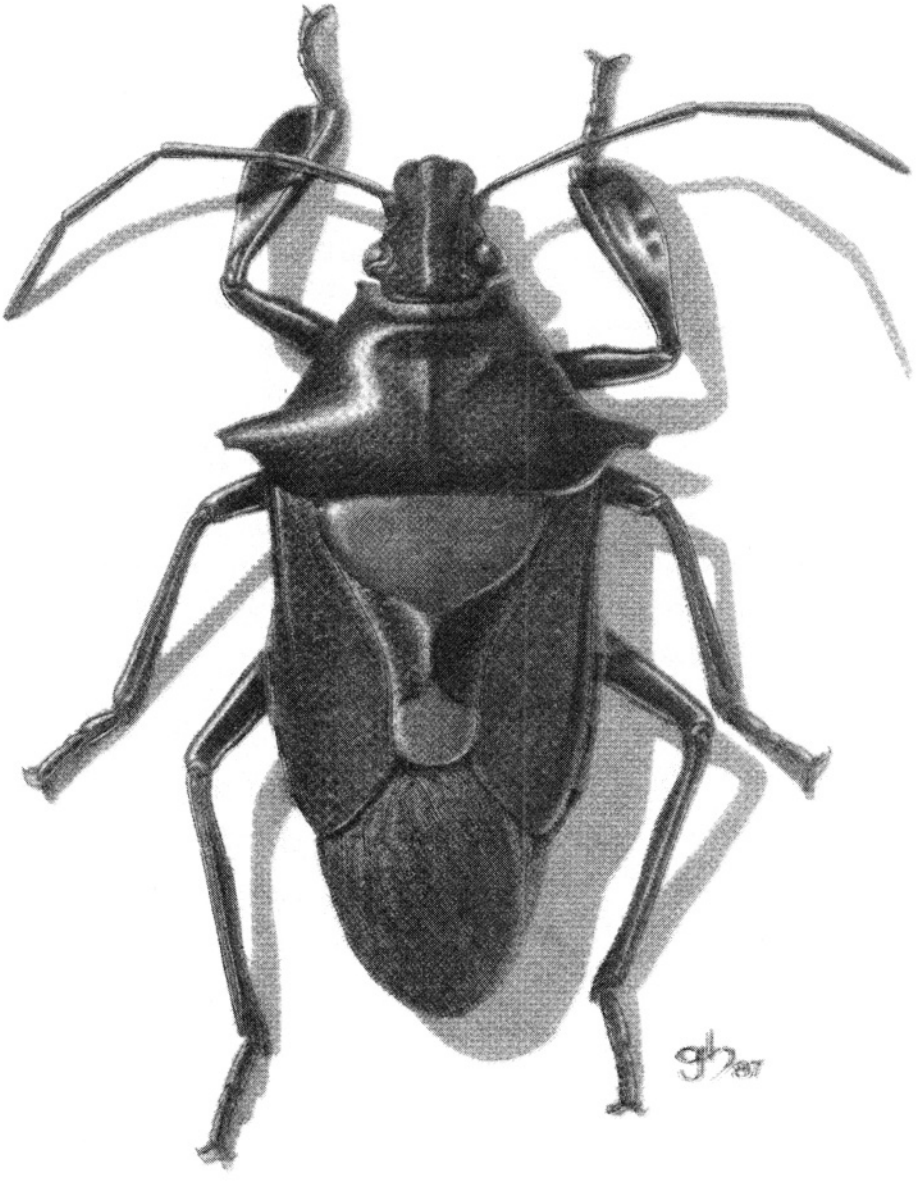

The male of *Euthyrhynchus floridanus* (L.) (Pentatomidae: Asopinae)

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INTRODUCTION

In science all modern works are the result of contributions by many persons of yesterday as well as of today. The present catalog is no exception. It has four predecessors that covered the same group of insects in the same general geographic area north of Mexico: Uhler's (1886) Check-list of the Hemiptera Heteroptera of North America (included 589 species north of Mexico); Banks' (1910) Catalogue of the Nearctic Hemiptera (1,268 species north of Mexico); Van Duzee's (1916) Check List of the Hemiptera of America North of Mexico (1,469 species); and Van Duzee's (1917) Catalogue of the Hemiptera of America North of Mexico (1,625 species). For comparison with those totals (Table I), the 3,834 species listed in this volume represent an increase of 136 percent over the 1917 enumeration.

Past colleagues who contributed to the preliminary plans and beginnings of this catalog were Jon L. Herring (1922-1985), Roland F. Hussey (1896-1967), and Robert L. Usinger (1912-1968), specialists in the Heteroptera who realized the need for such a venture. With sincere appreciation we dedicate this volume to these scholars. Unfortunately, events prevented their developing it far enough to establish a final form; the present form resulted from the experience and decisions of the coeditors.

The Early Workers

The study of the insect order Heteroptera in North America can be divided into several phases. The earliest, starting approximately in the mid-1700's, was one of itinerant American colonists and European travelers whose collections went to European scholars such as Linnaeus, Fabricius, and DeGeer. Among these collectors were the early American botanist John Bartram from Pennsylvania and the Swedish botanist Peter Kalm, after whom Stål named our common, widespread *Lygaeus kalmii*.

American entomology began with Thomas Say whose concise and precise descriptions of many forms of American organisms, including Heteroptera, were only a small part of his contributions to American natural history. The study of Heteroptera as a specialty was not taken up until 1862 when Philip R. Uhler, librarian and later Provost of the Peabody Institute in Baltimore, Maryland, began his forty years of contributions to heteropterology and homopterology, including numerous studies on insects collected by the United States government's early exploration of the western United States. Contemporary with Uhler were the Abbe Leon Provancher, a Canadian clergyman who prepared a synopsis of Canadian Heteroptera, and Otto Heidemann, a German-American who began his study of American Heteroptera after he was fifty years old and adapted his early skills as an engraver to beautifully illustrate many of the species he described. Included in the period from the later 1800's were the eminent American heteropterists Edwin P. Van Duzee, Jose de la Torre-Bueno, Harry Barber, and Nathan Banks. These men built the foundation of American heteropterology by adding to and adapting the work of such European greats as Carl Stål, William L. Distant, Odo M. Reuter, and Evald Bergroth. This period was summarized in Van Duzee's (1917) Catalog.

The post-Van Duzee Catalog period continued and increased in tempo when Van Duzee, Barber, and Torre Bueno were joined by numerous enthusiastic and productive newcomers like Carl J. Drake, Herbert B. Hungerford, Roland F. Hussey, Harry H. Knight, Waldo M. McAtee, and Willis S. Blatchley; later came numerous others.

COMPARISON TO EARLIER WORK

	VAN DUZEE		PRESENT LIST	
	Genera	Species	Genera	Species
Acanthosomatidae	2	4	2	4
Alydidae	11	19	11	30
Anthocoridae	13	35	23	89
Aradidae	9	61	10	123
Belostomatidae	3	20	3	21
Berytidae	6	8	7	12
Ceratocombidae	1	3	1	4
Cimicidae	3	4	8	15
Coreidae	30	82	33	88
Corixidae	6	62	17	125
Cydnidae	9	29	13	43
Dipsocoridae	0	0	1	2
Enicocephalidae	2	2	5	10
Gelastocoridae	2	5	2	7
Gerridae	7	20	8	46
Hebridae	2	6	3	15
Hydrometridae	1	2	1	9
Largidae	3	12	7	21
Leptopodidae	0	0	1	1
Lygaeidae	56	187	81	318
Macroveliidae	1	1	2	2
Mesoveliidae	1	1	1	3
Microphysidae	0	0	4	4
Miridae	135	496	223	1930
Nabidae	5	21	10	34
Naucoridae	2	13	5	21
Nepidae	3	8	3	13
Notonectidae	2	17	3	32
Ochteridae	1	3	1	6
Pentatomidae	52	161	60	222
Phymatidae	2	12	3	27
Piesmatidae	1	1	1	7
Pleidae	1	1	2	5
Polyctenidae	0	0	1	2
Pyrrhocoridae	2	10	1	9
Reduviidae	43	103	46	157
Rhopalidae	6	25	10	39
Saldidae	8	32	12	69
Schizopteridae	1	1	4	4
Scutelleridae	14	26	15	34
Tessaratomidae	0	0	1	1
Thaumastocoridae	0	0	1	1
Thyreocoridae	1	17	4	41
Tingidae	22	99	22	154
Veliidae	3	16	5	34
TOTALS	472	1625	677	3834

Table 1. Comparison of the numbers of Canadian and U.S. Heteroptera included in the Van Duzee (1917) catalog and the present list.

Some of the Comprehensive Works

Many authors have contributed to the vast base of knowledge currently available on Heteroptera, but only a few have drawn together and presented information across several families. The following brief outline, presented alphabetically by author or editor, gives some of the more comprehensive taxonomic works on Heteroptera that fit into this category and, because of our catalog format, may not always be repeatedly cited in the respective family introductions. Users are also directed to the separate family introductions and lower categories within the catalog body (subfamilies, tribes, and genera) for citations of numerous other important, but more restricted, literature, especially some of the excellent world catalogs (e.g. Carvalho, 1957-1960; Drake and Ruhoff, 1965; and Slater, 1964) and monographic treatments of particular families (e.g. Harris, 1928; Kelton, 1980; Knight, 1941, 1968; and Hungerford, 1948).

Blatchley's (1926) "Heteroptera of Eastern North America" is probably the single most useful reference to the bugs of the U.S. and Canada. Although more than 60 years have rendered certain parts out of date, its broad coverage with keys to families, genera, and species, accompanied by numerous valuable biological notes and illustrations, makes this volume a necessary point of reference for the North American fauna. Even though Blatchley covers only the eastern part of our region, his keys, notes, and introductory remarks provide a much broader perspective.

"The Hemiptera or Sucking Insects of Connecticut," edited by W. E. Britton (1923), is another regional work valuable to the heteropterist. Specialists of the respective families included such notables as H. G. Barber, H. H. Knight, H. M. Parshley, H. Osborn, J. R. de la Torre-Bueno, and E. P. Van Duzee. Although all family treatments in this work are useful, most important by far is Knight's monograph of the northeastern Miridae. It represents the first comprehensive treatment of that family for a significant part of North America and contains keys to all taxonomic categories of that region and many new species descriptions.

Brooks and Kelton's (1967) "Aquatic and Semiaquatic Heteroptera of Alberta, Saskatchewan, and Manitoba...." treats 12 of the aquatic families. Keys to genera and 95 species, accompanied by good illustrations and notes on many species, make this an important reference for the group in northcentral North America.

Froeschner's (1941-1962) "Hemiptera of Missouri" series is the only comprehensive treatment for the bugs of the midwestern United States. Its keys, numerous biological notes, host records, and many original illustrations still make it an important reference.

Hungerford's (1920) "Biology and Ecology of Aquatic and Semiaquatic Hemiptera" is the only treatment of its kind for the aquatic bugs in North America. The serious student of aquatic bugs should refer to its habitat keys, keys to genera and species, numerous illustrations, and hundreds of valuable notes on biology and ecology.

McPherson's (1982) "Pentatomoidea of Northeastern North America" is primarily a compilation of the literature for five pentatomoid families. Although limited in geographic coverage, this work's keys to families, genera, and species, and the almost exhaustive literature review for the Northeast, make it important for the study of these groups.

"The Semiaquatic and Aquatic Hemiptera of California," edited by A. S. Menke (1979), is a well-done update of R. L. Usinger's (1956) "Aquatic Hemiptera." Numerous illustrations and widely applicable keys to genera by well-chosen specialists make this recent treatise a good reference for the aquatic bugs.

Slater and Baranowski's (1978) "How to Know the True Bugs" is the latest attempt to cover all North American families of Heteroptera. Numerous illustrations and well-prepared keys to the families of nymphs and adults and the more common genera in each

family (all genera for the Miridae) make it easy for specialists and nonspecialists to identify with confidence the more common bugs in our region.

Although now many years out of date, Torre-Bueno's (1939-1946) never completed "Synopsis of the Hemiptera of North America" is an attempt to provide keys to genera and species for a large number of the families found in North America. Some of the keys are based on published descriptions, so some weaknesses in them should be expected, but even so, this series is a useful starting point for many of the terrestrial families.

Users of this catalog may also be interested in "The Heteropterists' Newsletter," currently edited by Carl W. Schaefer. This informal publication, available upon request[1], appears irregularly and contains numerous notes and articles and a list of over 400 workers around the world interested in Heteroptera.

Hemiptera versus Heteroptera

The taxonomic level and name appropriate for the group of insects treated in this list still are not widely agreed upon. The confusion arises not from priority or from original definitions, but from the lack of agreement among modern workers. The oldest name accompanying this group was "Hemiptera" given by Linnaeus (1758), who based his classification of insect orders on wing development or modifications, Hemiptera being those characteristically with the wing leathery on the basal half and membranous on the apical half. Subsequently, Fabricius (1775), one of Linnaeus' students, proposed a new classification of insect orders based on mouthparts; he called this order "Ryngota," which he later (1803) emended to "Rhyngota." This latter name was further emended to "Rhynchota" by Burmeister (1835). Other names proposed for Linnaeus' group "Hemiptera" are universally placed in synonymy and do not figure in the current indecision.

The remainder of the modern problem involves terms proposed by Latreille (1810) when he recognized that "Hemiptera" contained two discrete "sections," which he called "Heteroptera" and "Homoptera."

The current disagreement involves at least three questions: First, is there a single order with two suborders (Latreille's "sections"), or two separate orders? The Linnaean term "Hemiptera" is used in the inclusive sense versus an equally insistent application of it to the more restricted group resulting from elevation of Latreille's "section" Heteroptera to full order. This is in contrast to another full order, the "Homoptera." A third point of confusion involves some authors' insistence to extend the rules of the *International Code of Zoological Nomenclature* (which do not deal with taxa above family-group names) directing that when a category is divided into two or more subgroups, one of these must take the same name as the group and thus become the "nominate" subgroup. In this usage, unless a modifier or suffix is added, the term "Hemiptera" would automatically have a double—and hence confusing—meaning.

Any decision offered as a solution to the dilemma surrounding the term "Hemiptera" will likely find objectors. However, general practice among students of the group is slowly forging a partial solution. Specialization by modern individual workers seldom crosses the line between "Homoptera" and the second group, regardless of what name is used for it. This practical isolation of the two sister units gives workers a sense of two widely separated groups, even though they share a number of derived (synapomorphic) characters. To avoid the confusion of inclusiveness often attributed to the term "Hemiptera," these workers have widely substituted the term "Heteroptera" (or Hemiptera-Heteroptera) and have seldom

[1] Copies now may be obtained by writing to Dr. Schaefer at: Dept. Ecol. & Evol. Biol., U-43, Univ. Connecticut, Storrs, CT 06268 [USA]

committed themselves to taking a position on the question of its taxonomic level. We note that homopterists do not qualify their names by using Hemiptera-Homoptera.

For the purpose of the present list the use of "Heteroptera" as an order is adopted. But the reader must be aware that this is an oversimplified solution. Some heteropterists and homopterists suggest that as many as four equal groups should be recognized (i.e. Heteroptera, auchenorrhynchus Homoptera, sternorrhynchus Homoptera, and Peloridiidae). With that suggestion are proposed new names and changes of some of the old ones.

Despite the uncomfortable feeling of uncertainty about the proper name to use and the group's level in the taxonomic hierarchy, one must recognize that effective communication is a matter of conventional acceptance and that a worker who developed in an area where "Hemiptera" implied an order with two suborders will tend to be at odds with a person who learned each of the groups as full orders. Our knowledge of insect groups is still incomplete so we may well expect series of changes before the final answer is reached. Fiat does not change biological truths--if it did we would still be where we were during the Dark Ages. Accepting that philosophical attitude, to communicate one needs only to use a current, widely used word with a precise definition. For the clearly recognizable, monophyletic group comprising the subject of this catalog, that term is "Heteroptera."

Classification Within the Heteroptera

Classification within the Heteroptera is also in a state of flux with conflicting categories, varying contents of categories, and some differences in terminology. Current research indicates more changes to come. See Schuh (1986, An. Rev. Ent., 31: 67-93) for a review and comments on the influence of cladistic methods in heteropteran classification.

The catalog follows a modified arrangement of the families of Heteroptera given by Štys and Kerzhner (1975, Acta Ent. Bohem., 72: 65-79) and Slater (1982, Synop. Classif. Hem., pp. 417-447) as outlined below. Because the former authors considered Heteroptera a suborder and the present catalog treats Heteroptera as an order distinct from Homoptera, we substitute the designation suborder for their infraorder, following Slater who used the order name Hemiptera. In addition to these changes, Rolston and McDonald's (1979, J. N.Y. Ent. Soc., 87: 189) recognition of the family Cyrtocoridae is followed, Andersen's (1982, Entomonograph, 3: 388-389) modifications are incorporated into the Gerromorpha, Štys' (1983, Acta Ent. Bohem., 80: 275) family Stemmocryptidae is added to the Dipsocoromorpha, and the phymatids are conservatively retained as a family. Families in brackets do not occur in our area; exclusively fossil families are not included.

Although the above list reflects the current classification of the Heteroptera, we have arranged the catalog alphabetically by family, not suborder and superfamily. Subgroups below family also are arranged alphabetically by subfamily, tribe, genus, species, and subspecies. This nonphylogenetic ordering, we feel, will best aid most users of this catalog, especially nonspecialists, in quick and easy reference to the respective groups.

Using the Catalog

A primary aim of this catalog is to offer an accounting for each species as originally proposed and for the first usage only of all its name combinations (including valid names, synonymies, and misspellings) that have been published for our area. We follow the policy outlined by the 1985 *Code of Zoological Nomenclature* for nomenclatorial purposes that a dissertation for an advanced educational degree is not published unless it satifies the criteria presented in Articles 8 and 9.

The deadline for literature coverage in this volume has been extended numerous times. Even minor revisions required months of additional preparation. Each extension

WORLD CLASSIFICATION:

Suborder Enicocephalomorpha
Superfamily Enicocephaloidea: Enicocephalidae

Suborder Dipsocoromorpha
Superfamily Dipsocoroidea: Ceratocombidae, Dipsocoridae, [Hypsipterygidae], Schizopteridae, and [Stemmocryptidae]

Suborder Gerromorpha (=Amphibiocorisae)
Superfamily Gerroidea: Gerridae, [Hermatobatidae], and Veliidae
Superfamily Hebroidea: Hebridae
Superfamily Hydrometroidea: Hydrometridae, Macroveliidae, and [Paraphrynoveliidae]
Superfamily Mesovelioidea: Mesoveliidae (including Madeoveliidae)

Suborder Leptopodomorpha
Superfamily Leptopodoidea: [Leotichidae], Leptopodidae, [Omaniidae], and Saldidae

Suborder Nepomorpha (=Cryptocerata =Hydrocorisae)
Superfamily Corixoidea: Corixidae
Superfamily Naucoroidea: Naucoridae (including Aphelocheiridae)
Superfamily Nepoidea: Belostomatidae and Nepidae
Superfamily Notonectoidea: [Helotrephidae], Notonectidae, and Pleidae
Superfamily: Gelastocoroidea (= Ochteroidea): Gelastocoridae and Ochteridae

Suborder Cimicomorpha
Superfamily Thaumastocoroidea: Thaumastocoridae
Superfamily Joppeicoidea: [Joppeicidae]
Superfamily Tingoidea: Tingidae and [Vianaididae]
Superfamily Miroidea: Microphysidae and Miridae
Superfamily Cimicoidea: Anthocoridae, Cimicidae, [Medocostidae], Nabidae, [Plokiophilidae], Polyctenidae, and [Velocipodidae]
Superfamily Reduvioidea: [Pachynomidae], Phymatidae, and Reduviidae

Suborder Pentatomomorpha
Superfamily Aradoidea: Aradidae and [Termitaphididae]
Superfamily Idiostoloidea: [Idiostolidae]
Superfamily Piesmatoidea: Piesmatidae
Superfamily Lygaeoidea: Berytidae, [Colobathristidae], Lygaeidae, and [Malcidae]
Superfamily Pyrrhocoroidea: Largidae and Pyrrhocoridae
Superfamily Coreoidea: Alydidae, Coreidae, [Hyocephalidae], Rhopalidae, and [Stenocephalidae]
Superfamily Pentatomoidea: Acanthosomatidae, [Aphylidae], [Canopidae], Cydnidae, [Cyrtocoridae], [Dinidoridae], [Eumenotidae], [Lestoniidae], [Megarididae], Pentatomidae, [Phloeidae], [Plataspidae], Scutelleridae, Tessaratomidae, [Thaumastellidae], Thyreocoridae, and [Urostylidae]

necessarily delayed completion and each delay allowed the coverage to become further outdated. Finally, for the sake of everyone involved, especially our contributing authors, who have patiently revised their chapters over the years, we set a cut-off date at June 30, 1986. Even with this determined "final" date, important works continued to appear. Alas! Users should be aware that authors have been given the option to incorporate major new taxonomic literature through December 31, 1986. We the editors accept responsibility for any confusion resulting from this decision (or indecision).

In ways not always clearly explainable, insects sometimes are reported for territories in which they are not truly known to occur. For the area under consideration here a number of such species have been reported. All such species deemed never to have been part of our established fauna will be given a direct comment of exclusion and a probable reason for that action. Such exclusions will be made under the appropriate family or generic heading if that taxon belongs to our fauna. Such names will be entered in the index of this volume so that they can be traced to their treatment.

Two families that have been recorded erroneously as members of our fauna are omitted here and not mentioned again in the catalog body. Rathvon (1869, Hist. Lancanster Co., Pa., p. 548) reported *Canopus globus* (Fabricius), family Canopidae Amyot and Serville, 1843, from Pennsylvania. Because this species has never again been reported for North America it and its family are excluded from the faunal list. Banks (1910, Cat. Nearc. Hem.-Het., p. 93) recorded *Cyrtocoris trigonus* (Germar), family Cyrtocoridae Distant, 1880, from California. Although this record was accepted by Horvath (1916, An. Mus. Nat. Hung., 4: 221), it has been omitted from our lists since that time and no additional reports have appeared.

Among those things excluded from this catalog is the presentation of taxonomic synonymies not mentioned in literature pertaining to our area or every published record reporting each species from our region. As a compromise, "Notes" are used to direct interested readers to the more extensive or detailed literature. The extent of this note option varies and was left to the discretion of contributing authors.

We also realize, more than anyone, the immensity of even the present task and the probability for error or omission. For these and other reasons this manuscript has been stored on word-processing diskettes with the hope that it can be updated upon the receipt of corrections and new literature so that in a "few" years a new, more perfect, catalog can be offered.

Each of the 45 families begins with an intentionally brief introduction that includes a short description of the group and their general habits, miscellaneous notes, and the major literature pertaining to it.

As a supplement to the family introductions, we have included habitus drawings that are representative of typical genera found in our area. We feel this aspect of the catalog will not only be more aesthetically appealing, but also taxonomically useful by illustrating some of the morphological diversity found in the various families.

The first proposal of a new and available name is indicated by presenting it without punctation between the taxon and author's name; citations for subsequent uses at different taxonomic levels, different combinations, misidentifications, and subsequent misspellings will be marked by a colon placed between the taxon and author's name. Misspellings are marked further with "[*sic*]."

Generic headings are centered. Information under the generic name includes the earliest proposal of each appropriate generic name followed by its type-species and the method of its designation, e.g., Monotypic or Original designation. If the first usage was preoccupied this is indicated after that entry. Names proposed as replacements for preoccupied names are entered and appropriately cited. When the hierarchical position of a generic name has changed, as from subgenus to genus, that action is documented

by a citation.

Subgeneric names are arranged alphabetically as centered headings under their inclusive generic heading; the nominate subgenus, when in our fauna, is appropriately entered as such, but when not present its absence is commented upon in a "Note" under the "Genus" heading.

Under the generic category all included species are listed alphabetically; in a genus divided into subgenera the species are listed alphabetically under their appropriate subgeneric heading.

Species and subspecies are presented as left-margin headings followed by the author's name and year of proposal. Under each such category information is presented at three levels (that under the first two will be arranged chronologically): The original proposal and combination for each new name; the first of each subsequent usage of different name combinations; and a summary of published distribution information, with that for our area given by states and/or provinces. Any modification of the above pattern will be explained in a "Note" following the appropriate taxon.

For each original proposal of a species-group name from our area, a bracketed notation of the state or province of origin of the type specimen will follow the citation; for species described from localities outside our area, the type locality will be summarized by the name of the country or region of origin. If the latter case contains further distribution data establishing that form in our fauna, such information also will be included in the brackets (e.g., [holotype Mexico; also paratypes from U.S.]). If no holotype was designated and more than one locality is listed in the original description, all localities for the syntype series are given. Subsequent type-locality designations (i.e. localities for lectotypes and neotypes) are listed after the locality given in the original description.

Species not known to have subspecific divisions have all appropriate citations below binomen heading arranged chronologically. Species with subspecies have the appropriate subspecies presented as alphabetically arranged trinomial headings following the species binomen. Literature citations for each subspecies are arranged chronologically under that subspecies. A "Note" is provided when the nominate subspecies does not occur in our area.

Species-group taxa originally proposed before 1961 as "varieties" or "forms" are (according to the 1985 *International Code of Zoological Nomenclature*) to be interpreted as proposed in the sense of a subspecies. This interpretation for trinomials has been followed here unless a note explains otherwise; but in citing literature the original author's designation as a "variety" or "form" is copied.

The original spelling of species group names has been retained unless there is a compelling reason to change them. Where modifications have been made, an explanatory note is provided. The -i versus -ii ending for patronymic names has been particularly problematic. If certain names have been latinized (e.g. Fabricius), the proper termination is -ii; if the name has never been latinized, then the proper termination is -i. It was not possible to research the latinization or lack thereof for all of the names upon which -ii endings were founded; therefore, most of them remain despite objections by some contributors who were allowed to follow their convictions on this matter.

Abbreviations

Literature citations in the text are markedly abbreviated to save space but with attention to adequacy for the reader with experience to recognize the source. The reader not familiar with that literature need only consult the author-year entries in the terminal bibliography to find full titles of the books and serial publications.

The one exception to the abbreviated citations in the text occurs in Ashlock and Slater's Lygaeidae. The precatalog agreement to allow their inclusion of an all-inclusive bibliography to the North American Lygaeidae required us to add low-case letters

to certain dates in the literature cited to identify publications given in their "Ref." section. Users of this catalog should note that these specially marked references may also be cited in other family treatments, in which case, the low-case letters are to be ignored.

Under distribution, all countries outside of Canada and the United States are spelled out. North America is abbreviated as N. Am.; the United States as U.S. Canadian and U.S. distributions in the catalog body are integrated alphabetically by the abbreviation as indicated in Table 2.

ABBREVIATIONS

CANADIAN PROVINCES

Alta. = Alberta
B.C. = British Columbia
Man. = Manitoba
N.B. = New Brunswick
N.T = Northwest Territories
Nfld. = Newfoundland (including Labrador)
Ont. = Ontario
PEd. = Prince Edward Island
Que. = Quebec
Sask. = Saskatchewan
Yuk. = Yukon (formerly Yukon Territory)

UNITED STATES

Ala. = Alabama
Alk. = Alaska
Ariz. = Arizona
Ark. = Arkansas
Cal. = California
Col. = Colorado
Conn. = Connecticut
D.C. = District of Columbia (Washington, D.C.)
Del. = Delaware
Fla. = Florida
Ga. = Georgia
Haw. = Hawaii
Ia. = *Iowa*
Id. = Idaho
Ill. = Illinois
Ind. = Indiana
Ks. = Kansas
Ky. = Kentucky
La. = Louisiana
Mass. = Massachusetts
Md. = Maryland
Me. = Maine
Mich. = Michigan
Minn. = Minnesota
Mo. = Missouri
Mont. = Montana
N.C. = North Carolina
N.D. = North Dakota
N.H. = New Hampshire
N.J. = New Jersey
N.M. = New Mexico
N.Y. = New York
Neb. = Nebraska
Nev. = Nevada
Oh. = Ohio
Ok. = Oklahoma
Ore. = Oregon
Pa. = Pennsylvania
R.I. = Rhode Island
S.C. = South Carolina
S.D. = South Dakota
Tenn. = Tennessee
Tex. = Texas
Ut. = Utah
Va. = Viriginia
Vt. = Vermont
W.Va. = West Virginia
Wash. = Washington
Wis. = Wisconsin

Table 2. Abbreviations for Canadian provinces and states in the United States.

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T. J. Henry

R. C. Froeschner

Family Acanthosomatidae Signoret, 1863

The Acanthosomatids

By Richard C. Froeschner

The majority of the New World genera within this family are Neotropical in distribution, but the two occurring in North America are shared with the Eurasian land mass and hence are Holarctic. Members of these two genera appear most abundant in Canada and the northern half of the United States. Scattered published observations indicate that these insects show decided preference for shrubs and trees rather than forbs. Hibernation is endured only by adults. At least one species in North America appears to undergo two generations per year. Literature reports from Europe and from North America credit members of this family with exhibiting considerable maternal instinct expressed by the adult female remaining astride the egg cluster and the newly emerged nymphs until the latter wander away in their quest for food. None of the North American species are considered to have any economic importance. Jones and McPherson (1980, J. Ga. Ent. Soc., 15: 286-289) presented interesting observations on the biologies and habits of three North American species.

This group has been variously treated as a full family, a subfamily, or a tribe of a more comprehensive version of the Pentatomidae; the current practice is to afford them family status. The most significant taxonomic treatments of this group in North America were by Van Duzee (1904, Trans. Am. Ent. Soc., 30: 73-75) and Torre-Bueno (1939, Ent. Am., 19: 244-245). A worldwide revision and classification, with keys to genera, was offered by Kumar (1974, Australian J. Zool., Suppl. Ser., 34: 1-60), and is adopted here. A key to the genera of the Western Hemisphere was given by Rolston and Kumar (1974, J. N.Y. Ent. Soc., 82: 271-273).

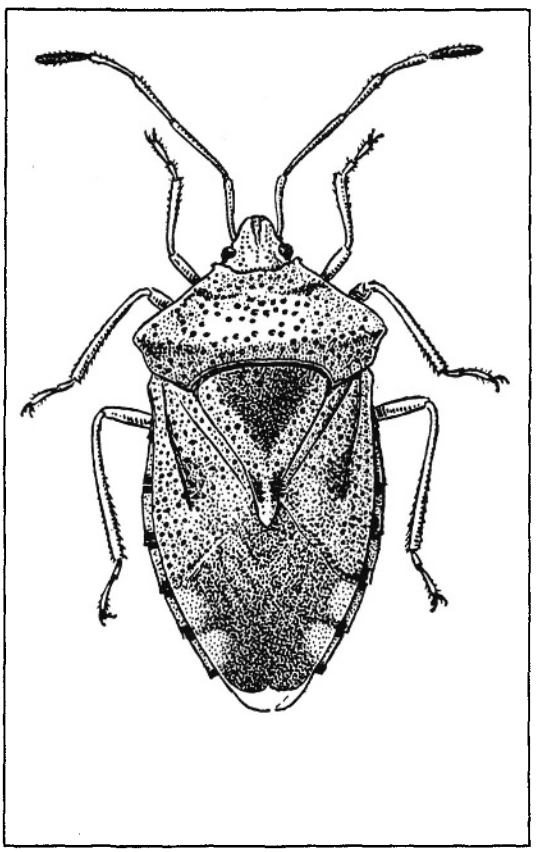


Fig. 1 *Elasmucha lateralis* [p. 2] (After Drake, 1922).

Subfamily Acanthosomatinae Signoret, 1863

Genus *Elasmosthethus* Fieber, 1861

1861 *Elasmostethus* Fieber, Europ. Hem., 78: 328. Type-species: *Cimex dentatus* De Geer, 1773, a junior synonym of *Cimex interstinctus* Linnaeus, 1758. Designated by Stål, 1864, An. Soc. Ent. France, ser. 4, 4: 54.

Elasmostethus atricornis (Van Duzee), 1904

1904 *Acanthosoma atricornis* Van Duzee, Trans. Am. Ent. Soc., 30: 75. [Ind., N.Y., Que.].
1907 *Elasmostethus atricornis*: Bergroth, Ent. News, 18: 48.
Distribution: Ill., Ind., Md., Mich., Mont., N.Y., Oh., Que., S.C.

Elasmostethus cruciatus (Say), 1831

1831 *Edessa cruciata* Say, Descrip. Het. Hem. N. Am., p. 2. ["U.S."].
1837 *Acanthosoma borealis* Westwood, Hope Cat., 1: 30. ["America Boreali"]. Synonymized by Distant, 1900, Proc. Zool. Soc. London, 54: 818.
1859 *Acanthosoma boreale*: Dohrn, Cat. Hem., p. 19.
1861 *Acanthosoma cruciata*: Uhler, Proc. Ent. Soc. Phila., 1: 23.
1907 *Elasmostethus cruciatus*: Bergroth, Ent. News, 18: 49.
Distribution: Alta., B.C., Cal., Col., Conn., Ga., Ill., Mass., Me., Mich., N.C., N.H., N.J., N.M., N.S., N.Y., Nev., Nfld., Ont., Ore., Que., S.C., Tex., Ut., Wash., Va., Vt.

Elasmostethus interstinctus (Linnaeus), 1758

1758 *Cimex interstinctus* Linnaeus, Syst. Nat., edit. 10, p. 445. [Europe].
1904 *Acanthosoma cruciata* var. *cooleyi* Van Duzee, Trans. Am. Ent. Soc., 30: 75. [Mont.]. Synonymized by Barber, 1932, Proc. Ent. Soc. Wash., 34: 65.
1907 *Elasmostethus cooleyi*: Bergroth, Ent. News, 18: 49.
1932 *Elasmostethus interstinctus*: Barber, Proc. Ent. Soc. Wash., 34: 65.
Distribution: Alk., Mont., "northwestern Canada" (Asia, Europe).
Note: Torre-Bueno (1939, Ent. Am., 19: 245) listed *cooleyi* as a "var." of *cruciata*, apparently following the original proposal and overlooking Barber's synonymizing of it.

Genus *Elasmucha* Stål, 1864

1864 *Elasmucha* Stål, An. Soc. Ent. France, ser. 4, 4: 54. Type-species: *Cimex ferrugator* Fabricius, 1787. Designated by Kirkaldy, 1909, Cat. Hem., 1: XXXII, 175.

1866 *Meadorus* Mulsant and Rey, Hist. Nat. Punaises France, Pentatomides, p. 315. Type-species: *Meadorus interstinctus*: Mulsant and Rey, 1866 (not *Cimex interstinctus* Linnaeus, 1758), a misidentification of *Cimex griseus* Linnaeus, 1758. Designated by Kirkaldy, 1909, Cat. Hem., 1: XXXII, 175. Synonymized by Kumar, 1974, Australian J. Zool., Suppl. Ser., 34: 48.

