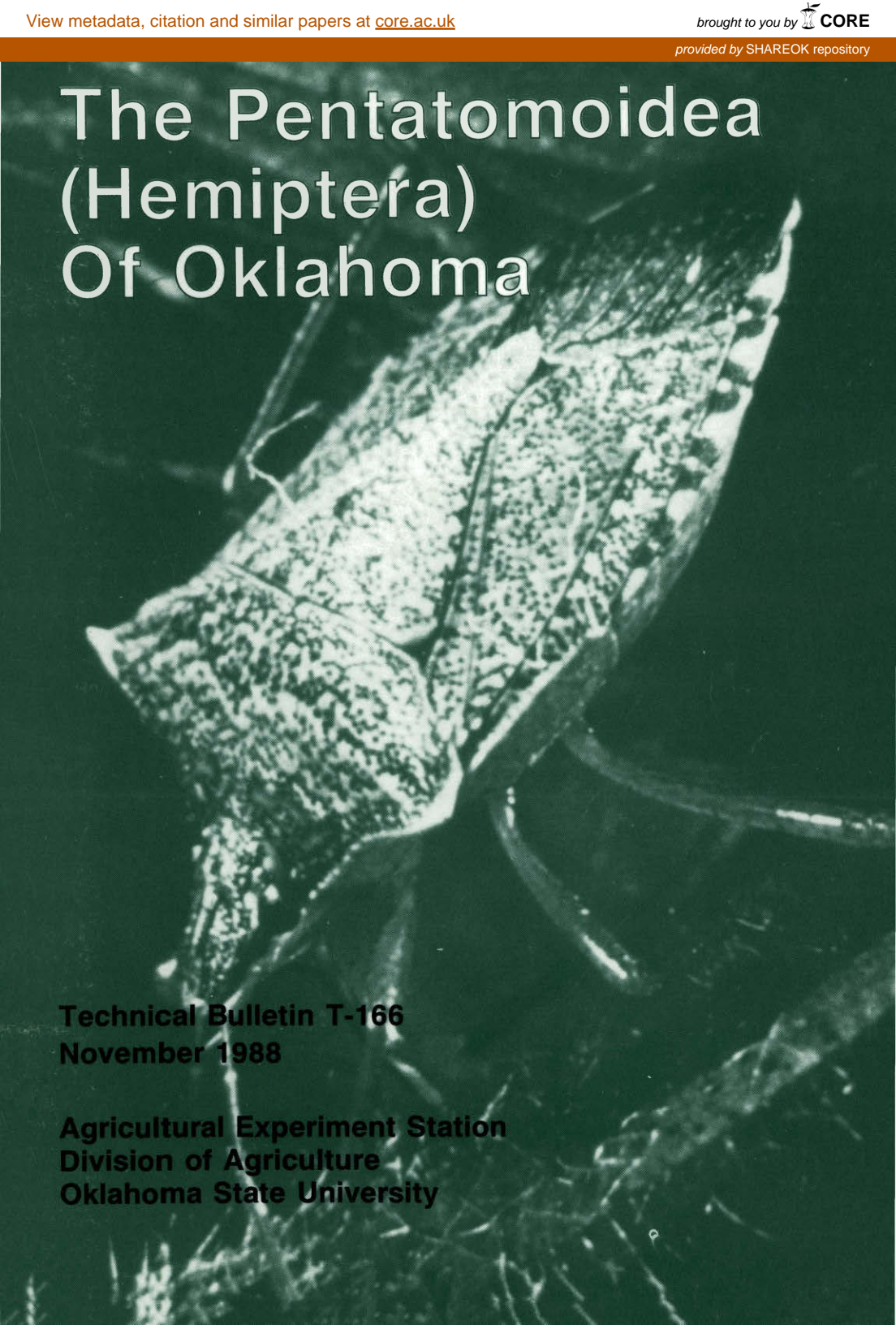


The Pentatomoidea (Hemiptera) Of Oklahoma



Technical Bulletin T-166
November 1988

Agricultural Experiment Station
Division of Agriculture
Oklahoma State University

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Introduction

The Pentatomoidea consists of four families of bugs characterized by moderate to large scutellums which in some cases cover almost the entire dorsal side of the abdomen. They have three-segmented tarsi (in Oklahoma species), four-segmented beaks, and usually five-segmented antennae. The family Pentatomidae is the largest with 53 species recorded from Oklahoma. Other families are Cydnidae with 13 recorded species, Corimelaenidae with 9 species, and Scutelleridae with 6 species. In addition, 1 cydnid, 1 corimelaenid, and 1 pentatomid probably occur in Oklahoma but have not as yet been collected.

Most species are plant feeders, although among the pentatomids some (e.g., *Brochymena*) are omnivorous, and others (e.g., *Podisus*) appear to be entirely predaceous. Most are at least semiarboreal, but some (e.g. most cydnids) are terrestrial or fossorial.

Life histories of many species are not well known, but the majority appear to have one generation per year with the adults overwintering. Some pentatomids are known to have two generations per year. See McPherson (1982) for the known biological references.

Chinch bug surveys in Oklahoma have shown that bunch grass clumps are an important overwintering site for many species. See Table 1 for a list of species collected from this habitat.

Many species are not considered economically important. Some are not common and others feed on noneconomic plants. Notable exceptions are *Acrosternum hilare* (Say) on soybeans and *Murgantia histrionica* (Hahn) on vegetable crops. Certain predaceous species [e.g., *Podisus maculiventris* (Say)] are beneficial. Common names, included for some species, are those approved by the Entomological Society of America.

The classification of the superfamily is in an unsettled condition. Some specialists recognize only two families and others as many as six. Many of the more recent authors (e.g., McPherson, 1970 and Hoffman, 1971) recognize four families with Podopinae and Acanthosomatinae subordinated as subfamilies of the Pentatomidae. McPherson (1982) recognizes

This research was conducted under Oklahoma Agricultural Experiment Station Project H-914.

Acanthosomatidae as a family but this group, whatever its status, does not occur in Oklahoma. Subfamilies and tribes in the Pentatomidae are even more unsettled. We have followed the system used by Torre-Bueno (1939) in most cases, as it is the latest treatment of the Pentatomoidea as a whole.

Synonymy and distribution are available in the literature and will not be included in this paper. Major references for the entire superfamily are Blatchley (1926), Torre-Bueno (1939), Froeschner (1941), McPherson (1970, 1982), Hoffman (1971), and Slater and Baranowski (1978). Other important papers are Froeschner (1960) for the Cydnidae and McAtee and Mallock (1933), Sailer (1940), and McPherson and Sailer (1978) for the Corimelaenidae. Important papers on Pentatomidae are Barber and Sailer (1953), Buxton, et al. (1983), Knight (1952), McDonald (1974, 1976), McPherson (1974), Nelson (1955), Rolston (1972, 1973), Ruckes (1946, 1957), Sailer (1952), and Thomas (1983).

Acknowledgments

We wish to express our sincere appreciation to Richard L. Hoffman, J. E. McPherson, and Donald B. Thomas for supplying reprints and for their comments on problems in pentatomid systematics and to Richard Berberet for critically reading the manuscript. Special appreciation is expressed to Elisabeth deBoor who drew Figures 52 through 57.

Systematics

SUPERFAMILY PENTATOMOIDEA

Key to the Families

1. Scutellum very large, U-shaped, longer than coria and covering most of the abdomen (Figures 8,11) -----2
- Scutellum smaller, usually subtriangular in outline (Figures 22,23,29), if large and U-shaped then not reaching end of abdomen (*Stiretrus*) or with a prominent tooth or lobe in front of the humeral angles of the pronotum (Figures 47, 48) (Podopinae)-----3
2. Tibiae armed with strong spines; small shining black bugs -----
----- Corimelaenidae
- Tibiae not armed with strong spines; color rarely shining black -----
-----Scutelleridae
3. Tibiae armed with strong spines; front legs usually modified for digging-----Cydnidae
- Tibiae not armed with strong spines; front legs not so modified -----
-----Pentatomidae

FAMILY SCUTELLERIDAE

Key to the Species

- (Modified from Blatchley, 1926, Torre-Bueno, 1939, and Froeschner, 1941)
1. Venter with an elongated, finely and densely striated stridulatory area on each side of the disc, traversing at least segments IV and V ----- Pachycorinae 2
----- Venter without striated stridulatory areas ----- Eurygastrinae 5
 2. Pronotum with a distinct transverse groove near the middle ----- Acantholomidea porosa (Germar)
----- Pronotum without a distinct transverse groove ----- 3
 3. Ostiolar opening not continued as a canal toward the side margin of the metasternal plate (Figure 1) ----- Tetyra bipunctata (H.-S.)
Ostiolar opening extended outwardly by a distinct canal (Figures 2,3) ----- 4
 4. Antennal segment II distinctly longer than III; ostiolar canal nearly straight (Figure 2) ----- Stethaulax marmoratus (Say)
Antennal segment II at least slightly shorter than III; ostiolar canal distinctly curved forward near tip (Figure 3) -- Homaemus parvulus (Germar)
 5. Anterolateral margins of pronotum sinuate; surface of pronotum and scutellum corrugated, rough ----- Euptychodera corrugata (Van Duzee)
Anterolateral margins of pronotum feebly arcuate; surface of pronotum and scutellum nearly smooth except for punctures ----- Vanduzeeina balli (Van Duzee)

SUBFAMILY PACHYCORINAE

Tetyra bipunctata (H.-S.) - Shieldbacked pine seedbug

A dull brownish-yellow bug, irregularly mottled with aggregations of black punctures or spots. It is found on pine trees. We have specimens collected in September and October. Length 12 to 17 mm.

County Records: McCurtain.

Acantholomidea porosa (Germar)

This bug is dull black, thinly covered with minute grayish pubescence. The literature (see McPherson, 1982) indicates it is widely distributed but uncommon. We have two specimens taken in June and July. One was swept from alfalfa. Length 4 to 4.5 mm.

County Records: Carter and Johnston.

Stethaulax marmoratus (Say)

This species is dull reddish-brown, irregularly marked with dark brown. There is usually a distinct, pale area at the apex of the scutellum. Adults have been taken from March to June and in October and November. One specimen was on berries and several have been taken on arborvitae and Eastern redcedar. On arborvitae both nymphs and adults feed on the maturing cones. Length 6 to 7 mm.

County Records: Craig, Johnston, Noble, Oklahoma, Payne, and Pontotoc.

Homaemus parvulus (Germar)

A dull brownish-yellow bug, marked with numerous dark punctures, these usually in part aggregated to form four vague dark stripes. The scutellum usually has a pale central stripe which is abruptly widened on the apical half. Males average smaller than females and there is considerable variation in color and structure. The second antennal segment is shorter than the third in all specimens examined, but the difference may be as little as 0.05 mm. This is our most common shield bug and the only one found in all areas of the state. Adults have been taken from April to October by sweeping pastures, roadsides, meadows, alfalfa, and wheat and one specimen was found in overwintering quarters in a clump of broomsedge in December. Length 4.2 to 6.6 mm.

County Records: Alfalfa, Beaver, Beckham, Blaine, Bryan, Cherokee, Choctaw, Cimarron, Creek, Ellis, Garvin, Hughes, Jackson, Jefferson, Johnston, Kay, Kiowa, Major, McCurtain, Murray, Osage, Ottawa, Pawnee, Payne, Pittsburg, Pontotoc, Texas, Tulsa, Washington, and Woodward.

SUBFAMILY EURYGASTRINAE

Euptychodera corrugata (Van Duzee)

A dark brownish, mottled bug usually with a pale area at the apex of the scutellum. The rough, corrugated surface is distinctive. This is a western species and is not common in Oklahoma. Adults have been taken in June, July, and August. One was collected by sweeping pasture. Length 5 to 6.5 mm.