Note: Westwood's (1837, Hope Cat., p. 30) unlocalized species, *Acanthosoma picicolor*, was synonymized under the North American *lateralis* by Distant (1900, Proc. Zool. Soc. London, 54: 817) and this was followed by Van Duzee in several of his works. Kirkaldy (1909, Cat. Hem. Het., 1: 177) used Westwood's name for a Eurasian species and pointed out that North American records for it were "in error."

Elasmucha lateralis (Say), 1831 [Fig. 1]

1831 *Edessa lateralis* Say, Descrip. Hem. Het. N. Am., p. 3. ["Northwest Territory and Canada"].

1837 *Edessa nebulosa* Kirby, Fauna Bor. Am., 4: 277. ["New York to Cumberland-house and in Lat. 65," "Borealis-Americana"]. Synonymized by Uhler, 1878, Proc. Boston Soc. Nat. Hist., 19: 381.

1837 *Acanthosoma affinis* Westwood, Hope Cat., 1: 30. [America Boreali]. Synonymized by Distant, 1900, Proc. Zool. Soc. London, 54: 818.

1851 *Acanthosoma nebulosum*: Dallas, List Hem. Brit. Mus., 1: 307.

1872 *Acanthosoma lateralis*: Stål, K. Svens. Vet.-Akad. Handl., 10(4): 61.

1907 *Elasmucha lateralis*: Bergroth, Ent. News, 18: 49.

1908 *Clinocoris lateralis*: Van Duzee, Can. Ent., 40: 109.

1916 *Meadorus lateralis*: Van Duzee, Check List Hem., p. 8.

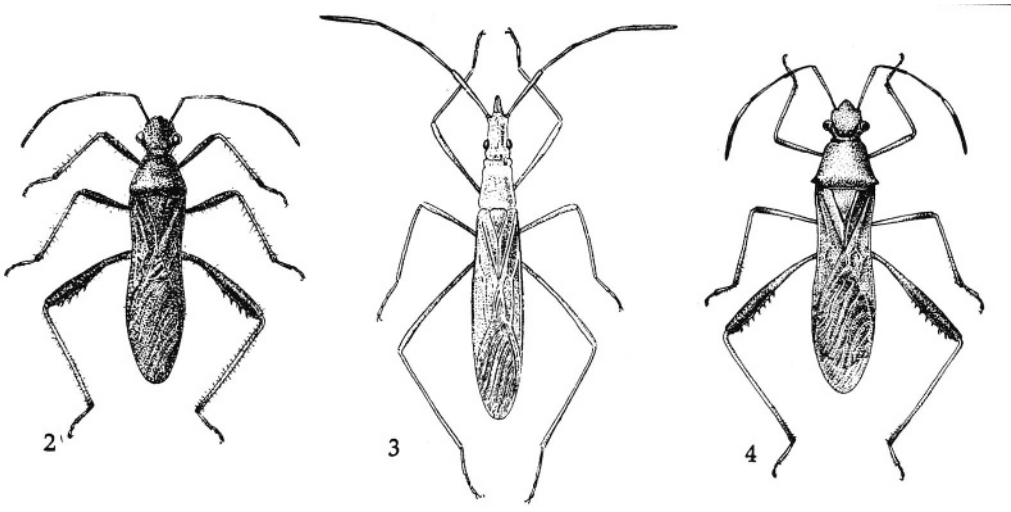
Distribution: Alk., Alta., B.C., Conn., Mass., Me., Mich., Minn., N.H., N.J., N.S., N.Y., Nfld., Oh., Ont., Pa., Que., R.I., S.C., Va., Vt.

Family Alydidae Amyot and Serville, 1843

The Broad-Headed Bugs

By Richard C. Froeschner

The few North American members of this relatively small family are usually found on foliage and flowers of various plants along roadsides and woods, and other places away from cultivated plants. The immature stages of these insects sometimes run on the surface of the ground where their slender form may allow a quick glance to assume they are large ants. Our species, being of no economic significance, are seldom noted. They are essentially sap-feeders but their small numbers keep them from conspicuously harming vegetation. Several members of the subfamily Alydinae have been reported as using their beak to probe the fluids on decomposing animal carcasses, but this practice is not an essential or even common part of their life cycle. Schaefer (1980, J. Ks. Ent. Soc., 53: 115-122) and Schaefer and Mitchell (1983, An. Ent. Soc. Am., 76: 591-615) summarized the feeding records for the family and concluded the subfamily Alydinae essentially feeds on leguminous plants while the subfamily Leptocorisinae and probably the Micrelytrinae generally feed on grasses. In the Orient the genera *Leptocorisa* Berthold and *Stenocoris* Burmeister (both subfamily Leptocorisinae) often damage rice crops. Schaefer and Pupedis (1981, J. Ks. Ent. Soc., 54: 143-152) described the presence of stridulatory mechanisms on some members



Figs. 2-4: 2, *Alydus eurinus* [p. 6]; 3, *Protenor belfragei* [p. 11]; 4, *Megalotomus quinquespinosus*[p. 8] (After Froeschner, 1942, except fig. 3, after Drake, 1922).

of the subfamily Alydinae and hypothesized these as "aggregating and/or premating isolating mechanisms."

Only thirty-two species are known from America north of Mexico, less than a third of them ranging as far north as Canada. Earlier, most authors treated this group as a subfamily of Coreidae, but more recent studies revealed sufficient reasons for according it family rank. Two authors have treated this family in its entirety for our region: Fracker (1918, An. Ent. Soc. Am., 11: 255-280, as a subfamily) and Torre-Bueno (1941, Ent. Am., 21: 78-88). The content of the family Alydidae was greatly changed by Bliven (1973, Occ. Ent., 1: 125) when he transferred the subfamilies Leptocorisinae and Micrelytrinae to the family Coreidae, and then incorporated into the Alydidae from the Largidae the three genera *Arhaphe* Herrich-Schaeffer, *Japetus* Distant, and *Jarhaphetus* Bliven for which he proposed the new subfamily Arhaphinae. These changes, made with a minimum discussion of critical and exact characters, have not been followed by other authors and are not accepted in the present catalog, which utilizes the traditional composition of Alydidae.

Subfamily Alydinae Amyot and Serville, 1843

Genus *Alydus* Fabricius, 1803

1796 *Coriscus* Schrank, Samm. Phys. Aufs., p. 121. Placed on *Official Index of Rejected and Invalid Names in Zoology* by the Int. Comm. on Zool. Nomen., 1950, Bull. Zool. Nomen., 4: 465.

1803 *Alydus* Fabricius, Syst. Rhyn., p. 248. Type-species: *Cimex calcaratus* Linnaeus, 1758. Designated by Int. Comm. Zool. Nomen., Bull. Zool. Nomen., 4: 464.

Note: Blatchley (1926, Het. E. N. Am., p. 266) considered the various color forms of *conspersus* and *eurinus* simply points on a continuous series of variation and doubted that they needed trinomials.

Alydus conspersus Montandon, 1893

1893 *Alydus conspersus* Montandon, Proc. U.S. Nat. Mus., 16: 49. ["Dak.," Col., Ia., Mass., Mich.].

1926 *Coriscus conspersus*: Blatchley, Het. E. N. Am., p. 266.

Distribution: Alta., Ariz., Col., "Dak.," Ia., Ill., Ind., Mass., Me., Mich., N.J., N.Y., Oh., Ont., Pa., Que., Ut., Wis.

Alydus conspersus conspersus Montandon, 1893

1893 *Alydus conspersus* Montandon, Proc. U.S. Nat. Mus., 16: 49.

1918 *Alydus conspersus conspersus*: Fracker, An. Ent. Soc. Am., 11: 271.

Distribution: Alta, Col., "Dak.," Ia., Ill., Ind., Mass., Me., Mich., N.J., N.Y., Oh., Ont., Pa., Que., Ut., Wis.

Alydus conspersus infuscatus Fracker, 1918

1918 *Alydus conspersus infuscatus* Fracker, An. Ent. Soc. Am., 11: 271. [Wis.].

Distribution: Alta., B.C., Col., Wis.

Alydus conspersus rufescens Barber, 1911

1911 *Alydus rufescens* Barber, J. N.Y. Ent. Soc., 19: 29. [Ariz.].

1918 *Alydus conspersus rufescens*: Fracker, An. Ent. Soc. Am., 11: 271.

Distribution: Ariz.

Note: Barber (1924, J. N.Y. Ent. Soc., 32: 134) restored this taxon to species level, but

most subsequent authors followed Fracker (1918, above) and treated it as a trinomial.

Alydus eurinus (Say), 1825 [Fig. 2]

1825 *Lygaeus eurinus* Say, J. Acad. Nat. Sci. Phila., 4: 324. [Ark., Mo.].
1852 *Alydus ater* Dallas, List Hem. Brit. Mus., 2: 478. [N. Am.]. Synonymized by Uhler, 1872, Prelim. Rept. U.S. Geol. Surv. Mont., p. 401.
1852 *Alydus calcaratus*: Dallas, List Hem. Brit. Mus., 2: 478 (in part).
1870 *Alydus (Alydus) eurinus*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 213 (in part).
1870 *Alydus (Alydus) ater*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 213.
1872 *Alydus eurinus*: Uhler, Prelim. Rept. U.S. Geol. Surv. Mont., 5: 401.
1869 *Alydus curius* [*sic*]: Rathvon, Hist. Lancaster Co., Pa., p. 549.
1885 *Alydus pluto*: Provancher, Nat. Can., 3: 56.
1887 *Alydus vicarius*: Provancher, Nat. Can., 3: 175.
1910 *Alydus urinus* [*sic*]: Smith, Cat. Ins. N.J., p. 147.
1926 *Coriscus eurinus*: Blatchley, Het. E. N. Am., p. 265.
Distribution: Alta., Ariz., Ark., B.C., Cal., Col., Conn., "Dakota," D.C., Fla., Ga., Ia., Ill., Ind., Ks., Ky., Mass., Me., Mo., Mont., N.C., N.H., N.J., N.M., N.Y., Neb., Oh., Ont., Pa., Que., S.C., Tex., Ut., Va., Wis.

Alydus eurinus eurinus (Say), 1825

1825 *Lygaeus eurinus* Say, J. Acad. Nat. Sci. Phila., 4: 324.
1818 *Alydus eurinus eurinus* Fracker, An. Ent. Soc. Am., 11: 269.
Distribution: Same as for species.

Alydus eurinus obesus Fracker, 1918

1918 *Alydus eurinus obesus* Fracker, An. Ent. Soc. Am., 11: 270. [Ill.].
Distribution: Alta., Ill., Mo., Oh.

Alydus pilosulus Herrich-Schaeffer, 1848

1847 *Alydus pilosulus* Herrich-Schaeffer, Wanz. Ins., 8: 101. [Mexico].
1852 *Alydus pilosulus*: Dallas, List Hem Brit. Mus., 2: 478.
1869 *Alydus vittinasus* [*sic*]: Rathvon, Hist. Lancaster Co., p. 549.
1926 *Coriscus pilosulus*: Blatchley, Het. E. N. Am., p. 267.
Distribution: Cal., D.C., Del., Fla., Ia., Ill., Ind., Ks., La., Mass., Md., Me., Mo., N.C., N.J., N.Y., Neb., Ok., Pa., S.C., Tex., Ut., Va., Wis.
Note: The combination "*Alydus vittinosus*" was a Say manuscript name found on specimens in the Harris Collection according to Uhler (1878, Proc. Boston Soc. Nat. Hist., 19: 384).

Alydus pluto Uhler, 1872

1872 *Alydus pluto* Uhler, Prelim. Rept. U.S. Geol. Surv. Mont., 5: 401. [Col., Id., Ks., La.].
Distribution: Alta., Ariz., B.C., Cal., Col., Id., Ks., La., N.M., Ore., Tex., Ut., Wash.

Alydus scutellatus Van Duzee, 1903

1903 *Alydus scutellatus* Van Duzee, Trans. Am. Ent. Soc., 29: 108. [N.M.].
Distribution: Alta., B.C., Col., Ia., Mont., N.M.

Alydus tomentosus Fracker, 1918

1918 *Alydus tomentosus* Fracker, An. Ent. Soc. Am., 11: 267. [Col.].
Distribution: Col.

Genus *Burtinus* Stål, 1859

1859 *Burtinus* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 16: 458, 489. Type-species: *Burtinus notatipennis* Stål, 1859. Monotypic.

Burtinus notatipennis Stål, 1859

1859 *Burtinus notatipennis* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 16: 459. [Colombia, Mexico].

1910 *Burtinus notatipennis*: Barber, J. N.Y. Ent. Soc., 18: 37.

Distribution: Tex. (Mexico to Colombia).

Genus *Hyalymenus* Amyot and Serville, 1843

1843 *Hyalymenus* Amyot and Serville, Hist. Nat. Ins., Hem., p. 224. Type-species: *Alydus dentatus* Fabricius, 1803. Designated by Van Duzee, 1916, Check List Hem., p. 13.

1893 *Galeottus* Distant, Biol. Centr.-Am., Rhyn., 1: 459. Type-species: *Galeottus formicarius* Distant, 1893. Monotypic. Synonymized by Van Duzee, 1917, Univ. Cal. Publ. Ent., 2: 111.

Note: Banks' (1910, Cat. Nearc. Hem.-Het., p. 74) "Texas" record for the South American *Hyalymenus pulcher* (Stål) was accepted but queried by Van Duzee (1917, Univ. Cal. Publ. Ent., 2: 111); Torre-Bueno (1939, Bull. Brook. Ent. Soc., 34: 182) ignored that record and listed the species only for its type-locality "Honduras." The present tabulation follows Torre-Bueno in deleting it from our list. The nominate subgenus *Hyalymenus* does not occur in our region.

Subgenus *Tivarbus* Stål, 1859

1859 *Tivarbus* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 16: 459. Type-species: *Cimex sinuatus* Fabricius, 1787. Designated by Van Duzee, 1917, Univ. Cal. Publ. Ent., 2: 111.

1870 *Hyalymenus* (*Tivarbus*): Stål, K. Svens. Vet.-Akad. Handl., 9(1): 211.

Note: Torre-Bueno (1939, Bull. Brook. Ent. Soc., 34: 177-197) reviewed the species of this subgenus and presented a key to them.

Hyalymenus longispinus Stål, 1870

1870 *Hyalymenus* (*Tivarbus*) *longispinus* Stål, K. Svens. Vet.-Akad. Handl., 9(1): 213 [Cuba].

1910 *Hyalymenus longispinus*: Banks Cat. Nearc. Hem., p. 74.

Distribution: Fla. (Greater Antilles).

Hyalymenus notatus Torre-Bueno, 1939

1933 *Hyalymenus longispinus*: Torre-Bueno, Bull. Brook. Ent. Soc., 28: 30.

1939 *Hyalymenus* (*Tivarbus*) *notatus* Torre-Bueno, Bull. Brook. Ent. Soc., 34: 181, 189. [Fla.].

Distribution: Fla.

Hyalymenus potens Torre-Bueno, 1939

1939 *Hyalymenus* (*Tivarbus*) *potens* Torre-Bueno, Bull. Brook. Ent. Soc., 34: 181, 187. [Fla.].

Distribution: Fla.

Hyalymenus subinermis Van Duzee, 1923

1923 *Hyalymenus subinermis* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 12: 134. [Mexico].

1939 *Hyalymenus (Tivarbus) subinermis*: Torre-Bueno, Bull. Brook. Ent. Soc., 34: 183.
Distribution: Ariz. (Mexico).

Hyalymenus tarsatus (Fabricius), 1803

1803 *Alydus tarsatus* Fabricius, Syst. Rhyn., p. 250. [Brazil].
1876 *Hyalymenus tarsatus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 294.
1917 *Galeottus formicarius* Distant, Biol. Centr.-Am., Rhyn., 1: 459. [Guatemala, Nicaragua]. Synonymized by Van Duzee, 1917, Univ. Cal. Publ. Ent., 2: 111.
1906 *Galeottus formicarius*: Barber, Mus. Brook. Inst. Arts Sci., Sci. Bull., 1: 269.
Distribution: Ariz., Cal., Tex. (Mexico to Brazil).

Genus *Megalotomus* Fieber, 1860

1860 *Megalotomus* Fieber, Europ. Hem., p. 58. Type-species: *Alydus limbatus* Herrich-Schaeffer, 1835, a junior synonym of *Cimex junceus* Scopoli, 1763. Designated by Reuter, 1888, Acta Soc. Sci. Fenn., 15: 763.

Megalotomus quinquespinosus (Say), 1825 [Fig. 4]

1825 *Lygaeus 5-spinosus* [*sic*] Say, J. Acad. Nat. Sci. Phila., 4: 323. [U.S.].
1846 *Alydus cruentus* Herrich-Schaeffer, Wanz. Ins., 8: 100. [N. Am.]. Synonymized by Uhler, 1861, Proc. Ent. Soc. Phila., 1: 23.
1870 *Alydus (Megalotomus) quinquespinosus*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 214.
1875 *Alydus quinquespinosus*: Uhler, Rept. U.S. Geol. Geogr. Surv. Terr., 5: 832.
1876 *Megalotomus quinquespinosus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 294.
Distribution: Alta., Ariz., B.C., Cal., Col., Del., D.C., Fla., Ia., Ill., Ind., Ks., Ky., Mass., Me., Mich., Mo., N.C., N.J., Oh., Ont., Pa., Que., S.C., Ut., Wash., Wis.

Megalotomus rufipes (Westwood), 1842

1842 *Alydus rufipes* Westwood, Hope Cat., 2: 19. ["America Aequinoct."].
1956 *Megalotomus rufipes*: Hussey, Fla. Ent., 39: 88.
Distribution: Fla. (Cuba).

Genus *Stachyocnemus* Stål, 1870

1870 *Stachyocnemus* Stål, K. Svens. Vet.-Akad. Handl., 9(1): 215. Type-species: *Alydus apicalis* Dallas, 1852. Monotypic.

Stachyocnemus apicalis (Dallas), 1852

1852 *Alydus apicalis* Dallas, List Hem. Brit. Mus., 2: 479. [Fla.].
1870 *Stachyocnemus apicalis*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 215.
1918 *Stachyocnemus apicalis apicalis*: Fracker, An. Ent. Soc. Am., 11: 276.
Distribution: Alta., Ariz., Cal., Col., D.C., "Dak.," Fla., Ind., Mont., N.C., N.J., N.M., N.Y., S.C., Tex. (Mexico).

Stachyocnemus cinereus Fracker, 1918

1918 *Stachyocnemus apicalis cinereus* Fracker, An. Ent. Soc. Am., 11: 276. [Col.].
1940 *Stachyocnemus cinereus*: Torre-Bueno, Bull. Brook. Ent. Soc., 35: 159.
Distribution: Ariz., Col., Ind., Mont.

Genus *Tollius* Stål, 1870

1870 *Alydus* (*Tollius*) Stål, K. Svens. Vet.-Akad. Handl., 9(1): 213. Type-species: *Alydus curtulus* Stål, 1859. Monotypic.
1873 *Tollius*: Stål, K. Svens. Vet-Akad. Handl., 11(2): 89.

Tollius curtulus (Stål), 1859
1859 *Alydus curtulus* Stål, Freg. Eug. Resa Jord., 3: 234. [Cal.].
1870 *Alydus* (*Tollius*) *curtulus*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 213.
1876 *Tollius curtulus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 294.
Distribution: Alta., B.C., Cal., Col., Ill., N.Y., Ore., Ut. (Mexico).

Tollius quadratus Van Duzee, 1921
1921 *Tollius quadratus* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 11: 113. [Cal.].
Distribution: Cal., S.D.

Tollius setosus Van Duzee, 1906
1906 *Tollius setosus* Van Duzee, Ent. News, 17: 386. [Ariz., Mont., Ut.].
Distribution: Ariz., B.C., Cal., Mont., N.Y., Ut.

Tollius vanduzeei Torre-Bueno, 1940
1913 *Tollius setosus*: Torre-Bueno, Ent. News, 24: 23.
1940 *Tollius vanduzeei* Torre-Bueno, Bull. Brook. Ent. Soc., 35: 159. [Cal.].
Distribution: Cal.

Subfamily Leptocorisinae Stål, 1872

Note: Ahmad (1965, Bull. Brit. Mus. (Nat. Hist.), Ent., Suppl., 5: 1-156) presented a worldwide revision of this subfamily.

Genus *Stenocoris* Burmeister, 1839

1839 *Stenocoris* Burmeister, Handb. Ent., 2: 1010. Type-species: *Cimex tipuloides* De Geer, 1773. Designated by Int. Comm. Zool. Nomen., Opinion 800, 1967, Bull. Zool. Nomen., 24: 10.
Note: The nominate subgenus *Stenocoris* does not occur in our region.

Subgenus *Oryzocoris* Ahmad, 1965

1965 *Stenocoris* (*Oryzocoris*) Ahmad, Bull. Brit. Mus. (Nat. Hist.), Ent., Suppl., 5: 11, 60. Type-species: *Cimex filiformis* Fabricius, 1775. Original designation.

Stenocoris filiformis (Fabricius), 1775
1775 *Cimex filiformis* Fabricius, Syst. Ent., p. 727. ["America"].
1794 *Gerris filiformis*: Fabricius, Ent. Syst., 4: 191.
1951 *Leptocorixa filiformis*: Hussey, Fla. Ent., 33: 150.
1965 *Stenocoris* (*Oryzocoris*) *filiformis*: Ahmad, Bull. Brit. Mus. (Nat. Hist.), Ent., Suppl., 5: 64.
Distribution: Fla. (Mexico to Brazil, West Indies).

Stenocoris furcifera (Westwood), 1842
1842 *Leptocorisa furcifera* Westwood, Hope Cat., 2: 18. [Brazil].

1965 *Stenocoris (Oryzocoris) furcifera*: Ahmad, Bull. Brit. Mus. (Nat. Hist.), Ent., Suppl., 5: 67.
Distribution: Fla. (Mexico to Brazil).

Subfamily Micrelytrinae Stål, 1867

Genus *Cydamus* Stål, 1860

1860 *Cydamus* Stål, K. Sven. Vet.-Akad. Handl., 2(7): 33. Type-species: *Cydamus adspersipes* Stål, 1860. Monotypic.

Cydamus abditus Van Duzee, 1925
1925 *Cydamus abditus* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 14: 394. [Ariz.].
Distribution: Ariz.

Cydamus borealis Distant, 1881
1881 *Cydamus borealis* Distant, Biol. Centr.-Am., Rhyn., 1: 159. [Guatemala].
1906 *Cydamus borealis*: Snow, Trans. Ks. Acad. Sci., 20: 151.
Distribution: Tex. (Guatemala).

Genus *Darmistus* Stål, 1859

1859 *Darmistus* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 16: 469. Type-species: *Darmistus subvittatus* Stål, 1859. Monotypic.

Darmistus crassicornis Van Duzee, 1937
1937 *Darmistus crassicornis* Van Duzee, Pan-Pac. Ent., 13: 28. [Tex.].
Distribution: Tex.

Darmistus duncani Van Duzee, 1937
1937 *Darmistus duncani* Van Duzee, Pan-Pac. Ent., 13: 29. [Ariz.].
Distribution: Ariz.

Darmistus subvittatus Stål, 1859
1859 *Darmistus subvittatus* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 16: 469. [Mexico].
1895 *Darmistus subvittatus*: Gillette and Baker, Col. Agr. Exp. Stn. Bull., 31: 19.
Distribution: Ariz., Cal., Col., Tex.

Genus *Esperanza* Barber, 1906

1906 *Esperanza* Barber, Mus. Brook. Inst. Arts Sci., Sci. Bull., 1: 269. Type-species: *Esperanza texana* Barber, 1906. Monotypic.

Esperanza texana Barber, 1906
1906 *Esperanza texana* Barber, Mus. Brook. Inst. Arts Sci., Sci. Bull., 1: 270. [Tex.].
Distribution: Fla., Ga., La., Miss., S.C., Tex. (Mexico).
Note: Wheeler and Henry (1984, Fla. Ent., 67: 525) presented an outline of the known biology, distribution, and hosts for this species.

Genus *Protenor* Stål, 1867

1867 *Protenor* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 24: 543. Type-species: *Protenor belfragei* Haglund, 1868. First included species.

Protenor australis Hussey, 1925

1914 *Protenor belfragei*: Barber, Bull. Am. Mus. Nat. Hist., 33: 521.
1925 *Protenor australis* Hussey, J. N.Y. Ent. Soc., 33: 64. [Fla.].
Distribution: Fla.

Protenor belfragei Haglund, 1868 [Fig. 3]

1868 *Protenor belfragei* Haglund, Stett. Ent. Zeit., 29: 162. [Ill.].
1872 *Tetrarhinus quebecensis* Provancher, Nat. Can., 4: 76. [Que.]. Synonymized by Van Duzee, 1912, Can. Ent., 44: 319.
Distribution: Cal., Col., Ia., Ill., Ind., Mass., Me., Mich., N.J., N.Y., Oh., Ont., Que., Tex., Wis.

Genus *Rimadarmistus* Bliven, 1956

1956 *Rimadarmistus* Bliven, New Hem. W. St., p. 6. Type-species: *Rimadarmistus messor* Bliven, 1956. Original designation.

Rimadarmistus deprecator Bliven, 1956

1956 *Rimadarmistus deprecator* Bliven, New Hem. W. St., p. 7. [Cal.].
Distribution: Cal.

Rimadarmistus messor Bliven, 1956

1956 *Rimadarmistus messor* Bliven, New Hem. W. St., p. 7. [Cal.].
Distribution: Cal.

Family Anthocoridae Fieber, 1837

The Minute Pirate Bugs

By Thomas J. Henry

The family Anthocoridae, often called flower bugs or minute pirate bugs, is mostly predatory, feeding on aphids, mites, thrips, scales, and other arthropods and their eggs and larvae. A few, however, feed on pollen or other plant material. Some species like the insidious pirate bug, *Orius insidiosus* (Say), if inadvertently exposed to human skin, will probe and "bite," especially if perspiration is present. These bugs occupy a wide variety of habitats, including on and beneath loose or dead bark, in decaying vegetation, stored grain, insect galleries in fungi, bird nests, mammal burrows, guano in bat caves, or on various epiphytes like bromeliads and orchids. Anthocorids are often intercepted in interstate and international shipments of bulbs, cut flowers, nursery stock, and stored grain products. Many species are attracted to lights.

Members of this family are characterized by their small size (1.5-5.0 mm), flattened body, pointed head, ocelli, three-segmented rostrum, four-segmented antenna, distinct cuneus, wing membrane without closed cells, and three-segmented tarsus. The body may be dull or shiny, and pubescent or glabrous. Either fully winged (macropterous) or short-winged (brachypterous) forms may occur. Members of several genera undergo "traumatic insemination" in mating where the male punctures and fertilizes the female through the abdominal wall.

The predatory habits of these bugs make them potentially useful in controlling certain agricultural pests. The native North American *Orius insidiosus* and *O. tristicolor* (White) have been released in Hawaii to control certain lepidopterous larvae. Attempts also have been made to introduce exotic anthocorids into North America. *Montantoniola moraguezi* (Puton) has been introduced from the Philippines and Hawaii to control the Cuban laurel thrips, *Gynaikothrips ficorum* (Marchal), in California (pers. comm., A. R. Hardy, Calif. Dept. Food & Agric., Sacramento). *Tetraphleps abdulghani* Ghauri and *T. raoi* Ghauri from India and Pakistan have been intro-

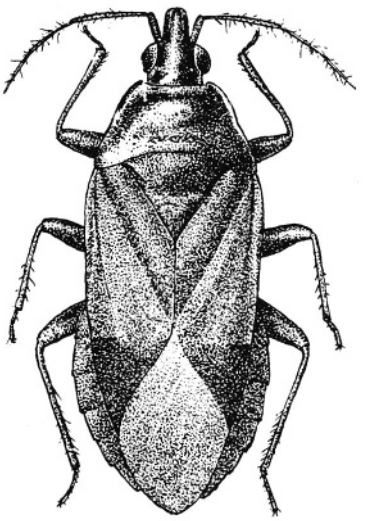


Fig. 5 *Lyctocoris campestris* [p. 24] (After Froeschner, 1949).

duced in British Columbia, New Brunswick, and Nova Scotia to control balsam woolly aphid, *Adelges piceae* (Ratzeburg) (pers. comm., L. A. Kelton, Biosyst. Res. Inst., Ottawa), but to date apparently neither has become established.

Pioneer work on the North American Anthocoridae was done by Reuter. Reuter's first paper treating the American forms (1871, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 557-568) was followed by a world monograph (1884, Acta Soc. Sci. Fenn., 14: 555-758). Poppius (1909, Acta. Soc. Sci. Fenn., 27: 1-43) added many Old World genera and species. Blatchley's (1926) "Heteroptera of Eastern North America" remains a slightly dated standard for the family in the eastern states. Carayon's (1972, An. Soc. Ent. France, 8: 309-349) "Caractères systématiques et classification des Anthocoridae" gave a revised classification of subfamilies and tribes. Carayon's scheme, with modifications suggested by Štys (1975, Acta Univ. Carol. Biol., 4: 159-162), is followed in this catalog. Péricart (1972, Hemiptères Anthocoridae...de l'Quest-Paléarctique, 402 pp.) gave a good review of the European fauna. Herring (1976, Fla. Ent., 59: 143-150) provided the only identification key to include all of the North American genera. Kelton's (1978) well-illustrated "Anthocoridae of Canada" is the single most important publication for identifying nearctic Anthocoridae.

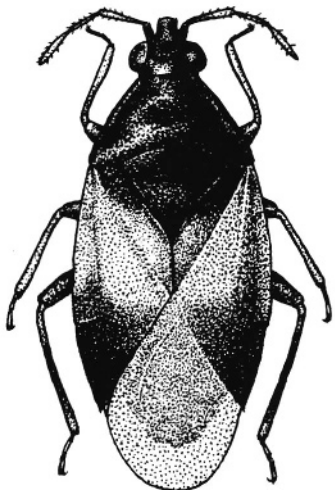


Fig. 6 *Orius insidiosus* [p. 18] (After Froeschner, 1949).

Subfamily Anthocorinae Reuter, 1884

Tribe Anthocorini Reuter, 1884

Genus *Acompocoris* Reuter, 1875

1875 *Acompocoris* Reuter, Bih. K. Svens. Vet.-Akad. Handl., 3: 63. Type-species: *Lygaeus pygmaeus* Fallén, 1807. Monotypic.

Acompocoris lepidus (Van Duzee), 1921

1921 *Tetraphleps lepidus* Van Duzee, Proc. Cal. Acad. Sci., (4)11: 142. [Cal.].
1962 *Acompocoris lepidus*: Kelton and Anderson, Can. Ent., 94: 1307.
Distribution: Alta., B.C., Cal., N.T.

Acompocoris pygmaeus (Fallén), 1807

1807 *Lygaeus pygmaeus* Fallén, Monogr. Cimic. Suec., p. 73. [Europe].
1977 *Acompocoris pygmaeus*: Kelton, Can. Ent., 109: 243.
Distribution: N.B., N.S., Ont., P.Ed. (Palearctic).

Genus *Anthocoris* Fallén, 1814

1814 *Anthocoris* Fallén, Spec. Nova. Hem. Disp. Meth., p. 9. Type-species: *Cimex nemorum* Linnaeus, 1758. Designated by Westwood, 1840, Intr. Mod. Class. Ins., 2 (Synopsis): 122.

Anthocoris albiger Reuter, 1884

1884 *Anthocoris albiger* Reuter, Acta Soc. Sci. Fenn., 14: 624. [Mexico].
1916 *Anthocoris albiger*: Van Duzee, Check List Hem., p. 34.
Distribution: Cal., N.M., Tex., Ut. (Mexico).

Anthocoris antevolens White, 1879

1879 *Anthocoris antevolens* White, Ent. Month. Mag., 16: 146. [Cal.].
Distribution: Alk., Alta, B.C., Cal., Col., Id., Mont., N.T., Nev., Nfld., Ont., Sask., Wyo.

Anthocoris bakeri Poppius, 1913

1913 *Anthocoris bakeri* Poppius, An. Ent. Soc. Belg., 57: 14. [Cal.].
1914 *Anthocoris ornatus* Van Duzee, Trans. San Diego Soc. Nat. Hist., 2: 14. [Cal.]. Synonymized by Hill, 1957, Pan-Pac. Ent., 33: 174.
1917 *Anthocoris bakeri* var. *ornatus*: Van Duzee, Univ. Cal. Publ. Ent., 2: 293.
Distribution: Cal.

Anthocoris confusus Reuter, 1884

1884 *Anthocoris confusus* Reuter, Acta Soc. Sci. Fenn., 14: 625. [Europe].
1946 *Anthocoris confusus*: Procter, Biol. Surv. Mt. Desert Reg., 7: 77.
Distribution: Me., N.S., Ont., P.Ed., Tenn.

Anthocoris dimorphicus Anderson and Kelton, 1963

1963 *Anthocoris dimorphicus* Anderson and Kelton, Can. Ent., 95: 440. [Ont.].
Distribution: Alta., Ont., N.T., Sask., Yuk.

Anthocoris fulvipennis Reuter, 1884

1884 *Anthocoris fulvipennis* Reuter, Acta Soc. Sci. Fenn., 14: 623. [Mexico].
1904 *Anthocoris fulvipennis*: Uhler, Proc. U.S. Nat. Mus., 27: 363.
Distribution: Cal., N.M. (Mexico).

Anthocoris musculus (Say), 1832

1832 *Reduvius musculus* Say, Descrip. Het. Hem. N. Am., p. 32. ["N.W. Territory"].
1852 *Anthocoris borealis* Dallas, List Hem. Brit. Mus., 2: 588. Synonymized by Blatchley, 1926, Het. E. N. Am., p. 635.
1876 *Anthocoris musculus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 321.
1918 *Anthocorus* [*sic*] *musculus*: Torre-Bueno, Can. Ent., 50: 25.
Distribution: Alk., Alta., B.C., Col., Ill., Ind., Ks., Man., Mo., N.B., N.C., N.S., N.Y., Nfld., Ont., Ore., P.Ed., Que., Sask.

Anthocoris nemoralis (Fabricius), 1794

1794 *Acanthia nemoralis* Fabricius, Ent. Syst., 4: 76. [Europe].
1963 *Anthocoris nemoralis*: Anderson and Kelton, Can. Ent., 95: 439.
Distribution: B.C., Ont. (Palearctic).

Anthocoris nigripes Reuter, 1884

1884 *Anthocoris nigripes* Reuter, Acta Soc. Sci. Fenn., 14: 623. [Mexico].
1904 *Anthocoris nigripes*: Uhler, Proc. U.S. Nat. Mus., 27: 363.
Distribution: N.M. (Mexico).

Anthocoris tomentosus Péricart, 1971

1884 *Anthocoris melanocerus* Reuter, Acta Soc. Sci. Fenn., 14: 634. [Col.]. Preoccupied.

1957 *Anthocoris melanoceros* [*sic*]: Hill, Pan-Pac. Ent., 33: 172.
1971 *Anthocoris tomentosus* Péricart, Bull. Soc. Linn. De Lyon, 40: 98. New name for *Anthocoris melanocerus* Reuter.
Distribution: Alk., Alta., B.C., Cal., Col., Id., Man., N.T., Nev., Yuk., Ut.

Anthocoris tristis Van Duzee, 1921
1921 *Anthocoris tristis* Van Duzee, Proc. Cal. Acad. Sci., (4)11: 138. [Cal.].
Distribution: Cal.

Anthocoris whitei Reuter, 1884
1884 *Anthocoris whitei* Reuter, Acta Soc. Sci. Fenn., 14: 628. [Cal.].
1927 *Anthocoris bakeri*: Downes, Proc. Ent. Soc. B.C., 23: 11.
Distribution: Cal., Id., B.C.
Note: Kelton (1978, Anthocorid. Can., p. 41) noted that Canadian records of *A. bakeri* should be referred to *A. whitei*.

Genus *Coccivora* McAtee and Malloch, 1925

1925 *Coccivora* McAtee and Malloch, Proc. Biol. Soc. Wash., 38: 146. Type-species: *Coccivora californica* McAtee and Malloch, 1925. Original designation.

Coccivora californica McAtee and Malloch, 1925
1925 *Coccivora californica* McAtee and Malloch, Proc. Biol. Soc. Wash., 38: 146. [Cal.].
Distribution: Cal.

Genus *Elatophilus* Reuter, 1884

1884 *Elatophilus* Reuter, Acta Soc. Sci. Fenn., 14: 616. Type-species: *Temnostethus nigrellus* Zetterstedt, 1838. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 120.
1926 *Xenotracheliella* Drake and Harris, Proc. Biol. Soc. Wash., 39: 38. Type-species: *Xenotracheliella inimica* Drake and Harris, 1926. Original designation. Synonymized by Kelton and Anderson, 1962, Can. Ent., 94: 1306.
Note: Revision and key of North American spp. given by Kelton (1976, Can. Ent., 108: 631-634).

Subgenus *Elatophilus* Reuter, 1884

1884 *Elatophilus* Reuter, Acta Soc. Sci. Fenn., 14: 616. Type-species: *Temnostethus nigrellus* Zetterstedt, 1838. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 120.

Elatophilus brimleyi Kelton, 1977 New Subgeneric Combination
1977 *Elatophilus brimleyi* Kelton, Can. Ent., 109: 1017. [Ont.].
Distribution: Ont.

Elatophilus dimidiatus (Van Duzee), 1921 New Subgeneric Combination
1921 *Anthocoris dimidiatus* Van Duzee, Proc. Cal. Acad. Sci., (4)11: 139. [Cal.].
1976 *Elatophilus dimidiatus*: Kelton, Can. Ent., 108: 632.
Distribution: Cal.

Elatophilus inimicus (Drake and Harris), 1926 New Subgeneric Combination
1926 *Xenotracheliella inimica* Drake and Harris, Proc. Biol. Soc. Wash., 39: 38. [N.Y.].
1926 *Xenotracheliella vicaria* Drake and Harris, Proc. Biol. Soc. Wash., 39: 39. [Mich.]. Synonymized by Kelton, 1976, Can. Ent., 108: 631.
1962 *Elatophilus inimicus*: Kelton and Anderson, Can. Ent., 94: 1306.

1962 *Elatophilus vicarius*: Kelton and Anderson, Can. Ent., 94: 1306.
Distribution: Conn., Man., Mich., N.C., N.Y., Ont., Que.

Elatophilus minutus Kelton, 1976 New Subgeneric Combination
1976 *Elatophilus minutus* Kelton, Can. Ent., 108: 632. [Que.].
Distribution: Alta., Man., Ont., Que., Sask.

Elatophilus oculatus (Drake and Harris), 1926 New Subgeneric Combination
1926 *Xenotracheliella oculata* Drake and Harris, Proc. Biol. Soc. Wash., 39: 40. [Ariz.].
1962 *Elatophilus oculatus*: Kelton and Anderson, Can. Ent., 94: 1306.
Distribution: Ariz.

Elatophilus pullus Kelton and Anderson, 1962 New Subgeneric Combination
1962 *Elatophilus pullus* Kelton and Anderson, Can. Ent., 94: 1306. [B.C.].
Distribution: B.C., Ore.

Subgenus *Euhadrocerus* Reuter, 1884

1884 *Euhadrocerus* Reuter, Acta Soc. Sci. Fenn., 14: 619. Type-species: *Elatophilus crassicornis* Reuter, 1875. Monotypic.

Elatophilus pinophilus Blatchley, 1928
1928 *Elatophilus (Euhadrocerus) pinophilus* Blatchley, Ent. News, 39: 87. [Fla.].
1962 *Elatophilus pinaphilus* [*sic*]: Kelton and Anderson, Can. Ent., 94: 1306.
Distribution: Fla.

Genus *Melanocoris* Champion, 1900

1900 *Melanocoris* Champion, Biol. Centr.-Am., Rhyn., 2: 329. Type-species: *Melanocoris obovatus* Champion, 1900. Monotypic.

Melanocoris longirostris Kelton, 1977
1977 *Melanocoris longirostris* Kelton, Can. Ent., 108: 246. [B.C.].
Distribution: Ariz., B.C., Col., N.M., Ut.

Melanocoris nigricornis Van Duzee, 1921
1921 *Melanocoris nigricornis* Van Duzee, Proc. Cal. Acad. Sci., (4)11: 143. [Cal.].
1926 *Tetraphleps novitus* Drake and Harris, Proc. Biol. Soc. Wash., 39: 41. [Col.]. Synonymized by Kelton and Anderson, 1962, Can. Ent., 94: 1307.
Distribution: B.C., Cal., Col.

Melanocoris pingreensis (Drake and Harris), 1926
1926 *Tetraphleps pingreensis* Drake and Harris, Proc. Biol. Soc. Wash., 39: 42. [Col.].
1962 *Melanocoris pingreensis*: Kelton and Anderson, Can. Ent., 94: 1307.
Distribution: Col.

Genus *Temnostethus* Fieber, 1860

1860 *Temnostethus* Fieber, Wien. Ent. Monat., 4: 263. Type-species: *Anthocoris pusillus* Herrich-Schaeffer, 1850. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 120.

Temnostethus fastigiatus Drake and Harris, 1926
1926 *Temnostethus fastigiatus* Drake and Harris, Proc. Biol. Soc. Wash., 39: 40. [Cal.].
Distribution: Cal.

Temnostethus gracilis Horvath, 1907

1907 *Temnostethus pusillus* var. *gracilis* Horvath, An. Mus. Nat. Hung., 5: 310. [Europe].

1977 *Temnostethus gracilis*: Kelton, Can. Ent., 109: 243.

Distribution: N.S. (Palearctic).

Genus *Tetraphleps* Fieber, 1860

1860 *Tetraphleps* Fieber, Wien. Ent. Monat., 4: 262. Type-species: *Anthocoris vittatus* Fieber, 1860. Monotypic.

Note: Kelton (1966, Can. Ent., 98: 199-204) provided a key to the North American species.

Tetraphleps canadensis Provancher, 1886

1886 *Tetraphleps canadensis* Provancher, Pet. Faune Can. Ent., 3: 90. [Que.]. Lectotype designated by Kelton, 1968, Nat. Can., 95: 1072.

1912 *Lyctocoris canadensis*: Van Duzee, Can. Ent., 44: 320.

1920 *Tetraphleps americana* Parshley, Can. Ent., 52: 84. [Me.]. Synonymized by Drake and Harris, 1928, Can. Ent., 60: 50.

1922 *Tetraphleps osborni* Drake, Tech. Publ. 16, N.Y. St. Coll. For., 22: 67. [N.Y.]. Synonymized by Kelton and Anderson, 1962, Can. Ent., 94: 1307.

1926 *Acompocoris* (*Tetraphleps*) *osborni*: Drake and Harris, Proc. Biol. Soc. Wash., 39: 43.

1926 *Tetraphleps edacis* Drake and Harris, Proc. Biol. Soc. Wash., 39: 43. [N.Y.]. Synonymized by Kelton and Anderson, 1962, Can. Ent., 94: 1307.

Distribution: Alk., Alta., B.C., Man., Me., Mich., N.B., N.H., N.S., N.Y., Nfld., Ont., Que., Sask., Wis.

Tetraphleps feratis (Drake and Harris), 1926

1926 *Acompocoris feratis* Drake and Harris, Proc. Biol. Soc. Wash., 39: 41. [B.C.].

1962 *Tetraphleps feratis*: Kelton and Anderson, Can. Ent., 94: 1307.

Distribution: Alta., B.C.

Tetraphleps latipennis Van Duzee, 1921

1921 *Tetraphleps latipennis* Van Duzee, Proc. Cal. Acad. Sci., (4)11: 140. [Cal.].

1926 *Tetraphleps profugus* Drake and Harris, Proc. Biol. Soc. Wash., 39: 42. [B.C.]. Synonymized by Kelton and Anderson, 1962, Can. Ent., 94: 1307.

Distribution: Alta., B.C., Cal., Id., Man., N.B., N.S., Nfld., Ore., Sask., Wyo.

Tetraphleps pilosipes Kelton and Anderson, 1962

1962 *Tetraphleps pilosipes* Kelton and Anderson, Can. Ent., 94: 1307. [B.C.].

Distribution: Alk., B.C., Man., Nfdl, Ore., Yuk.

Tetraphleps uniformis Parshley, 1920

1906 *Tetraphleps* n. sp.: Slosson, Ent. News, 17: 326.

1920 *Tetraphleps uniformis* Parshley, Can. Ent., 52: 85. [N.H.].

1921 *Tetraphleps furvus* Van Duzee, Proc. Cal. Acad. Sci., (4)11: 141. [Col.]. Synonymized by Kelton, 1966, Can. Ent., 98: 202.

1922 *Tetraphleps concolor* Drake, Tech. Publ. 16, N.Y. St. Coll. For., 22: 68. *Nomen nudum.*

Distribution: Alta., B.C., Col., Man., Me., N.B., N.H., N.S., Nfld., Me., N.Y., Ont., Que., Sask., Yuk.

Tribe Oriini Carayon, 1955

Genus *Macrotracheliella* Champion, 1900

1900 *Macrotracheliella* Champion, Biol. Centr.-Am., Rhyn., 2: 322. Type-species: *Macrotracheliella laevis* Champion, 1900. Monotypic.

Macrotracheliella laevis Champion, 1900

1900 *Macrotracheliella* laevis Champion, Biol. Centr.-Am., Rhyn., 2: 322. [Mexico, Panama].

Distribution: Fla. (Mexico, Panama).

Note: The nominate subspecies *M. laevis laevis* is not known from the U.S. or Canada.

Macrotracheliella laevis floridana Drake and Harris, 1926

1926 *Macrotracheliella laevis floridana* Drake and Harris, Proc. Biol. Soc. Wash., 39: 37. [Fla.].

Distribution: Fla.

Macrotracheliella nigra Parshley, 1917

1917 *Macrotracheliella nigra* Parshley, Ent. News, 28: 38. [Mass.].

Distribution: Ark., B.C., Fla., Man., Mass., N.J., N.S., N.Y., Ont., Que., R.I.

Genus *Orius* Wolff, 1811

1811 *Orius* Wolff, Icon. Cimic. Descrip., 5: iv, fig. 161. Type-species: *Salda nigra* Wolff, 1811. Monotypic.

1860 *Triphleps* Fieber, Wien. Ent. Monat. 4: 266. Type-species: *Salda nigra* Wolff, 1811. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 120. Synonymy by virtue of common type-species.

Note: Kelton (1963, Can. Ent., 95: 631-636) and Herring (1966, An. Ent. Soc. Am., 59: 1093-1109) reviewed the species of *Orius* in North America and in the Western Hemisphere, respectively. Kelton (1963, above) clarified that *Orius niger* (Wolff) does not occur in North America, even though Van Duzee (1917, Univ. Cal. Publ. Ent., 2: 294) listed it from California. Herring (1966, above) noted that the American species of *Orius* do not fit satisfactorily into the subgenera given by Wagner (192, Not. Ent., 32; 56-58).

Orius candiope Herring, 1966

1966 *Orius candiope* Herring, An. Ent. Soc. Am., 59: 1098. [Ia.].

Distribution: Ia.

Orius diespeter Herring, 1966

1966 *Orius diespeter* Herring, An. Ent. Soc. Am., 59: 1098. [B.C.].

Distribution: Alta., B.C.

Orius harpocrates Herring, 1966

1966 *Orius harpocrates* Herring, An. Ent. Soc. Am., 59: 1097. [Cal.].

Distribution: Cal.

Orius insidiosus (Say), 1832 [Fig. 6]

1832 *Reduvius insidiosus* Say, Descrip. Het. Hem. N. Am., p. 32. [U.S.].

1855 *Anthocoris pseudo-chinche* Fitch, Trans. N.Y. St. Agr. Soc., 15: 527. Synonymized by Stål, 1873, K. Svens. Vet.-Akad. Handl, 11(2): 102.

1870 *Anthocoris insidiosus*: Riley, Second An. Rept. Nox. Ins. Mo., p. 27.

1871 *Triphleps latulus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 565. [N.J., S.C.]. Synonymized by Reuter, 1884, Acta Soc. Sci. Fenn., 14: 651.
1871 *Triphleps rugicollis* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 565. [Tex.]. Synonymized by Reuter, 1884, Acta Soc. Sci. Fenn., 14: 651.
1871 *Triphleps insidiosus*: Walker, Cat. Hem. Brit. Mus., 5: 157.
1917 *Triphleps insidiosus* var. *latulus*: Van Duzee, Univ. Cal. Publ. Ent., 2: 294.
1923 *Triphleps insidiosa*: Parshley, Conn. Geol. Nat. Hist. Surv. Bull., 34: 668.
1926 *Orius insidiosus*: Blatchley, Het. E. N. Am., p. 637.
1967 *Orus* [*sic*] *insidiosus*: Wray, Ins. N.C., 3rd. suppl., p. 26.
1979 *Oris* [*sic*] *insidiosis* [*sic*]: Scarbrough and Sraver, Proc. Ent. Soc. Wash., 81: 636.
Distribution: Ala., B.C.(?), Cal., Col., Conn., Fla., Ia., Ill., Ind., Ks., La., Man., Mass., Md., Mich., Miss., Mo., N.C., N.H., Neb., N.J., N.Y., Oh., Ont., Pa., Que., S.C., Tenn., Tex., Ut., Va., Wis. (Hawaii, Mexico to South America, West Indies).
Note: Kelton (1978, Anthocorid. Can., p. 49) noted that Lord's (1949, Can. Ent., 81:219) record from N.S. and Strickland's (1953, Can. Ent., 85:199) record from Alta. should refer to *O. tristicolor*. Tonks' (1953, Proc. Ent. Soc. B.C., 49: 28) B.C. record and other records from northwestern U.S. and western Canada may also refer to *O. tristicolor*. Ryerson and Stone (1979, Ent. Soc. Am. Bull., 25: 131-135) provided a useful selected bibliography for *O. insidiosus* and *O. tristicolor*.

Orius minutus (Linneaus), 1758
1758 *Cimex minutus* Linnaeus, Syst. Nat., p. 446. [Europe].
1953 *Orius minutus*: Tonks, Proc. Ent. Soc. B.C., 49: 27.
Distribution: B.C., Ore., Wash. (Palearctic).

Orius pumilio (Champion), 1900
1900 *Triphleps pumilio* Champion, Biol. Centr.-Am., Rhyn., 2: 327. [Guatemala].
1926 *Orius pumilio*: Blatchley, Het. E. N. Am., p. 638.
Distribution: Fla. (Central America, Mexico, West Indies).

Orius tristicolor (White), 1879
1879 *Triphleps tristicolor* White, Ent. Month. Mag., 16: 145. [Cal.].
1919 *Tetraphleps insidiosus* var. *tristicolor*: Parshley, Occas. Pap. Mus. Zool., Univ. Mich., 71: 28.
1926 *Orius insidiosus* var. *tristicolor*: Blatchley, Het. E. N. Am., p. 637.
1944 *Orius tristicolor*: Harris and Shull, Ia. St. Coll. J. Sci., 18: 207.
Distribution: Alk., Alta., Ariz., B.C., Cal., Col., Id., Man., Mass., Me., Mich., N.B., N.H., N.M., N.S., N.Y., Neb., Nfld., Ont., Ore., Que., Sask., Tex., Ut., Wash., Wyo., Yuk. (Mexico to South America, West Indies).
Note: Kelton (1963, Can. Ent., 95: 632) confirmed that *O. tristicolor* is a distinct species. Herring (1966, An. Ent. Soc. Am., 59: 1108) said "*O. tristicolor* is primarily a western species, but occurs across the northern U.S. and Canada, and through Mexico into Central and South America." Ryerson and Stone (1979, Bull. Ent. Soc. Am., 25: 131-135) provided a useful selected bibliography for *O. tristicolor* and *O. insidiosus*.

Genus *Paratriphleps* Champion, 1900

1900 *Paratriphleps* Champion, Biol. Centr.-Am., Rhyn., 2: 328. Type-species: *Paratriphleps laeviusculus* Champion, 1900. Monotypic.

Note: Possible synonymy of the two included species was pointed out by Barber (1939, Sci. Surv. Porto Rico Virgin Is., 14: 404) and Bachelor and Baranowski (1975, Fla. Ent., 58: 157.

Paratriphleps laeviusculus Champion, 1900

1900 *Paratriphleps laeviusculus* Champion, Biol. Centr.-Am., Rhyn., 2: 329. [Panama].

1975 *Paratriphleps laeviusculus*: Bacheler and Baranowski, Fla. Ent., 58: 157.

Distribution: Fla. (Puerto Rico, Mexico, Panama).

Note: Bacheler and Baranowski (1975, above) gave information on biology, described the egg and nymphs, and illustrated the five nymphal instars and adult.

Paratriphleps pallidus (Reuter), 1884

1884 *Brachysteles pallidus* Reuter, Acta Soc. Sci. Fenn., 14: 672. [St. Jean and St. Thomas Is.].

1886 *Brachysteles pallidus*: Uhler, Check-list Hem. Het., p. 21.

1939 *Paratriphleps pallidus*: Barber, Sci. Surv. Porto Rico Virgin Is., 14: 404.

Distribution: Fla., "Southern United States" (West Indies).

Subfamily Lasiochilinae Carayon, 1972

Tribe Lasiochilini Carayon, 1972

Genus *Lasiochilus* Reuter, 1871

1871 *Lasiochilus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 562. Type-species: *Lasiochilus pallidulus* Reuter, 1871. Monotypic.

Subgenus *Dilasia* Reuter, 1871

1871 *Dilasia* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 563. Type-species: *Dilasia fuscula* Reuter, 1871. Monotypic.

1884 *Lasiochilus* (*Dilasia*) Reuter, Acta Soc. Sci. Fenn., 14: 574.

Lasiochilus fusculus (Reuter), 1871

1871 *Dilasia fuscula* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 563. [S.C., Tex.].

1884 *Lasiochilus* (*Dilasia*) *fusculus*: Reuter, Acta Soc. Sci. Fenn., 14: 576.

Distribution: Fla., Ind., Ill., Miss., N.J., N.Y., Ont., Que., S.C., Tenn., Tex. (West Indies).

Subgenus *Lasiochilus* Reuter, 1884

1884 *Lasiochilus* (*Lasiochilus*) Reuter, Acta Soc. Sci. Fenn., 14: 569. Type-species: *Lasiochilus pallidulus* Reuter, 1871. Monotypic.

Lasiochilus comitalis Drake and Harris, 1926

1926 *Lasiochilus comitalis* Drake and Harris, Proc. Biol. Soc. Wash., 39: 34. [N.C.].

Distribution: N.C.

Lasiochilus divisus Champion, 1900

1900 *Lasiochilus divisus* Champion, Biol. Centr.-Am., Rhyn., 2: 310. [Mexico].

1926 *Lasiochilus divisus*: Drake and Harris, Proc. Biol. Soc. Wash., 39: 35.

Distribution: Fla. (Central America, Mexico, West Indies).

Lasiochilus gerhardi Blatchley, 1926

1926 *Lasiochilus gerhardi* Blatchley, Het. E. N. Am., p. 627. [Fla.].
Distribution: Fla., Mass.

Lasiochilus hirtellus Drake and Harris, 1926

1926 *Lasiochilus hirtellus* Drake and Harris, Proc. Biol. Soc. Wash., 39: 33. [Ala.].
Distribution: Ala., Fla., La., Tex. (Mexico).
Note: Blatchley (1928, J. N.Y. Ent. Soc., 36: 8) suggested that this species is probably a synonym of *Lasiochilus pallidulus* Reuter.

Lasiochilus mirificus Drake and Harris, 1926

1926 *Lasiochilus mirificus* Drake and Harris, Proc. Biol. Soc. Wash., 39: 35. [Tex.].
Distribution: Tex.

Lasiochilus pallidulus Reuter, 1871

1871 *Lasiochilus pallidulus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 562. [S.C.].
1884 *Lasiochilus (Lasiochilus) pallidulus*: Reuter, Acta Soc. Sci. Fenn., 14: 571.
Distribution: Fla., S.C., Tex. (Central America, Mexico, West Indies).

Genus *Plochiocoris* Champion, 1900

1900 *Plochiocoris* Champion, Biol. Centr.-Am., Rhyn., 2: 314. Type-species: *Plochiocoris longicornis* Champion, 1900. Monotypic.

Plochiocoris comptulus Drake and Harris, 1926

1926 *Plochiocoris comptulus* Drake and Harris, Proc. Biol. Soc. Wash., 39: 36. [Tex.].
Distribution: Tex.

Subfamily Lyctocorinae Reuter, 1884

Tribe Dufouriellini Van Duzee, 1916

Note: Some recent authors have used the tribal name Cardiastethini Carayon, 1972, but Štys (1975, Acta Univ. Carol., 4: 161) considered it a synonym of Dufouriellini. Kelton (1978, Anthocorid. Can., p. 55) used the name Cardiastethini without comment.

Genus *Alofa* Herring, 1976

1976 *Alofa* Herring, Fla. Ent., 59: 150. Type-species: *Cardiastethus sodalis* White, 1878. Original designation.

Alofa sodalis (White), 1878

1878 *Cardiastethus sodalis* White, An. Mag. Nat. Hist., 1: 372. [Haw.].
1966 *Buchananiella sodalis*: Herring, Proc. Ent. Soc. Wash., 68: 127.
1976 *Alofa sodalis*: Herring, Fla. Ent., 59: 150.
Distribution: "N. Am." [no definite locality given] (Africa, Central and South America, Pacific Islands, West Indies).

Genus *Amphiareus* Distant, 1904

1904 *Amphiareus* Distant, An. Mag. Nat. Hist., Ser. 7, 15: 220. Type-species: *Xylocoris fulvescens* Walker, 1872, a junior synonym of *Xylocoris constrictus* Stål, 1860. Monotypic.

1871 *Poronotus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 561. Preoccupied. Type-species: *Xylocoris constrictus* Stål, 1860. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 120.

1904 *Poronotellus* Kirkaldy, Ent., 37: 280. New name for *Poronotus* Reuter. Synonymized by Herring, 1965, Proc. Ent. Soc. Wash., 67: 203.

Amphiareus constrictus (Stål), 1860

1860 *Xylocoris constrictus* Stål, K. Svens. Vet.-Akad. Handl., 2(7): 44. [Brazil].
1926 *Poronotus constrictus*: Blatchley, Het. E. N. Am., p. 644.
1960 *Amphiareus constrictus*: Hiura, Bull. Osaka Mus. Nat. Hist., 12: 46.
Distribution: Fla. (Brazil, Mexico; Circumtropical).

Genus *Cardiastethus* Fieber, 1860

1860 *Cardiastethus* Fieber, Wien. Ent. Monat., 4: 266. Type-species: *Cardiastethus luridellus* Fieber, 1860. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 121.

1871 *Dasypterus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 564. Type-species: *Xylocoris limbatellus* Stål, 1860. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 121. Synonymized by Reuter, 1884, Acta Soc. Sci. Fenn., 14: 692.

Cardiastethus assimilis (Reuter), 1871

1871 *Dasypterus assimilis* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 564. [S.C., Tex.].
1884 *Cardiastethus assimilis*: Reuter, Acta Soc. Sci. Fenn., 14: 593.
Distribution: Fla., S.C., Tex., Va. (West Indies).

Cardiastethus borealis Kelton, 1977

1977 *Cardiastethus borealis* Kelton, Can. Ent., 109: 246. [B.C.]
Distribution: B.C., Man., N.S.

Cardiastethus cavicollis Blatchley, 1934

1934 *Cardiastethus cavicollis* Blatchley, Trans. Am. Ent. Soc., 60: 12. [Cal.].
Distribution: Cal.

Cardiastethus flaveolus Blatchley, 1928

1928 *Cardiastethus flaveolus* Blatchley, Ent. News, 39: 85. [Fla.].
Distribution: Fla.

Cardiastethus luridellus (Fieber), 1860

1860 *Cardiastethus luridellus* Fieber, Wien. Ent. Monat., 4: 271. [Pa.].
Distribution: Pa.

Cardiastethus pergandei Reuter, 1884

1884 *Cardiastethus pergaudei* [*sic*] Reuter, Acta Soc. Sci. Fenn., 14: 695. [D.C.].
1916 *Cardiastethus pergandii* [*sic*]: Van Duzee, Check List Hem., p. 35.
1930 *Cardiastethus pergandei*: Torre-Bueno, Bull. Brook. Ent. Soc., 25: 20.
Distribution: D.C.

Genus *Dufouriellus* Kirkaldy, 1906

1906 *Dufouriellus* Kirkaldy, Trans. Am. Ent. Soc., 32: 121. Type-species: *Xylocoris ater* Dufour, 1833. Original designation.

Dufouriellus ater (Dufour), 1833

1833 *Xylocoris ater* Dufour, An. Soc. Ent. France, 2: 106. [Europe].
1909 *Xylocoris ater*: Oshanin, Verz. Palearc. Hem., 3: 637.

1916 *Dufouriellus ater*: Van Duzee, Check List Hem., p. 35
Distribution: B.C., Cal., Id., Ky., N.C., N.Y., Ont.

Genus *Physopleurella* Reuter, 1884

1884 *Physopleurella* Reuter, Acta Soc. Sci. Fenn., 14: 678. Type-species: *Cardiastethus mundulus* White, 1877. Monotypic.

Physopleurella floridana Blatchley, 1925
1925 *Physopleurella floridana* Blatchley, Ent. News, 34: 47. [Fla.].
Distribution: Fla. (Jamaica).

Tribe Lyctocorini Reuter, 1884

Genus *Lyctocoris* Hahn, 1836

1836 *Lyctocoris* Hahn, Wanz. Ins., 3: 19. Type-species: *Cimex domesticus* Schilling, 1834, a junior synonym of *Acanthia campestris* Fabricius, 1794. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 119.
Note: Kelton (1967, Can. Ent., 99: 807-814) reviewed and provided keys for species in North America.

Subgenus *Dolichomerium* Kirkaldy, 1900

1871 *Dolichomerus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 557. Preoccupied. Type-species: *Dolichomerus elongatus* Reuter, 1871. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 119.
1884 *Lyctocoris* (*Dolichomerus*): Reuter, Acta Soc. Sci. Fenn., 14: 564.
1900 *Dolichomerium* Kirkaldy, Ent., 33: 242. New name for *Dolichomerus* Reuter.

Lyctocoris elongatus (Reuter), 1871
1871 *Dolichomerus elongatus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28: 558. [S.C.].
1884 *Lyctocoris elongatus*: Reuter, Acta Soc. Sci. Fenn., 14: 565.
Distribution: Ala., Fla., Ga., Id., N.C., N.J., S.C., Tex.

Lyctocoris stalii (Reuter), 1871
1871 *Dolichomerus stalii* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 558. [S.C., Tex.].
1872 *Lyctocoris campestris*: Walker, Cat. Hem. Brit. Mus., 5: 154.
1879 *Dolichomerus reuteri* White, Ent. Month. Mag., 16: 146. [Ga., Mo.]. Synonymized by Reuter, 1884, Acta Soc. Sci. Fenn., 14: 564.
1926 *Lyctocoris elongatus*: Blatchley, Het. E. N. Am., p. 625 (in part).
Distribution: Ala., B.C., Cal., Fla., Ga., Ind., Man., Mo., N.C., N.Y., S.C., Tex.
Note: Blatchley (1928, J. N.Y. Ent. Soc., 36: 7) said his (1926, above) Ala. record refers to this species.

Subgenus *Lyctocoris* Hahn, 1836

1836 *Lyctocoris* Hahn, Wanz. Ins., 3: 19. Type-species: *Cimex domesticus* Schilling, 1834, a junior synonym of *Acanthia campestris* Fabricius, 1794. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 119.

1884 *Lyctocoris* (*Lyctocoris*): Reuter, Acta Soc. Sci. Fenn., 14: 561.

Lyctocoris campestris (Fabricius), 1794 [Fig. 5]

1794 *Acanthia campestris* Fabricius, Ent. Syst., 4: 75. [Europe].

1834 *Cimex domesticus* Schilling, Isis, p. 738. [Europe]. Synonymized by Reuter, 1871, Öfv. K. Svens. Vet.-Akad. Förh., 28(3): 409.

1852 *Xylocoris americanus* Dallas, List Hem. Brit. Mus., p. 589. [North America]. Synonymized by Van Duzee, 1916, Check List Hem., p. 34.

1871 *Lyctocoris fitchi* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 557. [N.Y.]. Synonymized by Reuter, 1884, Acta Soc. Sci. Fenn., 14: 561.

1871 *Lyctocoris domesticus*: Uhler, Proc. Boston Soc. Nat. Hist., 14: 106.

1884 *Lyctocoris campestris*: Reuter, Acta Soc. Sci. Fenn., 14: 561.

1886 *Lyctocoris americanus*: Uhler, Check-list Hem. Het., p. 21.

Distribution: Ala., B.C., Col., Fla., Id., Ill., Ind., Ks., Man., Md., Me., Mo., N.C., N.Y., Ont., Que., Tex., Ut., Wis. (Palearctic, Mexico, "cosmopolitan")

Lyctocoris canadensis Kelton, 1967

1967 *Lyctocoris canadensis* Kelton, Can. Ent., 99: 810. [Que.].

Distribution: Man., Que.

Lyctocoris doris Van Duzee, 1921

1921 *Lyctocoris doris* Van Duzee, Proc. Cal. Acad. Sci., (4)11: 139. [Cal.].

Distribution: Cal.

Lyctocoris okanaganus Kelton and Anderson, 1962

1962 *Lyctocoris okanaganus* Kelton and Anderson, Can. Ent., 94: 1303. [B.C.].

Distribution: B.C.

Lyctocoris rostratus Kelton and Anderson, 1962

1962 *Lyctocoris rostratus* Kelton and Anderson, Can. Ent., 94: 1304. [B.C.].

Distribution: B.C.

Lyctocoris tuberosus Kelton and Anderson, 1962

1962 *Lyctocoris tuberosus* Kelton and Anderson, Can. Ent., 94: 1303. [B.C.].

Distribution: B.C., Col., S.D.

Tribe Scolopini Carayon, 1954

Genus *Calliodis* Reuter, 1871

1871 *Calliodis* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 558. Type-species: *Calliodis picturata* Reuter, 1871. Monotypic.

1884 *Asthenidea* Reuter, Acta Soc. Sci. Fenn., 14: 602. Type-species: *Asthenidea temnostethoides* Reuter, 1884. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 120. Synonymized by Carayon, 1972, An. Soc. Ent. France, 8: 341.

Calliodis pallescens (Reuter), 1884

1884 *Asthenidea pallescens* Reuter, Acta Soc. Sci. Fenn., 14: 605. [Mexico].

1926 *Asthenidea pallescens*: Blatchley, Het. E. N. Am., p. 631.

1972 *Calliodis pallescens*: Carayon, An. Soc. Ent. France, 8: 347.

Distribution: Fla. (Mexico).

Calliodis semipicta (Blatchley), 1926

1926 *Asthenidea semipicta* Blatchley, Het. E. N. Am., p. 632. [Fla.].

1972 *Calliodis semipicta*: Carayon, An. Soc. Ent. France, 8: 347.

Distribution: Fla.

Calliodis temnostethoides (Reuter), 1884

1884 *Asthenidea temnostethoides* Reuter, Acta Soc. Sci. Fenn., 14: 605. [Ill.].
1972 *Calliodis temnostethoides*: Carayon, An. Soc. Ent. France, 8: 347.
Distribution: Conn., Fla., Ill., Mo., N.B., N.S., N.Y., Ont., P.Ed., Que., Tex.

Genus *Nidicola* Harris and Drake, 1941

1941 *Nidicola* Harris and Drake, Ia. St. Coll. J. Sci., 15: 343. Type-species: *Nidicola marginata* Harris and Drake, 1941. Original designation.

Note: Drake and Herring (1964, Proc. Biol. Soc. Wash., 77: 53-64) reviewed this genus, provided a key to species (p. 56-57), and described the four new species, *N. aglaia, N. engys, N. etes,* and *N. mitra,* all of which were intercepted in the U.S. on plant material coming from Guatemala or Mexico.

Nidicola jaegeri Peet, 1979

1979 *Nidicola jaegeri* Peet, An. Ent. Soc. Am., 72: 430. [Cal.].
Distribution: Cal.
Note: Peet (1979, above) provided a biological outline for this species.

Nidicola marginata Harris and Drake, 1941

1941 *Nidicola marginata* Harris and Drake, Ia. St. Coll. J. Sci., 15: 344. [Ariz.].
Distribution: Ariz., Cal., N.M.

Genus *Scoloposcelis* Fieber, 1864

1864 *Scolopscelis* Fieber, Wien. Ent. Monat., 7: 62. Type-species: *Xylocoris crassipes* Flor, 1860, a junior synonym of *Anthocoris pulchellus* Zetterstedt, 1838. Monotypic.

Scoloposcelis basilicus Drake and Harris, 1926

1926 *Scolopscelis basilicus* Drake and Harris, Proc. Biol. Soc. Wash., 39: 44. [N.M.].
Distribution: Ariz., N.M.

Scoloposcelis flavicornis Reuter, 1871

1871 *Scoloposcelis flavicornis* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 561. [Tex.].
1926 *Scoloposcelis mississippensis* Drake and Harris, Proc. Biol. Soc. Wash., 39: 43. [Miss.]. Synonymized by Kelton, 1976, Can. Ent., 108: 196.
1926 *Scoloposcelis occidentalis* Drake and Harris, Proc. Biol. Soc. Wash., 39: 45. [Cal.]. Synonymized by Kelton, 1976, Can. Ent., 108: 196.
1976 *Scoloposcelis mississipensis* [*sic*]: Kelton, 1976, Can. Ent., 108: 196.
Distribution: Alta., B.C., Cal., Fla., Ind., Man., Miss., N.B., N.S., Ont., Pa., Que., Sask., Tex., Yuk. (Guatemala, Mexico).