County Records: Cimarron, Garvin, and Harper.

Vanduzeeina balli (Van Duzee)

This is a brown bug more or less mottled with black. We have three specimens taken from rangeland in June, August, and September. It is also a western species which is not common in Oklahoma. Length 5 to 6 mm.

County Records: Woodward.

FAMILY CORIMELAENIDAE

Key to the Species

(Modified from McAtee and Malloch, 1933 and Froeschner, 1941)

- 1. Sides of pronotum and margins of coria with long slender bristles ---
-----Cydnoides ciliatus orientis McAtee & Malloch
- 2. Sides of pronotum and coria without bristles -----2
- 2. Costal margins of coria at least in part pale yellow or white -----
-----Corimelaena 3
- 3. Coria entirely black -----Galgupha 6
- 3. Corium with apex acute -----C. marginella Dallas
- 3. Corium with apex rounded -----4

4. Yellowish-white markings along costal margin widened near base, crossing subcostal vein -----C. pulicaria (Germar)
 Yellowish-white markings along costal margin narrow near base, not crossing subcostal vein -----5
5. Costal markings complete, width about equal at any point -----
 -----C. lateralis lateralis (F.)
 Costal markings not complete, invaded and often almost obscured by blackish, especially in the middle one-third -----
 -----C. obscura McPherson & Sailer
6. Anterior margin of prosternum beneath each eye produced into an explanate lobe with the anterior and lateral margins having a band of minute tubercles (Figure 4); male hypopygium lightly punctate ventrally, noticeably concave posteriorly, and with a tuft of hair in the concavity (Figure 5)-----
 -----G. loboprostethia Sailer
 Prosternum and male hypopygium not as above -----7
7. Protibiae with anterodorsal row of spines terminated apically by one or two weak bristles or a gap (Figure 6); punctures mostly obsolete on discal portions of pronotum and scutellum, surface appearing highly polished -----8
 Protibiae with anterodorsal row of spines terminated apically by strong spines (Figure 7); punctures more evident on discal portions of pronotum and scutellum, surface less shining -----9
8. Dorsal outline of body noticeably more narrowly rounded posteriorly than anteriorly (Figure 8); male hypopygium dorsally with a conspicuous carinate elevation on each inner side anteriorly (Figure 9), ventrally slightly concave at middle posteriorly (Figure 10) -----
 -----G. carinata McAtee & Malloch
 Dorsal outline of body not more narrowly rounded posteriorly than anteriorly (Figure 11); male hypopygium dorsally without carinae, broadly basin-like (Figure 12), ventrally convex posteriorly (Figure 13) -----
 -----G. atra Amyot & Serville
9. Scutellum in profile abruptly declivous at apical one-third (Figure 14); branches of exocorial vein subparallel (Figure 15); male hypopygium dorsally as in Figure 16, ventrally shallowly concave for most of its posterior width (Figure 17); male sixth sternite angulate anteriorly (Figure 17) -----
 -----G. aterrima Malloch
 Scutellum in profile rounded apically (Figure 18); branches of exocorial vein noticeably divergent (Figure 19); male hypopygium dorsally as in Figure 20, ventrally only slightly concave at middle posteriorly (Figure 21); male sixth sternite rounded anteriorly, tumid posteriorly (Figure 21) -----
 -----G. ovalis Hussey

Galgupha aterrima Malloch

All five of our *Galgupha* species are small, black bugs and are best separated by the characters in the key. This species is rather uncommon in Oklahoma. Adults have been collected in May and June from alfalfa and cotton. Length 4 to 5 mm.

County Records: Okmulgee, McCurtain, Payne, and Washington.

Galgupha atra Amyot & Serville

This species is fairly common in most areas of the state. Adults have been taken from April to October. One was swept from alfalfa, two from roadsides, and one from rangeland. Overwintering adults have been taken from clumps of broomsedge and big and little bluestem in January, November, and December. Length 4.5 to 6 mm.

County Records: Cherokee, Choctaw, Cleveland, Comanche, Craig, Ellis, Hughes, Kiowa, LeFlore, Lincoln, Love, McCurtain, McIntosh, Payne, Pontotoc, Pottawatomie, Pushmataha, Seminole, Stephens, Washington, and Woodward.

Galgupha carinata McAtee & Malloch

A widespread but uncommon species in Oklahoma. Adults have been taken in May, June, July, and October. One was swept from vetch. Length 4.5 to 6 mm.

County Records: Craig, Harmon, Jackson, Kingfisher, Kiowa, McCurtain, Payne, and Tillman.

Galgupha loboprostethia Sailer

An easily distinguished species due to the expanded and margined prosternum. It is not common in Oklahoma but small numbers have been taken from April to August. Two collections were swept from alfalfa and one was from a pasture. One overwintering adult was taken from a clump of little bluestem in November. Length 3.7 to 5.2 mm.

County Records: Canadian, Garvin, Jackson, Kiowa, Osage, Payne, Pontotoc, Roger Mills, Sequoyah, Tulsa, and Woodward.

Galgupha ovalis Hussey

The most common species of Galgupha in the state. Adults have been taken from April to September, usually by sweeping pasture, and in January, November, and December from clumps of broomsedge, little bluestem, and Indian grass. Length 4 to 6 mm.

County Records: Atoka, Beaver, Blaine, Bryan, Caddo, Carter, Cimarron, Cleveland, Coal, Ellis, Garvin, Jefferson, Latimer, Love, Major, McCurtain, Muskogee, Osage, Payne, Pittsburg, Pontotoc, Sequoyah, Tillman, and Woodward.

Cydnoides ciliatus orientis McAtee and Malloch

This species is similar to the Galgupha spp. but can easily be distinguished by the long bristles on the sides of the pronotum and coria. Length 4 to 4.5 mm.

County Records: None, but has been recorded from Kansas, Missouri, and Texas and should occur here.

Corimelaena lateralis lateralis (F.)

This is an uncommon species which has been collected a few times, mostly in eastern Oklahoma, from March to October. Length 3 to 4.5 mm.

County Records: Adair, Delaware, Garvin, Jackson, LeFlore, McCurtain, McIntosh, Osage, Ottawa and Payne.

Corimelaena obscura McPherson and Sailer

This recently described species is very similar to C. lateralis except for the extent of the pale markings on the coria. It appears to be rare in Oklahoma. Our specimens were taken in April, May, and June. Length 3.4 to 4.2 mm.

County Records: Garvin, McCurtain, Payne, and Pontotoc.

Corimelaena pulicaria (Germar) - Negro bug

This is the most common corimelaenid in the state. Adults have been taken from April to September. Hosts include cotton, alfalfa, dandelion, spirea, and goldenrod. Length 2.25 to 3.5 mm.

County Records: Alfalfa, Canadian, Cherokee, Choctaw, Delaware, Grady, Harper, Haskell, Hughes, Jefferson, Johnston, LeFlore, Mayes, McCurtain, McIntosh, Muskogee, Oklahoma, Osage, Ottawa, Payne, Pontotoc, Pottawatomie, Pushmataha, Rogers, Tillman, Tulsa, Wagoner, and Woodward.

Corimelaena marginella Dallas

This small bug is quite similar to C. pulicaria, except that the pale markings of the coria do not cross the subcostal vein. Collected in June, July and September. Length 2 to 3 mm.

County Records: McCurtain and Payne.

FAMILY CYDNIDAE

Key to Species

(Modified from Froeschner, 1960)

1. Clavi meeting beyond short scutellum and forming a commissure almost as long as scutellum (Figure 22) -----Amnestinae, Amnestus 2
 Clavi not meeting beyond scutellum, not forming a claval commissure (Figure 23) -----5
2. Jugum with 5 marginal pegs -----3
 Jugum with 4 marginal pegs -----4
3. Labium long, reaching or surpassing base of abdomen -----A. spinifrons (Say)
 Labium short, not surpassing middle coxae -----A. pallidus Zimmer
4. Male with subapical ventral spine of posterior femur more than one-third length of tibia (Figure 24); female with last sternite having a medially flattened, glabrous area delimited laterally by partial or complete, obtuse, longitudinal carinae (Figure 25) -----A. pusillus Uhler
 Male with subapical ventral spine of posterior femur shorter than vertical height of femur; female with last sternite having no flattened glabrous area, or if present, not so delimited laterally -----A. basidentatus Froeschner
5. Pronotum with a lateral, submarginal row of setigerous punctures; lateral margins of pronotum, coria, and abdomen never white -----Cydninae 6
 Pronotum without a lateral, submarginal row of setigerous punctures; lateral margins of pronotum, coria, and abdomen white -----Sehirinae; Sehirus cinctus cinctus (Beauvois)

6. Anterior part of ostiolar peritreme modified apically into a distinctly differentiated loop, lobe or band which is wider than the basal part of the peritreme and more or less polished (Figures 26, 27) -----7
 Anterior part of ostiolar peritreme without enlarged, differentiated apical structure (Figure 28) -----11
7. Ostiolar peritreme an elongate polished band, three or more times as long as wide -----Rhytidoporus compactus (Uhler)
 Ostiolar peritreme a polished lobe or loop, not more than two times as long as wide -----8
8. Metapleural evaporatorium very limited, just outlining peritreme, not approaching metapleural lamella posteriorly (Figure 27) -----
 -----Microporus obliquus Uhler
 Metapleural evaporatorium more extensive, occupying more than half of sclerite and nearly or quite reaching base of metapleural lamella posteriorly (Figure 26) -----Melanaethus 9
9. Head dorsally impunctate or with a few patches of minute punctures -----M. pensylvanicus (Signoret)
 Head dorsally distinctly punctate or rugopunctate over most of surface -----10
10. Pronotal disc, especially transverse impression, with numerous punctures of which many are as coarse as those on sides; scutellum usually distinctly punctured to base -----M. robustus Uhler
 Pronotal disc, especially transverse impression and posterior lobe, polished, with few minute punctures much finer than those on sides; scutellar punctuation becoming obsolete basally -----M. uhleri (Signoret)
11. Pronotum anteriorly with a deep, sharply impressed line paralleling anterior margin from side to side (this line usually impunctate) --Pangaeus 12
 Pronotum anteriorly without an impressed line, although often with a row of punctures in the same area -----13
12. Jugal and clypeus with a complete submarginal row of pegs -----
 -----P. congruus (Uhler)
 Jugal and clypeus without a row of pegs -----P. bilineatus (Say)
13. Posterior tibia conspicuously compressed, anterior and posterior faces glabrous, not spined; spines of posteroventral margin conspicuously longer, thinner, and more tapering than those of dorsal margin -----
 -----Cyrtomenus ciliatus (Beauvois)
 Posterior tibia not or only weakly compressed; dorsal and ventral spines about equally developed -----Dallasiellus discrepans (Uhler)

SUBFAMILY SEHIRINAE

Sehirus cinctus cinctus (Beauvois)

This is the most distinctive of the Oklahoma cydnids due to the white margins on the pronotum, coria, and abdomen. It is often swept from alfalfa and there are a few records from weeds, wheat, pasture, and pecan and peach trees. Adults have been taken from February to August. Length 4.1 to 5.9 mm.

County Records: Bryan, Canadian, Carter, Cleveland, Cotton, Creek, Grady, Jackson, Johnston, Kay, Kingfisher, LeFlore, Lincoln, Marshall, Noble, Oklahoma, Osage, Pawnee, Payne, Pittsburg, Stephens, Tillman, Tulsa, Wagoner, and Washington.

SUBFAMILY CYDNINAE

Rhytidoporus compactus (Uhler)

A small, black bug which is similar to our species of Microporus and Melanaethus except for the shape of the ostiolar peritreme. It is known from Southern Texas to Southern California and was not expected in Northwest Oklahoma. Length 4 to 5 mm.