Genus *Solenonotus* Reuter, 1871

1871 *Solenonotus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 559. Type-species: *Anthocoris sulcifer* Stål, 1860. Monotypic.

Solenonotus angustatus Poppius, 1913

1913 *Solenonotus angustatus* Poppius, An. Soc. Ent. Belg., 57: 13. [Cal.].
Distribution: Cal.

Tribe Xylocorini Carayon, 1972

Genus *Xylocoris* Dufour, 1831

1831 *Xylocoris* Dufour, An. Sci. Nat. Paris, 22: 423. Type-species: *Xylocoris rufipennis* Dufour, 1831, a junior synonym of *Lygaeus cursitans* Fallén, 1807. Monotypic.

1860 *Piezostethus* Fieber, Wien. Ent. Monat., 4: 265. Type-species: *Xylocoris rufipennis* Dufour. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 119. Synonymy by virture of common type-species.

Note: Carayon (1972, An. Ent. Soc. France, 8: 579-606) reviewed the subgeneric classification of *Xylocoris*.

Subgenus *Arrostelus* Kirkaldy, 1906

1884 *Arrostus* Reuter, Acta Soc. Sci. Fenn., 14: 589. Preoccupied. Type-species: *Piezostethus flavipes* Reuter, 1875. Monotypic.

1906 *Arrostelus* Kirkaldy, Trans. Am. Ent. Soc., 32: 119. New name for *Arrostus* Reuter.

Xylocoris flavipes (Reuter), 1875

1875 *Piezostethus flavipes* Reuter, Bih. K. Svens. Vet.-Akad. Handl., 3(1): 65. [Europe].

1961 *Xylocoris flavipes*: Bibby, J. Econ. Ent., 54: 328.

Distribution: Ariz., D.C., Ga., Ks., Md., Tex. (Africa, Asia, Australia, Europe, South America).

Note: *Xylocoris flavipes* has been reported in numerous publications as an important predator of common stored grain pests. There are specimens in the USNM (D.C., Ks., Md., Tex.) collected in stored grain as early as 1933, but Bibby (1961, above) apparently is the first to publish a North American record. Arbogast et al. (1971, An. Ent. Soc. Am., 64: 1131-1134) studied the developmental stages; Arbogast (1975, Environ. Ent., 4: 825-831) gave information on the influence of temperature and humidity; Arbogast et al. (1977, J. Ga. Ent. Soc., 12: 58-64) studied longevity; Arbogast (1978, Proc. Second Int. Work Comm. Stored-Prod. Ent., pp. 91-105; 1979, Ent. Exp. Appl., 25: 128-135) documented cannibalism; Arbogast (1976, J. Ga. Ent. Soc., 11: 67-71), Jay et al. (1968, J. Ga. Ent. Soc., 3: 126-130), LeCato and Davis (1973, Fla. Ent., 56: 57-59), and Press et al. (1975, J. Ga. Ent. Soc., 10: 76-78) reported on the biology and predatory habits.

Subgenus *Proxylocoris* Carayon, 1972

1972 *Xylocoris* (*Proxylocoris*) Carayon, An. Ent. Soc. France (new ser.), 8: 594. Type-species: *Piezostethus afer* Reuter, 1884. Original designation.

Xylocoris galactinus (Fieber), 1837

1837 *Anthocoris galactinus* Fieber, Beitr. Gesch. Nat., 1: 107. [Europe].

1884 *Piezostethus galactinus*: Reuter, Acta Soc. Sci. Fenn., 14: 590.

1914 *Piezostethus flaccidus* Van Duzee, Trans. San Diego Soc. Nat. Hist., 2: 14. [Cal.]. Synonymized by Kelton, 1977, Can. Ent., 109: 1017.

1916 *Xylocoris galactinus*: Van Duzee, Check List Hem., p. 34.

1916 *Xylocoris flaccidus*: Van Duzee, Check List Hem., p. 34.

Distribution: Alta., B.C., Cal., Fla., Ga., Id., Ill., Man., Mo., N.J., N.Y., Ont., Que., Sask. (Palearctic).

Xylocoris sordidus (Reuter), 1871

1871 *Piezostethus sordidus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 560. [Tex., Brazil].

1871 *Piezostethus binotatus* Reuter, Öfv. K. Svens. Vet.-Akad. Förh., 28(5): 560. [S.C.]. Synonymized by Reuter, 1884, Acta Soc. Sci. Fenn., 14: 564.

1884 *Piezostethus sordidus* var. *binotatus*: Reuter, Acta Soc. Sci. Fenn., 14: 591.

1916 *Xylocoris sordidus*: Van Duzee, Check List Hem., p. 34.

1917 *Xylocoris sordidus* var. *binotatus*: Van Duzee, Univ. Cal. Publ. Ent., 2: 291.

Distribution: Ariz., Cal., Fla., Ga., Ks., Mass., Md., N.M., N.J., N.Y., Pa., S.C., Tenn., Tex. (Central America, Mexico, West Indies).

Note: Arbogast et al. (1983, Am. Midl. Nat., 109: 398-405) studied the biology and habits of this species in storage ecosystems in Georgia; Arbogast et al. (1985, Ent. News, 96: 53-58) studied the developmental stages.

Subgenus *Xylocoris* Dufour, 1831

1831 *Xylocoris* Dufour, An. Sci. Nat. Paris, 22: 423. Type-species: *Xylocoris rufipennis* Dufour, 1831, junior synonym of *Lygaeus cursitans* Fallén, 1807. Monotypic.

Xylocoris betulinus Drake and Harris, 1926

1926 *Xylocoris betulinus* Drake and Harris, Proc. Biol. Soc. Wash., 39: 37. [N.Y.].

Distribution: N.Y.

Xylocoris californicus (Reuter), 1884

1884 *Piezostethus californicus* Reuter, Acta Soc. Sci. Fenn., 14: 600.

1916 *Xylocoris californicus*: Van Duzee, Check List Hem., p. 34.

Distribution: Cal., N.M., Ut.

Xylocoris cursitans (Fallén), 1807

1807 *Lygaeus cursitans* Fallén, Monogr. Cimic. Suec., p. 74. [Europe].

1916 *Xylocoris cursitans*: Van Duzee, Check List Hem., p. 34

1962 *Xylocoris vicarius*: Anderson, Can. Ent., 94: 1326.

Distribution: Alta., B.C., Conn., Id., Ind., Mich., N.J., N.S., N.Y., Ont., Ore., Que. (Palearctic).

Xylocoris discalis (Van Duzee), 1914

1914 *Scoloposcelis discalis* Van Duzee, Trans. San Diego Soc. Nat. Hist., 2: 15. [Cal.]. Lectotype designated by Kelton, 1976, Can. Ent., 108: 193.

1921 *Xylocoris discalis*: Van Duzee, Proc. Cal. Acad. Sci., (4)11: 138.

Distribution: Ariz., Cal.

Note: Kelton (1976, Can. Ent., 108: 193) clarified the generic placement of this species.

Xylocoris hirtus Kelton, 1976

1976 *Xylocoris hirtus* Kelton, Can. Ent., 108: 193. [Sask.].

Distribution: N.Y., Ont., Que., Sask.

Xylocoris pilipes Kelton, 1976

1976 *Xylocoris pilipes* Kelton, Can. Ent., 108: 194. [N.Y.].

Distribution: N.Y.

Xylocoris punctatus Kelton, 1976

1976 *Xylocoris punctatus* Kelton, Can. Ent., 108: 196. [Ut.].

Distribution: Ut.

Xylocoris umbrinus Van Duzee, 1921

1921 *Xylocoris umbrinus* Van Duzee, Proc. Cal. Acad. Sci., (4)11: 137. [Cal.].

Distribution: Alta., B.C., Cal., Id., Man., Sask.

Xylocoris vicarius (Reuter), 1884

1884 *Piezostethus vicarius* Reuter, Acta Soc. Sci. Fenn., 14: 599. [Colombia, "Americae septemtrionalis"].

1916 *Xylocoris vicarius*: Van Duzee, Check List Hem., p. 34.

Distribution: Fla., Mass., N.J., N.Y. (South America).

Note: Blatchley (1926, Het. E. N. Am., p. 630) gave the first definite state record for this species.

Family Aradidae Spinola, 1837

(= Dysodiidae Reuter, 1912; Meziridae Oshanin, 1908)

The Flat Bugs

By Richard C. Froeschner

Close observation has shown that the generally accepted picture of flat bugs living and feeding on fungi under bark is not descriptive of all forms. As early as the turn of the century, Schwarz (1901, Proc. Ent. Wash., 4: 391) noted "... the family may be divided into two classes, according to food habits, the one appearing to feed upon a blackish mould under the bark, while others live outside the bark of dead trees, upon a whitish fungus."

Usinger (1936, An. Ent. Soc. Am., 29: 491, 507) reported four species of the genus *Aradus* Curtis as frequenting and feeding on exposed surfaces of "shelf fungi" (or "ball fungi"), *Polyporus* Fries, in California. Also for the western United States he noted several occurrences of *Mezira reducta* Van Duzee with termites, even to being present in undisturbed termite galleries. He hypothesized that both insect forms fed on fungi that may have been present, the termites chewing off the hyphae that grew into the tunnels and the flat bugs using their long threadlike stylets to feed on fungal parts embedded in the gallery walls.

The North American species *Aradus kormilevi* Heiss was reported (under the combination *Aradus cinnamomeus* Panzer, a European species) in association with the southern pine beetle, *Dendroctonus frontalis* Zimmerman by Overgaard (1968, J. Econ. Ent., 61: 1199) and by Moser et al. (1971, An. Ent. Soc. Am., 64: 73). The former author noted it as a "predator of the Southern Pine Beetle" but without details of the observation; the latter author cited its feeding habits from previous authors and characterized it as being "saprophagous on pines."

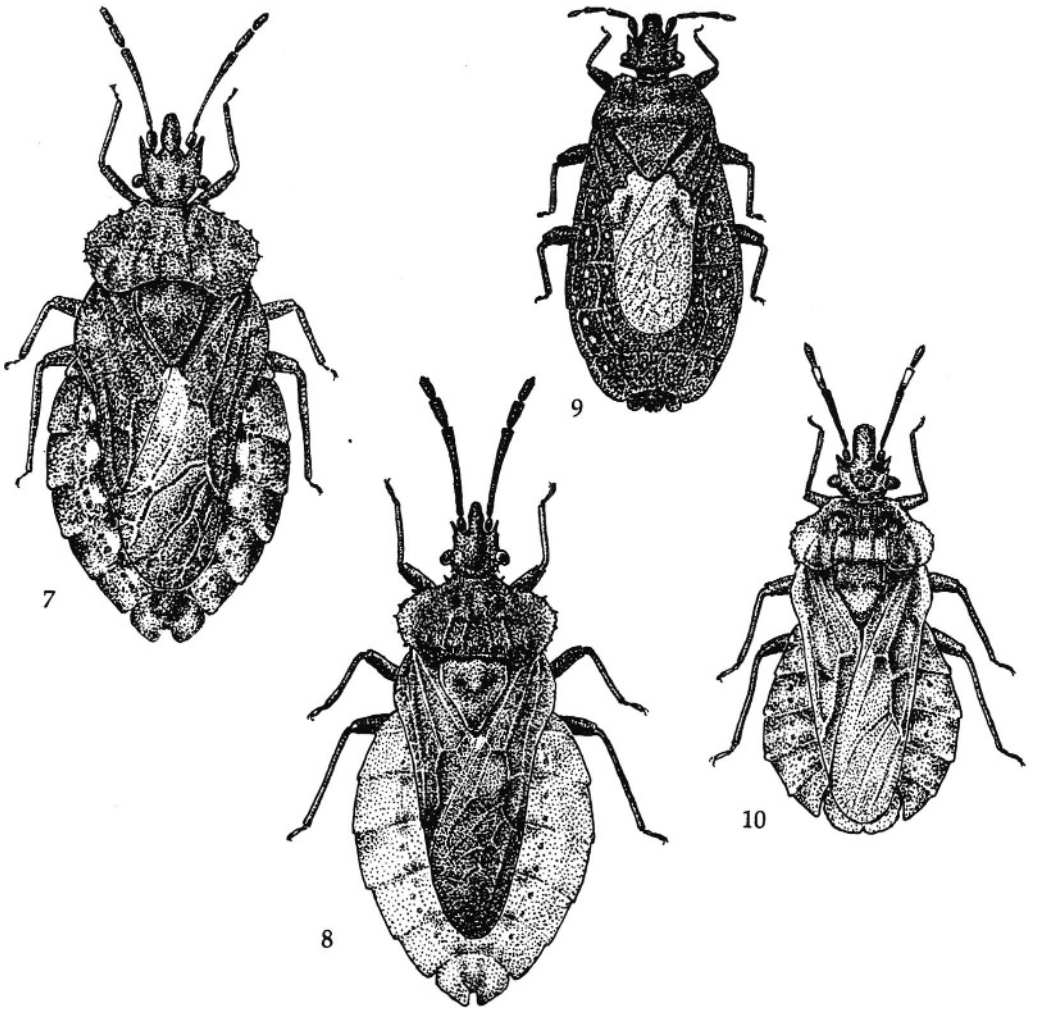
In Europe *Aradus cinnamomeus* attacks and causes the death of young shoots on pine trees. There, Tanada (1959, An. Rev. Ent., 4: 281) and Franz (1961, An. Rev. Ent., 6: 186) reported this flat bug was successfully controlled by field application of the parasitic fungus genus *Beauveria* Vuillemin (Fungi Imperfecti).

The limited information on the biology of North American flat bugs allows only an outline of their behavior. During the cold months the individuals are immobilized by the chilled air; most of our species hibernating under loose bark or other objects where they were feeding. As the weather warms the insects begin to move around and resume feeding. Mating takes place in the natural feeding areas, not in the flights which take them to new feeding grounds. Because the fungi that serve as food for the mycetophagous forms live on dead trees only at a certain stage in the tree's decay, the flat bugs must seek fresh food sources every year or so. Eggs are laid on or near the food that will be utilized for nourishment by the newly hatched and developing immatures.

For America north of Mexico the following list enumerates 123 species in 10 genera.

For study of flat bugs in the area of this

list four works are useful: the *Synopsis* of the family by Torre-Bueno (1939, Ent. Am., 19: 258-276), which provides keys to most North American species; Parshley's (1921, Trans. Am. Ent. Soc., 47: 1-106), scholarly *Essay*, which provides many biological details for members of the genus *Aradus*; the worldwide comprehensive *Classification of the Aradidae* by Usinger and Matsuda (1959); and Matsuda's (1977, Can. Dept. Agr., Publ. 1634) coverage of the Canadian species.



Figs. 7-10: 7, Aradus *acutus* [p.33]; 8, *Aradus inornatus* [p. 36]; 9, *Neuroctenus simplex* [p. 46]; 10, *Aradus cincticornis* [p. 34] (After Froeschner, 1942).

Subfamily Aneurinae Douglas and Scott, 1865

Genus *Aneurus* Curtis, 1825

1825 *Aneurus* Curtis, Brit. Ent., 7: pl. 86. Type-species: *Acanthia laevis* Fabricius, 1775. Monotypic.

Note: Four subgenera have been placed within this genus: *Aneurillus* Kormilev, *Aneurus* Curtis, *Aneurosoma* Champion, and *Iralunelus* Štys. All species in the area north of Mexico appear to belong to the nominate subgenus. A revision of thirty-two North and Central American and West Indian species was provided by Picchi (1977, Quaest. Ent., 13: 255-308, 267-270).

Subgenus *Aneurus* Curtis, 1825

1825 *Aneurus* Curtis, Brit. Ent., 7: pl. 86. Type-species: *Acanthia laevis* Fabricius, 1775. Monotypic.

1967 *Aneurus* (*Aneurus*): Kormilev, Opusc. Ent., 100:1

Aneurus arizonensis Picchi, 1977

1977 *Aneurus arizonensis* Picchi, Quaest. Ent., 13: 280. [Ariz.].

Distribution: Ariz.

Aneurus borealis Picchi, 1977

1977 *Aneurus borealis* Picchi, Quaest. Ent., 13: 282. [Alk.].

Distribution: Alk., B.C., Me., Ont., Que., Sask., Yuk.

Aneurus deborahae Picchi, 1977

1977 *Aneurus deborahae* Picchi, Quaest. Ent., 13: 274. [Cal.].

Distribution: Cal.

Aneurus fiskei Heidemann, 1904

1904 *Aneurus fiskei* Heidemann, Proc. Ent. Soc. Wash., 6: 164. [Ga., N.C., Pa., Va.].

1968 *Aneurus* (*Aneurus*) *fiskei*: Kormilev, Proc. U.S. Nat. Mus., 125 (3657): 3.

Distribution: Conn., D.C., Ga., Ill., Ind., Md., Mich., N.C., N.J., N.Y., Oh., Pa., Tenn., Tex., Va. (Mexico).

Aneurus inconstans Uhler, 1871

1871 *Aneurus inconstans* Uhler, Proc. Bost. Soc. Nat. Hist., 14: 105. [Mass.].

1968 *Aneurus* (*Aneurus*) *inconstans*: Kormilev, Proc. U.S. Nat. Mus., 125 (3657): 3.

Distribution: Alta., B.C., Conn., D.C., Del., Ind., Mass., Md., Me., N.C., N.H., N.J., N.S., N.Y., Ont., Pa., Que., R.I., S.D., Va., Vt.

Note: Under his description of *A. inconstans*, Uhler (1871, Proc. Bost. Soc. Nat. Hist., 14: 105) mentioned a Say manuscript name, "*Aradus sanguineus*," on specimens in the T.W. Harris collection.

Aneurus leptocerus Hussey, 1957

1898 *Aneurus tenuicornis* Champion, Biol. Centr.-Am., Rhyn., 2: 116. [Guatemala, Panama]. Preoccupied.

1916 *Aneurus tenuicornis*: Van Duzee, Check List Hem., p. 17.

1957 *Aneurus leptocerus* Hussey, Fla. Ent., 40: 80. New name for *Aneurus tenuicornis* Champion.

Distribution: Ala., Fla., Ga. (Guatemala, Panama).

Aneurus minutus Bergroth, 1886

1886 *Aneurus minutus* Be oth, Verh. Zool.-Bot. Gesell. Wien, 36: 58. [Tex.].
1968 *Aneurus (Aneurus) ı utus*: Kormilev, Proc. U.S. Nat. Mus., 125 (3657): 3.
Distribution: Ariz., Fla., Ga., Oh.(?), Tex. (Mexico, West Indies).
Note: Blatchley (1926, Het. E. N. Am., p. 330) questioned the "Ohio" record.

Aneurus politus Say, 1832

1832 *Aneurus politus* Say, Descrip. Het. Hem. N. Am., p. 31. [Fla.]. Neotype designated by Picchi, 1977, Quaest. Ent., 13: 271.
1968 *Aneurus (Aneurus) politus*: Kormilev, Proc. U.S. Nat. Mus., 125 (3657): 3.
Distribution: Ala., Fla., Ga., Miss., N.Y.
Note: The "Cuba" records of *politus* by Uhler (1878, Proc. Bost. Soc. Nat. Hist., 19: 421) apparently belong to *A. patriciae* Picchi, the only species of *Aneurus* listed for Cuba in Picchi's revision.

Aneurus pygmaeus Kormilev, 1966

1966 *Aneurus pygmaeus* Kormilev, Proc. U.S. Nat. Mus., 119 (3548): 6. [Tex.].
1968 *Aneurus (Aneurus) pygmaeus*: Kormilev, Proc. U.S. Nat. Mus., 125 (3657): 3.
Distribution: Cal., Fla., Ga., Miss., Tex.

Aneurus roseae Picchi, 1977

1977 *Aneurus roseae* Picchi, Quaest. Ent., 13: 279. [Tex.].
Distribution: Tex.

Aneurus simplex Uhler, 1871

1871 *Aneurus simplex* Uhler, Proc. Bost. Soc. Nat. Hist., 14: 106. [Mass.]. Lectotype designated by Parshley, 1922, Ent. News, 33: 43.
1873 *Aneurus septentrionalis* Walker, Cat. Hem. Brit. Mus., 7: 30. [N.S., Ont.]. Synonymized by Picchi, 1977, Quaest. Ent., 13: 278.
1968 *Aneurus (Aneurus) simplex*: Kormilev, Proc. U.S. Nat. Mus., 125 (3657): 2.
1968 *Aneurus (Aneurus) septentrionalis*: Kormilev, Proc. U.S. Nat. Mus., 125 (3657): 2.
Distribution: Alk., Alta., B.C., Col., Id., Man., Mass., Me., Mont., N.C., N.H., N.J., N.S., N.T., N.Y., Ont., Ore., Que., Vt., Wash., Wyo., Yuk.

Subfamily Aradinae Amyot and Serville, 1843

Genus *Aradus* Fabricius, 1803

1803 *Aradus* Fabricius, Syst. Rhyn., p. 116. Type-species: *Cimex betulae* Linnaeus, 1758. Designated by Latreille, 1810, Consid. Gen. Crust. Ins., p. 433.
Note: Parshley (1921, Trans. Am. Ent. Soc., 47: 1-106, pls. 1-7) revised and gave a key (pp. 23-29) to 60 New World species. Rathvon (1869, Hist. Lancaster Co., Pa., p. 549) listed two species of *Aradus, sanguineus* (see *Anerus inconstans*) and *penultimus*, neither of which appears to have been validly published.

Subgenus *Aradus* Fabricius, 1803

1803 *Aradus* Fabricius, Syst. Rhyn., p. 116. Type-species: *Cimex betulae* Linnaeus, 1758. Designated by Latreille, 1810, Consid. Gen. Crust. Ins., p. 433.
1873 *Aradus (Aradus)*: Stål, K. Svens. Vet.-Akad. Handl., 11(2): 136.

Aradus abbas Bergroth, 1889

1889 *Aradus abbas* Bergroth, Bull. Soc. Ent. Belg., 33: clxxx. [Que.].

1916 *Aradus* (*Aradus*) *abbas*: Van Duzee, Check List Hem., p. 16.

Distribution: Alk., Alta., B.C., Cal., Conn., D.C., Fla., Id., Ill., Man., Mass., Me., Mich., N.B., N.C., N.H., N.J., N.T., N.Y., Nfld., Ont., Pa., Que., Sask., Va., Vt., Wash., Wis.

Aradus acutus Say, 1832 [Fig. 7]

1832 *Aradus acutus* Say, Descrip. Het. Hem. N. Am., p. 28. [Fla., Ind.].

1847 *Aradus americanus* Herrich-Schaeffer, Wanz. Ins., 8: 115. [N. Am.]. Synonymized by Stål, 1873, K. Svens. Vet.-Akad. Handl., 11(2): 136.

1873 *Aradus* (*Aradus*) *acutus*: Stål, K. Svens. Vet.-Akad. Handl., 11(2): 136.

Distribution: Ala., Alk., Cal., Col., D.C., Del., Fla., Ga., Id., Ill., Ind., Ks., Man., Md., Me., Miss., Mo., Mont., N.C., N.H., Oh., Pa., S.C., Tex., Ut., Wash.

Aradus aequalis Say, 1832

1832 *Aradus aequalis* Say, Descrip. Het. Hem. N. Am., p. 29. [Ind.].

1873 *Aradus* (*Aradus*) *aequalis*: Stål, K. Svens. Vet.-Akad. Handl., 11(2): 136.

1903 *Aradus druryi* Obsborn, Oh. Nat., 4: 39. [Oh.]. Synonymized by Bergroth, 1913, Can. Ent., 45: 1.

Distribution: D.C., Ill., Ind., Md., Me., N.J., N.Y., Oh., Ok., Ont., Pa., Que., Tex., Va., Vt.

Aradus alaskanus Kormilev and Heiss, 1979

1979 *Aradus alaskanus* Kormilev and Heiss, Ber. Nat.-Med. Ver. Innsbruck, 66: 47. [Alk.].

Distribution: Alk.

Aradus ampliatus Uhler, 1876

1876 *Aradus ampliatus* Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 321. [Cal.].

1916 *Aradus* (*Aradus*) *ampliatus*: Van Duzee, Check List Hem., p. 16.

Distribution: Cal., Ut.

Aradus antennalis Parshley, 1921

1921 *Aradus* (*Aradus*) *cinnamomeus* var. *antennalis* Parshley, Trans. Am. Ent. Soc., 47: 97. [B.C.].

1980 *Aradus antennalis*: Heiss, Ber. Nat.-Med. Ver. Innsbruck, 67: 112.

Distribution: B.C., Cal., Id., Neb., Wash.

Aradus apicalis Van Duzee, 1920

1917 *Aradus* (*Aradus*) *duzeei*: Van Duzee, Univ. Cal. Publ. Ent., 2: 130 (in part).

1920 *Aradus apicalis* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 9: 331. [Cal.].

1921 *Aradus* (*Aradus*) *apicalis*: Parshley, Trans. Am. Ent. Soc., 47: 46.

Distribution: Cal.

Aradus approximatus Parshley, 1921

1921 *Aradus* (*Aradus*) *approximatus* Parshley, Trans. Am. Ent. Soc., 47: 72. [Miss.].

Distribution: Ga., Ind., Me., Miss., N.J., N.Y., Que.

Aradus arizonicus Parshley, 1921

1921 *Aradus* (*Aradus*) *arizonicus* Parshley, Trans. Am. Ent. Soc., 47: 83. [Ariz.].

Distribution: Ariz.

Aradus barberi Kormilev, 1966

1966 *Aradus* (*Aradus*) *barberi* Kormilev, Proc. U.S. Nat. Mus., 119(3548): 4. [Col.].

Distribution: Col.

Aradus basalis Parshley, 1921

1921 *Aradus* (*Aradus*) *basalis* Parshley, Trans. Am. Ent. Soc., 47: 54. [N.H.].
Distribution: Me., N.H., N.Y.

Aradus behrensi Bergroth, 1886

1886 *Aradus behrensi* Bergroth, Wien. Ent. Zeit., 5: 97. [Cal.].
1916 *Aradus* (*Aradus*) *behrensi*: Van Duzee, Check List Hem., p. 16.
Distribution: B.C., Cal., Ore., Wash.

Aradus blaisdelli Van Duzee, 1920

1876 *Aradus inornatus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 323 (in part).
1920 *Aradus blaisdelli* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 9: 333. [Cal.].
1921 *Aradus* (*Aradus*) *blaisdelli*: Parshley, Trans. Am. Ent. Soc., 47: 70.
Distribution: B.C., Cal., Id., Mont., Nev., Ore., Sask., Wash.

Aradus borealis Heidemann, 1909

1909 *Aradus borealis* Heidemann, Proc. Ent. Soc. Wash., 11: 190. [Mich., N.H.].
1916 *Aradus* (*Aradus*) *borealis*: Van Duzee, Check List Hem., p. 16.
Distribution: Cal., Me., Mich., N.H., Ont., Que., Sask.

Aradus breviatus Bergroth, 1887

1887 *Aradus breviatus* Bergroth, Rev. d'Ent., 6: 245. [Fla.].
1916 *Aradus* (*Aradus*) *breviatus*: Van Duzee, Check List Hem., p. 16.
Distribution: D.C., Fla., N.J.

Aradus brevicornis Kormilev, 1980

1980 *Aradus* (*Aradus*) *brevicornis* Kormilev, Proc. Ent. Soc. Wash., 82: 105. [Cal.].
Distribution: Cal.

Aradus brunnicornis Blatchley, 1926

1926 *Aradus* (*Aradus*) *brunnicornis* Blatchley, Het. E. N. Am., p. 311. [Fla.]. Lectotype designated by Blatchley, 1930, Blatchleyana, p. 64.
Distribution: Fla., N.C.

Aradus carolinensis Kormilev, 1964

1964 *Aradus* (*Aradus*) *carolinensis* Kormilev, Arkiv Zool., ser. 2, 16: 476. [N.C.].
Distribution: N.C.

Aradus cincticornis Bergroth, 1906 [Fig. 10]

1906 *Aradus cincticornis* Bergroth, Can. Ent., 38: 198. [Ala.].
1916 *Aradus* (*Aradus*) *cincticornis*: Van Duzee, Check List Hem., p. 16.
Distribution: Ala., Mo.
Note: Bergroth (1913, Can. Ent., 45: 3) noted that specimens of this species he examined were identified by "the unpublished name *A*[*radus*] *nasutus* Uhl."

Aradus coarctatus Heidemann, 1907

1907 *Aradus coarctatus* Heidemann, Proc. Ent. Soc. Wash., 8: 69. [Cal.].
1916 *Aradus* (*Aradus*) *coarctatus*: Van Duzee, Check List Hem., p. 16.
Distribution: B.C., Cal.

Aradus coloradensis Kormilev, 1964

1964 *Aradus coloradensis* Kormilev, Arkiv Zool., ser. 2, 16: 476. [Col.].
Distribution: Col.

Aradus compressus Heidemann, 1907

1907 *Aradus compressus* Heidemann, Proc. Ent. Soc. Wash., 8: 70. [Wash.].
1916 *Aradus* (*Aradus*) *compressus*: Van Duzee, Check List Hem., p. 16.
Distribution: B.C., Cal., Ore., Wash.

Aradus concinnus Bergroth, 1892

1892 *Aradus* (*Piestosoma*) *concinnus* Bergroth, Proc. Ent. Soc. Wash., 2: 337. [Cal.].

1921 *Aradus* (*Aradus*) *concinnus*: Parshley, Trans. Am. Ent. Soc., 47: 49.

Distribution: Cal.

Note: Usinger (1936, An. Ent. Soc. Am., 2: 495) placed *Aradus depictus* Van Duzee as a junior synonym of this species, but later (1943, Pan-Pac. Ent., 19: 138) retracted the synonymy.

Aradus consors Parshley, 1921

1921 *Aradus* (*Aradus*) *consors* Parshley, Trans. Am. Ent. Soc., 47: 56. [Mass.].

Distribution: Mass.

Aradus crenatus Say, 1832

1832 *Aradus crenatus* Say, Descrip. Het. Hem. N. Am., p. 28. [U.S.].

1916 *Aradus* (*Aradus*) *crenatus*: Van Duzee, Check List Hem., p. 16.

Distribution: Ala., Conn., D.C., Ga., Ill., Ind., Md., Mich., Mo., N.C., N.Y., Oh., Ont., Pa., Que., Va. (Mexico).

Note: Heiss (1980, Ber. Nat.-Med. Ver. Innstruck, 67: 104) redefined this species.

Aradus curticollis Bergroth, 1913

1913 *Aradus curticollis* Bergroth, Can. Ent., 45: 2. [N.C.].

1916 *Aradus* (*Aradus*) *curticollis*: Van Duzee, Check List Hem., p. 16.

Distribution: Ga., N.C.

Aradus debilis Uhler, 1876

1876 *Aradus debilis* Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 322. [B.C.].

1916 *Aradus* (*Aradus*) *debilis*: Van Duzee, Check List Hem., p. 16.

Distribution: B.C., Cal., Col., Id., Mass., Mont., N.Y., Ore., Wash.

Aradus depictus Van Duzee, 1917

1917 *Aradus depictus* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 7: 253. [Cal.].

1921 *Aradus* (*Aradus*) *depictus*: Parshley, Trans. Am. Ent. Soc., 47: 47.

Distribution: B.C., Cal., Ore.

Note: Usinger (1936, An. Ent. Soc. Am., 29: 495) placed this species as a junior synonym of *Aradus concinnus*, but Torre-Bueno (1939, Ent. Am., 19: 282) and Usinger (1943, Pan-Pac. Ent., 19: 138) treated it as a valid.

Aradus duzeei Bergroth, 1892

1892 *Aradus Duzeei* [*sic*] Bergroth, Proc. Ent. Soc. Wash., 2: 333. [Ont., Pa.].

1910 *Aradus vanduzeei* [*sic*]: Heidemann, Proc. Ent. Soc. Wash., 12: 47.

1916 *Aradus* (*Aradus*) *duzeei*: Van Duzee, Check List Hem., p. 16.

1917 *Aradus duzei* [*sic*]: Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 7: 253.

Distribution: Ind., Mass., Md., Mo., N.J., N.Y., Oh., Ont., Pa., Que., Va.

Aradus evermanni Van Duzee, 1920

1920 *Aradus evermanni* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 9: 338. [Cal.].

1921 *Aradus* (*Aradus*) *evermanni*: Parshley, Trans. Am. Ent. Soc., 47: 91.

Distribution: Ariz., Cal., Tex.

Aradus falleni Stål, 1860

1860 *Aradus* (*Aradus*) *Falleni* [*sic*]: Stål, K. Svens. Vet.-Akad. Handl., 2(7): 68. [Brazil].

1918 *Aradus fallini* [*sic*]: Johnson and Ledig, J. Ent. Zool., 10: 4.

Distribution: Ariz., Ark., B.C., Cal., Conn., D.C., Fla., Ga., Ill., Ind., La., Md., Miss., Mo., N.C., N.J., N.M., N.Y., Ok., Pa., R.I., Tex., Va., W.Va. (Mexico to Brazil, West Indies).

Aradus funestus Bergroth, 1913

1876 *Aradus tuberculifer*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 321 (in part).
1913 *Aradus funestus* Bergroth, Can. Ent., 45: 4. [Canada; U.S. including Col.].
1916 *Aradus (Aradus) funestus*: Van Duzee, Check List Hem., p. 16.
Distribution: Alk., Alta., Ariz., B.C., Cal., Col., D.C., Id., Mont., N.Y., Nev., Ont., Ore., Que., Ut., Wash., Wyo.

Aradus furnissi Usinger, 1936

1936 *Aradus (Aradus) furnissi* Usinger, An. Ent. Soc. Am., 29: 500. [Cal.].
Distribution: Cal., Id.

Aradus furvus Parshley, 1921

1921 *Aradus (Aradus) furvus* Parshley, Trans. Am. Ent. Soc., 47: 155. [Ariz.].
Distribution: Ariz.

Aradus fuscipennis Usinger, 1936

1936 *Aradus (Aradus) fuscipennis* Usinger, An. Ent. Soc. Am., 29: 504. [Wash.].
Distribution: Wash.

Aradus fuscomaculatus Stål, 1859

1859 *Aradus fuscomaculatus* Stål, K. Svens. Freg. Eug. Resa Jorden, 3: 260. [Cal.].
1873 *Aradus (Aradus) fuscoannulatus* [*sic*]: Stål, K. Svens. Vet.-Akad. Handl., 11(2): 136.
1916 *Aradus (Aradus) fuscomaculatus*: Van Duzee, Check List Hem., p. 16.
Distribution: B.C., Cal., Ore., Wash.

Aradus gracilicornis Stål, 1873

1873 *Aradus (Aradus) gracilicornis* Stål, K. Svens. Vet.-Akad. Handl., 11(2): 136. [Cuba].
1906 *Aradus gracilicornis*: Bergroth, Can. Ent., 38: 200.
1916 *Aradus (Aradus) gracilicornis*: Van Duzee, Check List Hem., p. 16.
Distribution: Ala., Ariz., Fla., Ga., Miss., N.C., N.M., Tex. (Cuba).

Aradus gracilis Parshley, 1929

1929 *Aradus (Aradus) gracilis* Parshley, Can. Ent., 61: 245. [Alta.].
Distribution: Alta.

Aradus hesperius Parshley, 1921

1921 *Aradus (Aradus) hesperius* Parshley, Trans. Am. Ent. Soc., 47: 71. [Ariz.].
Distribution: Ariz., Col.

Aradus implanus Parshley, 1921

1921 *Aradus (Aradus) implanus* Parshley, Trans. Am. Ent. Soc., 47: 45. [Ont.].
Distribution: D.C., Ill., Ind., Mich., Ont., Pa., Que.

Aradus inornatus Uhler, 1876 [Fig. 8]

1876 *Aradus inornatus* Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 323. [Md.].
1916 *Aradus (Aradus) inornatus*: Van Duzee, Check List Hem., p. 16.
Distribution: D.C., Ga., Ill., Man., Mass., Md., Me., Mich., Mo., N.C., N.H., N.J., Neb., Ont., Pa., Que., S.C., S.D., Tenn., Tex., Va., W.Va., Wis.
Note: Earlier B.C. and Cal. records belong under *Aradus blaisdelli* Van Duzee.

Aradus insignitus Parshley, 1921

1921 *Aradus (Aradus) insignitus* Parshley, Trans. Am. Ent. Soc., 47: 75. [Mass.].
Distribution: Mass.

Aradus insolitus Van Duzee, 1916

1916 *Aradus insolitus* Van Duzee, Univ. Cal. Publ. Ent., 1: 233. [Cal.].
1917 *Aradus (Aradus) insoletis* [*sic*]: Van Duzee, Univ. Cal. Publ. Ent., 2: 135.

1921 *Aradus* (*Aradus*) *insolitus*: Parshley, Trans. Am. Ent. Soc., 47: 98.
Distribution: Alta., B.C., Cal., Id., Ore.

Aradus intectus Parshley, 1921

1921 *Aradus* (*Aradus*) *intectus* Parshley, Trans. Am. Ent. Soc., 47: 42. [Col.].
Distribution: B.C., Col., Mont., Wyo., Yuk.

Aradus intermedius Usinger, 1936

1936 *Aradus* (*Aradus*) *intermedius* Usinger, An. Ent. Soc. Am., 29: 498. [Cal.].
Distribution: Cal.

Aradus kormilevi Heiss, 1980

1873 *Aradus* (*Aradus*) *cinnamomeus*: Stål, K. Svens. Vet.-Akad. Handl., 11(2): 137.
1876 *Aradus cinnamomeus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 321 (in part).
1980 *Aradus* (*Aradus*) *kormilevi* Heiss, Ber. Nat.-Med. Ver. Innsbruck, 67: 113. [N.J.].
Distribution: Ala., Alta., B.C., Cal., Col., D.C., Fla., Ga., Ks., Man. Mass., Md., Miss., Mo., Mont., N.B., N.J., N.S., Neb., Ont., Pa., Sask., Tex., Va., W.Va., Wyo.
Note: The true *Aradus cinnamomeus* Panzer, according to Heiss (1980, above, p. 103), is a "westpalaearctic species" and does not occur in North America.

Aradus lawrencei Kormilev, 1966

1966 *Aradus lawrencei* Kormilev, Psyche, 73: 27. [N.H.].
Distribution: N.H.

Aradus leachi Van Duzee, 1929

1929 *Aradus leachi* Van Duzee, Pan-Pac. Ent., 5: 186. [Cal.].
1939 *Aradus* (*Aradus*) *leachi*: Torre-Bueno, Ent. Am., 19: 262.
Distribution: Cal.

Aradus linsleyi Usinger, 1936

1936 *Aradus linsleyi* Usinger, An. Ent. Soc. Am., 29: 493. [Cal.].
1939 *Aradus* (*Aradus*) *linsleyi*: Torre-Bueno, Ent. Am., 19: 267.
Distribution: Cal.

Aradus lugubris Fallén, 1807

1807 *Aradus lugubris* Fallén, Monogr. Cimic. Suec. p. 34.
1837 *Aradus affinis* Kirby, Fauna Bor.-Am., 4: 279. [Canada "lat. 65"]. Synonymized by Bergroth, 1886, Wien. Ent. Zeit., 5: 97.
1832 *Aradus rectus* Say, Descrip. Het. Hem. N. Am., p. 29. [Fla., Mo.]. Synonymized by Bergroth, 1886, Wien. Ent. Zeit., 5: 97.
1873 *Aradus fenestratus* Walker, Cat. Hem. Brit. Mus., 7: 36. [Ont.; "Rocky Mountains"; N.S.]. Synonymized by Bergroth, 1913, Can. Ent., 45: 5.
1916 *Aradus* (*Aradus*) *lugubris*: Van Duzee, Check List Hem., p. 16.
1926 *Aradus fenestralis* [*sic*]: Blatchley, Het. E. N. Am., p. 311.
Distribution: Alk., Alta., Ariz., B.C., Cal., Col., D.C., "Hudson B.T.," Id., Ill., Man., Mass., Me., Mich., Minn., Mo., Mont., N.C., N.D., N.H., N.M., N.S., N.T., N.Y., Neb., Nev., Nfld., Ont., Ore., Pa., Que., R.I., Sask., Ut., Wash., Wis., Yuk. (Palearctic).

Aradus lugubris lugubris Fallén, 1807

1807 *Aradus lugubris* Fallén, Monogr. Cimic. Suec., p. 34.
1900 *Aradus lugubris* var. *lugubris*: Reuter, Medd. Soc. Fauna Flora Fenn., 26: 134.
Distribution: Same as for species.

Aradus lugubris nigricornis Reuter, 1900

1900 *Aradus lugubris* var. *nigricornis* Reuter, Medd. Soc. Fauna Flora Fenn., 26: 134, 138. [Finland].

1921 *Aradus* (*Aradus*) *lugubris* var. *nigricornis*: Parshley, Trans. Am. Ent. Soc., 47: 82.
Distribution: Alk., Ariz., B.C., Cal., Col., Id., Mass., Me., N.M., N.T., Nev., Ont., Ore., Wash., Wis.

Aradus marginatus Uhler, 1893

1893 *Aradus marginatus* Uhler, Proc. Ent. Soc. Wash., 2: 381. [Ut.].
1916 *Aradus* (*Aradus*) *marginatus*: Van Duzee, Check List Hem., p. 16.
Distribution: Ut.

Aradus medioximus Parshley, 1921

1921 *Aradus* (*Aradus*) *medioximus* Parshley, Trans. Am. Ent. Soc., 47: 58. [Cal.].
Distribution: B.C., Cal., Ia., Ore.

Aradus montanus Bergroth, 1913

1913 *Aradus montanus* Bergroth, Can. Ent., 45: 1. [Col.].
1916 *Aradus* (*Aradus*) *montanus*: Van Duzee, Check List Hem., p. 16.
Distribution: Col., Mont., Que.

Aradus occidentalis Kormilev, 1980

1980 *Aradus occidentalis* Kormilev, Proc. Ent. Soc. Wash., 82: 106. [Wash.].
Distribution: Wash.

Aradus opertaneus Parshley, 1921

1921 *Aradus* (*Aradus*) *opertaneus* Parshley, Trans. Am. Ent. Soc., 47: 63. [Minn.].
Distribution: Minn.

Aradus orbiculus Van Duzee, 1920

1920 *Aradus orbiculus* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 9: 337. [Cal.].
1921 *Aradus* (*Aradus*) *orbiculus*: Parshley, Trans. Am. Ent. Soc., 47: 97.
1944 *Aradus orbiculatus* [*sic*]: Harris and Shull, Ia. St. Coll. J. Sci., 18: 203.
Distribution: Cal., Id., Ore.

Aradus oregonicus Kormilev, 1978

1978 *Aradus oregonicus* Kormilev, Proc. Ent. Soc. Wash., 80: 229. [Ore.].
Distribution: Ore.

Aradus ornatus Say, 1832

1832 *Aradus ornatus* Say, Descrip. Het. Hem. N. Am., p. 29. [Ind.].
1916 *Aradus* (*Aradus*) *ornatus*: Van Duzee, Check List Hem., p. 16.
Distribution: D.C., Ga., Ind., Md., N.Y., Oh., Pa., Va.

Aradus ovatus Kormilev, 1966

1966 *Aradus ovatus* Kormilev, Proc. U.S. Nat. Mus., 119(3548): 3. [Ks.].
Distribution: Ks.

Aradus oviventris Kormilev, 1966

1966 *Aradus oviventris* Kormilev, Psyche, 73: 26. [Ariz.].
Distribution: Ariz.

Aradus paganicus Parshley, 1929

1929 *Aradus* (*Aradus*) *paganicus* Parshley, Can. Ent., 61: 244. [B.C.].
Distribution: B.C., Ont.

Aradus pannosus Van Duzee, 1920

1920 *Aradus pannosus* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 9: 322. [Cal.].
1921 *Aradus* (*Aradus*) *pannosus*: Parshley, Trans. Am. Ent. Soc., 47: 39.
Distribution: Cal.

Aradus pannosus incomptus Parshley, 1921

1921 *Aradus* (*Aradus*) *pannosus* var. *incomptus* Parshley, Trans. Am. Ent. Soc., 47: 39. [Cal.].

Distribution: Cal.

Aradus pannosus pannosus Van Duzee, 1920

1920 *Aradus pannosus* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 9: 332. [Cal.].

1921 *Aradus* (*Aradus*) *pannosus*: Parshley, Trans. Am. Ent. Soc., 47: 39.

Distribution: Cal.

Aradus parshleyi Van Duzee, 1920

1920 *Aradus parshleyi* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 9: 336. [B.C.].

1921 *Aradus* (*Aradus*) *parshleyi*: Parshley, Trans. Am. Ent. Soc., 47: 78.

Distribution: Alta., B.C., Cal.

Aradus parvicornis Parshley, 1921

1921 *Aradus* (*Aradus*) *parvicornis* Parshley, Trans. Am. Ent. Soc., 47: 62. [N.M.].

1924 *Aradus parvicornis*: Downes, Proc. Ent. Soc. Wash., 21: 28.

Distribution: B.C., Cal., Id., N.M., Ore.

Aradus patibulus Van Duzee, 1927

1927 *Aradus patibulus* Van Duzee, Pan-Pac. Ent., 3: 140. [Cal.].

1939 *Aradus* (*Aradus*) *patibulus*: Torre-Bueno, Ent. Am., 19: 266.

Distribution: Cal.

Aradus persimilis Van Duzee, 1916

1916 *Aradus persimilis* Van Duzee, Univ. Cal. Publ. Ent., 1: 232. [Cal.].

1917 *Aradus* (*Aradus*) *persimilis*: Van Duzee, Univ. Cal. Publ. Ent., 2: 131.

Distribution: Alta., B.C., Cal., Col., Mont., Nfld., Wash.

Aradus proboscideus Walker, 1873

1873 *Aradus proboscideus* Walker, Cat. Hem. Brit. Mus., 7: 35. [Canada].

1903 *Artus* [*sic*] *luteolus* Fyles, Can. Ent., 35: 75. [Que.]. Synonymized by Parshley, 1921, Trans. Am. Ent. Soc., 47: 51.

1904 *Aradus hubbardi* Heidemann, Proc. Ent. Soc. Wash., 6: 232. [Ariz., B.C., Col., Ore., Wyo., Ut.]. Synonymized by Parshley, 1921, Trans. Am. Ent. Soc., 47: 51.

1916 *Aradus* (*Aradus*) *proboscideus*: Van Duzee, Check List Hem., p. 16.

Distribution: Alk., Alta., Ariz., B.C., Cal., Col., Id., Man., Mass., Me., Mont., N.B., N.H., N.M., N.S., N.Y., Nev., Ont., Ore., Que., Ut., Wash., Wyo.

Aradus quadrilineatus Say, 1825

1825 *Aradus quadrilineatus* Say, J. Acad. Nat. Sci. Phila., 4: 326. [Mo.].

1887 *Aradus robustus*: Provancher, Pet. Faune Ent. Can., 3: 165.

1916 *Aradus* (*Aradus*) *quadrilineatus*: Van Duzee, Check List Hem., p. 16.

1918 *Aradus lineatus* [*sic*]: Johnson and Ledig, J. Ent. Zool., 10: 4.

Distribution: Alta., B.C., Conn., D.C., Fla., Ga., Ill., Ind., Ia., Ks., La., Man., Mass., Md., Me., Mich., Minn., Mo., N.B., N.C., N.H., N.J., N.T., N.Y., Oh., Ont., Pa., Que., R.I., Sask., Va., Wis., Yuk. (Panama).

Aradus robustus Uhler, 1871

1871 *Aradus robustus* Uhler, Proc. Bost. Soc. Nat. Hist., 14: 104. [Mass.].

1873 *Aradus* (*Aradus*) *robustus*: Stål, K. Svens. Vet.-Akad. Handl., 11(2): 136.

1887 *Aradus quadrilineatus*: Provancher, Pet. Faune Ent. Can., 3: 166.

Distribution: Conn., D.C., Del., Fla., Ia., Ill., Ind., Ks., Mass., Md., Me., Mich., Minn.,

Miss., Mo., N.C., N.D., N.H., N.J., N.T., N.Y., Neb., Oh., Ok., Ont., Pa., Que., R.I., Tenn., Tex., Wis.

Aradus robustus insignis Parshley, 1921

1921 *Aradus* (*Aradus*) *robustus* var. *insignis* Parshley, Trans. Am. Ent. Soc., 47: 42. [Tex.].

Distribution: Mich., N.C., Neb., Tex.

Aradus robustus robustus Uhler, 1871

1871 *Aradus robustus* Uhler, Proc. Bost. Soc. Nat. Hist., 14: 104.

1921 *Aradus* (*Aradus*) *robustus* var. *robustus*: Parshley, Trans. Am. Ent. Soc., 47: 41.

Distribution: Same as for species.

Aradus saileri Kormilev, 1966

1966 *Aradus saileri* Kormilev, Proc. U.S. Nat. Mus., 119(3548): 2. [Alk.].

Distribution: Alk.

Aradus saskatchewanensis Matsuda, 1980

1980 *Aradus saskatchewanensis* Matsuda, Can. Ent., 112: 855. [Sask.].

Distribution: Sask.

Aradus serratus Usinger, 1936

1936 *Aradus* (*Aradus*) *serratus* Usinger, An. Ent. Soc. Am., 29: 496. [Alta.].

Distribution: Alta.

Aradus shermani Heidemann, 1907

1907 *Aradus shermani* Heidemann, Proc. Ent. Soc. Wash., 8: 68. [N.C.].

1916 *Aradus* (*Aradus*) *shermani*: Van Duzee, Check List Hem., p. 16.

Distribution: Ala., Fla., Ga., Me., N.C., N.J., Ont., Pa., Que., Sask.

Aradus signaticornis Sahlberg, 1848

1848 *Aradus signaticornis* Sahlberg, Monogr. Geocorisae Fenn., p. 141. [Finland].

1971 *Aradus martini* Matsuda, Can. Ent., 103: 1195. [Yuk.]. Synonymized by Heiss, 1980, Ber. Nat.-Med. Ver. Innsbruck, 67: 114.

1977 *Aradus* (*Aradus*) *martini*: Matsuda, Can. Dept. Agri. Publ., 1634: 29.

Distribution: Alk., Yuk. (Palearctic).

Aradus similis Say, 1832

1832 *Aradus similis* Say, Descrip. Het. Hem. N. Am., p. 28. [U.S.].

1873 *Aradus fascicornis* Walker, Cat. Hem. Brit. Mus., 7: 36. [N.S.]. Synonymized by Parshley, 1921, Trans. Am. Ent. Soc., 47: 64.

1873 *Aradus* (*Aradus*) *similis*: Stål, K. Svens. Vet.-Akad. Hand., 11(2): 136.

1887 *Aradus centriguttatus* Bergroth, Rev. d'Ent., 6: 246. Synonymized by Bergroth, 1892, Proc. Ent. Soc. Wash., 2: 335. See note below.

1917 *Aradus similis* var. *centriguttatus*: Van Duzee, Univ. Cal. Publ. Ent., 2: 131.

1917 *Aradus similis* var. *similis*: Van Duzee, Univ. Cal. Publ. Ent., 2: 131.

Distribution: Ala., Alk., Conn., D.C., Fla., Ga., Ia., Ill., Ind., Ks., Mass., Md., Me., Mich., Miss., Mo., N.C., N.H., N.J., N.S., N.Y., Oh., Ont., Pa., Que., S.C., Tex., Va., Wis.

Note: The species-group name *centriguttatus*, which was originally described as a distinct species, has been categorized differently by different authors. Bergroth (1892, Proc. Ent. Soc. Wash., 2: 335) and Matsuda (1977, Can. Dept. Agr. Publ., 1634: 64) placed it as a junior synonym of *similis*. Van Duzee (1917, Univ. Cal. Publ. Ent., 2: 131) and Parshley (1921, Trans. Am. Ent. Soc., 47: 66) treated it as a "variety" of *similis*. Torre-Bueno (1939, Ent. Am., vol. 19) made no entry of it. Kormilev (1964, Arkiv Zool., ser. 2, 16: 475) commented "we cannot con-

sider it as a geographical subspecies" but did not suggest a placement. The present list recognizes the abundance of intermediate individuals and the lack of a convincing argument for retentions of an infra-specific rank for *centriguttatus* as sufficient reason to treat it as a junior synonym of *similis*.

Aradus snowi Van Duzee, 1920

1920 *Aradus snowi* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 9: 339. [Ariz.].
1921 *Aradus* (*Aradus*) *snowi*: Parshley, Trans. Am. Ent. Soc., 47: 94.
Distribution: Ariz., N.M., Tex. (Mexico).

Aradus subruficeps Hussey, 1953

1953 *Aradus* (*Aradus*) *subruficeps* Hussey, Occas. Pap. Mus. Zool., Univ. Mich., 550: 1. [Mich.].
Distribution: Mich.

Aradus taylori Van Duzee, 1920

1920 *Aradus taylori* Van Duzee, Proc. Cal. Acad. Sci., ser. 4, 9: 335. [B.C.].
1939 *Aradus* (*Aradus*) *taylori*: Torre-Bueno, Ent. Am., 19: 263.
Distribution: B.C., Cal., Id., Ore., Ut.
Note: Synonymized by Parshley (1921, Trans. Am. Ent. Soc., 47: 51) under *A. proboscideus*, but resurrected by Van Duzee (1927, Pan-Pac. Ent., 3: 140) and keyed as valid by Torre-Bueno (1939, Ent. Am., 19: 363).

Aradus tuberculifer Kirby, 1837

1837 *Aradus tuberculifer* Kirby, Fauna Bor.-Am., 4: 278. [Canada (Boreal America, "Lat. 65")].
1873 *Aradus caliginosus* Walker, Cat. Hem. Brit. Mus., 7: 36. ["Hudson's Bay"]. Synonymized by Bergroth, 1913, Can. Ent., 45: 4.
1916 *Aradus* (*Aradus*) *tuberculifer*: Van Duzee, Check List Hem., p. 16.
1926 *Aradus* (*Aradus*) *tuberculifera* [*sic*]: Blatchley, Het. E. N. Am., p. 309.
Distribution: Alk., Alta., B.C., Cal., Col., Man., Me., Mich., Minn., N.T., N.Y., Ont., Que., Vt.

Aradus uniannulatus Parshley, 1921

1921 *Aradus* (*Aradus*) *uniannulatus* Parshley, Trans. Am. Ent. Soc., 47: 90. [Alta.].
Distribution: Alta., Cal., Col., D.C., Man., Mich., N.T., N.Y., Pa., Que., Tex., Yuk.

Aradus uniformis Heidemann, 1904

1904 *Aradus uniformis* Heidemann, Proc. Ent. Soc. Wash., 6: 231. [Mass., Pa., Va.].
1916 *Aradus* (*Aradus*) *uniformis*: Van Duzee, Check List Hem., p. 16.
Distribution: Fla., Mass., Md., N.C., N.J., N.Y., Ont., Pa., Va.

Aradus vadosus Van Duzee, 1920

1920 *Aradus vadosus* Van Duzee, Proc. Cal. Acad. Sci., ser., 4: 9: 334. [B.C.].
1921 *Aradus* (*Aradus*) *vadosus*: Parshley, Trans. Am. Ent. Soc., 47: 58.
Distribution: B.C., Id., Mont.

Aradus vandykei Van Duzee, 1927

1927 *Aradus vandykei* Van Duzee, Pan-Pac. Ent., 3: 139. [Ore.].
1939 *Aradus* (*Aradus*) *vandykei*: Torre-Bueno, Ent. Am., 19: 261.
Distribution: Ore.

Subgenus *Quilnus* Stål, 1873

1873 *Aradus* (*Quilnus*) Stål, K. Svens. Vet.-Akad. Handl., 11(2): 137. Type-species: *Aradus*

parvicollis Stål, 1873. Designated by Oshanin, 1912, Kat. Paläark. Hem., p. 47.

Aradus heidemanni Bergroth, 1906

1906 *Aradus* (*Quilnus*) *Heidemanni* [*sic*] Bergroth, Can. Ent., 38: 200. [B.C., Ore.].

Distribution: Alta., B.C., Cal., Col., N.M., Mont., Ore., Wash.

Aradus niger Stål, 1873

1873 *Aradus* (*Quilnus*) *niger* Stål, K. Svens. Vet.-Akad. Handl., 11(2): 137. [S.C.].

1895 *Aradus obliquus* Uhler, Bull. Col. Agr. Exp. Stn., 31: 58. *Nomen nudum.*

Distribution: Ala., Col., D.C., Fla., Mass., Me., Mo., N.B., N.C., N.H., N.J., N.S., N.Y., Ont., Que., S.C., Tex., Va., Wash. (Mexico).

Note: Bergroth (1906, Can. Ent., 38: 200) noted that the *A. obliquus* record above applied to this species.

Aradus nigrinus Parshley, 1921

1921 *Aradus* (*Quilnus*) *nigrinus* Parshley, Trans. Am. Ent. Soc., 47: 101. [Ariz.].

1929 *Aradus nigrinus*: Parshley, Can. Ent., 61: 246.

Distribution: Alta., Ariz.

Aradus nigrinus canadensis Parshley, 1929

1929 *Aradus nigrinus canadensis* Parshley, Can. Ent., 61: 246. [Alta.].

Distribution: Alta.

Aradus nigrinus nigrinus Parshley, 1921

1921 *Aradus* (*Quilnus*) *nigrinus* Parshley, Trans. Am. Ent. Soc., 47: 101.

1929 *Aradus nigrinus nigrinus*: Parshley, Can. Ent., 61: 246.

Distribution: Ariz.

Aradus usingeri Kormilev, 1978

1978 *Aradus* (*Quilnus*) *usingeri* Kormilev, Proc. Ent. Soc. Wash., 80: 230. [Ore.].

Distribution: Ore.

Subfamily Calisiinae Stål, 1873

Genus *Calisius* Stål, 1860

1860 *Calisius* Stål, K. Svens. Vet.-Akad. Handl., 2(7): 68. Type-Species: *Calisius pallipes* Stål, 1860. Monotypic.

Calisius anaemus Bergroth, 1913

1904 *Calisius pallipes*: Heidemann, Proc. Ent. Soc. Wash., 6: 229.

1913 *Calisius anaemus* Bergroth, Can. Ent., 45: 7. [Fla.].

Distribution: Fla.

Calisius contubernalis Bergroth, 1913

1913 *Calisius contubernalis* Bergroth, Can. Ent., 45: 6. [Fla.; Guadeloupe Island].

Distribution: Fla. (West Indies).

Calisius texasanus Kormilev, 1968

1968 *Calisius texasanus* Kormilev, Rev. Fac. Agron. Univ. Centr. Venezuela, 5: 45. [Tex.].

Distribution: Tex.

Subfamily Carventinae Usinger, 1950

Genus *Acaricoris* Harris and Drake, 1944

1944 *Acaricoris* Harris and Drake, Proc. Ent. Soc. Wash., 46: 128. Type-species: *Acaricoris ignotus* Harris and Drake, 1944. Monotypic.

Acaricoris floridus Drake, 1957

1957 *Acaricoris floridus* Drake, Proc. Biol. Soc. Wash., 70: 35. [Fla.].
Distribution: Fla.

Acaricoris ignotus Harris and Drake, 1944

1944 *Acaricoris ignotus* Harris and Drake, Proc. Ent. Soc. Wash., 46: 128. [La.].
Distribution: Ark., Ga., La., Miss.

Genus *Proxius* Stål, 1873

1873 *Proxius* Stål, K. Svens. Vet.-Akad. Handl., 11(2): 142. Type-species: *Proxius incrustatus* Stål, 1873. Monotypic.

Note: Key to three subgenera and six species provided by Usinger and Matsuda (1959, Classif. Aradidae, pp. 113-114).

Subgenus *Neoproxius* Usinger and Matsuda, 1959

1959 *Proxius* (*Neoproxius*) Usinger and Matsuda, Classif. Aradidae, p. 113. Type-species: None designated; included species: *gypsatus* Bergroth, *palliatus* Champion, *personatus* Champion, and *schwarzii* Heidemann.

Proxius gypsatus Bergroth, 1898

1898 *Proxius gypsatus* Bergroth, Ent. Month. Mag., 34: 100. [Venezuela].
1913 *Proxius gypsatus*: Bergroth, Can. Ent., 45: 8.
Distribution: Fla. (Panama, Venezuela).
Note: Bergroth (1913, Can. Ent., 45: 8) mentioned a Uhler manuscript combination *"Syrtidea diffrata"* under this species.

Proxius schwarzii Heidemann, 1904

1904 *Proxius schwarzii* Heidemann, Proc. Ent. Soc. Wash., 6: 230. [Fla.].
1959 *Proxius* (*Neoproxius*) *schwarzii*: Usinger and Matsuda, Classif. Aradidae, p. 113.
Distribution: Fla.

Subfamily Mezirinae Oshanin, 1908

Genus *Aphleboderrhis* Stål, 1860

1860 *Aphleboderrhis* Stål, K. Svens. Vet.-Akad. Handl., 2(7): 67. Type-species: *Aphleboderrhis pilosa* Stål, 1860. Monotypic.

Note: Champion (1898, Biol. Centr.-Am., Rhyn., 2: 78-79) gave a key to two species, including the North American one.

Aphleboderrhis pubescens (Walker), 1873

1873 *Aradus pubescens* Walker, Cat. Hem. Brit. Mus., 7: 38. [Brazil].
1914 *Aphleboderrhis pubescens*: Barber, J. N.Y. Ent. Soc., 22: 171.
Distribution: Tex. (Brazil, Colombia, Peru).

Genus *Mezira* Amyot and Serville, 1843

1843 *Mezira* Amyot and Serville, Hist. Nat. Ins. Hem., p. 305. Type-species: *Mezira granulata* Amyot and Serville, 1843. Preoccupied. Next available name is *Brachyrhynchus abdominalis* Stål, 1873. Monotypic.

Note: Key to seven species in America north of Mexico provided by Usinger (1936, An. Ent. Soc. Am., 29: 509). Key to eighty-nine New World species provided by Kormilev (1971, Proc. Ent. Soc. Wash., 73: 283-290).

Mezira emarginata (Say), 1832

1832 *Aradus emarginatus* Say, Descrip. Het. Hem. N. Am., p. 30. [Mexico].
1873 *Mezira modesta*: Walker, Cat. Hem. Brit. Mus., 7: 23.
1898 *Brachyrrhynchus* [*sic*] *emarginatus*: Champion, Biol. Centr.-Am., Rhyn., 2: 102.
1904 *Brachyrhynchus emarginatus*: Uhler, Proc. U.S. Nat. Mus., 27: 363.
1905 *Brachyrhynchus moestus* [*sic*]: Sherman, Ent. News, 16:8.
1914 *Mezira emarginata*: Barber, Bull. Am. Mus. Nat. Hist., 33: 517.
1916 *Mezira* (*Arictus*) *emarginata*: Van Duzee, Check List Hem., p. 17.
Distribution: Ark., Ariz., Cal., Fla., Miss., N.C., N.M., Nev., Tex. (Mexico).

Mezira granulata, (Say) 1832

1832 *Aradus granulatus* Say, Descrip. Het. Hem. N. Am., p. 30. [Fla., Ind.].
1853 *Dysodius parvulus* Herrich-Schaeffer, Wanz. Ins., 9: 139. [Md.]. Synonymized by Stål, 1873, K. Svens. Vet.-Akad. Handl., 11(2): 145.
1873 *Brachyrhynchus* (*Arictus*) *granulatus*: Stål, K. Svens. Vet.-Akad. Handl., 11(2): 145.
1887 *Brachyrhynchus lobatus*: Provancher, Pet. Faune Ent. Can., 3: 168.
1887 *Brachyrhynchus granulatus*: Provancher, Pet. Faune Ent. Can., 3: 168.
1909 *Mezira granulata*: Van Duzee, Bull. Buff. Soc. Nat Sci., 9: 175.
1916 *Mezira* (*Arictus*) *granulata*: Van Duzee, Check List Hem., p. 17.
Distribution: Ala., Ariz., D.C., Fla., Ga., Ind., Md., Mo., N.C., S.C., Tex. (Cuba, Mexico).

Mezira lobata (Say), 1832

1832 *Aradus lobatus* Say, Descrip. Het. Hem. N. Am., p. 30. [La.].
1873 *Brachyrhynchus* (*Arictus*) *lobatus*: Stål, K. Svens. Vet.-Akad. Handl., 11(2): 145.
1876 *Brachyrhynchus lobatus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 323.
1876 *Brachyrhynchus granulatus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 323.
1892 *Brachyrrhynchus* [*sic*] *lobatus*: Bergroth, Proc. Ent. Soc. Wash., 2: 336.
1914 *Mezira lobatus* [*sic*]: Barber, Bull. Am. Mus. Nat. Hist., 33: 517.
1916 *Mezira* (*Arictus*) *lobata*: Van Duzee, Check List Hem., p. 17.
1926 *Mezira lobata*: Blatchley, Het. E. N. Am., p. 322.
Distribution: Cal., "Canada," D.C., Fla., Ga., Ill., Ind., Md., Mich., Mo., N.C., N.Y., Oh., Pa., Tex. (Mexico).
Note: "Canada" was included in the distribution of this species as late as 1971 by Kormilev (Proc. Ent. Soc. Wash., 73: 290). Matsuda (1977, Can. Dept. Agr. Publ. 1634) included no species of *Mezira* in his synopsis of the Aradidae of that country, but because this species ranges as far north as N.Y. and Mich., there is a probability that it does occur in southern Canada (perhaps Ont. and Que.).

Mezira novella Blatchley, 1924

1924 *Mezira novella* Blatchley, Ent. News, 35: 88. [Fla.]. See note below for type selection.

Distribution: Fla.

Note: Blatchley (1930, Blatchleyana, p. 63) selected a lectotype from among the original series from Cape Sable, Florida. Kormilev (1982, J. Nat. Hist., 16: 775) wrote, "Blatchley's type is lost," and then selected a "neotype" from the Blatchley specimens from the same locality.

Mezira pacifica Usinger, 1936

1876 *Brachyrhynchus moestus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 323.

1916 *Mezira (Arictus) moesta*: Van Duzee, Check List Hem., p. 17.

1921 *Mezira moesta*: Parshley, Proc. Ent. Soc. B.C., 18: 15.

1936 *Mezira pacifica* Usinger, An. Ent. Soc. Am., 29: 506. [Cal.].

Distribution: Ariz., B.C., Cal., Id., Ore., Wash., Wyo.

Mezira reducta Van Duzee, 1927

1927 *Mezira reducta* Van Duzee, Pan-Pac. Ent., 3: 142. [Cal.].

Distribution: Cal.

Mezira sayi Kormilev, 1982

1982 *Mezira (Mezira) sayi* Kormilev, J. Nat. Hist., 16: 777. [Fla.].

Distribution: Fla., Ga., Ind., S.C.

Mezira smithi Kormilev, 1982

1982 *Mezira smithi* Kormilev, J. Ga. Ent. Soc., 17: 336. [Ga.].

Distribution: Ga.

Mezira vanduzeei Usinger, 1936

1927 *Mezira granulata*: Van Duzee, Pan-Pac. Ent., 3: 142.

1936 *Mezira vanduzeei* Usinger, An. Ent. Soc. Am., 29: 507. [Ariz.].

Distribution: Ariz.

Genus *Nannium* Bergroth, 1898

1898 *Nannium* Bergroth, Ent. Month. Mag., 34: 100. Type-Species: *Nannium parvum* Bergroth, 1898. Original designation.

Nannium pusio Heidemann, 1909

1909 *Nannium pusio* Heidemann, Proc. Ent. Soc. Wash., 11: 189. [Oh.].

Distribution: Oh.

Genus *Neuroctenus* Fieber, 1960

1860 *Neuroctenus* Fieber, Europ. Hem., p. 34. Type-species: *Neuroctenus brasiliensis* Mayr, 1866, a junior synonym of *Brachyrhynchus punctulatus* Burmeister, 1835. Designated by Van Duzee, 1916, Check List Hem., p. 17.

Note: Key to five species of North America provided by Kormilev (1982, Wasman J. Biol., 40: 8-9).

Neuroctenus arizonicus Kormilev, 1982

1982 *Neuroctenus arizonicus* Kormilev, Wasmann J. Biol., 40: 9. [Ariz.].

Distribution: Ariz.

Neuroctenus elongatus Osborn, 1903

1903 *Neuroctenus elongatus* Osborn, Oh. Nat., 4: 41. [Oh.].

Distribution: D.C., Ind., Oh., N.C., Pa.

Neuroctenus hopkinsi Heidemann, 1904

1904 *Neuroctenus hopkinsi* Heidemann, Proc. Ent. Soc. Wash., 6: 163. [N.C.].

Distribution: Ga., Md., N.C.

Neuroctenus pseudonymus Bergroth, 1898

1887 *Neuroctenus ovatus*: Bergroth, Öfv. F. Vet.-Soc. Förh., 29: 183 (in part).

1898 *Neuroctenus pseudonymus* Bergroth, Wien. Ent. Zeit., 17: 27. [N.C.].

1903 *Neuroctenus pseudonemus* [*sic*]: Heidemann, Proc. Ent. Soc. Wash., 5: 310.

1905 *Brachyrhynchus ovatus*: Sherman, Ent. News, 16: 8.

1964 *Neuroctenus pseudomymus* [*sic*]: Balduf, Proc. Ent. Soc. Wash., 66: 3.

Distribution: D.C., Ind., N.C., Oh., Tenn., Tex.

Neuroctenus simplex (Uhler), 1876 [Fig. 9]

1876 *Brachyrhynchus simplex* Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 323. [Fla., Ill., "Indian Territory," Md., Mo., "New England," Pa., Tex., Cuba].