County Records: One specimen, 6 miles SE of Arnett, Ellis County, 7 August 1968, sweeping rangeland, D.C. Arnold.

Microporus obliquus Uhler

A small, black, uncommon bug found in the western part of the state. Active adults have been taken in April, May, July, and August. Others have been found in overwintering quarters in clumps of dropseed and silverbeard bluestem in January and November. Length 3.7 to 5 mm.

County Records: Cimarron, Ellis, Harper, Jefferson, Payne, and Woods.

Melanaethus pensylvanicus (Signoret)

Our three species of Melanaethus are small, shining black bugs and are quite similar except for the characters given in the key. All of our specimens of M. pensylvanicus have been taken from overwintering quarters in bunch grasses, such as big and little bluestem, broomsedge, and dropseed, in January and December except for one collection in July and one in September. Length 3.3 to 3.6 mm.

County Records: Bryan, Creek, Delaware, Mayes, Payne, Pushmataha, and Sequoyah.

Melanaethus robustus Uhler

An uncommon species in Oklahoma. One of our specimens was taken from a clump of big bluestem in January. Others were collected in March and May. Length 3.6 to 4 mm.

County Records: Marshall and Payne.

Melanaethus uhleri (Signoret)

Also uncommon in Oklahoma. We have one specimen taken from a clump of little bluestem in November and Froeschner (1960) reports a specimen taken in May. Length 3.9 to 4.3 mm.

County Records: Delaware and Pontotoc.

Pangaeus bilineatus (Say)

A medium sized bug that is usually black but may be partly reddish-brown. It is fairly common in all areas of the state. Adults have been taken from April to October. Our only host record is of large numbers found burrowing in a lawn in Marshall County. Length 5.3 to 7.8 mm.

County Records: Alfalfa, Blaine, Caddo, Comanche, Craig, Creek, Garvin, Greer, Jackson, Johnston, Kiowa, Major, Marshall, McCurtain, Osage, Payne, Pontotoc, Stephens, Texas, Tulsa, and Woods.

Pangaeus congruus (Uhler)

This species is similar to P. bilineatus except for the row of pegs on the front of the head, its smaller size, and it is more likely to be reddish-brown. It is rare in Oklahoma. Our two specimens were taken in September and October. Length 4.4 to 5.1 mm.

County Records: Texas.

Cyrtomenus ciliatus (Beauvois)

This is the largest species commonly found in the state. Unlike most of the other species it is usually dark reddish-brown in color. Adults have been taken once in April and from June to September. Length 6.7 to 8 mm.

County Records: Beaver, Beckham, Garvin, Jackson, Lincoln, Love, Mayes, Muskogee, Oklahoma, Payne, Sequoyah, and Tulsa.

Dallasiellus discrepans (Uhler)

This species is slightly larger than C. ciliatus but is very uncommon. It was described from specimens collected in California and near Fort Cobb, Indian Territory (Caddo County, Oklahoma). Adults have been taken in July. Length 6.8 to 8.3 mm.

County Records: Caddo (Uhler, 1877) and Cimarron (Froeschner, 1960).

SUBFAMILY AMNESTINAE

Amnestus basidentatus Froeschner

All of the Amnestus species which should be found in Oklahoma are small and light colored and have a much smaller scutellum than usual for the family. This species is light brownish-yellow with the coria, legs, and labium slightly but distinctly paler. Length 1.8 to 2 mm.

County Records: One specimen, Kulli Recreation Area, McCurtain County, 28 June 1983, black light trap, H. Reed & J. Nelson.

Amnestus pallidus Zimmer

This species is slightly larger than A. basidentatus and reddish-brown in color. Length 2.1 to 3.3 mm.

County Records: None, but it has been reported from most of the surrounding states.

Amnestus pusillus Uhler

A. pusillus is yellowish-tan usually with the legs, coria, and labium paler. It is fairly common in the eastern half of the state. Adults have been collected in January, June, July, September, and November. One specimen was found in overwintering quarters in a clump of little bluestem. Length 2.1 to 2.7 mm.

County Records: Adair, Caddo, Carter, Cherokee, Choctaw, Craig, Delaware, Greer, LeFlore, Marshall, Mayes, McCurtain, Okmulgee, Ottawa, Payne, Texas, and Tulsa.

Amnestus spinifrons (Say)

This species is dark reddish-brown with the appendages paler. It is the largest of our Amnestus species. Length 2.7 to 3.7 mm.

County Records: One specimen, Banks of Cimarron River near Perkins, Payne County, 14 April 1962, K. Schaefer.

FAMILY PENTATOMIDAE

Key to the Species

(Modified from Torre-Bueno, 1939, Froeschner, 1941, Sailer, 1952, and Barber and Sailer, 1953)

1. Scutellum U-shaped, reaching tip of abdomen or nearly so (Figure 46); frena much less than one-third the length of the scutellum --Podopinae 2
 Scutellum of various shapes but if U-shaped not reaching tip of abdomen; frena at least one-third as long as scutellum -----3
2. Anterolateral margin of pronotum with a subquadrate, denticulate lobe near the anterior angle (Figure 48) -----Oncozygia clavicornis Stal
 Anterolateral margin of pronotum with an acute tooth near the anterior angle (Figure 47) -----Amaurochrous dubius cinctipes (Say)
3. Bucculae subparallel, not united posteriorly, segment I of rostrum lying within the groove between them (Figures 30, 31) -----Pentatominae 4
 Bucculae convergent and united behind, segment I of rostrum directed away from the head, only its base lying between the bucculae (Figure 32) -----Asopinae 48
4. Jugae laterally toothed near apex (Figure 33) -----
 -----Halyini; Brochymena 5
 Jugae not toothed laterally near apex -----7
5. Humeral projections subquadrate, prominently toothed (Figure 34); ostiole with neither auricle or canal -----B. arborea (Say)
 Humeral projections subtriangular with small teeth (Figure 36); ostiole with a distinct auricle -----6
6. Antennal segments II and III subequal or segment II longer than III-----B. cariosa Stal
 Antennal segment II shorter than III -----B. quadripustulata (F.)
7. Body flat, regularly ovate, broadest behind middle, margins all explanate; head flat above with a thin dilated margin, about as wide as the scutellum; scutellum broad, scarcely narrowed apically -----
 -----Sciocorini; Sciocoris microphthalmus Flor
 Body not extremely flat, usually broadest at humeri, margins not uniformly explanate; head not widely dilated, convex above if as wide as scutellum but generally narrower -----8
8. Venter with first three segments on each side of middle with a curved stridulatory band, finely and densely cross-striated; body elongate, about four times as long as wide -----Mecideini; Mecidea 9

- Venter without stridulatory bands; body not over three times as long as its greatest width -----Pentatomini 10
9. Midventral line of abdomen usually with dark markings; black spots just below abdominal setigerous punctures each with greatest diameter not exceeding one-twelfth length of its supporting segment; male hypopygium with a small tubercle near the posterior ventral margin (Figure 49) -----M. minor Ruckes
- Midventral line of abdomen without dark markings; black spots just below abdominal setigerous punctures each with greatest diameter equal to one-eighth length of its supporting segment; male hypopygium without a tubercle (Figure 50) -----M. major Sailer
10. Middle of second ventral produced forward or between posterior coxae as a stout spine or tubercle (Figure 36) -----11
- Middle of second ventral not produced forward as a spine or tubercle -----18
11. Jugae distinctly longer than tylus -----12
- Jugae not exceeding tylus -----13
12. Jugae straight, acute, not converging in front of tylus (Figure 37) ----
-----Arvelius albopunctatus (DeGeer)
- Jugae meeting in front of tylus (Figure 38) -----
-----Dendrocoris humeralis (Uhler)
13. Ostiolar canal acuminate, reaching over halfway to the lateral margin of the metasternum (Figure 39) -----14
- Ostiolar canal subtruncate, reaching about one-third the distance to the lateral margin of the metasternum (Figure 40) -----Nezara viridula (L.)
14. Size larger, 14 mm or more; ventral II with a distinct spine (Figure 36) -----Acrosternum hilare (Say)
- Size smaller, 11 mm or less; ventral II with a broad tubercle -----
-----Banasa 15
15. Color green with distinct white callosities at basal angles of scutellum -----B. euchlora Stal
- Color variable but without distinct white callosities at basal angles of scutellum -----16
16. Pronotum, disc of scutellum, and corium concolorous, usually brownish -----B. sordida (Uhler)
- Pronotum bicolored, greenish or olive anteriorly and reddish-brown posteriorly and/or corium with reddish coloration contrasting with greenish scutellum -----17
17. Rostrum long, surpassing posterior margin of tubercle bearing abdominal sternite -----B. packardi Stal
- Rostrum short, not reaching posterior margin of tubercle bearing sternite -----B. dimidiata (Say)
18. Ostiole without a distinct, free-edged auricle, the margin of the orifice v-shaped at inner end, continued exteriorly as a narrow, tapering, evanescent canal (Figures 39, 40, 41) -----19
- Ostiole with a short, curved, raised auricle with a more or less free obtusely rounded apex (Figure 42) or rarely, without canal or auricle -----29
19. Jugae longer than and meeting, or nearly so, in front of tylus -----20
- Jugae not longer than tylus -----21

20. Lateral margins of pronotum rather straight, smooth and pale; antennal segment II longer than I -----Holcostethus limbolarius (Stal)
 Lateral margins of pronotum concave, not paler than disk; antennal segments I and II subequal -----Dendrocoris humeralis (Uhler)
21. Ostiolar canal continued as a ridge and extending obliquely to the outer front margin of the metasternum (Figure 41) -----Thyanta 22
 Ostiolar canal not reaching beyond the middle of the metasternum (Figure 40) -----24
22. Antennal segment II one and one-half to two times as long as III; length 7 mm or less -----T. punctiventris VanDuzee
 Antennal segments II and III subequal or II slightly longer; length 8 mm or more -----23
23. Anterolateral margins of pronotum, apical angles of the abdominal segments, a row of prominent post-spiracular spots on each side of the abdominal venter, and a spot in the inner angle of each pronotal cicatrice black -----T. calceata (Say)
 Anterolateral margins of pronotum pale or concolorous; no black spots in the pronotal cicatrices; post-spiracular black spots small and inconspicuous -----T. accerra McAtee
24. Frena not reaching midscutellum; color brown with pale markings; body distinctly pubescent -----Trichopepla semivittata (Say)
 Frena exceeding midscutellum (Figure 29); color predominantly green or gray; not pubescent -----Chlorochroa 25
25. Rostral segment III shorter than II and about equal to IV -----26
 Rostral segment III about equal to II and longer than IV -----28
26. Color gray, margins of pronotum and abdomen and apex of scutellum red -----C. ligata (Say)
 Color green, margins of body and apex of scutellum pale or tinged with reddish -----27
27. Base of scutellum with three large pale spots; numerous small, smooth, pale points on the scutellum, pronotum, and hemelytra ---C. sayi Stal
 Base of scutellum without pale spots; no pale points on body -----C. opuntiae Esselbaugh
28. Anterolateral margins of pronotum carinated but not distinctly reflexed; scutellum unicolorous -----C. viridicata (Walker)
 Anterolateral margins of pronotum acutely carinated, sharply reflexed; scutellum with a pale stripe on the median line -----C. faceta (Say)
29. Head at least seven-eighths as wide as scutellum; prothorax with a large plate-like production of the anterior margin on each side ventrally ---30
 Head less than seven-eighths as wide as scutellum; no platelike productions on prothorax -----32
30. Pronotum with a median ridge only; color mostly black and brown --
 -----Neottiglossa 31
 Pronotum faintly three-ridged; color clay-yellow with darker punctures forming stripes -----Aelia americana Dallas
31. Deflected anterior part of head a little impressed on each side of the tylus, not forming an excavated basin; tylus quite distinctly elevated to the apex -----N. sulcifrons Stal

- Deflected anterior part of head strongly impressed, forming an excavated basin in which the tylus is not at all elevated -----N. cavifrons Stal
32. Side margins of head reflexed; head strongly deflexed; ostiole without an evident raised auricle -----Murgantia histrionica (Hahn)
- Side margins of head not reflexed; head usually not deflexed; ostiole with an auricle (Figure 42) -----33
33. Humeral angles of pronotum with a distinct obtuse process which is emarginate behind (Figure 43) -----Prionosoma podopioides Uhler
- Humeral angles not as above, rounded or spinose -----34
34. Tylus acute at apex, strongly surpassing jugae (Figure 44) -----Proxys punctulatus (Beauvois)
- Tylus rounded at apex, not surpassing jugae -----35
35. Posterior tibiae smoothly rounded above, at least on basal half ----36
- Posterior tibiae feebly or strongly sulcate above -----38
36. Bucculae strongly arcuate, much exceeded posteriorly by rostral segment I -----37
- Bucculae nearly straight-edged, not exceeded posteriorly by rostral segment I -----Oebalus pugnax (F.)
37. Scutellum black with a smooth pale margin around all except base -----Mormidea lugens (F.)
- Scutellum not pale-margined -----Cosmopepla bimaculata (Thomas)
38. Bucculae sloping off at posterior end, without an evident posterior lobe (Figure 31) -----39
- Bucculae elevated at posterior end into a distinct lobe, ending abruptly behind (Figure 30) -----45
39. Margins of pronotum arcuate and explanate; veins of membrane anastomosing -----Meneclis insertus (Say)
- Margins of pronotum sinuate, not flattened; veins not anastomosing -----Euschistus 40
40. Connexivum usually entirely pale (Figure 29); antennal V and apical half of IV dark -----E. latimarginatus Zimmer
- Each segment of connexivum pale at middle and dark at each end; antennal color variable -----41
41. Venter of abdomen with at least one, usually a row of, median black spots anterior to the male genital capsule -----E. tristigmus tristigmus (Say)
- Venter of abdomen without median black spots except sometimes with a spot on the male genital capsule -----42
42. Ventrals with distinct black spots at the anterior lateral angles ----43
- Ventrals without such black spots -----44
43. Pronotum with anterolateral margins straight or nearly so, pale margin bordered within by a well-defined line of black punctures; ventral apical margin of male pygophore with a median V-shaped notch and a smaller one on either side of it -----E. politus Uhler
- Pronotum with margins sinuate, pale margin not bordered by a distinct line of black punctures; margin of male pygophore broadly concave to subtruncate -----E. servus servus (Say)
44. Spiracular rings black; a raised, smooth, pale interhumeral line usually evident; genital segment of male without a black spot at its base -----E. ictericus (L.)

- Spiracular rings pale; no evident raised, smooth interhumeral line; male genital segment with a blackish basal spot -----E. variolarius (Beauvois)
45. Scutellum slightly shorter than coria, its apical part narrower than a single hemelytron -----Hymenarcys 46
 Scutellum as long as coria, its apical part broader than an hemelytron -----Coenus 47
46. Side margins of pronotum straight or slightly concave; humeral angles subacute -----H. aequalis (Say)
 Side margins of pronotum broadly arcuate; humeral angles broadly rounded -----H. nervosa (Say)
47. Head with punctures noticeably smaller than those of pronotum; connexival segments with punctures scattered throughout; male genital segment without a marginal tooth -----C. inermis Harris & Johnston
 Head and pronotum with punctures similar in size; connexival segments with punctures limited to the inner half; male genital segment with an upright tooth on the posterior margin -----C. delius (Say)
48. Scutellum large, U-shaped, surpassing coria and almost reaching apex of the abdomen -----Discocerini; Stiretrus anchorago (F.)
 Scutellum never surpassing coria, not broad and U-shaped -----Asopini 49
49. Anterior femora with an anteapical spine or tubercle below (Figure 45) -----Perillus bioculatus (F.)
 Anterior femora unarmed -----50
50. Rostral segment II as long as or longer than III and IV together -----Euthyrhynchus floridanus (L.)
 Rostral segment II shorter than III and IV together -----51
51. Rostral segment IV twice as long as III; margins of pronotum entire -----Perillus strigipes (H.-S.)
 Rostral segments III and IV subequal; margins of pronotum crenate -----52
52. Jugae slightly surpassing apex of tylus; length 15 mm or more -----Apateticus cynicus (Say)
 Jugae equalling tylus; length 14 mm or less -----Podisus 53
53. Scutellum without, or with very small, callous spots at base; tibiae with a dorsal sulcus; ostiolar canal long and curved -----54
 Scutellum with three large, calloused spots at base; tibiae without a dorsal sulcus; ostiolar canal short and straight -----P. acutissimus Stal
54. Membrane with dark stripe or blotch; humeri acute -----P. maculiventris (Say)
 Membrane without dark stripe or blotch; humeri rounded -----P. placidus Uhler

SUBFAMILY PODOPINAE

Oncozygia clavicornis Stal

A small, shining black bug covered with curved, appressed, pale hairs. It is not common in Oklahoma, but one specimen was found in

overwintering quarters in a clump of Indian grass in November and two were found in ungrazed pasture in July. Length 5 mm.

County Records: Atoka and Osage.

Amaurochrous dubius cinctipes (Say)

A small, brownish colored bug collected in May, June and July. It is uncommon in Oklahoma. Length 5 to 7.5 mm.

County Records: Kay, Osage, Payne, and Tulsa.

SUBFAMILY PENTATOMINAE

Tribe Sciocorini

Sciocoris microphthalmus Flor

A cold climate bug found mostly in mountainous parts of northern North America. We were quite surprised to find it in southern Oklahoma. One specimen was taken from overwintering quarters in a clump of little bluestem in January and one was taken sweeping pasture in May. Length 5 mm.

County Records: Bryan and Love.

Tribe Mecideini

Mecidea minor Ruckes

The genus is easily distinguished by the long, narrow body and the stridulatory bands on the venter. The species differ only in the characters given in the key. This is a western species and seems to be most common in sandy rangeland in northwestern Oklahoma. Adults are active from May to October. Length 9 to 11 mm.

County Records: Comanche, Ellis, Garvin, Kiowa, Payne, Tillman, and Woodward.

Mecidea major Sailer (Figure 52)

Very similar to M. minor except for the characters given in the key. This species is somewhat more common than M. minor and is found farther east in the state, but it also seems to be most common in sandy rangeland in the northwestern counties. Adults are active from June to November and have been found overwintering in clumps of little bluestem and broomsedge in November. This species has been taken in seed fields of old world bluestems where it feeds on the developing seed heads. Length 9.5 to 12.7 mm.

County Records: Alfalfa, Atoka, Beaver, Blaine, Caddo, Comanche, Creek, Ellis, Garfield, Grady, Harper, Hughes, Jackson, Jefferson, Kingfisher, Kiowa, Major, McClain, Okfuskee, Osage, Payne, Pontotoc, Stephens, and Woodward.

Tribe Halyini

Brochymena arborea (Say)

A large, gray bug usually found on trees or hibernating beneath loose bark. It is the least common of our three Brochymena species. Length 12 to 17 mm.

County Records: Beaver, Caddo, Osage, Pawnee, Payne, Pontotoc, and Sequoyah.

Brochymena cariosa Stal

This is also a large, gray bug found on trees or beneath loose bark. It is known to be a predator of the elm leaf beetle [Pyrrhalta luteola (Muller)] in Oklahoma (Eikenbary and Raney, 1968). Taken in all months except January. Length 17 to 19 mm.

County Records: Carter, Cimarron, Ellis, Jackson, Kingfisher, Lincoln, Logan, Murray, Noble, Osage, Payne, Pontotoc, Washita, and Woodward.

Brochymena quadripustulata (F.) - Rough stink bug

This appears to be the most common Brochymena in the state. It is also large and gray and usually found on trees or under loose bark. It is an important predator of the elm leaf beetle (Eikenbary and Raney, 1968). Adults have been taken in all months of the year. Length 8 to 18 mm.

County Records: Beaver, Bryan, Cimarron, Cleveland, Custer, Garfield, Grady, Grant, Jackson, Kingfisher, Kiowa, Latimer, Lincoln, Mayes, McCurtain, Okfuskee, Payne, Pontotoc, Pushmataha, Seminole, Texas, Tulsa, Wagoner, Washington and Woodward.

Tribe Pentatomini

Holcostethus limbolarius (Stal)

A small, brown bug with a white-tipped scutellum and white margins. Adults have been taken from March to December. Host records include Haplopappus ciliatus (Nutt.) DC., Gutierrezia sp., and other weeds, and it is occasionally swept from alfalfa and cotton. Length 7.5 to 9 mm.

County Records: Beaver, Beckham, Blaine, Caddo, Craig, Delaware, Ellis, Grant, Jackson, Jefferson, Johnston, Kay, LeFlore, Major, McCurtain, McIntosh, Noble, Okmulgee, Osage, Ottawa, Payne, Pontotoc, Pottawatomie, Roger Mills, Seminole, Sequoyah, Texas, Tulsa, Washington, Woods, and Woodward.

Trichopepla semivittata (Say)

This is a small brown bug with pale yellowish markings. It is usually found on weeds such as Gutierrezia sp., Haplopappus sp., and Cirsium sp. from May to October. Length 6 to 8 mm.

County Records: Carter, Choctaw, Comanche, Craig, Garvin, Jackson, Jefferson, Johnston, Kiowa, McClain, McCurtain, McIntosh, Murray, Osage, Pawnee, Payne and Pontotoc.

Chlorochroa faceta (Say)

This bug has a green body with pale margins and a pale stripe on the midline of the scutellum. Length 11 mm.

County Records: Alfalfa and Woods.

Chlorochroa ligata (Say)-Conchuela

This large gray bug has the margins of the body and tip of the scutellum red. It is a pest of cultivated crops and has been taken on alfalfa, cotton, grain sorghum, soybeans, and wheat. Other hosts in Oklahoma are Helianthus sp., Salsola Kali L., var. tenuifolia Tausch, bush honeysuckle, and weeds. Adults are occasionally found in April and May and are sometimes common in western Oklahoma from June to October. Length 12.5 to 15 mm.

County Records: Alfalfa, Beaver, Beckham, Cimarron, Garfield, Garvin, Grady, Harper, Jackson, Kay, Kiowa, Love, Payne, Roger Mills, Seminole, Stephens, Texas, Tillman, Washita, and Woods.

Chlorochroa opuntiae Esselbaugh

This bug is green with pale or reddish markings as noted in the key. The beak is longer than in C. sayi, reaching to the third or fourth abdominal segment. It has been taken only in the western end of the Panhandle, but is sometimes common there on cholla cactus [Opuntia imbricata (Haw.) DC.] in July and August. Length 11 to 15 mm.

County Records: Cimarron.

Chlorochroa sayi (Stal) - Say stink bug

This bug is also green with pale or reddish markings. The beak reaches only to the hind coxae. It is usually not common in Oklahoma, but has been taken on alfalfa and sorghum heads and by sweeping roadsides in a few western counties in June, July, and August. Fenton and Whitehead (1944) reported scattered heavy infestations on Russian thistle and wheat in Cimarron and Texas Counties in the spring of 1940. Length 10 to 16 mm.

County Records: Cimarron, Jackson, and Texas.