1887 *Neuroctenus simplex*: Bergroth, Öfv. F. Vet.-Soc. Förh., 29: 182.

Distribution: "Carolina," Conn., D.C., Fla., Ga., Ill., Ks., Mass., Md., Me., Mo., Mont., N.C., N.J., N.Y., Oh., Pa., S.C., Tex. (Cuba).

Genus *Notapictinus* Usinger and Matsuda, 1959

1959 *Notapictinus* Usinger and Matsuda, Classif. Aradidae, pp. 203, 361. Type-species: *Pictinus dominicus* Usinger, 1936. Original designation.

Note: Key to twenty-four species provided by Kormilev (1964, Arkiv Zool., ser. 2, 16: 469-471).

Notapictinus aurivillii (Bergroth), 1887

1887 *Pictinus aurivillii* Bergroth, Rev. d'Ent., 6: 247. [Ga.]. Lectotype designated by Kormilev, 1959, Rev. Soc. Uruguaya Ent., 3: 32.

1959 *Notapictinus aurivillii*: Usinger and Matsuda, Classif. Aradidae, p. 362.

Distribution: Fla., Ga., La.

Note: Bergroth (1886, Verh. Zool.-Bot. Ges. Wien, 36: 60) first reported and characterized Georgia specimens of this taxon as an unnamed "race" of *Pictinus cinctipes* Stål.

Family Belostomatidae Leach, 1815

The Giant Water Bugs or Electric Light Bugs

By John T. Polhemus, Dan A. Polhemus, and Thomas J. Henry

The giant water bugs are large, ovate, dorsoventrally flattened insects with powerful raptorial forelegs. Species live below the surface of lotic and lentic habitats, respiring via two straplike appendages at the tip of the abdomen which act as air siphons. Seven genera occur worldwide of which three, *Abedus* Stål, *Belostoma* Latreille, and *Lethocerus* Mayr, are found in North America, the latter two as far north as southern Canada.

Belostomatids are voracious predators and will attack prey many times their size, including fish, frogs, and small birds, although their typical diet consists of smaller organisms such as tadpoles and insect larvae. Victims are subdued with powerful hydrolytic enzymes injected through the beak; the bite can produce a painful swelling in humans (Rees and Offord, 1969, Na-

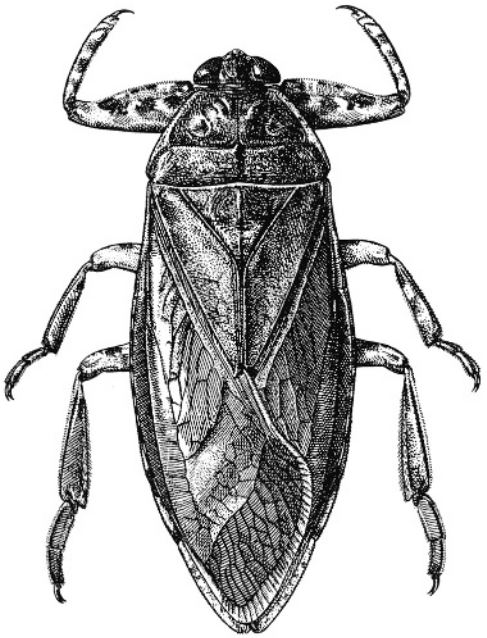


Fig. 11 *Lethocerus americanus* [p. 54] (After Usinger, 1956).

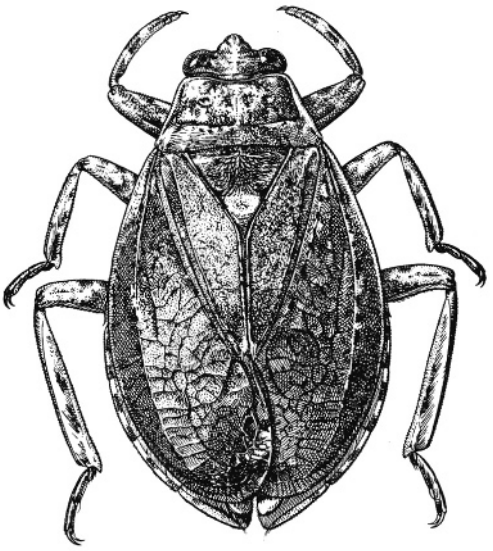


Fig. 12 *Abedus indentatus* [p. 50] (After Usinger, 1956).

ture, 221: 675-677). Eggs of *Lethocerus* are laid above water on vegetation and other protruding objects, but those of *Abedus* and *Belostoma* are laid on the backs of males, who carry them until they hatch, an unusual case of sex role reversal (Smith, 1976, An. Ent. Soc. Am., 69: 740-747; 1976, J. Ks. Ent. Soc., 49: 333-343). Kraus (1985, Pan-Pac. Ent., 61: 54-57) more recently reported that eggs of *Abedus indentatus* (Haldeman) may be laid on the backs of other females in the absence of sufficient space on available males. The eggs hatch in one to two weeks, with total developmental time ranging from one to two months (Hungerford, 1920, Univ. Ks. Sci. Bull., 11: 1-328; Smith, 1974, Psyche, 81:272-283). Adults often overwinter buried in mud, and will feign death if caught and handled (Severin and Severin, 1911, Behav. Monogr., 1: 1-44); in summer large numbers of *Lethocerus* adults may be attracted to outdoor lights, thus the colloquial name "electric light bugs."

The subfamily classification was established by Lauck and Menke (1961, An. Ent. Soc. Am., 54: 644-657). The major works for our fauna are cited under the respective genera.

The names *Belostoma marginata* and *B. reversapenne* listed by Rathvon (1869, Hist. Lancaster Co., Pa., p. 550) from Pennsylvania are *nomina nuda.* At this time, they cannot be associated with any described species.

Subfamily Belostomatinae Leach, 1815

Genus *Abedus* Stål, 1862

1862 *Abedus* Stål, Ent. Zeit, 23: 461. Type-species: *Abedus ovatus* Stål, 1862. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 151.

1862 *Serphus* Stål, Ent. Zeit, 23: 462. Preoccupied. Type-species: *Belostoma dilatata* Say, 1832. Monotypic. Synonymized by Montandon, 1900, Bull. Soc. Sci. Buc.-Roum., 9: 272.

1863 *Pedinocoris* Mayr, Verh. Zool.-Bot. Ges. Wien, 13: 341. Type-species: *Pedinocoris macronyx* Mayr, 1863, a junior synonym of *Zaitha indentata* Haldeman, 1854. Designated by Kirkaldy, 1898, Ent., 31: 2. Synonymized by Montandon, 1900, Bull. Soc. Sci. Buc.-Roum., 9: 271.

1863 *Stenoscytus* Mayr, Verh. Zool.-Bot. Ver. Ges. Wien, 13: 343. Type-species: *Stenoscytus mexicanus* Mayr, 1863, a junior synonym of *Abedus ovatus* Stål, 1862. Synonymy by virtue of shared type-species.

1951 *Parabedus* De Carlo, Rev. Soc. Ent. Arg., 15: 71. Type-species: *Abedus breviceps*, Stål, 1862. Synonymized and designated by Menke, 1960, Univ. Cal. Publ. Ent., 16: 400.

Note: Menke (1960, Univ. Cal. Publ. Ent., 16: 393-440) reviewed the genus, proposed a subgeneric arrangement (followed here), and gave a key to species, and later (1979, Bull. Cal. Ins. Surv., 21: 84-85) presented an updated key to U.S. species.

Subgenus *Abedus* Stål, 1862

1862 *Abedus* Stål, Ent. Zeit, 23: 461. Type-species: *Abedus ovatus* Stål, 1862. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 151.

1903 *Abedus* (*Abedus*): Montandon, Bull. Soc. Sci. Bucarest, 12: 111.

Abedus breviceps Stål, 1862

1862 *Abedus breviceps* Stål, Ent. Zeit., 23: 462. [Mexico].

1875 *Abedus ovatus*: Uhler, Rept. U.S. Geol. Geogr. Surv. Terr., 5: 840.

1877 *Abedus breviceps*: Uhler, An. Rept. Chief Eng., Append. NN, p. 1332.
1960 *Abedus* (*Abedus*) *breviceps*: Menke, Univ. Cal. Publ. Ent., 16: 414.
Distribution: Ariz., N.M., Tex. (Guatemala, Mexico).
Note: Menke (1960, above, 16: 413) noted that earlier records of *A. ovatus* Stål in the U.S. referred to either *A. breviceps* or *A. vicinus sonorensis* Menke [as *signoreti sonorensis*].

Abedus ovatus Stål, 1862
1862 *Abedus ovatus* Stål, Ent. Zeit., 23: 461. [Mexico].
1960 *Abedus* (*Abedus*) *ovatus*: Menke, Univ. Cal. Publ. Ent., 16: 411.
1977 *Abedus ovatus*: Menke, Southwest. Nat., 22: 118.
Distribution: Ariz. (Guatemala, Mexico).
Note: Menke (1960, Univ. Cal. Publ. Ent., 16: 413) considered early records of this species from the U.S. to be misidentifications of either *A. breviceps* Stål or *A. vicinus sonorensis* Menke [as *A. signoreti sonorensis*], but later (1977, above) documented an authentic specimen from Arizona.

Abedus parkeri Menke, 1966
1966 *Abedus* (*Abedus*) *parkeri* Menke, Contr. Sci. L. A. Co. Mus. Nat. Hist., 118: 1. [Mexico].
1977 *Abedus parkeri*: Menke, Southwest. Nat., 22: 118.
Distribution: Ariz. (Mexico).

Subgenus *Deinostoma* Kirkaldy, 1897

1862 *Serphus* Stål, Ent. Zeit., 23: 462. Preoccupied. Type-species: *Belostoma dilatata* Say, 1832. Monotypic.
1897 *Deinostoma* Kirkaldy, Ent., 30: 258. New name for *Serphus* Stål.
1903 *Abedus* (*Deinostoma*): Montandon, Bull. Soc. Sci. Buc.-Roum., 12: 111.

Abedus herberti Hidalgo, 1935
1935 *Abedus herberti* Hidalgo, Univ. Ks. Sci. Bull., 22: 507. [Ariz.].
1938 *Abedus drakei* De Carlo, Rev. Soc. Ent. Arg., 10: 41. [Ariz.]. Synonymized by Menke, 1960, Univ. Cal. Publ. Ent., 16: 421.
1948 *Abedus stali* De Carlo, Comun. Mus. Arg. Cienc. Nat., 5: 21. [Ariz.]. Synonymized by Menke, 1960, Univ. Cal. Publ. Ent., 16: 421.
1960 *Abedus* (*Deinostoma*) *herberti*: Menke, Univ. Cal. Publ. Ent., 16: 421.
Distribution: Ariz., N.M., Ut. (Mexico).
Note: De Carlo (1963, An. Soc. Cien. Argent., 175: 78) resurrected his species *A. drakei* and *A. stali*, but Menke (1977, Southwest. Nat., 22: 122) argued to maintain them as junior synonyms. Smith (1974, Psyche, 81: 272-283, and 1975, Pan-Pac., 51: 259-267) presented details of biology, habits, etc. for this species in Arizona.

Abedus herberti herberti Hidalgo, 1935
1876 *Serphus dilatatus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 338.
1886 *Pedinocoris brachonyx*: Uhler, Check-list Hem. Het., p. 28 (in part).
1909 *Abedus macronyx*: Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 189 (in part).
1909 *Abedus dilatatus*: Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 189 (in part).
1909 *Abedus indentata*: Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 189 (in part).

1910 *Pedinocoris indentata*: Banks, Cat. Nearc. Hem.-Het., p. 8 (in part).
1917 *Abedus indentatus*: Van Duzee, Univ. Cal. Publ. Ent., 2: 471 (in part).
1935 *Abedus hungerfordi*: Hidalgo, Univ. Ks. Sci. Bull., 22: 505 (in part).
1935 *Abedus montandoni*: Hidalgo, Univ. Ks. Sci. Bull., 22: 504 (in part).
1935 *Abedus herberti* Hidalgo, Univ. Ks. Sci. Bull., 22: 507. [Ariz.].
1960 *Abedus (Deinostoma) herberti herberti*: Menke, Univ. Cal. Publ. Ent., 16: 421.
Distribution: Ariz., N.M. (Mexico).

Abedus herberti utahensis Menke, 1960
1960 *Abedus (Deinostoma) herberti utahensis* Menke, Univ. Cal. Publ. Ent., 16: 423. [Ut.].
1963 *Abedus utahensis*: De Carlo, An. Soc. Cien. Argent., 175: 72.
Distribution: Ariz., Ut.
Note: Known only from the Virgin River drainage of southwestern Utah and northeastern Arizona. De Carlo (1963, above) gave *A. herberti utahensis* species status, but Menke (1977, Southwest. Nat., 22: 122) maintained it as a subspecies.

Abedus indentatus (Haldeman), 1854 [Fig. 12]
1854 *Zaitha indentata* Haldeman, Proc. Acad. Nat. Sci. Phila., 6: 364. [Cal.]. Neotype designated by Menke, 1960, Univ. Cal. Publ. Ent., 16: 429.
1863 *Pedinocoris macronyx* Mayr, Verh. Zool.-Bot. Ges. Wien, 13: 350. [Cal.]. Synonymized by Menke, 1960, Univ. Cal. Publ. Ent., 16: 427.
1863 *Pedinocoris brachonyx* Mayr, Verh. Zool.-Bot. Ges. Wien., 13: 351. [Cal.]. Synonymized by Uhler, 1877, An. Rept. Chief Eng., Append. NN, p. 1331.
1873 *Belostoma brachonyx*: Walker, Cat. Hem. Brit. Mus., 8: 176.
1873 *Belostoma macronyx*: Walker, Cat. Hem. Brit. Mus., 8: 176.
1876 *Serphus dilatatus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 338.
1877 *Pedinocoris indentata*: Uhler, An. Rept. Chief Eng., Append. NN, p. 1331.
1909 *Abedus indentata*: Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 189 (in part).
1909 *Abedus macronyx*: Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 189 (in part).
1909 *Abedus dilatatus*: Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 189 (in part).
1917 *Abedus indentatus*: Van Duzee, Univ. Cal. Publ. Ent., 2: 471.
1932 *Abedus hungerfordi* De Carlo, Rev. Soc. Ent. Arg., 5: 123. [Cal.]. Synonymized by Menke, 1960, Univ. Cal. Publ. Ent., 16: 427.
1948 *Abedus mayri* De Carlo, Com. Mus. Arg. Cienc. Nat., 5: 13. [Cal.]. Synonymized by Usinger, 1956, Aquat. Ins. Cal., p. 205.
1960 *Abedus (Deinostoma) indentatus*: Menke, Univ. Cal. Publ. Ent., 16: 427.
Distribution: Cal. (Mexico).
Note: De Carlo (1963, An. Soc. Cien. Argent., 175: 77) refuted the above synonymy of his species *A. hungerfordi* and *A. mayri*, but Menke (1977, Southwest. Nat., 22: 122) maintained them as junior synonyms.

Subgenus *Microabedus* Hussey and Herring, 1950

1950 *Abedus (Microabedus)* Hussey and Herring, Fla. Ent., 33: 85. Type-species: *Abedus cantralli* Hussey and Herring, 1950, a junior synonym of *Belostoma immaculata* Say, 1832. Original designation.

Abedus immaculatus (Say), 1832

1832 *Belostoma fluminea* var. *immaculata* Say, Descrip. Het. Hem. N. Am., p. 37. [U.S.].

1950 *Abedus (Microabedus) cantralli* Hussey and Herring, Fla. Ent., 33: 84. [Fla.]. Synonymized by Hussey and Herring, 1950, Fla. Ent., 33: 155.

1950 *Abedus (Microabedus) immaculatus*: Hussey and Herring, Fla. Ent., 33: 154.

Distribution: Fla., Ga., Miss.

Subgenus *Pseudoabedus* De Carlo, 1951

1951 *Abedus* (*Pseudoabedus*) De Carlo, Rev. Soc. Ent. Arg., 15: 71. Type-species: *Abedus signoreti* Mayr, 1871. Designated by Menke, 1960, Univ. Cal. Publ. Ent., 16: 400.

Abedus vicinus Mayr, 1871

1871 *Abedus vicinus* Mayr, Verh. Zool.-Bot. Ges. Wien, 21: 405. [Mexico]. Lectotype designated by Menke, 1960, Univ. Cal. Publ. Ent., 16: 408.

1960 *Abedus* (*Pseudoabedus*) *signoreti vicinus*: Menke, Univ. Cal. Publ. Ent., 16: 408.

Distribution: Ariz. (Mexico).

Note: Menke (1977, Southwest. Nat., 22: 116) resurrected *A. vicinus* to species status. The nominate subspecies *A. vicinus vicinus* does not occur in our region.

Abedus vicinus sonorensis Menke, 1960

1960 *Abedus* (*Pseudoabedus*) *signoreti sonorensis* Menke, Univ. Cal. Publ. Ent., 16: 409. [Mexico].

1977 *Abedus vicinus sonorensis*: Menke, Southwest. Nat., 22: 117.

Distribution: Ariz. (Mexico).

Note: Most early records of *A. ovatus* Stål belong to this subspecies or the species *A. breviceps* (Menke, 1960, above, 16: 413).

Genus *Belostoma* Latreille, 1807

1807 *Belostoma* Latreille, Gen. Crust. Ins., 3: 144. Type-species: *Belostoma testaceopallidum* Latreille, 1807. Monotypic.

1843 *Zaitha* Amyot and Serville, Hist. Nat. Ins., Hem., p. 430. Type-species: *Zaitha stollii* Amyot and Serville, 1843. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 151. Synonymized by Montandon, 1900, Bull. Soc. Sci. Buch.-Roum., 9: 9.

1847 *Perthostoma* Leidy, J. Acad. Nat. Sci. Phila., (2)1: 59. Type-species: *Perthostoma testaceum* Leidy, 1847. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 151. Synonymized by Montandon, 1900, Bull. Soc. Sci. Buch.-Roum., 9: 267.

Note: Menke (1958, Bull. Cal. Acad. Sci., 57: 154-174) gave a key to the N. Am. species. Lauck (Bull. Chicago Acad. Sci., 11: 34-81 (1962); 82-101 (1963); and 102-154 (1964)) revised the genus in a 3-part series of papers.

Belostoma bakeri Montandon, 1913

1913 *Belostoma bakeri* Montandon, Bull. Soc. Sci. Buch.-Roum., 22: 123. ["Amerika bor."]. Lectotype designated by Lauck, 1964, Bull. Chicago Acad. Sci., 11: 146.

1959 *Belostoma confusum*: Lauck, Bull. Chicago Acad. Sci., 11: 4 (in part).

Distribution: Ariz., Cal., Nev., N.M., Ore., Tex., Ut., Wash. (Mexico).

Note: See Lauck (1964, Bull. Chicago. Acad. Sci., 11: 144-145) for a list of probable misidentifications of this species. Cal. records for *B. apache* Kirkaldy probably refer to *B. bakeri*.

Belostoma confusum Lauck, 1959

1959 *Belostoma confusum* Lauck, Bull. Chicago Acad. Sci., 11: 4. [holotype from Mexico; also from Cal. and Tex.].

Distribution: Ariz., Tex. (Mexico).

Note: Menke (1979, Bull. Cal. Ins. Surv., 21: 81) pointed out that Lauck's (1959, above) record of *B. confusum* for Cal. was a misidentification of *B. bakeri.*

Belostoma ellipticum Latreille, 1817

1817 *Belostoma ellipticum* Latreille, *In* Humboldt et Bonpland, Voy. Reg. Equin. Nouv. Cont., 2: 105. [No type or locality specified].

1901 *Belostoma ellipticum:* Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 191.

Distribution: Tex. (Central America, Mexico, West Indies).

Note: Lauck (1962, Bull. Chicago Acad. Sci., 11: 62) treated this name as a *nomen dubium,* since there are no known types or type locality, but deferred such action pending study of the original description. Menke (1979, Bull. Cal. Ins. Surv., 21: 81) examined the original description and concluded that Lauck probably misidentified *B. ellipticum,* so the occurrence of this species in North America is suspect.

Belostoma flumineum Say, 1832

1831 *Belostoma fluminea* Say, Descrip. N. Sp. N. Am. Ins. La., p. 12. [U.S.]. Neotype from Pa. designated by Lauck, 1964, Bull. Chicago Acad. Sci., 11: 138.

1847 *Perthostoma auranticum* Leidy, J. Acad. Nat. Sci. Phila., 1: 60. [Pa.]. Synonymized by Uhler, 1876, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 338.

1847 *Perthostoma auranticum* var. *immaculatum* Leidy, J. Acad. Nat. Sci., 1: 60. [Pa.]. Synonymized by Menke, 1958, Bull. So. Cal. Acad. Sci., 57: 161.

1863 *Zaitha fluminea*: Dufour, An. Ent. Soc. France, (4)3: 388.

1891 *Zaitha fusciventris*: Townsend, Proc. Ent. Soc. Wash., 2: 55.

1905 *Belostoma flumineum*: Torre-Bueno, J. N.Y. Ent. Soc., 13: 44.

1952 *Belostoma bakeri*: Ellis, Am. Midl. Nat., 48: 327.

Distribution: Ala., Ariz., Ark., B.C., Cal., Col., Conn., D.C., Del., Fla., Ga., Ia., Ill., Ind., Ks., Ky., La., Man., Mass., Md., Me., Mich., Minn., Miss., Mo., N.B., N.C., N.D., N.H., N.J., N.M., N.S., N.Y., Neb., Nev., Oh., Ok., Ont., Ore., Pa., Que., S.C., Tenn., Tex., Va., Wis. (Mexico).

Belostoma fusciventre (Dufour), 1863

1863 *Zaitha fusciventris* Dufour, An. Soc. Ent. France, (4)3: 389. [Mexico].

1906 *Belostoma fusciventris*: Snow, Trans. Ks. Acad. Sci., 20: 180.

1938 *Belostoma fusciventre*: De Carlo, An. Mus. Arg. Cienc. Nat., 39: 222 (in part).

1959 *Belostoma thomasi* Lauck, Bull. Chicago Acad. Sci., 11: 2. [Mexico]. Synonymized by Menke, 1979, Bull. Cal. Ins. Surv., 21: 81.

Distribution: La., Texas (Central America, Mexico).

Note: Menke (1958, Bull. So. Cal. Acad. Sci., 57: 165-166) noted that Cal. records for this species "most certainly were result of misidentifications" and, later (1979, Bull. Cal. Ins. Surv., 21: 82), listed only the verified U.S. localities La. and Tex.

Belostoma lutarium (Stål), 1855

1855 *Zaitha lutaria* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 12: 190. [North America].

1886 *Zaitha aurantiaca*: Uhler, Check-list Hem. Het., p. 28.

1907 *Belostoma aurantiacum*: Torre-Bueno and Brimley, Ent. News, 18: 435.

1910 *Belostoma lutarium*: Montandon, Bull. Soc. Sci. Buch.-Roum., 18: 187.

Distribution: Ala., Ark., Conn., Fla., Ga., Ill., Ind., Ks., La., Mass., Md., Mich., Miss.,

Mo., N.J., N.C., Oh., Ok., R.I., S.C., Tenn., Tex., Va.

Belostoma saratogae Menke, 1958

1958 *Belostoma saratogae* Menke, Bull. So. Cal. Acad. Sci., 57: 169. [Cal.].

Distribution: Cal.

Note: Known only from the thermal Saratoga Spring in Death Valley, Cal.

Belostoma subspinosum (Palisot), 1820

1820 *Nepa subspinosa* Palisot, Ins. Rec. Afr. Am., p. 236. [Dominican Republic]. Neotype from Dominican Republic designated by Lauck, 1962, Bull. Chicago Acad. Sci., 11: 67.

1909 *Belostoma subspinosum*: Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 192.

Distribution: Ariz., Cal., Tex. (Mexico to Panama, West Indies).

Note: The subspecies *B. subspinosum subspinosum* does not occur in the U.S.

Belostoma subspinosum bifoveatum (Haldeman), 1852

1852 *Zaitha bifoveata* Haldeman, Exp. Surv. Valley Great Salt Lake, Ut., Append. C., p. 370. [Tex.]. Synonymized with *cupreomicans* Stål by Mayr, 1871, Ver. Zool.-Bot. Ges. Wien, 21: 412; dates clarified and name resurrected by Menke, 1979, Bull. Cal. Ins. Surv., 21: 81.

1854 *Zaitha cupreomicans* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 11(8): 240. [Mexico]. Synonymized by Menke, 1979, Bull. Cal. Ins. Surv., 21: 81.

1886 *Zaitha anurus*: Uhler, Check-list Hem. Het., p. 28 (in part).

1886 *Zaitha boscii*: Uhler, Check-list Hem. Het., p. 28.

1906 *Belostoma anurus*: Snow, Trans. Ks. Acad. Sci., 20: 180.

1909 *Belostoma boscii*: Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 190.

1916 *Belostoma bifoveata*: Van Duzee, Check List Hem., p. 53.

1917 *Belostoma bifoveatum*: Van Duzee, Univ. Cal. Publ. Ent., 2: 468.

1959 *Belostoma suspinosum cupreomicans*: Lauck, Bull. Chicago Acad. Sci., 11: 9.

1979 *Belostoma suspinosum bifoveatum*: Menke, Bull. Cal. Ins. Surv., 21: 81.

Distribution: Ariz., Cal., Tex. (Mexico to Panama).

Note: Lauck (1962, Bull. Chicago Acad. Sci., 11: 64-65) considered *B. boscii* Lepeletier and Serville, 1825, a *nomen dubium*, and applied the next available name *cupreomicans* for this subspecies. Menke (1979, above) pointed out that *B. bifoveatum* had priority. Records of *B. boscii* should be referred to this subspecies.

Belostoma testaceum (Leidy), 1847

1847 *Perthostoma testaceum* Leidy, J. Acad. Nat. Sci. Phila., 1: 66. [Pa.]. Neotype from Pa. designated by Lauck, 1964, Bull. Chicago Acad. Sci., 11: 125.

1852 *Zaitha reticulata* Haldeman, Exp. Surv. Val. Great Salt Lake, Ut., Append. C, p. 370. [Tex.]. Synonymized by Mayr, 1871, Verh. Zool.-Bot. Ges. Wien, 21: 417.

1863 *Zaitha testacea*: Mayr, Verh. Zool.-Bot. Ges. Wien, 13: 354.

1905 *Belostoma testaceum*: Torre-Bueno, J. N.Y. Ent. Soc., 13: 44.

Distribution: Ala., D.C., Fla., Ga., La., Md., Miss, N.C., N.J., N.Y., Mich., Pa., S.C., Tex., Va.

Subfamily Lethocerinae Lauck and Menke, 1961

Genus *Lethocerus* Mayr, 1853

1847 *Iliastus* Gistel, Handb. Naturges. Reiche, p. 490. Type-species: *Nepa grandis* Linnaeus, 1758. Monotypic. Suppressed by Int. Comm. Zool. Nomen., 1983, Opinion 1248, Bull. Zool. Nomen., 40: 81.

1853 *Lethocerus* Mayr, Verh. Zool.-Bot. Ver. Wien, 2: 15. Type-species: *Lethocerus cordofanus* Mayr, 1853, a junior synonym of *Belostoma fakir* Gistel, 1847. Monotypic.

1866 *Amorgius* Stål, Berl. Ent. Zeit., 10: 168. Type-species: *Belostoma collosicum* [as *collossicum*] Stål, 1855. Synonymized by Torre-Bueno, 1908, J. N.Y. Ent. Soc., 16: 237.

1901 *Belostoma* (*Montandonista*) Kirkaldy, Ent., 34: 6. Type-species: *Belostoma americanum* Leidy, 1847. Designated by Kirkaldy, 1906, Trans. Am. Ent. Soc., 32: 151.

Note: See Menke (1979, Bull. Zool. Nomen., 35: 236-238) for history and reasoning behind suppressing the generic name *Ilastes* Gistel. Menke (1963, An. Ent. Soc. Am., 56: 261-267) and De Carlo (1964, Physis, 24: 337-350) reviewed the genus and provided keys to species. Menke (1963) recognized two subgenera.

Subgenus *Benacus* Stål, 1861

1861 *Benacus* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 18(4): 205. Type-species: *Belostoma haldemanum* Leidy, 1847, a junior synonym of *Belostoma grisea* Say, 1831. Monotypic.

1961 *Lethocerus* (*Benacus*): Lauck and Menke, An. Ent. Soc. Am., 54: 647.

Lethocerus griseus (Say), 1832

1831 *Belostoma grisea* Say, Descrip. N. Sp. N. Am. Ins. La., p. 37. [U.S.].

1847 *Belostoma haldemanum* Leidy, J. Acad. Nat. Sci., Phila., 1: 66. [U.S.]. Synonymized by Uhler, 1876, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 237.

1854 *Belostoma harpax* Stål, Öfv. K. Svens. Vet.-Akad. Förh., 11(8): 240. ["America borealis"]. Synonymized by Stål, 1861, Öfv. K. Svens. Vet.-Akad. Förh., 18(4): 205.

1861 *Benacus haldemanus*: Stål, Öfv. K. Svens. Vet.-Akad. Förh., 18(4): 205.

1876 *Benacus griseus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 237.

1963 *Lethocerus* (*Benacus*) *griseus*: Menke, An. Ent. Soc. Am., 56: 267.

Distribution: Ala., Ark., D.C., Fla., Ga., Ia., Ill., Ind., Ks., Ky., La., Man., Mass., Md., Mich., Minn., Miss., Mo., N.C., N.J., N.Y., Neb., Oh., Ont., Pa., Que., S.C., Tenn., Tex., Va., W.Va., Wis. (Mexico to Guatemala, West Indies).

Subgenus *Lethocerus* Mayr, 1853

1853 *Lethocerus* Mayr, Verh. Zool.-Bot. Ver. Wien, 2: 15. Type-species: *Lethocerus cordofanus* Mayr, 1853, a junior synonym of *Belostoma fakir* Gistel, 1847. Monotypic.

1961 *Lethocerus* (*Lethocerus*): Lauck and Menke, An. Ent. Soc. Am., 54: 647.

Lethocerus americanus (Leidy), 1847 [Fig. 11]

1847 *Belostoma grandis* var. *americanum* Leidy, J. Acad. Nat. Sci. Phila., 1: 66. [U.S.].

1854 *Belostoma impressum* Haldeman, Proc. Acad. Nat. Sci. Phila., 6: 364. [Cal.]. Synonymized by Menke, 1963, An. Ent. Soc. Am., 56: 263.

1861 *Belostoma griseum*: Stål, Öfv. K. Svens. Vet.-Akad. Förh., 18(4): 206.

1863 *Belostoma litigiosum* Dufour, An. Soc. Ent. France, 32: 382. ["Nordamerica"]. Synonymized by Menke, 1963, An. Ent. Soc. Am., 56: 263.

1863 *Belostoma obscurum* Dufour, An. Soc. Ent. France, 32: 382. ["Nordamerica"]. Synonymized by Mayr, 1871, Verh. Zool.-Bot. Ges. Wien, 21: 427 (as synonym of *Belostoma grisea* Say); synonymized with *L. americanus* by Menke, 1963, An. Ent. Soc. Am., 56: 263.
1871 *Belostoma griseum*: Mayr, Verh. Zool.-Bot. Ges. Wien, 21: 427.
1906 *Belostoma americanum*: Snow: Trans. Ks. Acad. Sci., 20: 153.
1907 *Benacus griseus*: Howard, Ins. Book, pl. 29, fig. 36.
1908 *Lethocerus americanus*: Torre-Bueno, J. N.Y. Ent. Soc., 16: 237.
1908 *Lethocerus obscurus*: Torre-Bueno, J. N.Y. Ent. Soc., 16: 237.
1963 *Lethocerus* (*Lethocerus*) *americanus*: Menke, An. Ent. Soc. Am., 56: 263.
Distribution: Alta., B.C., Cal., Col., D.C., Del., Fla.(?), Ia., Id., Ill., Ind., Ks., Man., Mass., Md., Me., Mich., Minn., Miss., Mo., N.B., N.D., N.J., N.M., N.S., N.Y., Neb., Nev., Nfld., Oh., Ont., Ore., Que., Sask., Tex., Ut., Va., Wash., Wis., Wyo. (Mexico?).
Note: According to Menke (1963, above) records of this species in southeastern U.S. and Mexico need verification. Credit for the above synonymy is given to Menke (1963, above) who studied type material.

Lethocerus angustipes (Mayr), 1871
1871 *Belostoma angustipes* Mayr, 1871, Verh. Zool.-Bot. Ges. Wien, 21: 427. [Mexico]. Lectotype from Mexico designated by Menke, 1960, Pan-Pac. Ent., 36: 104.
1909 *Lethocerus angustipes*: Kirkaldy and Torre-Bueno, Proc. Ent. Soc. Wash., 10: 188.
1963 *Lethocerus* (*Lethocerus*) *angustipes*: Menke, An. Ent. Soc. Am., 56: 264.
Distribution: Cal., Nev. (Mexico).

Lethocerus annulipes (Herrich-Schaeffer), 1845
1845 *Belostoma annulipes* Herrich-Schaeffer, Wanz. Ins., 8: 28. [South America].
1933 *Lethocerus annulipes*: Cummings, Univ. Ks. Sci. Bull., 21: 203.
1963 *Lethocerus* (*Lethocerus*) *annulipes*: Menke, An. Ent. Soc. Am., 56: 264.
Distribution: Fla.(?) (South America, West Indies).
Note: This is a neotropical species. Cummings' (1933, above) Palm Beach, Fla. record may have been a chance introduction from the West Indies. Records of this species from Cal., Col., and Tex. are based on misidentifications.

Lethocerus medius (Guérin-Méneville), 1857
1857 *Belostoma medium* Guérin-Méneville, Hist. Is. Cuba, pt. 2, 7: 175. [Cuba].
1962 *Lethocerus medius*: Menke, Proc. Biol. Soc. Wash., 75: 62.
1963 *Lethocerus* (*Lethocerus*) *medius*: Menke, An. Ent. Soc. Wash., 56: 264.
Distribution: Ariz., N.M., Tex. (Mexico to Panama).
Note: Menke (1962, above) discussed the identity of this species, and later (1963, above) doubted the authenticity of a Nebraska record.

Lethocerus uhleri (Montandon), 1896
1896 *Belostoma uhleri* Montandon, 1896, An. Soc. Ent. Belg., 40: 513. [Fla., Ks., Pa.].
1907 *Amorgius* (*Montandonista*) *uhleri*: Torre-Bueno and Brimley, Ent. News, 18: 434.
1909 *Amorgius uhleri*: Van Duzee, Bull. Buffalo Soc. Nat. Sci., 9: 184.
1910 *Lethocerus uhleri*: Smith, Ins. N.J., p. 168.
1914 *Lethocerus* (*Belostoma*) *uhleri*: Barber, Bull. Am. Mus. Nat. Hist., 33: 498.
1963 *Lethocerus* (*Lethocerus*) *uhleri*: Menke, An. Ent. Soc. Am., 56: 263.
Distribution: Ala., Ark., Fla., Ga., Ill., Ind., Ks., La., Mass., Md., Miss., Mo., N.C., N.J., N.Y., Neb., Ok., Ont., Pa., S.C., Tenn., Tex., Wis. (Mexico).
Note: Menke (1963, above) doubted the authenticity of a Utah label on a specimen of this species.