Chlorochroa viridicata (Walker)

A pale greenish bug with pale body margins. We have four specimens taken in June and July. One was taken by sweeping rangeland. Length 8 to 9 mm.

County Records: Cimarron.

Mormidea lugens (F.)

A small black and brown bug with yellowish markings on the pronotum and the edges of the scutellum. Adults have been taken from April to September on alfalfa, wheat, broomcorn, and Rudbeckia sp. and by sweeping weedy areas and meadows. A few have also been found in February and December under logs. Length 5.5 to 6.5 mm.

County Records: Adair, Atoka, Bryan, Caddo, Carter, Choctaw, Comanche, Creek, Garfield, Garvin, Hughes, Latimer, LeFlore, Okmulgee, Mayes, McCurtain, Murray, Osage, Pawnee, Payne, Pittsburg, Pontotoc, Pushmataha, Rogers, Tillman, and Tulsa.

Oebalus pugnax (F.) - Rice stink bug (Figure 53)

This is a slender brownish-yellow bug with the humeral angles spinose and pointed forward. It is common over much of the state and has been taken on wheat and alfalfa, in sorghum heads, on asparagus, and by sweeping weeds and grass. Adults are active from April to November and have been taken from bunch grasses such as broomsedge and big and little bluestem in November. Length 10 to 12 mm.

County Records: Alfalfa, Beaver, Beckham, Bryan, Carter, Choctaw, Cleveland, Coal, Cotton, Creek, Garvin, Grant, Haskell, Hughes, Jefferson, Johnston, Kingfisher, Lincoln, Major, McCurtain, McIntosh, Noble, Osage, Pawnee, Payne, Pittsburg, Pontotoc, Pottawatomie, Sequoyah, Stephens, Texas, Tulsa, and Woodward.

Euschistus ictericus (L.)

All of our Euschistus spp. are medium-sized, brown bugs and can best be distinguished by the characters given in the key. This species is not common but has been taken in a few counties from August to October. One specimen was feeding on a fruit of Hibiscus militaris Cav. Length 10.5 to 12.5 mm.

County Records: Alfalfa, Lincoln, Muskogee, Payne, and Pontotoc.

Euschistus latimarginatus Zimmer

An uncommon species of which we have only a few collections taken from May to August and in October. Three of these were on yucca and two were on Mentzelia stricta (Osterhout) Stevens. Length 14.5 to 15 mm.

County Records: Alfalfa, Cimarron, Custer, Kingfisher, and Woodward.

Euschistus politus Uhler

This species is smaller than our other species of Euschistus but is otherwise similar in appearance. It occurs mostly north and east of Oklahoma, but has recently been taken in the northeastern corner of the state. It is rare in Oklahoma. Length 8 to 10 mm.

County Records: One specimen, Peoria, Ottawa County, 1 June 1983, H. Reed and J. Nelson.

Euschistus servus servus (Say) - Brown stink bug

A very common species, especially in eastern Oklahoma. Some specimens grade toward E. s. euschistoides (Vollenhoven), but we have not seen a specimen from Oklahoma that really fits the description of E. s. euschistoides and have not included it in the key. Adults of E. s. servus have been taken from April to November on alfalfa, cotton, soybeans, corn, wheat, blackberry, mullein, okra, asparagus, goldenrod, Helianthus sp., musk thistle, yucca and weeds and by sweeping pastures and roadsides. A few have been taken on pecan, oak, black locust, and sumac trees. Length 12.5 to 15 mm.

County Records: Adair, Alfalfa, Bryan, Caddo, Carter, Cherokee, Choctaw, Cimarron, Cleveland, Comanche, Craig, Delaware, Garvin, Grady,

Grant, Hughes, Jackson, Jefferson, Johnston, Kay, Kingfisher, Kiowa, Latimer, LeFlore, Lincoln, Love, Mayes, McCurtain, McIntosh, Murray, Noble, Oklahoma, Okmulgee, Osage, Ottawa, Pawnee, Payne, Pittsburg, Pontotoc, Pottawatomie, Pushmataha, Sequoyah, Texas, Tillman, Tulsa, Woods, and Woodward.

Euschistus tristigmus tristigmus (Say) - Dusky stink bug

This species is easily distinguished by the black spots on the abdominal segments. There are two forms in Oklahoma. One has spinose or acute humeri, the other has prominent, but rounded, humeri. These forms have been designated as different subspecies, E. t. pyrrhocerus H.-S. and E. t. tristigmus (Say) respectively, by many authors. It is now known (McPherson, 1974) that this difference is caused by the length of the photoperiod under which the nymphs develop. Adults have been taken from April to November on weeds, tree trunks, and the fruit of Cephalanthus occidentalis L. (buttonbush). Length 10 to 12 mm.

County Records: Alfalfa, Carter, Cherokee, Choctaw, Comanche, Craig, Delaware, Garvin, Johnston, Latimer, LeFlore, McCurtain, Murray, Muskogee, Noble, Osage, Ottawa, Payne, Pittsburg, Pontotoc, Pushmataha, Tulsa, and Woodward.

Euschistus variolarius (Beauvois) - Onespotted stink bug

Adults have been collected from February to November. Those taken in November were overwintering in clumps of broomsedge and little bluestem. A few have been taken in wheat and alfalfa in April and May. Other records are blackjack oak, cottonwood, goldenrod, musk thistle, blackberry, and Symphoricarpos orbiculatus Moench. Length 11.5 to 14 mm.

County Records: Cleveland, Craig, Ellis, Johnston, Logan, Murray, Oklahoma, Okmulgee, Osage, Ottawa, Pawnee, Payne, Rogers, Stephens, Tulsa, and Washington.

Proxys punctulatus (Beauvois) (Figure 54)

A distinctive black bug with a white tip on the scutellum and spinose humeri. It occurs mostly in eastern Oklahoma, but has been taken in Ellis County. Adults are active from May to September. Length 11 to 13 mm.

County Records: Bryan, Cherokee, Choctaw, Delaware, Ellis, Latimer, McCurtain, Okmulgee, Osage, Ottawa, Payne, Pushmataha, and Tulsa.

Coenus delius (Say)

Very similar to C. inermis except as noted in the key. We have two specimens from northwest Oklahoma. One was swept from rangeland in May and one was on tumbleweed (Salsola Kali L.) in September. Length 8.5 to 10.5 mm.

County Records: Ellis and Harper.

Coenus inermis Harris & Johnston

An uncommon brownish colored bug. We have only two specimens, both taken in June in eastern Oklahoma. One specimen was collected on

blackjack oak. Length reported to be 11 to 11.6 mm. Our specimens are 9.5 and 9.8 mm long, but otherwise agree very well with the original description by Harris and Johnston (1936).

County Records: McCurtain and Osage.

Hymenarcys aequalis (Say)

A small brown species very seldom collected during the summer months. Most have been taken under rocks or logs in October, December, February, and March. We have a few from April, June, July, and September, also. Length 6.5 to 9 mm.

County Records: Johnston, Mayes, Noble, Osage, Pawnee, Payne, Pontotoc and Tillman.

Hymenarcys nervosa (Say)

Resembles H. aequalis but is slightly larger and has a narrow pale tip on the scutellum. It is more common and more often collected during the summer. Adults have been collected from alfalfa, eggplant, grass, sunflower, weeds, vetch, and meadows from April to October, in clumps of dropseed in November and December, and under rocks and logs in February. Length 8.5 to 11.5 mm.

County Records: Adair, Bryan, Choctaw, Craig, Garvin, Greer, Hughes, Johnston, LeFlore, Lincoln, Marshall, Mayes, McCurtain, Murray, Muskogee, Noble, Ottawa, Payne, Pittsburg, Pontotoc, Pottawatomie, Rogers, Sequoyah, Stephens, Tillman, Tulsa and Wagoner.

Aelia americana Dallas

This species is medium-sized and brown and yellowish striped. It is seldom common but moderate numbers have been taken in sandy rangeland in northwestern Oklahoma. One specimen was swept from alfalfa. Adults have been taken in January, from April to August, and in October. The specimen collected in January was overwintering in a clump of little bluestem. Length 8.5 to 9 mm.

County Records: Comanche, Custer, Grady, Kingfisher, Osage, Payne, and Woodward.

Neottiglossa cavifrons Stal

A small black and brown species with a few pale markings. We have only four specimens. One was taken sweeping meadowland in May and two were caught in malaise traps in April and May. One was overwintering in a clump of broomsedge in November. Length 4 to 5 mm.

County Records: Mayes, McCurtain, and Okmulgee.

Neottiglossa sulcifrons Stal

Similar in appearance to N. cavifrons except for the shape of the head. Also taken by sweeping meadows, pastures, and alfalfa and overwintering in clumps of broomsedge and big and little bluestem. Adults have been collected in January, April to July, September, November, and December. Length 4 to 5 mm.

County Records: Blaine, Comanche, Cotton, Grady, Johnston, Lincoln, Major, Mayes, Oklahoma, Okmulgee, Osage, Payne, Pottawatomie, and Woodward.

Cosmopepla bimaculata (Thomas) (Figure 55)

A small black species with red markings on the pronotum and margins of the abdomen and two red spots near the apex of the scutellum. It appears to be rare in Oklahoma. It has been swept from alfalfa. Length 5 to 6 mm.

County Records: Grady and Muskogee.

Meneclis insertus (Say)

This is a brown bug with the margins of the pronotum flattened and expanded. Adults have been taken in all months except August. Length 12 to 14 mm.

County Records: Adair, Bryan, Caddo, Canadian, Cherokee, Comanche, Delaware, Garvin, Grady, Kingfisher, Mayes, McCurtain, McIntosh, Muskogee, Osage, Pawnee, Payne, Pontotoc, Pottawatomie, Tillman, and Washington.

Prionosoma podopioides Uhler

A medium-sized, hairy, gray or brownish bug. The humeral angles make it readily identifiable. Adults are active from March to August and are usually collected by sweeping pasture or rangeland. We have one specimen from cotton and one from puncturevine. During November and December they are commonly found overwintering in clumps of broomsedge and little bluestem. Length 9 mm.

County Records: Beaver, Carter, Cherokee, Cimarron, Cleveland, Garvin, Harper, Haskell, Jackson, Kiowa, Love, Major, McClain, Ottawa, Pawnee, Payne, and Woods.

Thyanta calceata (Say)

A medium-sized, greenish or brownish bug with black markings as given in the key. It is found mostly in the eastern third of the state. Adults have been taken from June to October. Length 9 to 10 mm.

County Records: Delaware, Ellis, Jackson, McCurtain, Payne, Pittsburg, Pushmataha, Seminole, Sequoyah, Tulsa, Wagoner, and Woodward.

Thyanta accerra McAtee - Redshouldered stink bug

This is the most common stink bug in the state and is found in all areas of the state. Its color ranges from green to tan to brown or gray. The green specimens are often marked with red on the pronotum and tip of the scutellum and the brown specimens often have a pale stripe on the midline of the scutellum. Adults are active from March to November and have been found overwintering in clumps of little bluestem in November and December. Hosts include alfalfa, cotton, wheat, soybeans, blackeyed peas, peppers, asparagus, shortleaf pine, Johnson grass, plains bluestem, musk thistle and various weeds, including Mentzelia stricta (Osterhout) Stevens and Symphoricarpos orbiculatus Moench. Length 9 to 12 mm.

County Records: Adair, Alfalfa, Beaver, Beckham, Blaine, Bryan, Caddo, Canadian, Carter, Cherokee, Cimarron, Cleveland, Comanche, Craig, Custer, Delaware, Dewey, Ellis, Garfield, Garvin, Grady, Greer, Harper, Hughes, Jackson, Kay, Kiowa, Latimer, LeFlore, Lincoln, Logan, Love, Major, Marshall, McClain, McCurtain, McIntosh, Murray, Muskogee, Noble, Nowata, Oklahoma, Osage, Ottawa, Pawnee, Payne, Pittsburg, Pontotoc, Pushmataha, Roger Mills, Rogers, Seminole, Texas, Tillman, Tulsa, Washington, Washita, Woods, and Woodward.

Thyanta punctiventris Van Duzee

A small greenish or brownish-gray bug found in the western half of the state. Adults are active from May to October and have been collected by sweeping alfalfa and weeds. Length 6 to 7 mm.

County Records: Beaver, Cimarron, Ellis, Major, Oklahoma, Payne, Texas, Tillman, and Woodward.

Murgantia histrionica (Hahn) - Harlequin bug

This is the infamous harlequin bug of gardens. Its orange and black colors are distinctive. It is common in all areas of the state. Adults have been taken from February to October. We have seen specimens from radish, turnip, mustard, cabbage, broccoli, alfalfa, soybeans, sorghum, blackeyed peas, white sweetclover, Cleome sp., and various weeds and it has been reliably reported from spinach, horseradish, okra, lilac, and honeysuckle. Length 9 to 12.5 mm.

County Records: Beaver, Cimarron, Cleveland, Ellis, Garfield, Mayes, McClain, McCurtain, Noble, Payne, Pontotoc, Pottawatomie, Seminole, Texas, Tillman, Tulsa, Washington, and Woods.

Nezara viridula (L.) - Southern green stink bug

This is a large, green bug which is common in the southeastern states but rare, if it occurs at all, in Oklahoma. We suspect our specimen may be mislabeled but the recorded distribution is such that it might occur in southeastern Oklahoma and we have included it in the key. Length 14 to 17 mm.

County Records: One specimen, Stillwater, Payne County, 3 November 1971, Y. Singhaseni.

Acrosternum hilare (Say) - Green stink bug

This is also a large green bug, very similar to N. viridula except for the length of the ostiolar canal. It is a pest of soybeans and a few specimens have been taken on alfalfa, blackeyed peas, snap beans, cotton, asparagus, and peach, pecan and pine trees. Adults are active from February to November. Length 13 to 19 mm.

County Records: Bryan, Ellis, Garvin, Grady, Greer, LeFlore, Lincoln, Mayes, McClain, McCurtain, Muskogee, Noble, Nowata, Okfuskee, Oklahoma, Osage, Payne, Pittsburg, Pontotoc, Pottawatomie, Stephens, Tulsa, Washington, and Woodward.

Banasa euchlora Stal

This species is a bright, clear green with a few obscure yellowish markings, mainly on the scutellum. It has been taken from a few counties, mostly in southern Oklahoma, from April to October. One specimen was swept from alfalfa and one was on arborvitae. Length 9 to 11 mm.

County Records: Choctaw, Garvin, Haskell, Jackson, Johnston, Latimer, Mayes, Payne, and Tulsa.

Banasa sordida (Uhler)

A medium-sized, brownish bug with a white tip on the scutellum. It is distinguished from the following two species by the long rostrum and the lack of contrasting green and reddish-brown coloration. Length 10 to 11.5 mm.

County Records: None, but reported to occur in the entire United States by Thomas and Yonke (1981).

Banasa dimidiata (Say)

This species is recognized by the short rostrum and contrasting coloration which separate it from western populations of B. packardi and B. sordida, respectively. Eastern B. packardi have short rostrums and closely resemble B. dimidiata. They can be definitely separated by the male genitalia. In B. dimidiata the inferior ridge of the male pygophore has a pair of robust lateral teeth (Figure 51). These are not present in B. packardi. This species is not common in Oklahoma but a few have been taken in May, June, and July. One specimen was on a cottonwood tree. Length 7 to 10 mm.

County Records: Adair, Garvin, Jackson, McCurtain, Pawnee, Payne, and Tulsa.

Banasa packardi Stal

Our only specimen is a female with contrasting coloration and a long rostrum which is typical of western populations of this species. If eastern type specimens are found in Oklahoma they could best be distinguished by the lack of lateral teeth on the inferior ridge of the male pygophore. An eastern female would have a unicolored pronotum and pigmented punctations on the jugae. Eastern B. dimidiata females have bicolored pronotums and lack dark pigment in the punctations on the jugae. Length 9 to 12 mm.

County Records: One specimen, Grove, Delaware County, 27 June 1934, J. Stankavich.

Arvelius albopunctatus (DeGeer)

A large, greenish bug with small dark spots on the pronotum and scutellum and small yellow spots on the hemelytra. It is rare in Oklahoma. Length 14 to 16 mm.

County Records: One specimen, Locust Grove, Mayes County, 2 September 1972, jimsonweed, D.C. Arnold.

Dendrocoris humeralis (Uhler)

This small, reddish-brown bug is not common in Oklahoma. We have four specimens taken in April, May, and October. Two of these were on oak trees. This species has been reported as being predaceous (Kirkland, 1897). Length 6.5 to 8.5 mm.

County Records: Caddo, Creek, Love, and Texas.

SUBFAMILY ASOPINAE

Tribe Discocerini

Stiretrus anchorago (F.) (Figure 56)

This species is usually divided into two subspecies. S. a. anchorago (F.) is metallic blue-black, heavily marked with red or orange and 10 to 11.5 mm. in length. S. a. fimbriatus (Say) is brown or metallic brownish-green marked with dull yellow and 8 to 10 mm. long. Both forms are found in Oklahoma, most commonly on Siberian elm where they are predators of the elm leaf beetle (Eikenbary and Raney, 1968). They have also been collected from goldenrod and eggplant and by sweeping rangeland from April to November. Specimens collected from sumac were feeding on larvae of the leaf beetle Blepharida rhois (Forster). The subspecies are difficult to separate in Oklahoma material. We have specimens that are brownish marked with orange, others that are metallic blue-black marked with dull yellow, and others that are marked with orange, but no more than 8 mm. long. The following county records are based on specimens separated by red or orange versus dull yellow markings.

County Records: S. a. anchorago - Bryan, Caddo, Cleveland, Craig, Delaware, Ellis, LeFlore, Mayes, McCurtain, Osage, Ottawa, Pawnee, Payne, Pottawatomie, Tulsa, and Washington; S. a. fimbriatus - Choctaw, Delaware, Osage, Ottawa, Payne, and Tulsa.

Tribe Asopini

Perillus bioculatus (F.) - Twospotted stink bug

This bug has two color forms. One is black with red or orange markings on the pronotum and the margins of the scutellum and abdomen. The other is brown with pale markings similar to the above, but with the addition of pale margins on the coria. These forms have been considered separate subspecies, P. b. bioculatus (F.) and P. b. clanda (Say), respectively, by some authors. Adults have been collected from February to October. One specimen was found overwintering in a hawk's nest and another under a post on the ground. One was taken on Physalis sp. Length 8.5 to 11.5 mm.

County Records: Alfalfa, Cimarron, Cleveland, Creek, Grady, Jefferson, Kingfisher, Payne, Stephens, Texas, Tulsa, Washita, and Woodward.

Perillus strigipes (H.-S.)

Until recently this bug has been included in the genus Mineus (see Hoffman, 1971). This is a medium-sized species similar to P. bioculatus in color and markings. Adults have been taken on Siberian elm from May to August where they are predators of the elm leaf beetle (Eikenbary and Raney, 1968). They have also been taken on corn, alfalfa, and weeds. Length 9 to 10 mm.

County Records: Jackson, Jefferson, and Payne.

Euthyrhynchus floridanus (L.)

An uncommon species in Oklahoma, but a few specimens have been taken in the southeastern corner of the state in June. It is a large, bluish-black bug, more or less marked with red. Length 12 to 17 mm.

County Records: Choctaw and McCurtain.

Apateticus cynicus (Say)

This is a large, brown bug. It is uncommon in Oklahoma. Our specimens are from pecan, hickory, sumac, and post oak in May, June and July. One specimen was feeding on a small saturniid caterpillar. Length 15 to 20 mm.

County Records: Bryan, Cleveland, Garvin, Johnston, Osage, Payne, and Seminole.

Podisus acutissimus Stal (Figure 57)

A medium-sized, pale colored bug marked with red, black, and white. It is not common in Oklahoma, but a few have been collected from May to October. Adults have been found on alfalfa and mimosa and pecan trees. Length 7.5 to 10 mm.

County Records: Jackson, Lincoln, McIntosh, Payne, Texas, and Woodward.

Podisus maculiventris (Say) - Spined soldier bug

A very common, general predator, especially in the eastern half of the state. Adults have been collected from February to October. They are often common on Siberian elm and are an important predator of the elm leaf beetle (Eikenbary and Raney, 1968). They have also been taken on sumac where they were feeding on larvae of the leaf beetle Blepharida rhois, on willow feeding on larvae of the leaf beetle Chrysomela interrupta F., and on potato feeding on Colorado potato beetle [Leptinotarsa decemlineata (Say)] larvae. They are often very common in alfalfa, and specimens have been taken on wheat, sweetclover, jimsonweed, cottonwood, pecan, and apple. One specimen was found overwintering under a log. Length 10 to 14 mm.

County Records: Atoka, Bryan, Carter, Choctaw, Cleveland, Craig, Delaware, Ellis, Garvin, Grant, Hughes, Jackson, Johnston, Latimer, LeFlore, Lincoln, Logan, Love, Major, Mayes, McCurtain, McIntosh, Muskogee, Noble, Nowata, Oklahoma, Okmulgee, Osage, Ottawa, Pawnee, Payne, Pushmataha, Sequoyah, Texas, Tulsa, Wagoner, and Washington.

Podisus placidus Uhler

A medium sized, brown bug. It is not common in Oklahoma, but several were taken in cone emergence traps for the pecan weevil under pecan trees in October, 1983. Length 7.5 to 11 mm.

County Records: Lincoln and Payne.

Table I. List of the species of Pentatomoidea that have been found overwintering in bunch grasses in Oklahoma.

Scutelleridae	
Homaemus parvulus (Germ.)	Broomsedge
Corimelaenidae	
Galgupha atra A. & S.	Broomsedge Big bluestem Little bluestem
G. loboprostethia Sailer	Little bluestem
G. ovalis Hussey	Broomsedge Little bluestem Indian grass
Cydnidae	
Amnestus pusillus Uhler	Little bluestem
Melanaethus pensylvanicus (Sign.)	Broomsedge Big bluestem Little bluestem Dropseed
M. robustus Uhler	Big bluestem
M. uhleri (Sign.)	Little bluestem
Microporus obliquus Uhler	Silverbeard bluestem Dropseed
Pentatomidae	
Aelia americanus Dallas	Little bluestem
Euschistus variolarius (Beauvios)	Broomsedge Little bluestem
Hymenarcys nervosa (Say)	Dropseed
Mecidea major Sailer	Broomsedge Little bluestem
Neottiglossa cavifrons Stal	Broomsedge
N. sulcifrons Stal	Broomsedge Big bluestem Little bluestem
Oebalus pugnax (Fab.)	Broomsedge Big bluestem Little bluestem
Oncozygia clavicornis Stal	Indian grass
Prionosoma podopioides Uhler	Broomsedge Little bluestem
Sciocoris microphthalmus Flor	Little bluestem
Thyanta accerra McAtee	Little bluestem

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Plate I

- Figure 1. Tetyra bipunctata (H.-S), metapleura, lateral view.
- Figure 2. Stethaulax marmoratus (Say), metapleura, lateral view.
- Figure 3. Homaemus parvulus (Germar), metapleura, lateral view.
- Figure 4. Galgupha loboprostethia Sailer, head and prothorax, ventrolateral view.
- Figure 5. G. loboprostethia Sailer, apex of venter of male.
- Figure 6. G. atra Amyot & Serville, protibia.
- Figure 7. G. aterrima Malloch, protibia.