Family Berytidae Fieber, 1851

(= Neididae Kirkaldy, 1902; Berytinidae Southwood and Leston, 1959)

The Stilt Bugs

By Richard C. Froeschner and Thomas J. Henry

The general appearance of the slender cylindrical body held high by the very long, thread-thin legs of most species is aptly reflected in the common name "stilt bugs."

Adults and nymphs wander over plant surfaces and generally feed upon the sap from the tender growth, but in several instances adults and nymphs have been reported attacking and feeding on insect eggs or soft-bodied insects. Apparently this animal food is not essential to development, as caged specimens with access only to growing plants reach adulthood and lay fertile eggs. Eggs are glued to various parts of the plants. Three or four generations may be passed during one growing season. In North America these insects are generally harmless to man's crops, but sporadically, for reasons not explained, the common *Jalysus wickhami* Van Duzee may damage certain cultivated plants (Wheeler and Henry, 1981, An. Ent. Soc. Am., 74: 606-615). Wheeler and Schaefer (1982, An. Ent. Soc. Am., 75: 498-506) summarized the known host plants for the Berytidae of the world.

The names Neididae, long used by American workers, and Berytinidae, more recently used by several European heteropterists, have been unnecessarily proposed for the family. The genus *Berytus* Fabricius is available for the stem of the earliest proposed group names, even though it is a synonym under *Neides* Latreille as a result of both genera having the same type-species.

The major works on this family in America north of Mexico are by McAtee (1919, J. N.Y. Ent. Soc., 27: 79-92); Harris (1941, Bull. Brook. Ent. Soc., 36: 105-109); and Torre-Bueno (1941, Ent. Am., 21: 101-107), the latter presenting keys through species.

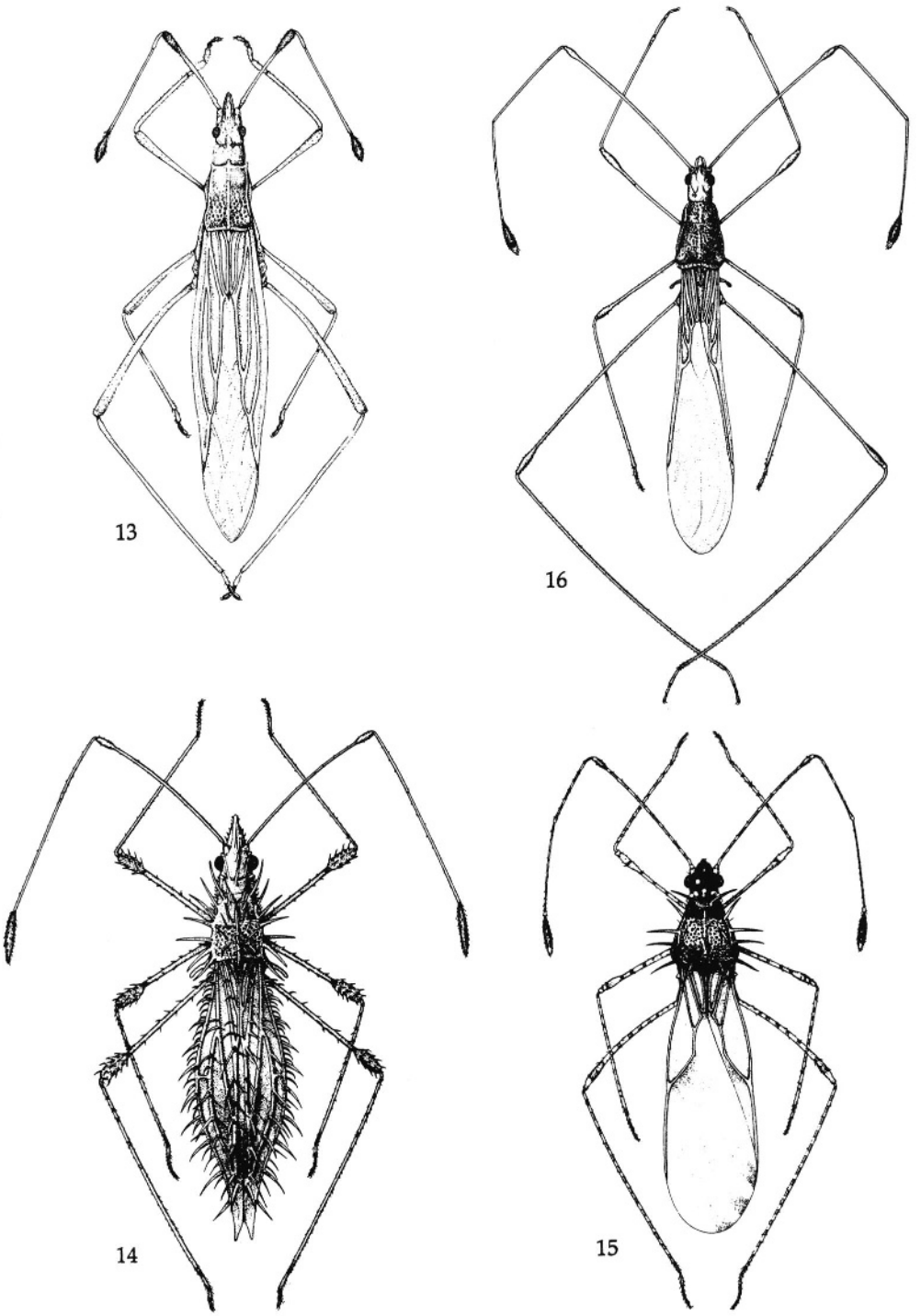
Subfamily Berytinae Fieber, 1851

Genus *Berytinus* Kirkaldy, 1900

1900 *Berytinus* Kirkaldy, Ent., 33: 241. Type-species: *Cimex clavipes* Fabricius, 1775. Original designation.

Berytinus minor (Herrich-Schaeffer), 1835 [Fig. 13]

1835 *Berytus minor* Herrich-Schaeffer, Nomen. Ent., 1: 43. [Europe].
1935 *Berytus minor*: Walley, Can. Ent., 67: 160.
1941 *Berytinus minor*: Torre-Bueno, Ent. Am., 21: 103.



Figs. 13-16: 13, *Berytinus minor* [p. 56]; 14, *Acanthophysa echinata* [p. 58]; 15, *Pronotocantha annulata* [p. 60]; 16, *Metacanthus multispinus* [p. 60] (Originals).

Distribution: Conn., Mass., Me., Mich., N.H., N.J., N.Y., Oh., Ont., Pa., Que., W.Va. (Europe, North Africa).

Note: Wheeler (1970, Can. Ent., 102: 876 and 1971, Can. Ent., 103: 497), summarized the known literature and gave notes on hosts, distribution, and wing polymorphism for this introduced species.

Genus *Neides* Latreille, 1802.

1802 *Neides* Latreille, Hist. Nat. Crust. Ins., 3: 246. Type-species: *Cimex tipularis* Linnaeus, 1758. Designated by Latreille, 1810, Cons. Gen. Crust., Arach. Ins., p. 433.

1803 *Berytus* Fabricius, Syst. Rhyn., p. 264. Type-species: *Cimex tipularis* Linnaeus, 1758. Designated by Reuter, 1888, Acta Soc. Sci. Fenn., 15(2): 548 (separate, p. 176). Synonymy by virtue of shared type-species.

Neides muticus (Say), 1832

1832 *Berytus muticus* Say, Descrip. Het. Hem. N. Am., p. 13. ["North-west Territory"].

1859 *Neides gracilipes* Stål, Svens. Freg. Eug. Resa Jord., 3: 235. [Cal.]. Synonymized by Uhler, 1886, Check-list Hem. Het., p. 13.

1871 *Neides decurvatus* Uhler, Proc. Boston Soc. Nat. Hist., 14: 100. [N.H.]. Synonymized by Stål, 1874, K. Svens. Vet.-Akad. Handl., 12(1): 128.

1872 *Neides decurvatus* Uhler, Prelim. Rept. U.S. Geol. Surv. Mont., p. 402 (as new species). [Ariz., Col., "Washington Territory"]. Preoccupied.

1876 *Neides muticus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 299.

1885 *Capys muticus*: Provancher, Pet. Faune Ent. Can., 3: 58.

1894 *Jalysus muticus*: Lethierry and Severin, Gen. Cat. Hem., 2: 132.

Distribution: Every conterminous U.S. state and all Canadian Provinces bordering the U.S. (Mexico).

Note: Wheeler (1978, An. Ent. Soc. Am., 71: 733-736) studied life history and described and illustrated the fifth-instar nymph.

Subfamily Metacanthinae Douglas and Scott, 1865

Genus *Acanthophysa* Uhler, 1893

1893 *Acanthophysa* Uhler, N. Am. Fauna, 7: 261. Type-species: *Acanthophysa echinata* Uhler, 1893. Monotypic.

1919 *Saurocoris* McAtee, J. N.Y. Ent. Soc., 27: 89. Type-species: *Saurocoris instans* McAtee, 1919. Original designation. Synonymized by Van Duzee, 1929, Pan-Pac. Ent., 5: 166.

Acanthophysa echinata Uhler, 1893 [Fig. 14]

1893 *Acanthophysa echinata* Uhler, N. Am. Fauna, 7: 261. [Cal., N.M.].

1919 *Saurocoris instans* McAtee, J. N.Y. Ent. Soc., 27: 91. [Cal.]. Synonymized by Van Duzee, 1929, Pan-Pac. Ent., 5: 166.

1975 *Acanthophysa instans*: Benedict and Cothran, An. Ent. Soc. Am., 68: 898.

Distribution: Ariz., Cal., Id., N.M., Ore., Ut., Wash.

Acanthophysa idaho Harris, 1941

1941 *Acanthophysa idaho* Harris, Bull. Brook. Ent. Soc., 36: 108. [Id.].

Distribution: Cal., Id., Ore.

Genus *Jalysus* Stål, 1862

1862 *Jalysus* Stål, K. Svens. Vet.-Akad. Handl., 3(6): 59. Type-species: *Jalysus macer* Stål, 1859. Designated by Van Duzee, 1916, Check List Hem., p. 17.

Jalysus caducus (Distant), 1893

1893 *Neides caducus* Distant, Biol. Centr.-Am., Rhyn., 2: 460. [Mexico, Panama].

1911 *Jalysus elongatus* Barber, J. N.Y. Ent. Soc., 19: 23. [Ariz.]. Synonymized by Barber, 1948, Bull. Ent. Soc., 43: 21.

1948 *Jalysus caducus*: Barber, Bull. Brook. Ent. Soc., 43: 21.

Distribution: Ariz., Tex. (Mexico, Panama).

Jalysus spinosus (Say), 1824

1824 *Berytus spinosus* Say, Am. Ent., 1: 28. ["United States"].

1842 *Neides trispinus* [*sic*]: Westwood, Cat. Hem., p. 6 (in list).

1842 *Neides trispinosus* Westwood, Cat. Hem., p. 24. [Pa.]. Synonymized by Uhler, 1886, Check-list Hem. Het., p. 13.

1859 *Neides spinosus*: Dohrn, Cat. Hem., p. 29.

1874 *Jalysus spinosus*: Stål, K. Svens. Vet.-Akad. Handl., 12(1): 129.

Distribution: Ala., Ark., Conn., Del., Fla., Ga., Ia., Ill., Ind., Ks., Ky., La., Mass., Md., Me., Mich., Minn., Miss., Mo., N.C., N.D., N.H., N.J., N.Y., Neb., Oh., Ok., Pa., Que., R.I., S.C., S.D., Tenn., Tex., Vt., Va., W.Va., Wis.

Note: Wheeler and Henry (1981, An. Ent. Soc. Am., 74: 606-615) clarified the taxonomic confusion between this species and *J. wickhami*, reviewed hosts and distribution, and keyed and illustrated the fifth-instar nymphs. Wheeler (1986, Ent. News, 97: 63-65) gave additional biological information.

Jalysus wickhami Van Duzee, 1906

1906 *Jalysus wickhami* Van Duzee, Ent. News, 17: 387. [Ariz., Cal.].

1914 *Jalysus spinosus* var. *wickhami*: Van Duzee, Trans. San Diego Soc. Nat. Hist., 2: 5.

1919 *Jalysus spinosus* subspecies *wickhami*: McAtee, J. N.Y. Ent. Soc., 27: 86.

Distribution: Every continental state, except Alk., N.H., and Vt. (Mexico).

Note: Harris (1941, Bull. Brook. Ent. Soc., 36: 105) re-established this form at full species level. While some subsequent authors have used this unit in the trinomial, Wheeler and Henry (1981, An. Ent. Soc. Am., 74: 606-615) showed that *wickhami* is distinct from *spinosus*. The latter authors reviewed hosts and distribution and described, keyed, and illustrated the fifth-instar nymph.

Genus *Metacanthus* Costa, 1847

1847 *Metacanthus* Costa, Cimic. Reg. Neapol. Cent., p. 258. Type-species: *Berytus elegans* Costa, 1847, a junior synonym of *Berytus meridionalis* Costa, 1844. Monotypic.

1919 *Aknisus* McAtee, J. N.Y. Ent. Soc., 27: 81. Type-species: *Aknisus calvus* McAtee, 1919. Original designation. Synonymized by Froeschner, 1985, Smithson. Contr. Zool., 407: 10.

Metacanthus calvus (McAtee), 1919, New Combination

1919 *Aknisus calvus* McAtee, J. N.Y. Ent. Soc., 27: 85. [Cal.].

Distribution: Cal.

Metacanthus multispinus (Ashmead), 1887, New Combination [Fig. 16]

1887 *Hoplinus multispinus* Ashmead, Ent. Am., 3: 155. [Fla.].

1909 *Jalysus perclavatus* Van Duzee, Bull. Buff. Soc. Nat. Hist., 9: 163. [Fla.]. Synonymized by Barber, 1911, J. N.Y. Ent. Soc., 19: 24.

1908 *Jalysus multispinosus* [*sic*]: Barber, J. N.Y. Ent. Soc., 16: 248.

1911 *Jalysus (Hoplinus) multispinosus* [*sic*]: Barber, J. N.Y. Ent. Soc., 19: 24.

1912 *Julisus* [*sic*] *multispinosus* [*sic*]: Hunter, Proc. Ent. Soc. Wash., 14: 64.

1914 *Jalysus multispinus*: Barber, Bull. Am. Mus. Nat. Hist., 33: 517.

1919 *Aknisus multispinus*: McAtee, J. N.Y. Ent. Soc., 27: 82.

1957 *Aknisus multispinuus* [*sic*]: Glick, U.S. Dept. Agr. Tech. Bull., 1158: 6.

1961 *Aknisus multispinosus* [*sic*]: Bibby, J. Econ. Ent., 54: 328.

Distribution: Ala., Ariz., D.C., Fla., Ga., Ind., Ia., Ks., La., Miss., Mo., N.J., Ok., Ore., Tex. (Netherlands Antilles).

Note: Van Duzee (1929, Pan-Pac. Ent., 5: 166) expressed a desire to maintain his *perclavatus* as a distinct species but offered no separating features; all other authors have concurred with Barber's (1911, above) synonymy.

Metacanthus tenellus Stål, 1859

1859 *Metacanthus tenellus* Stål, Svens. Freg. Eug. Res. Jord., 4: 236. [Ecuador].

1941 *Jalysus tenellus*: Harris, Bull. Brook. Ent. Soc., 36: 107.

Distribution: Tex. (West Indies, Mexico to South America).

Note: Froeschner (1981, Smithson. Contr. Zool., 322: 17) and most authors subsequent to Harris (1941, above) have placed *tenellus* in the genus *Metacanthus*.

Genus *Pronotacantha* Uhler, 1893

1886 *Acantholaena* Uhler, Check-list Hem. Het., p. 13. *Nomen nudum*. Included species: *Acantholaena annulata* Uhler, 1886. *Nomen nudum*.

1893 *Pronotacantha* Uhler, N. Am. Fauna, 7: 260. Type-species: *Pronotacantha annulata* Uhler, 1893. Monotypic.

Pronotacantha annulata Uhler, 1893 [Fig. 15]

1886 *Acantholaena annulata* Uhler, Check-list Hem. Het., p. 13. *Nomen nudum*.

1893 *Pronotacantha annulata* Uhler, N. Am. Fauna, 7: 260. [Cal.].

Distribution: Ariz., Cal., N.M., Nev., Tex., Ut. (Mexico).

Genus *Protacanthus* Uhler, 1893

1893 *Protacanthus* Uhler, Proc. Zool. Soc. London, p. 707. Type-species: *Protacanthus decorus* Uhler, 1893. Monotypic.

Protacanthus decorus Uhler, 1893

1893 *Protacanthus decorus* Uhler, Proc. Zool. Soc. London, p. 708. [St. Vincent, West Indies].

1909 *Metacanthus decorus*: Van Duzee, Bull. Buff. Soc. Nat. Sci., 9: 164.

Distribution: Fla., Tex. (Colombia, Costa Rica, Venezuela, West Indies).

Family Ceratocombidae Fieber, 1861

The Ceratocombids

By Thomas J. Henry

Ceratocombids are a small family, until recently, combined with the Dipsocoridae. They are generally characterized by their long slender antennae, 2-segmented tarsi on all legs, bristlelike setae on the antennae, head, and tibiae, and by a short distinct fracture at the middle of the costa on the hemelytra. All species are less than 2 millimeters long. Only two genera and four species are recorded from the United States.

Ceratocombids probably are predators that feed on small co-existing arthropods. One species was reported biting man, undoubtedly a case of probing to feed after accidentally landing on the skin. These bugs have been collected in leaf litter and other ground debris, in rotting wood, and at the base of grass clumps.

The major literature pertaining to this family includes: Reuter's (1891, Acta Soc. Sci. Fenn., 19(6): 1-27) "Monographia Ceratocombidarum"; McAtee and Malloch's (1925, Proc. U.S. Nat. Mus., 67: 1-42) "Revision of the bugs of the family Cryptostemmatidae"; Emsley's (1969, Mem. Am. Ent. Soc., 25: 1-154) monograph of the Schizopteridae; and Štys' treatises on the families Dipsocoridae (1970, Acta Ent. Bohem., 67: 21-46) and Ceratocombidae (1982, Acta Ent. Bohem., 79: 354-376).

In this family, several new generic and subgeneric combinations are recognized because certain authors have created new generic-group name synonyms but did not transfer in print all species involved. The physical combinations listed herein technically must be considered new.

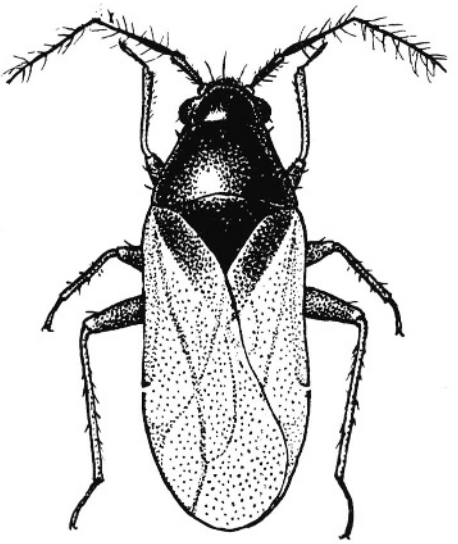


Fig. 17 *Ceratocombus vagans* [p. 62] (After Froeschner, 1949).

Subfamily Ceratocombinae Fieber, 1861

Tribe Ceratocombini Fieber, 1861

Genus *Ceratocombus* Signoret, 1852

1852 *Ceratocombus* Signoret, An. Soc. Ent. France, (2)10: 542. Type-species: *Astemma mulsanti* Signoret, 1852, a junior synonym of *Anthocoris coleoptratus* Zetterstedt, 1819. Monotypic.

Note: McAtee and Malloch (1925, Proc. U.S. Nat. Mus., 67: 5) provided a key to the New World species.

Subgenus *Ceratocombus* Signoret, 1852

1852 *Ceratocombus* Signoret, An. Soc. Ent. France, (2)10: 542. Type-species: *Astemma mulsanti* Signoret, 1852, a junior synonym of *Anthocoris coleoptratus* Zetterstedt, 1819. Monotypic.

1891 *Ceratocombus* (*Xylonannus*) Reuter, Acta Soc. Sci. Fenn., 19(6): 8. Type-species: *Ceratocombus corticalis* Reuter, 1891. Designated by Oshanin, 1912, Kat. Paläark. Hem., p. 85. Synonymized by Linnavouri, 1951, An. Ent. Fenn., 17: 97.

Ceratocombus hesperus McAtee and Malloch, 1925

1925 *Ceratocombus hesperus* McAtee and Malloch, Proc. U.S. Nat. Mus., 67: 6. [Cal.].

1925 *Ceratocombus* (*Ceratocombus*) *hesperus*: McAtee and Malloch, Proc. U.S. Nat. Mus., 67: 6.

1978 *Ceratocombus hesperius* [*sic*]: Slater and Baranowski, How To Know True Bugs, p. 206.

Distribution: Cal.

Ceratocombus niger Uhler, 1904, New Subgeneric Combination

1904 *Ceratocombus niger* Uhler, Proc. U.S. Nat. Mus., 27: 361. [N.M.].

Distribution: N.M.

Note: McAtee and Malloch (1925, Proc. U.S. Nat. Mus., 67: 8) suggested that their species, *C. vagans*, might be a synonym of this species, but that the "type" of *C. niger* is lost and Uhler's second specimen is damaged. This species is placed in the subgenus *Ceratocombus* because of the relationship to *C. vagans* inferred by McAtee and Malloch.

Ceratocombus vagans McAtee and Malloch, 1925, New Subgeneric Combination [Fig. 17]

1925 *Ceratocombus* (*Xylonannus*) *vagans* McAtee and Malloch, Proc. U.S. Nat. Mus., 67: 7. [Md.].

Distribution: Fla., Md., N.Y., Ont., Va. (Panama).

Note: Blatchley (1926, Het. E. N. Am., p. 649) stated that "The description of *C. niger* Uhler (1904, 361) from New Mexico agrees in all particulars with that of *vagans* M. & M...."

Genus *Leptonannus* Reuter, 1891

1891 *Ceratocombus* (*Leptonannus*) Reuter, Acta Soc. Sci. Fenn., 19(6): 5. Type-species: *Ceratocombus biguttulus*: Reuter, 1891. Monotypic.

1912 *Leptonannus*: Reuter, Öfv. F. Vet.-Soc. Förh., 54A(7): 65.

Note: Although this genus has been reduced to a subgenus since Reuter's (1912, above) treatment (e.g. McAtee and Malloch, 1925, Proc. U.S. Nat. Mus., 67: 4), Štys (1970, Acta Ent. Bohem., 67: 21) recognized generic status.

Leptonannus latipennis (Uhler), 1904, New Combination

1904 *Ceratocombus latipennis* Uhler, Proc. U.S. Nat. Mus., 27: 362. [N.M.].

1904 *Ceratocombus brasiliensis*: Uhler, Proc. U.S. Nat. Mus., 27: 361.

1925 *Ceratocombus* (*Leptonannus*) *latipennis*: McAtee and Malloch, Proc. U.S. Nat. Mus., 67: 9.

Distribution: N.M.

Note: McAtee and Malloch (1925, Proc. U.S. Nat. Mus., 67: 6) referred Uhler's (1904, above) record of *C. brasiliensis* from N.M. to this species. Slater and Baranowski (1978, How To Know True Bugs, p. 206) suggest that *C. latipennis* is a synonym of *C. vagans* McAtee and Malloch.

Family Cimicidae Latreille, 1802

The Bed Bugs

By Richard C. Froeschner

The infamous bed bug and related parasites, all of which feed on warm-blooded vertebrate animals, comprise the family Cimicidae. All are flightless with the wings greatly reduced to small pads. Creeping onto their sleeping or resting normal prey, they obtain a meal by painlessly withdrawing its blood. Their bite can be acutely painful to victims other than their normal host; thus, species that normally feed on birds nesting under the eaves of buildings can become conspicuously present if they move into the buildings and bite humans. Only occasionally do they cling to their hosts long enough to be carried to new places. Hypothetically, mankind first acquired his unwanted companion, the bed bug, *Cimex lectularius* Linnaeus, when he reached the caveman stage and shared those retreats with the host-bats of the bed bugs. The bugs, secreting themselves in crevices in man's possessions, were then carried throughout the world by man himself.

Members of the bed bug family have long been suspected of disease dissemination. Their habits of repeated feedings, each followed by a retreat from the host, logically place them in a position to transmit pathogens from one individual to another. Ryckman et al. (1981, Bull. Soc. Vector Ecol., 6: 98-99) gave a summary discussion of such a role and reported "Bed bugs have been indicted for transmission of many disease-producing pathogens to man but have never really been proven to be responsible for epidemics or serious outbreaks of disease." That summary further stated that the bed bug has been "suspected" of transmitting of 41 human disease organisms as well as contributing to certain kinds of human nutritional deficiencies and allergies.

Hayes et al. (1977, J. Med. Ent., 14: 257-262) and Rush et al. (1980, An. Ent. Soc. Am., 73: 315-322) studied the first known examples of "biologic virus transmission" by a member of this family. *Oeciacus vicarius*

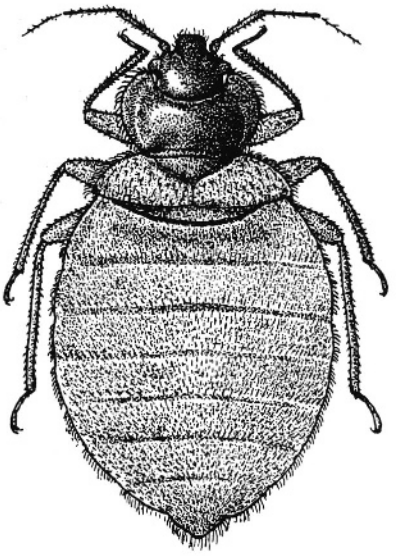


Fig. 18 *Cimex lectularius* [p. 66] (After Froeschner, 1949).

Horvath serves as both the vector and the overwintering host for the Fort Morgan virus, a virus related to western equine encephalitis but found only in a bird-bug-bird cycle in these insects, in the cliff swallows, *Petrochelidon pyrrhonota* (Viellot), whose mud nests they inhabit, and in house sparrows, *Passer domesticus* (Linnaeus), that sometimes use the empty cliff swallow nests.

The family now contains 91 species, of which 16 are known to occur in the Western Hemisphere north of Mexico. The starting point for the study of these insects is the *Monograph of Cimicidae* by Usinger (1966). It contains extensive and intensive studies of the 74 species of the world known at that time. Since then 19 new species have been described. The most recent summarizations can be found in Ryckman et al. (1981, Bull. Soc. Vector Ecol., 6: 93-142), which is a checklist of the species of the world and a bibliography including a comprehensive list of cimicid literature of the Americas, cross indexed by species and countries (by states within the U.S.).

Subfamily Cimicinae Latreille, 1802

Genus *Cimex* Linnaeus, 1785

1758 *Cimex* Linnaeus, Syst. Nat., 10th edit., p. 441. Type-species: *Cimex lectularius* Linnaeus, 1758. Designated by Opinion 81, Int. Comm. Zool. Nomen., 1924, Smithson. Misc. Coll., 73: 19.

1775 *Acanthia* Fabricius, Syst. Ent., p. 693. Type-species: *Cimex lectularius* Linnaeus, 1758. Designated by Opinion 81, Int. Comm. Zool. Nomen., 1924, Smithson. Misc. Coll., 73: 19. Synonymy by virtue of shared type-species.

1829 *Clinocoris* Fallén, Hem. Suec., p. 141. Type-species: *Cimex lectularius* Linnaeus, 1758. Designated by Opinion 81, Int. Comm. Zool. Nomen., 1924, Smithson. Misc. Coll., 73: 19. Synonymy by virtue of shared type-species.

1899 *Klinophilos* Kirkaldy, Ent., 32: 219. Type-species: *Cimex lectularius* Linnaeus, 1758. Designated by the Int. Comm. Zool. Nomen., 1924, Smithson. Misc. Coll., 73: 19. Synonymy by virtue of shared type-species.

1903 *Clinophilus* Blanford, Nature, 69: 200. Proposed as emendation for *Klinophilos* Kirkaldy, 1899.

Cimex adjunctus Barber, 1939

1912 *Cimex pilosellus*: Horvath, An. Mus. Nat. Hung., 10: 259 (in part).

1939 *Cimex adjunctus* Barber, Proc. Ent. Soc. Wash., 41: 244. [Pa.].

Distribution: Ala., Col., Del., Fla., Ga., Ia., Ind., Ky., Md., Me., N.C., N.H., N.J., N.Y., Neb., Oh., Pa., S.C., Tex., Va., W.Va.

Cimex antennatus Usinger and Ueshima, 1965

1963 *Cimex pilosellus* strain A: Ueshima, Chromosoma, 14: 512.

1965 *Cimex antennatus* Usinger and Ueshima, Pan-Pac. Ent., 41: 115. [Cal.].

Distribution: Cal., Nev.

Cimex brevis Usinger and Ueshima, 1965

1965 *Cimex brevis* Usinger and Ueshima, Pan-Pac. Ent., 41: 117. [Minn.].

Distribution: Ill., Mich., Minn., Que.

Cimex incrassatus Usinger and Ueshima, 1965

1961 *Cimex pilosellus*: Bradshaw and Ross, J. Ariz. Acad. Sci., 1: 110.
1963 *Cimex pilosellus* strain B: Ueshima, Chromosoma, 14: 512.
1965 *Cimex incrassatus* Usinger and Ueshima, Pan-Pac. Ent., 41: 115. [Ariz.].
Distribution: Ariz., Cal., Nev., Ut. (Guatemala, Mexico).

Cimex latipennis Usinger and Ueshima, 1965

1965 *Cimex latipennis* Usinger and Ueshima, Pan-Pac. Ent., 41: 114. [Ore.].
Distribution: Cal., Id., Mont., Ore.

Cimex lectularius Linnaeus, 1758 [Fig. 18]

1758 *Cimex lectularius* Linnaeus, Syst. Nat., 10th edit., p. 441. [Europe, England].
1871 *Acanthia lectularia*: Walker, Cat. Hem. Brit. Mus., 7: 43
1887 *Cimex lectularius*: Provancher, Nat. Can., 1887, p. 170.
1905 *Clinocoris lectularius*: Girault, Psyche, 12: 61.
Distribution: "Truly cosmopolitan" (Usinger, 1966, Monogr. Cimicidae, p. 315) from every state.

Cimex pilosellus (Horvath), 1910

1898 *Cimex pipistrelli*: Chittenden, U.S. Dept. Agr., Div. Ent., Tech. Bull., (new ser.), 18: 97.
1910 *Clinocoris pilosellus* Horvath, Ent. Month. Mag., Ser. 2, 21: 12. [B.C.].
1912 *Cimex pilosellus*: Horvath, An. Mus. Nat. Hist. Hung., 10: 259.
Distribution: Alta., Ariz., B.C., Cal., Col., Id., Mont., Neb., Nev., Ore., Wash.

Genus *Oeciacus* Stål, 1873

1873 *Oeciacus* Stål, K. Svens. Vet.-Akad. Handl., 11(2): 104. Type-species: *Cimex hirundinis* Lamarck, 1816. Monotypic.

Oeciacus vicarius Horvath, 1912

1870 *Cimex lunifrontis* Cooper, Ornith., 1: 105. [Cal.]. See note.
1890 *Acanthia papistrilla* [*sic*]: Gillette, Ent. News, 1: 26.
1892 *Acanthia hirundinis*: Osborn, Can. Ent., 24: 264.
1895 *Cimex hirundinis*: Gillette and Baker, Col. Agr. Exp. Stn. Bull., Tech. Ser., 1: 56.
1912 *Oeciacus vicarius* Horvath, An. Mus. Nat. Hung., 10: 161 (in part). [Cal.].
Distribution: Alta., B.C., Cal., Col., Ia., Me., N.C., N.H., N.S., N.Y., Neb., Ont., Ore., Ut.
Note: List (1925, Proc. Biol. Soc. Wash., 38: 108) transferred the Mexican record by Horvath (1912, above) to *Hesperocimex coloradensis* List. The International Commission on Zoological Nomenclature (1985, Opinion 1360, Bull. Zool. Nomen., 42: 347-348) has suppressed the combination *Cimex lunifrontis* Cooper, which was not used since its proposal, and conserved *Oeciacus vicarius*.

Subfamily Haematosiphoninae Jordan and Rothschild, 1912

Genus *Cimexopsis* List, 1925

1925 *Cimexopsis* List, Proc. Biol. Soc. Wash., 38: 106. Type-species: *Cimexopsis nyctalis* List, 1925. Monotypic.

Cimexopsis nyctalis List, 1925

1925 *Cimexopsis nyctalis* List, Proc. Biol. Soc. Wash., 38: 106. [D.C.].

1942 *Haematosiphon nyctalis*: Eichler, Mitt. Zool. Mus. Berlin, 25: 296.

Distribution: Ark., D.C., Fla., Ga., Ia., Ill., Ind., Me., Minn., Miss., N.Y., Neb., Oh., Pa., S.C., Va.

Genus *Haematosiphon* Champion, 1900

1900 *Haematosiphon* Champion, Biol. Centr.-Am., Rhyn., 2: 337. Type-species: *Acanthia inodora* Duges, 1892. Monotypic.

Haematosiphon inodorus (Duges), 1892

1892 *Acanthia inodora* Duges, La Nat., ser. 2, 2: 169. [Mexico].

1900 *Haematosiphon inodora*: Champion, Biol. Centr.-Am., Rhyn., 2: 337.

Distribution: Ariz., Cal., Ks., N.M., Ok., Tex. (Mexico).

Note: Usinger (1966, Monogr. Cimicidae, p. 478) wrote that the Florida record by Blatchley (1928, Fla. Ent., 12: 43) pertains to *Ornithocoris pallidus* Usinger.

Genus *Hesperocimex* List, 1925

1925 *Hesperocimex* List, Proc. Biol. Soc. Wash., 38: 104. Type-species: *Hesperocimex coloradensis* List, 1925. Monotypic.

Hesperocimex coloradensis List, 1925

1912 *Oeciacus vicarius*: Horvath, An. Mus. Nat. Hung., 10: 261 (in part).

1925 *Hesperocimex coloradensis* List, Proc. Biol. Soc. Wash., 38: 104. [Col.].

Distribution: B.C., Cal., Col., Neb., Ore. (Mexico).

Hesperocimex sonorensis Ryckman, 1958

1912 *Oeciacus vicarius*: Horvath, An. Mus. Nat. Hung., 10: 261 (in part).