Plate II

- Figure 8. Galgupha carinata McAtee & Malloch, dorsal view.
- Figure 9. G. carinata McAtee & Malloch, hypopygium of male, dorsal view.
- Figure 10. G. carinata McAtee & Malloch, apex of venter of male.
- Figure 11. G. atra Amyot & Serville, dorsal view.
- Figure 12. G. atra Amyot & Serville, hypopygium of male, dorsal view.
- Figure 13. G. atra Amyot & Serville, apex of venter of male.
- Figure 14. G. aterrima Malloch, lateral view.
- Figure 15. G. aterrima Malloch, corium.
- Figure 16. G. aterrima Malloch, hypopygium of male, dorsal view.
- Figure 17. G. aterrima Malloch, apex of venter of male.
- Figure 18. G. ovalis Hussey, lateral view.
- Figure 19. G. ovalis Hussey, corium.
- Figure 20. G. ovalis Hussey, hypopygium of male, dorsal view.
- Figure 21. G. ovalis Hussey, apex of venter of male.

Plate III

- Figure 22. Amnestus pusillus Uhler, abdomen, dorsal view.
- Figure 23. Pangaeus bilineatus (Say), abdomen, dorsal view.
- Figure 24. Amnestus pusillus Uhler, male metafemur, lateral view.
- Figure 25. Amnestus pusillus Uhler, apex of venter of female.
- Figure 26. Melanaethus pensylvanicus (Signoret), meso and metapleura, lateral view.
- Figure 27. Microporus obliquus Uhler, meso and metapleura, lateral view.
- Figure 28. Pangaeus bilineatus (Say), meso and metapleura, lateral view.

Plate IV

- Figure 29. Apateticus cynicus (Say), dorsal view, after Blatchley, Heteroptera of Eastern North America.
- Figure 30. Hymenarcys nervosa (Say), head, ventrolateral view.
- Figure 31. Euschistus servus (Say), head, ventrolateral view.
- Figure 32. Apateticus cynicus (Say), head, ventrolateral view.
- Figure 33. Brochymena cariosa Stal, head, dorsal view.
- Figure 34. Brochymena arborea (Say), pronotum, dorsal view.
- Figure 35. Brochymena cariosa Stal, pronotum, dorsal view.

Plate V

- Figure 36. Acrosternum hilare (Say), abdomen, ventral view.
Figure 37. Arvelius albopunctatus (DeGeer), head, dorsal view.
Figure 38. Dendrocoris humeralis (Uhler), head, dorsal view.
Figure 39. Acrosternum hilare (Say), metapleura, lateral view.
Figure 40. Nezara viridula (L.), metapleura, lateral view.
Figure 41. Thyanta accerra McAtee, metapleura, lateral view.
Figure 42. Proxys punctulatus (Beauvois), metapleura, lateral view.
Figure 43. Prionosoma podopioides Uhler, pronotum, dorsal view.
Figure 44. Proxys punctulatus (Beauvois), head, dorsal view.
Figure 45. Perillus bioculatus (F.), profemur, lateral view.

Plate VI

- Figure 46. Amaurochrous dubius cinctipes (Say), abdomen, dorsal view.
Figure 47. Amaurochrous dubius cinctipes (Say), pronotum, dorsal view.
Figure 48. Oncozygia clavicornis Stal, pronotum, dorsal view.
Figure 49. Mecidea minor Ruckes, hypopygium, lateral view.
Figure 50. Mecidea major Sailer, hypopygium, lateral view.
Figure 51. Banasa dimidiata (Say), hypopygium, dorsal view.

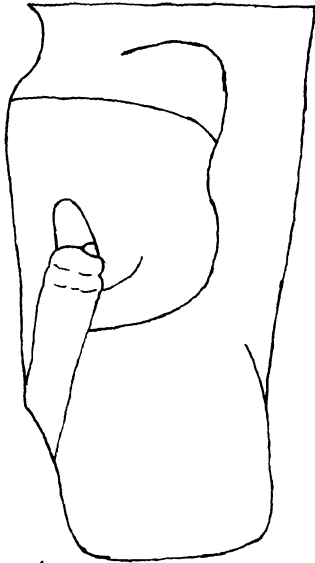


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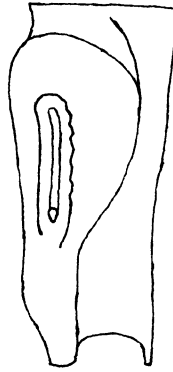


Figure 2.



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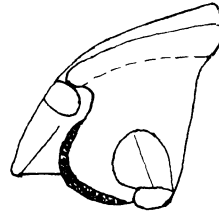


Figure 4.



Figure 5.

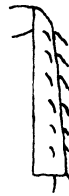


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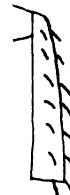


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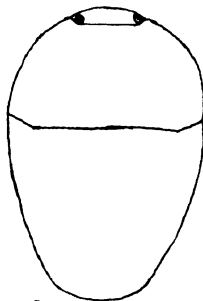


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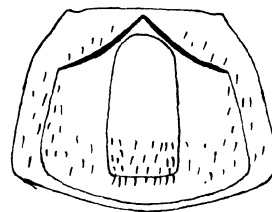


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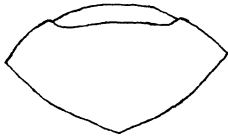


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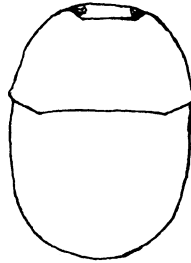


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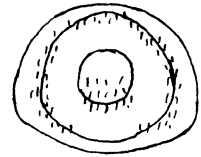


Figure 12.



Figure 13.



Figure 15.

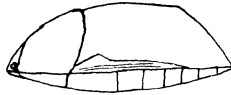


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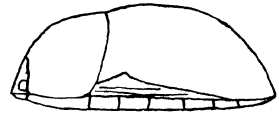


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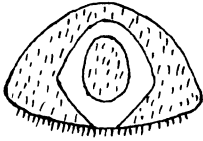


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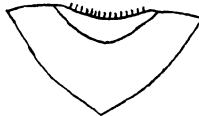


Figure 17.



Figure 19.

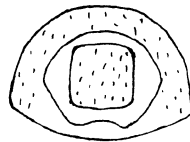


Figure 20.



Figure 21.

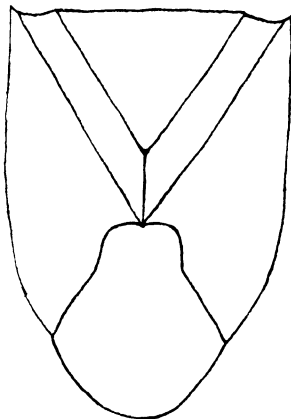


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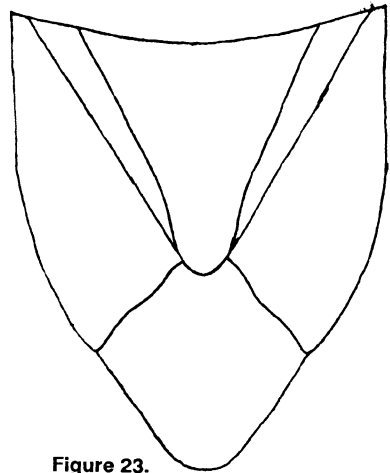


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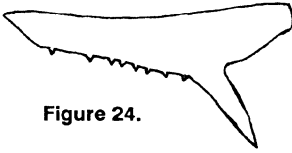


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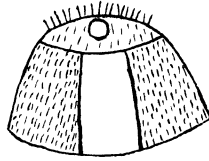


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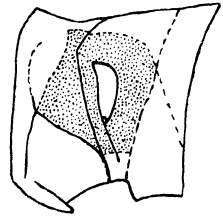


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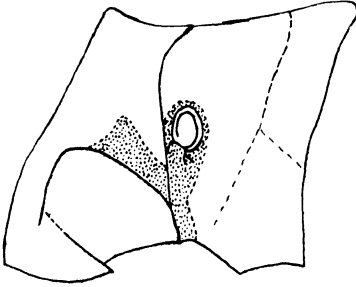


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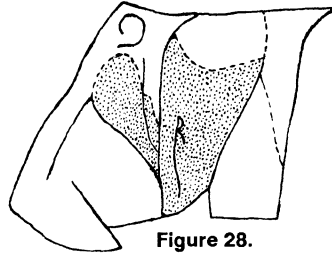


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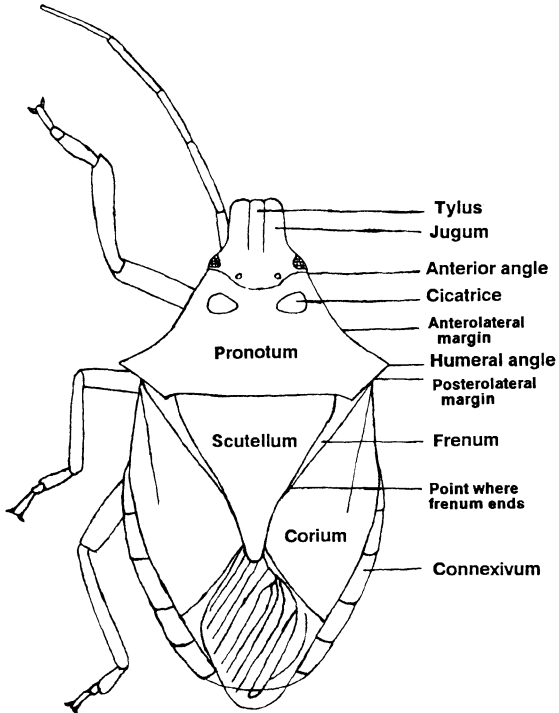


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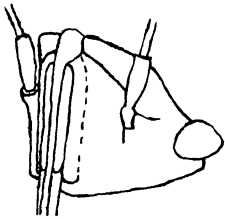


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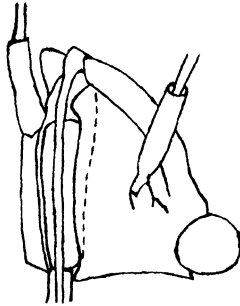


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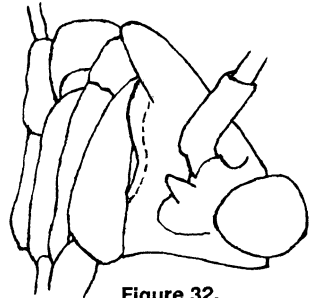


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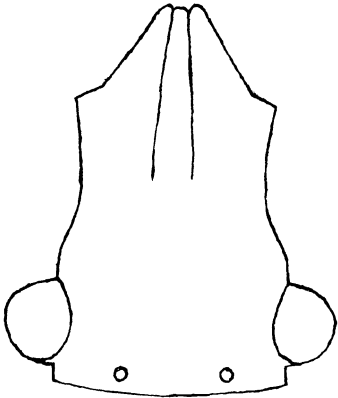


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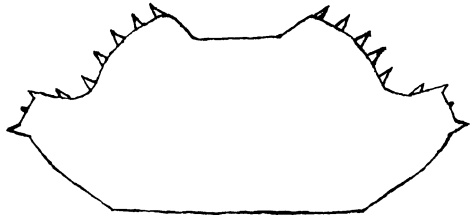


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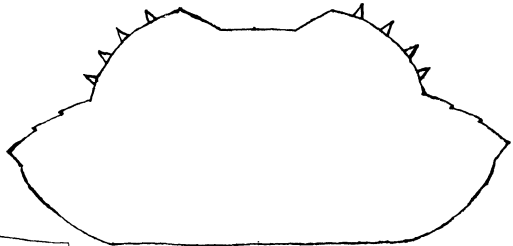


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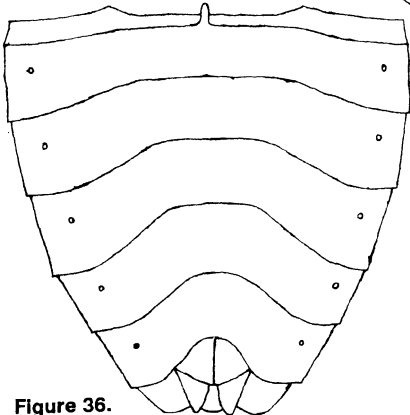


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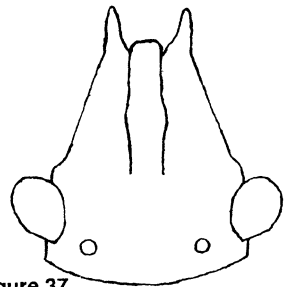


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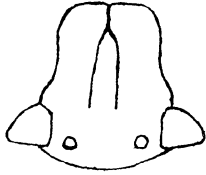


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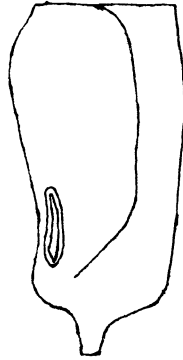


Figure 40.



Figure 41.

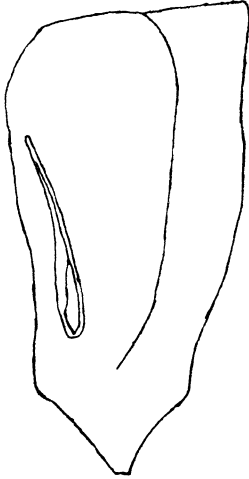


Figure 39.



Figure 42.



Figure 43.

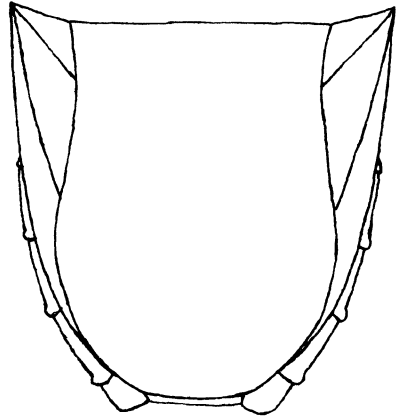


Figure 46.

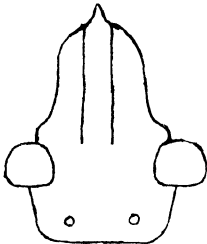


Figure 44.

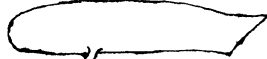


Figure 45.

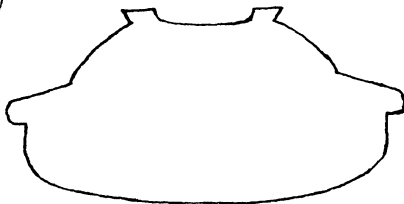


Figure 47.

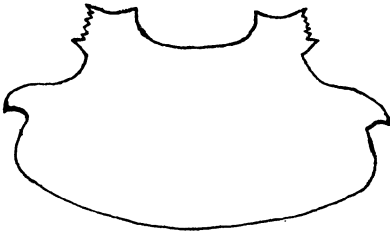


Figure 48.



Figure 49.



Figure 50.

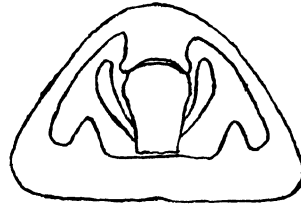


Figure 51.

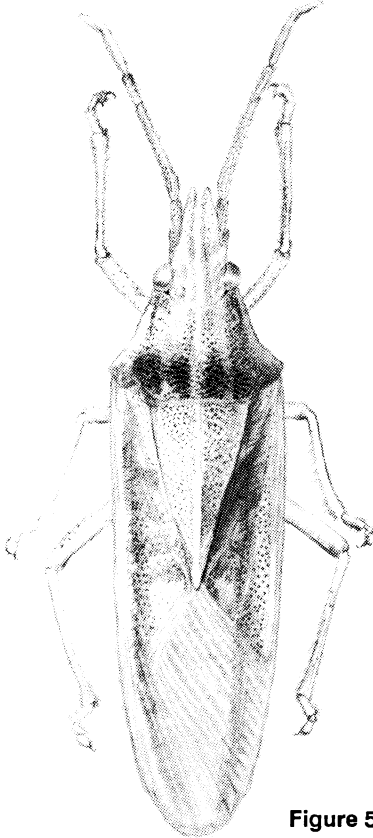


Figure 52. Mecidea major Sailor

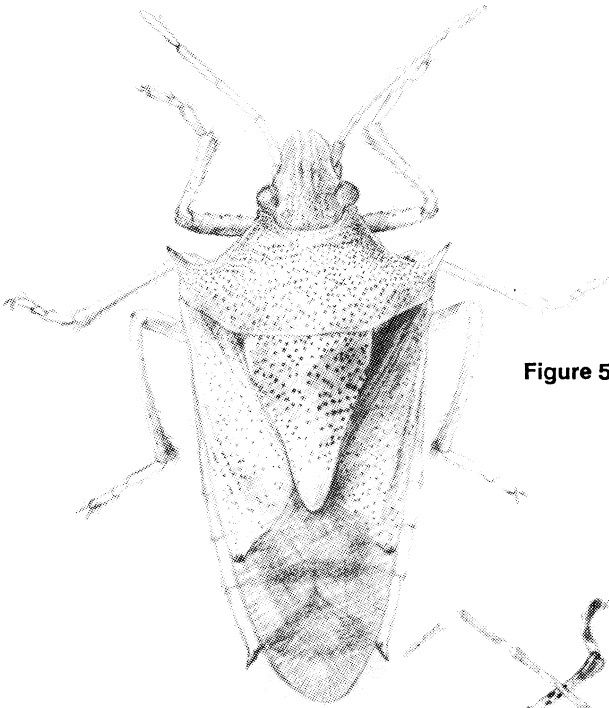


Figure 53. Oebalus pugnax (Fab.)

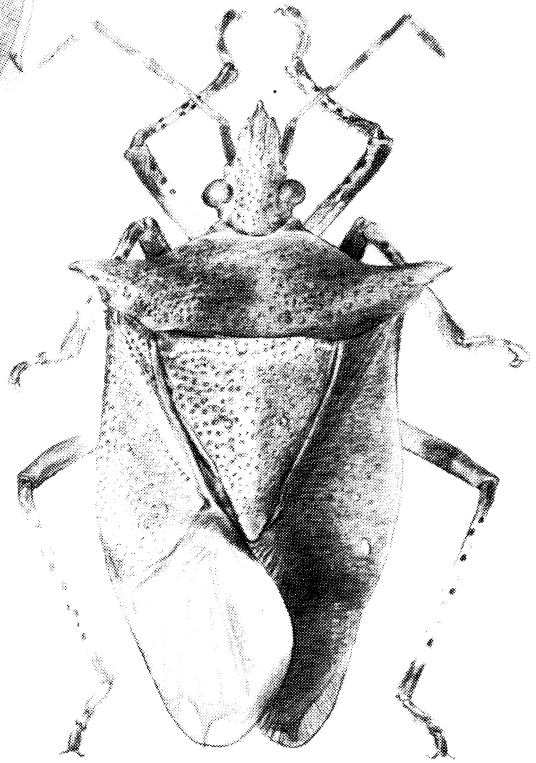


Figure 54. Proxys punctulatus (Beauvois)

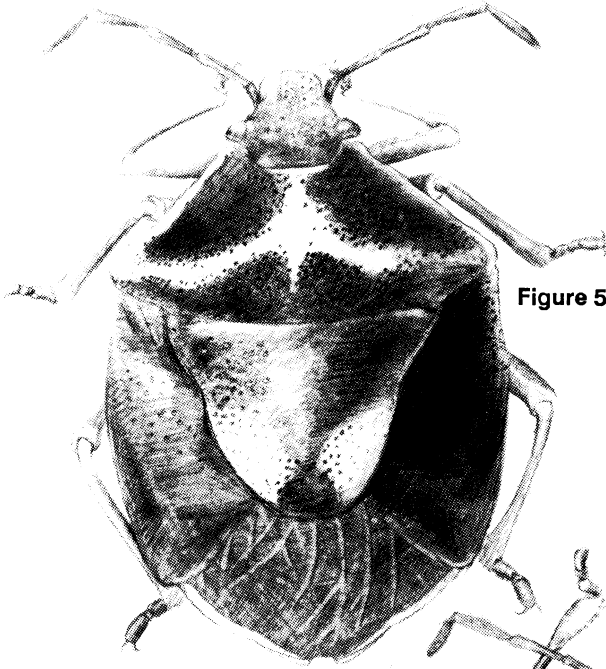


Figure 55. *Cosmopepla bimaculata*
(Thomas)

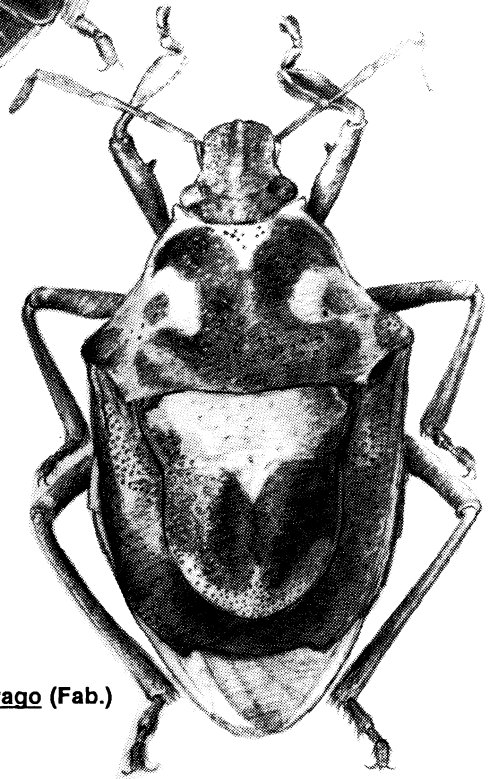


Figure 56. *Stiretrus anchorago* (Fab.)

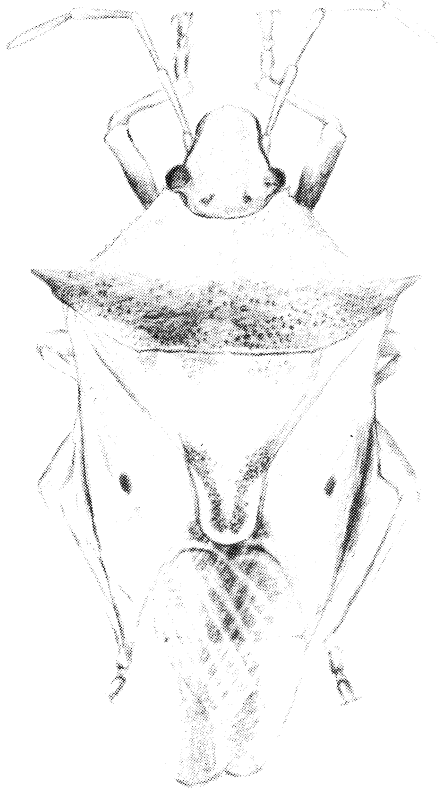


Figure 57. Podisus acutissimus Stal