1955 *Hesperocimex coloradensis*: Lee and Ryckman, Proc. Ent. Soc. Wash., 57: 164.

1958 *Hesperocimex sonorensis* Ryckman, An. Ent. Soc. Am., 51: 33. [Mexico].

Distribution: Ariz. (Mexico).

Genus *Ornithocoris* Pinto, 1927

1927 *Ornithocoris* Pinto, Rev. Biol. Hyg., 1: 17. Type-species: *Ornithocoris toledoi* Pinto, 1927. Monotypic.

Ornithocoris pallidus Usinger, 1959

1928 *Hesperocimex inodorus*: Blatchley, Fla. Ent., 12: 43.

1959 *Ornithocoris pallidus* Usinger, Ent., 92: 219. [Brazil].

Distribution: Fla., Ga. (Brazil).

Note: Usinger (1966, Monogr. Cimicidae, p. 466) concluded that this species had been introduced into the United States by unknown means.

Genus *Synxenoderus* List, 1925

1925 *Synxenoderus* List, Proc. Biol. Soc. Wash., 38: 108. Type-species: *Synxenoderus comosus* List. Monotypic.

Synxenoderus comosus List, 1925

1925 *Synxenoderus comosus* List, Proc. Biol. Soc. Wash., 38: 108. [Cal.].

Distribution: Cal., Nev.

Subfamily Primicimicinae Ferris and Usinger, 1955

Genus *Primicimex* Barber, 1941

1941 *Primicimex* Barber, J. Wash. Acad. Sci., 31: 315. Type-species: *Primicimex cavernis* Barber, 1914. Monotypic.

Primicimex cavernis Barber, 1941

1941 *Primicimex cavernis* Barber, J. Wash. Acad. Sci., 3: 315. [Tex.].

Distribution: Tex. (Guatemala, Mexico).

Family Coreidae Leach, 1815

The Coreid Bugs

By Richard C. Froeschner

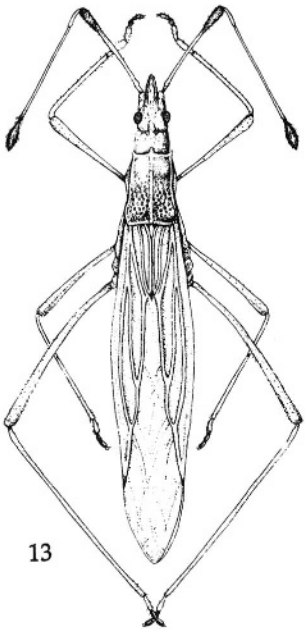
The greatest number of species of Coreidae occurs in the tropical parts of the world and relatively few, about 87, are known from America north of Mexico. All members of this family are essentially phytophagous and generally concentrate their attacks on tender shoots and leaves. There are occasional reports of individuals imbibing fluids from decomposing animal carcasses but this is not a regular habit of the species involved (Adler and Wheeler, 1984, J. Ks. Ent. Soc., 57: 21-27).

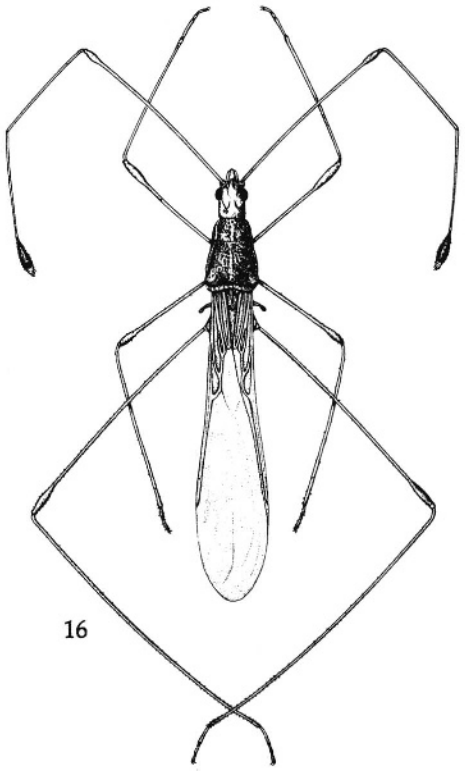
Predictably those species feeding on cultivated plants have gained the designation of "pest," a category that includes relatively few species of the family. Among the pest species in North America are the squash bugs of the genus *Anasa* Amyot and Serville, especially *Anasa tristis* (De Geer), which concentrate their attentions on cucurbitaceous plants and cause wilting and death of parts or all of the plant victims by the direct effect of their feeding or by carrying on their body surfaces the *Bacillus* that causes a wilt disease of such plants. Another often reported pest species is one of the leaf-footed bugs, *Leptoglossus phyllopus* (Linnaeus), which in the southern states attacks a variety of field, garden and orchard crops such as cotton, tomatoes, asparagus, potatoes, oranges, peaches, and others. Recently, Bolkan et al. (1984, J. Econ. Ent., 77: 1163-1165) found that *Leptoglossus clypealis* (Heidmann) causes annual losses of 30% or more to the pistachio crop in California. A tabulation of the food plants of Coreidae was given by Schaefer and Mitchell (1983, An. Ent. Soc. Am., 76: 595-608).

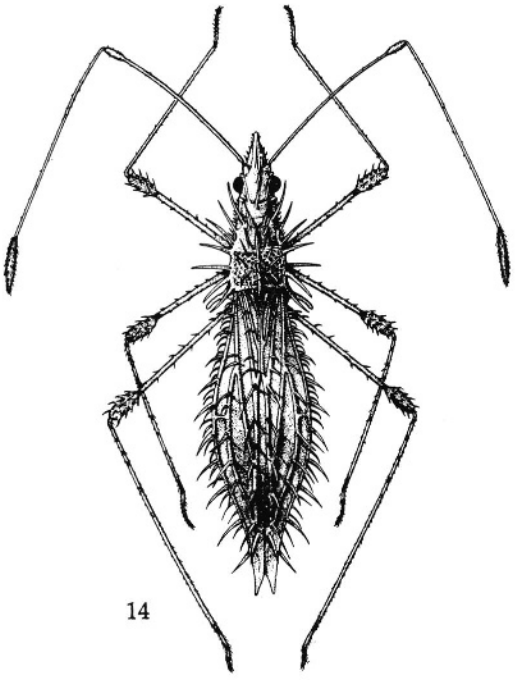
Members of the genus *Chelinidea* Uhler concentrate their feeding on cacti. This food preference led to their introduction from the Americas into Australia here they contribute to the biological control of cacti, *Opuntia* spp., which escaped from cultivation and became serious pests on range land. This role for these insects was summarized by Herring (1980, Proc. Ent. Soc. Wash., 82: 237-251).

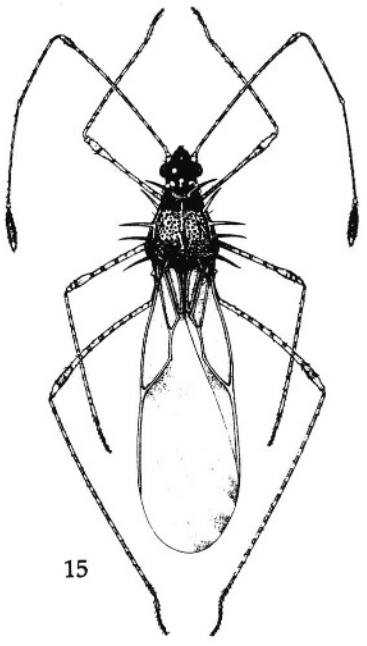
The biology of Coreidae is typically hemipterous. To assure that the immature stages hatch on or close to an appropriate food plant—many of which are annuals—the highly mobile adults hibernate and in spring seek the newly developing food plants on which the eggs are laid in exposed clusters. In one Old World species the eggs reportedly are stuck on the back of adult individuals of the same species—usually on males. In all species the young individuals pass through five stages, suck the plant's juices and in due time transform into adults. There may be one or more generations per year depending in part upon the species being considered and in part upon the region of the country in which they develop. Adults and nymphs are capable of exuding a strong-smelling fluid when disturbed.

The classification of the Coreidae has changed significantly during the last few









Figs. 19-23: 19, *Chariesterus antennator* [p. 79]; 20, *Acanthocephala femorata* [p. 73]; 21, *Leptoglossus clypealis* [p.76]; 22, *Acanthocephala terminalis* [p. 74]; 23, *Chelinidea vittiger* [p.80] (After Froeschner, 1942)

decades. Two groups formerly included as subfamilies are now accorded full family rank: the Alydidae and Rhopalidae (= Corizidae). The suprageneric-infrafamilial arrangement, which for nearly 100 years was mostly that of Stål (1867, Öfv. K. Svens. Vet.-Akad. Förh., 24: 534-551 and 1870, K. Svens. Vet.-Akad. Handl., 9(1): 125-228), underwent modifications as a result of intense studies by Schaefer and by O'Shea (see literature cited), separately and in coauthorship. Combining the present classification with the keys in Torre-Bueno's synopsis (1941, Ent. Am., 21: 44-77) forms the most useful way for identifying specimens in our fauna.

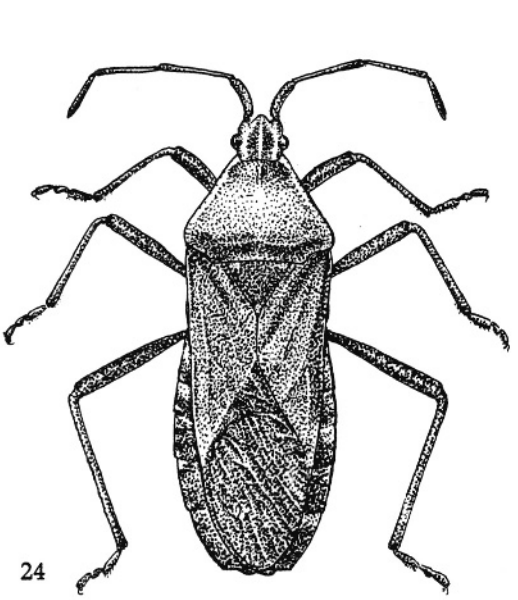
Literature contains North American records for six species of Coreidae that are excluded from this catalog: *Anisoscelis prominulus, Gonocerus obsoletus, Paryphes rufoscutellatus, Anasa uhleri, Sephina limbata,* and *Thasus acutangula.* The reasons for excluding the first three named species are given in the following paragraphs; for the last three species under the appropriate genus in the text.

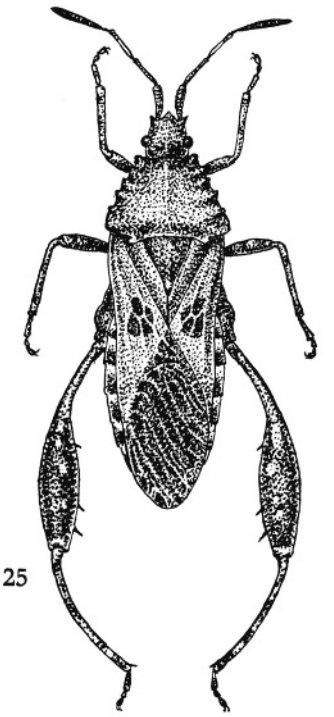
The combination "*Anisoscelis prominulus*" was listed by Uhler (1871, Proc. Boston Soc. Nat. Hist., 14: 99) as a Say manuscript name found on a Pennsylvania specimen in the T. W. Harris collection; in this case Uhler presented the name in the discussion under his new species *Metapodius instabilis,* a name now considered a junior synonym of *Acanthocephala terminalis* (Dallas). All subsequent listings of the Say combination place it in synonymy as a Say manuscript name; but earlier Rathvon (1869, Hist. Lancaster Co., Pa., p. 549) had used it for a species in his list of Hemiptera in Pennsylvania but credited it to Harris— possibly Harris had Say-identified specimens before him. Apparently no one has associated a characterization, figure, or description with it; hence it is an invalid name and should be dropped from lists. For another Harris use of Say's combination see the lygaeid species *Eremocoris ferus* (Linnaeus).

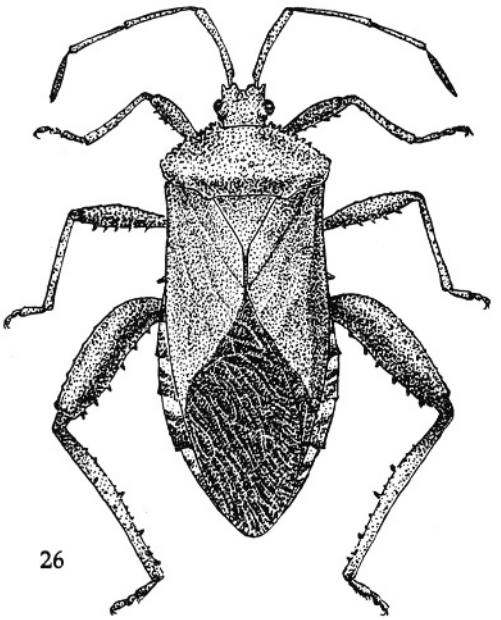
The "*Gonocerus obsoletus,*" described from "Nordamerika" by Herrich-Schaeffer (1840, Wanz. Ins., 6:10, plate 83, figure 567), has had varying treatment in lists of North American forms. Uhler's (1886) Check-list omitted it; Lethierry and Severin (1894, Cat. Gen. Hem., 2: 66) placed it in the African genus *Cletus* Stål, a placement followed in the Banks (1910) Catalogue. Van Duzee, in his (1916, p. 13) Check List and (1917, p. 106) Catalogue, placed it in synonymy under *Zicca taeniola* Dallas; this allowed him to include *Z. taeniola* from our fauna and to comment that if this synonymy is accurate, Herrich - Schaeffer's name should be used as it has priority over Dallas'. Torre - Bueno (1941, Ent. Am.) omitted it from his Synopsis.

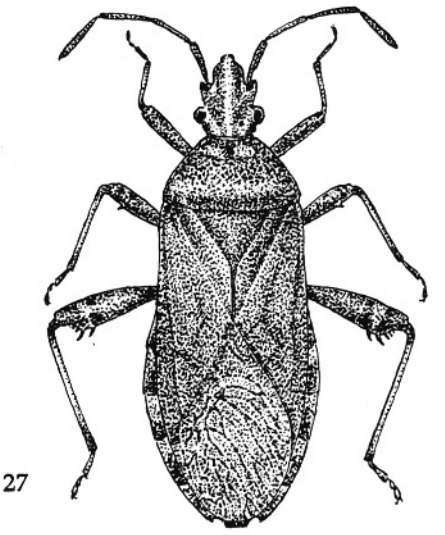
Herrich-Schaeffer's original description and its accompanying illustration for *Gonocerus obsoletus* present a species differing from all others in the region of this catalog. While the head shape, long first antennal segment, and the angularly projecting humeri are suggestive of *Zicca taeniola,* the absence of serrations on the side margins of the pronotum plus the slender unspined posterior femora prevent such placement. "*Gonocerus obsoletus*" is here omitted from the North American fauna with the conclusion that its country of origin was originally misstated.

The species "*Paryphes rufoscutellatus* (Gray)" has been variously listed for and excluded from the fauna of the United States, all such actions apparently stemming from the 1876 listing by Uhler (Bull. U.S. Geol. Geogr. Surv., 1: 293), who gave records for "California, Cape Saint Lucas (J. Xanthus), and Mexico." Because no subsequent United States findings have been reported, the present list follows Barber (1926, J. N.Y. Ent. Soc., 34: 215), who concluded that in the absence of specimens, the earlier "California" records all should be interpreted as "Lower California."









Figs. 24-27: 24, *Anasa tristis* [p. 81]; 25, *Merocoris distinctus* [p. 90]; 26, *Euthoctha galeator* [p. 75]; 27, *Ceraleptus americanus* [p. 91] (After Froeschner, 1942).

Subfamily Coreinae Leach, 1815

Tribe Acanthocephalini Stål, 1870

Genus *Acanthocephala* Laporte, 1833

1833 *Acanthocephala* Laporte, Mag. Zool., 2: 29. Type-species: *Lygaeus compressipes* Fabricius, 1794, a junior synonym of *Cimex latipes* Drury, 1782. Monotypic.

1842 *Metapodius* Westwood, Hope Cat., 2: 4. Unnecessary new name for *Acanthocephala* Laporte.

Subgenus *Acanthocephala* Laporte, 1833

1833 *Acanthocephala* Laporte, Mag. Zool., 2: 29. Type-species: *Lygaeus compressipes* Fabricius, 1794, a junior synonym of *Cimex latipes* Drury, 1782. Monotypic.

1870 *Acanthocephala* (*Acanthocephala*): Stål, K. Svens. Vet.-Akad. Handl., 9(1): 149.

Acanthocephala declivis (Say), 1832

1832 *Rhinuchus declivis* Say, Ins. La., p. 10. [Ga., La.].

1832 *Anisoscelis declivis*: Say, Descrip. Het. Hem. N. Am., p. 12.

1870 *Acanthocephala* (*Acanthocephala*) *declivis*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 150.

1876 *Acanthocephala declivis*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 5: 297.

1953 *Acanthocephala declevis* [*sic*]: Elkins, J. Ks. Ent. Soc., 26: 139.

Distribution: Ariz., Fla., Ga., La., Mo., N.C., N. M., S.C., Tex. (Greater Antilles, Guatemala, Mexico).

Subgenus *Metapodiessa* Kirkaldy, 1902

1902 *Acanthocephala* (*Metapodiessa*) Kirkaldy, 1902, Ent., 35: 137. Type-species: *Cimex femoratus* Fabricius, 1775. Designated by Van Duzee, 1917, Univ. Cal. Publ. Ent., 2: 85.

Note: The name *Metapodius* Westwood (1842, see genus above) used by Stål (1870, K. Svens. Vet.-Akad. Handl., 9(1): 150) for a subgenus of *Acanthocephala* was originally proposed as a new name for the supposedly preoccupied *Acanthocephala* Laporte and hence must take the same type-species as the nominate subgenus and must be associated there. Kirkaldy (1902, above) recognized this and substituted *Acanthocephala* (*Metapodiessa*) for the group of species diagnosed by Stål as *Acanthocephala* (*Metapodius*).

Acanthocephala confraterna (Uhler), 1871

1871 *Metapodius confraternus* Uhler, Proc. Boston Soc. Nat. Hist., 14: 99. [Fla.].

1916 *Acanthocephala* (*Metapodiessa*) *confraterna*: Van Duzee, Check List Hem., p. 10.

1918 *Acanthocephala confraterna*: Gibson and Holdridge, Can. Ent., 50: 239.

Distribution: Ala., Fla., Ga., S.C., Tex.

Acanthocephala femorata (Fabricius), 1775 [Fig. 20]

1775 *Cimex femoratus* Fabricius, Syst. Ent., p. 708. ["India" in error].

1832 *Rhinuchus nasulus* Say, Ins. La., p. 10. [Ga., Fla., La.]. Synonymized by Stål, 1870, K. Svens. Vet.-Akad. Handl., 9(1): 150.

1832 *Anisoscelis nasulus*: Say, Descrip. Het. Hem. N. Am., p. 13.

1842 *Metapodius obscurus* Westwood, Hope Cat., 2: 15. [N. Am.]. Synonymized by Stål, 1870, K. Svens. Vet.-Akad. Handl., 9(1): 150.

1852 *Metapodius femoratus*: Dallas, List Hem. Brit. Mus., 2: 430.
1870 *Acanthocephala (Metapodius) femorata*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 150.
1876 *Acanthocephala femorata*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr., 5: plate 20, figure 23 [caption reads thus; text, page 297, used combination *Metapodius femoratus*].
1916 *Acanthocephala (Metapodiessa) femorata*: Van Duzee, Check List Hem., p. 10.
Distribution: Fla., Ga., Ks., La., Miss, Mo., N.C., Ok., S.C., Tex. (Guatemala, Mexico).
Note: See comments under *Acanthocephala thomasi* (Uhler).

Acanthocephala terminalis (Dallas), 1852 [Fig. 22]
1852 *Metapodius terminalis* Dallas, List Hem. Brit. Mus., 2: 431. [N. Am.].
1869 *Anisosceolis* [*sic*] *prominulus*: Rathvon, Hist. Lancaster Co., Pa., p. 549.
1870 *Acanthocephala (Metapodius) terminalis*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 151.
1871 *Metapodius instabilis* Uhler, Proc. Boston Soc. Nat. Hist., 14: 98. [N.C., Pa.]. Synonymized by Gibson and Holdridge, 1918, Can. Ent., 50: 240.
1900 *Metapodius femoratus*: Smith, Ins. N.J., p. 122.
1908 *Acanthocephala terminalis*: Torre-Bueno, J. N.Y. Ent. Soc., 16: 227.
1916 *Acanthocephala (Metapodiessa) terminalis*: Van Duzee, Check List Hem., p. 10.
Distribution: Col., Conn., Fla., Ill., Ind., La., Mass., Md., Minn., Mo., N.C., N.J., N.Y., Ok., Pa., S.C., Tenn., Wis.
Note: Yonke and Medler (1963, An. Ent. Soc. Am., 62: 474-476) presented descriptions and illustrations of the immature stages.

Acanthocephala thomasi (Uhler), 1872
1872 *Metapodius thomasii* [*sic*] Uhler, U.S. Geol. Geogr. Surv. Terr. 5: 399. [Ariz.].
1875 *Metapodius granulosus*: Uhler, Wheeler's Surv. 100th Merid., 5: 831.
1881 *Acanthocephala granulosa*: Distant, Biol. Centr.-Am., Rhyn., 1: 120 (in part).
1916 *Acanthocephala (Metapodiessa) granulosa*: Van Duzee, Check List Hem., p. 10.
1926 *Acanthocephala thomasi*: Barber, J. N.Y. Ent. Soc., 34: 209.
Distribution: Ariz., Cal., Tex.
Note: No explained refutation of Barber's (1926, above) resurrection of this name from synonymy under *A. femorata* (Fabricius) was found. Apparently many of the later authors, including Torre-Bueno (1941, Ent. Am., 21: 47), overlooked Barber's action. Also, although *A. granulosa* Dallas, 1852, was considered a junior synonym of *A. femorata* (Fabricius) by Barber (1926, above), all records for it in the U.S. should be applied to *A. thomasi*.

Tribe Acanthocerini Bergroth, 1913

Note: O'Shea (1980, Studies Neotrop. Fauna Environ., 15: 57-80) revised this New World tribe and presented a key (p. 58) to its thirteen known genera. The results of that revision are followed here.

Genus *Acanthocerus* Palisot, 1818

1818 *Acanthocerus* Palisot, Ins. Rec. Afr. Am., pp. 201, 204. Type-species: *Acanthocerus crucifer* Palisot, 1818, a junior synonym of *Cimex cruciger* Tigny, 1813. Monotypic.
1833 *Hymeniphera* Laporte, Mag. Zool., 2: 43. Unnecessary new name for *Acanthocerus* Palisot.

Acanthocerus lobatus (Burmeister), 1835

1835 *Crinocerus lobatus* Burmeister, Handb. Ent., 2: 318. [Cuba].
1914 *Acanthocerus lobatus*: Barber, J. N.Y. Ent. Soc., 22: 171.
1916 *Hymenifera lobata:* Van Duzee, Check List Hem., p. 12.
Distribution: Fla., N.M.(?) (Cuba, Jamaica).
Note: O'Shea (1980, Studies Neotrop. Fauna Environ., 15: 61) questioned the New Mexico records.

Genus *Euthochtha* Mayr, 1865

1865 *Euthochtha* Mayr, Verh. Zool.-Bot. Ges. Wien, 15: 431. Type-species: *Coreus galeator* Fabricius, 1803. Monotypic.

Euthochtha galeator (Fabricius), 1803 [Fig. 26]

1803 *Coreus galeator* Fabricius, Syst. Rhyn., p. 191. ["Carolina"].
1852 *Crinocerus galeator*: Dallas, List Hem. Brit. Mus., 2: 408.
1865 *Euthochtha galeator*: Mayr, Verh. Zool.-Bot. Ges. Wien, 15: 431.
1868 *Euthochtha Galeator* [*sic*]: Stål, K. Svens. Vet.-Akad. Handl., 7(11): 49.
1878 *Euthoctha* [*sic*] *galeator*: Uhler, Proc. Bost. Soc. Nat. Hist., 19: 381.
1905 *Euthocta* [*sic*] *galeator*: Torre-Bueno, J. N.Y. Ent. Soc., 13: 36.
1908 *Acanthocerus galeator*: Torre-Bueno, J. N.Y. Ent. Soc., 16: 227.
Distribution: Conn., Fla., Ill., Ind., Ks., Mass., Mich., Mo., N.C., N.J., N.Y., Neb., Oh., Ont., Pa., S.C., Tex., Va., Wisc. (Greater Antilles).
Note: Yonke and Medler (1969, An. Ent. Soc. Am., 62: 469-473) presented descriptions and illustrations of the immatures stages.

Genus *Sagotylus* Mayr, 1865

1865 *Sagotylus* Mayr, Verh. Zool.-Bot. Ges. Wien, 15: 431. Type-species: *Crinocerus triguttatus* Herrich-Schaeffer, 1842, a junior synonym of *Coreus confluentus* Say, 1832. Monotypic.

Sagotylus confluens (Say), 1832

1832 *Coreus confluentus* Say, Descrip. Het. Hem. N. Am., p. 11. [Mexico].
1842 *Crinocerus triguttatus* Herrich-Schaeffer, Wanz. Ins., 6: 86. [Mexico]. Synonymized by Uhler, 1876, Bull. U.S. Geol. Geogr. Surv. Terr., 1: 297.
1876 *Sagotylus confluentus*: Uhler, Bull. U.S. Geol. Geogr. Surv. Terr. Terr., 1: 297.
1886 *Sagotylus diffusa*: Uhler, Check-list Hem. Het., p. 9.
1909 *Spartocera confluentus*: Van Duzee, Bull. Buff. Soc. Nat. Hist., 9: 159.
1910 *Sagotylus triguttatus*: Banks, Cat. Nearc. Hem.-Het., p. 80.
1916 *Corecoris confluentus*: Van Duzee, Check List Hem., p. 12.
1923 *Coreocoris* [*sic*] *fusca*: Barber, Bull. Univ. Ia. Studies Nat. Hist., 10: 18.
1980 *Sagotylus confluens*: O'Shea, Studies Neotrop. Fauna Environ., 15: 69.
Distribution: Ariz., Cal., Fla. (Mexico to Belize)

Tribe Anisoscelidini Amyot and Serville, 1843

Note: A key to the North American genera of this tribe was presented by Hussey (1953, Bull. Brook. Ent. Soc., 48: 33-34). A recent treatment of this tribe by E. Osuna (1985 [1984], Boletin Entomologia Venezolana, New Series, 3(5-8): 77-145), containing numerous generic changes, was unavailable for inclusion here.

Genus *Chondrocera* Laporte, 1832

1832 *Chondrocera* Laporte, Mag. Zool., 2: 44. Type-species: *Chondrocera laticornis* Laporte, 1832. Monotypic.

Chondrocera laticornis Laporte, 1831

1831 *Chondrocera laticornis* Laporte, Mag. Zool., 2: 45. [Cuba].
1910 *Chondrocera laticornis*: Banks, Cat. Nearc. Hem.-Het., p. 77.
Distribution: Fla. (West Indies).

Genus *Leptoglossus* Guérin-Méneville, 1831

1831 *Leptoglossus* Guérin-Méneville, Voyage Coquil. Zool., plate 12, figure 9. Type-species: *Leptoglossus dilaticollis* Guérin-Méneville, 1831. Monotypic.

1862 *Theognis* Stål, Stett. Ent. Zeit, 23: 294. Type-species: *Hypselonotus scriptus* Hahn, 1826, a junior synonym of *Cimex stigma* Herbst, 1784. Designated by Van Duzee, 1917, Univ. Cal. Publ. Ent., 2: 88.

Note: The present list follows Allen's (1969, Ent. Am., 45: 35-140) revision of *Leptoglossus* with *Theognis* as a junior synonym of it. If *Theognis* were given generic status as was done by Hussey (1953, Bull. Brook. Ent. Soc., 48: 32-34), all our species would belong to it and *Leptoglossus* would be left with but one species, a South American form. Hussey (*ibid*, pp. 30-32) gave a key to the North American species under the generic name *Theognis*.

Leptoglossus ashmeadi Heidemann, 1909

1909 *Leptoglossus ashmeadi* Heidemann, Bull. Buff. Soc. Nat. Hist., 9: 237. [Fla.].
1953 *Theognis ashmeadi*: Hussey, Bull. Brook. Ent. Soc., 48: 31.
Distribution: Ala., Fla., Miss.

Leptoglossus brevirostris Barber, 1918

1906 *Leptoglossus* "sp.?": Barber, Bull. Mus. Brook. Inst. Arts. Sci., Sci. Bull, 1: 266. [Tex.].
1910 *Leptoglossus stigma* variety *minor*: Heidemann, Proc. Ent. Soc. Wash., 12: 191.
1918 *Leptoglossus brevirostris* Barber, Bull. Brook. Ent. Soc., 13: 35. [Ariz.].
1953 *Theognis brevirostris*: Hussey, Bull. Brook. Ent. Soc., 48: 30.
Distribution: Ariz., Cal., Tex. (Mexico).

Leptoglossus clypealis Heidemann, 1910 [Fig. 21]

1910 *Leptoglossus clypealis* Heidemann, Proc. Ent. Soc. Wash., 12: 195. [Col.].
1953 *Theognis clypealis*: Hussey, Bull. Brook. Ent. Soc., 48: 30.
Distribution: Ariz., Cal., Col., Ia., Ks., N.M., Ore., Tex., Ut.

Leptoglossus concolor (Walker), 1871

1871 *Anisoscelis concolor* Walker, Cat. Hem. Brit. Mus., 4: 128. [Mexico].
1956 *Leptoglossus stigma*: Hussey, Fla. Ent., 39: 88.
1969 *Leptoglossus concolor*: Allen, Ent. Am., 45: 118.
Distribution: Fla. (Greater Antilles, Mexico to Panama).
Note: Hussey's (1956, above) Florida record of *L. stigma* was referred to *L. concolor* by Allen (1969, above, p. 122).

Leptoglossus corculus (Say), 1832

1832 *Anisoscelis corculus* Say, Descrip. Het. Hem. N. Am., p. 12. [Fla.].
1865 *Theognis excellens* Mayr, Verh. Zool.-Bot. Ges. Wien, 15: 434. [Ga.]. Synonymized by Stål, 1870, K. Svens. Vet.-Akad. Handl., 9(1): 165.

1870 *Leptoglossus corculus*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 165.
1953 *Theognis corculus*: Hussey, Bull, Brook. Ent. Soc., 48: 30
Distribution: Ala., Ark., D.C., Del., Fla., Ga., Md., Miss., N.C., N.J., N.Y., Oh., Pa., S.C., Tenn., Tex., Va.
Note: Allen (1969, Ent. Am., 45: 130-131) considered all records of *L. corculus* for Ariz., Cal., Col., and N.M. as belonging to *L. occidentalis*.

Leptoglossus fulvicornis (Westwood), 1842
1842 *Anisoscelis fulvicornis* Westwood, Hope Cat., 2: 17. [South America-?].
1870 *Leptoglossus fulvicornis*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 161.
1910 *Leptoglossus magnoliae* Heidemann, Proc. Ent. Soc. Wash., 12: 191. [D.C.]. Synonymized by and lectotype designated by Allen, 1969, Ent. Am., 45: 79.
1953 *Theognis fulvicornis*: Hussey, Bull. Brook. Ent. Soc., 48: 30.
Distribution: Ala., D.C., Fla., Ga., Mass., Md., N.C., N.Y., Pa., S.C., Va.
Note: Westwood (1842, above) himself questioned the original locality as South America. Stål (1870, above, p. 161) gave the type-locality as unknown. The species is reported only from the United States in subsequent literature.

Leptoglossus gonagra (Fabricius), 1775
1775 *Cimex gonagra* Fabricius, Syst. Ent., p. 708. [St. Thomas Island].
1910 *Leptoglossus gonager [sic]*: Heidemann, Proc. Ent. Soc. Wash., 12: 191.
1910 *Leptoglossus gonagra*: Banks, Cat. Nearc. Hem.-Het., p. 78.
1952 *Theognis gonagra*: Hussey, Fla. Ent., 35: 117.
Distribution: Fla., La., Mo., Tex. (Mexico to Argentina).

Leptoglossus occidentalis Heidemann, 1910
1910 *Leptoglossus occidentalis* Heidemann, Proc. Ent. Soc. Wash., 12: 196. [Ut.]. Lectotype designated by Allen, 1969, Ent. Am., 45: 131.
1953 *Theognis occidentalis*: Hussey, Bull. Brook. Ent. Soc., 48: 29.
Distribution: Ala., Ariz., B.C., Cal., Col., Ia., Id., Ks., Mont., N.M., Ore., Tex., Ut., Wash.

Leptoglossus oppositus (Say), 1832
1832 *Anisoscelis oppositus* Say, Descrip. Het. Hem. N. Am., p. 12. [Ind.].
1842 *Anisoscelis tibialis* Herrich-Schaeffer, Wanz. Ins., 7: 12. [N. Am.]. Synonymized by Stål, 1870, K. Svens. Vet.-Akad. Handl., 9(1): 164.
1870 *Leptoglossus oppositus*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 163.
1953 *Theognis oppositus*: Hussey, Bull. Brook. Ent. Soc., 48: 30.
Distribution: Ala., Ariz., Ark., D.C., Fla., Ga., Ia., Ill., Ind., Ky., La., Md., Minn., Miss., Mo., N.C., N.J., N.M., N.Y., Oh., Ok., Pa., S.C., Tex., Va., Wis. (Mexico).

Leptoglossus phyllopus (Linnaeus), 1767
1767 *Cimex phyllopus* Linnaeus, Syst. Nat., edit. 12, 1(2): 731.
1832 *Anisoscelis albicinctus* Say, Descrip. Het. Hem. N. Am., p. 12. [Fla.]. Synonymized by Stål, 1870, K. Svens. Vet.-Akad. Handl., 9(1): 161.
1835 *Anisoscelis phyllopus*: Burmeister, Handb. Ent., 2: 332.
1842 *Anisoscelis phyllopa [sic]*: Westwood, Hope Cat., 2: 16.
1852 *Anisoscelis confusa* Dallas, List Hem. Brit. Mus., 2: 453. [Fla., Brazil]. Synonymized by Stål, 1870, K. Svens. Vet.-Akad. Handl, 9(1): 161.
1870 *Leptoglossus phyllopus*: Stål, K. Svens. Vet.-Akad. Handl., 9(1): 161.
1871 *Anisoscelis albicincta*: Walker, Cat. Hem. Brit. Mus., 4: 124.
1952 *Theognis phyllopus*: Hussey, Fla. Ent., 35: 117.
Distribution: Ala., Ark., Cal., Fla., Ga., Ia., Ks., La., Miss., Mo., N.C., N.Y., Neb., Ok., S.C., Tex., Va. (Mexico to Brazil).